English

Fujitsu Software

BS2000 OS DX Commands

User Guide

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Comments… Suggestions… Corrections…

The User Documentation Department would like to know your opinion on this manual. Your feedback helps us to optimize our documentation to suit your individual needs.

Feel free to send us your comments by e-mail to: bs2000.info@fujitsu.com.

Certified documentation according to DIN EN ISO 9001:2015

To ensure a consistently high quality standard and user-friendliness, this documentation was created to meet the regulations of a quality management system which complies with the requirements of the standard DIN EN ISO 9001:2015.

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Table of Contents

Commands 19
1 General Part 20
1.1 Preface 23
1.1.1 Objectives and target groups of this manual 25
1.1.2 Summary of contents 26
1.1.3 Changes since the last edition of the manual 28
1.1.4 Notational conventions 31
1.2 General Topics 32
1.2.1 Format of the SDF command language 33
1.2.2 Conventions for input 35
1.2.3 SDF syntax representation 37
1.2.4 Input compression 53
1.2.4.1 Abbreviation of names 54
1.2.4.2 Default values 56
1.2.4.3 Positional operands 57
1.2.4.4 Compressing structures 58
1.2.5 Replacing expressions in the input 60
1.2.6 Language for SDF output 66
1.2.7 Return codes 67
1.2.7.1 Structure of command return codes 68
1.2.7.2 General command return codes 70
1.2.8 Conditional expressions (job variables) 72
1.2.9 System files 75
1.2.10 Job switches 80
1.2.11 Volume type table 85
1.2.12 DMS volume types 88
1.2.12.1 Volume type for Net-Storage 89
1.2.12.2 Volume types for DMS tape processing 90
1.2.13 Information services of device management: Meanings of the output values of SHOW commands 92
1.2.14 Time limits in BS2000 111
1.2.15 Overview of test privileges 113
1.2.16 Working with S variables 117
1.2.16.1 Command output in S variables 118
1.2.16.2 Command overview 133
1.2.16.3 Notes on conventions used in the tables 137
1.2.17 SDF-P-BASYS 141

1.2.17.1 Structured procedure format (S procedures) 142
1.2.17.2 Block-oriented error recovery 143
1.2.17.3 Variables concept (S variables) 144
1.2.17.4 Builtin functions 151
1.2.17.5 INSTALLATION-PATH( ) - Output path name 152
1.2.17.6 IS-CATALOGED-JV( ) - Interrogate job variable 154
1.2.17.7 IS-INITIALIZED( ) - Check variable initialization 156
1.2.17.8 IS-SDF-P( ) - Check whether SDF-P is loaded 157
1.2.17.9 JV( ) - Interrogate job variable 159
1.2.17.10 MAINCODE( ) - Interrogate error code 161
1.2.17.11 MSG( ) - Output message text 162
1.2.17.12 SDF-P-VERSION( ) - Interrogate SDF-P version 164
1.2.17.13 SUBCODE1( ) - Interrogate subcode1 165
1.2.17.14 SUBCODE2( ) - Interrogate subcode2 166
1.2.17.15 Commands supported by SDF-P-BASYS 167
1.2.17.16 Subsystem installation 168
1.3 Overviews 170
1.3.1 Overview of main functions of the BS2000 commands 171
1.3.2 Domains 188
1.3.3 Commands and their privileges 207
1.3.4 Command aliases 234
1.3.5 Commands of internal components 239
1.4 Related publications 242
2 ACTIVATE-SNAPSHOT - DECRYPT-FILE 247
2.1 ACTIVATE-SNAPSHOT 248
2.2 ADAPT-SNAPSET-ACCESS 250
2.3 ADD-ACS-SYSTEM-FILE 252
2.4 ADD-ALIAS-CATALOG-ENTRY 254
2.5 ADD-ASE-ELEMENT 266
2.6 ADD-CATALOG-FILE 270
2.7 ADD-CHANGE-DATE 272
2.8 ADD-CJC-ACTION 274
2.9 ADD-CONSOLE-FILTER 279
2.10 ADD-CRYPTO-PASSWORD 281
2.11 ADD-DEVICE-DEPOT 284
2.12 ADD-FILE-LINK 286
2.13 ADD-IO-UNIT 325
2.14 ADD-ISAM-POOL-LINK 333
2.15 ADD-MASTER-CATALOG-ENTRY 338
2.16 ADD-NET-STORAGE-VOLUME 348

2.17 ADD-PASSWORD 353
2.18 ADD-POSIX-USER 358
2.19 ADD-SUBSYSTEM 361
2.20 ADD-USER 366
2.21 AGOGO 383
2.22 ASR 385
2.23 ASSIGN-STREAM 394
2.24 ASSIGN-SYSDTA 398
2.25 ASSIGN-SYSEVENT 404
2.26 ASSIGN-SYSLST 409
2.27 ASSIGN-SYSOUT 418
2.28 ASTOP 424
2.29 ATTACH-DEVICE 425
2.30 BEGIN-PARAMETER-DECLARATION 430
2.31 BEGIN-PROCEDURE 432
2.32 BROADCAST 437
2.33 CALL-PROCEDURE 438
2.34 CANCEL-CCOPY-SESSION 447
2.35 CANCEL-JOB 448
2.36 CANCEL-PRINT-JOB 458
2.37 CANCEL-PROCEDURE 462
2.38 CANCEL-PROGRAM 464
2.39 CANCEL-PUBSET-EXPORT 465
2.40 CANCEL-PUBSET-IMPORT 466
2.41 CANCEL-RUN-PROCESS 468
2.42 CHANGE-ACCOUNTING-FILE 470
2.43 CHANGE-CONSLOG-FILE 473
2.44 CHANGE-DISK-MOUNT 474
2.45 CHANGE-FILE-LINK 476
2.46 CHANGE-HEL-FILE 480
2.47 CHANGE-RESLOG-FILE 482
2.48 CHANGE-SERSLOG-FILE 483
2.49 CHANGE-STORAGE-CLASS-CATALOG 485
2.50 CHANGE-TAPE-MOUNT 487
2.51 CHANGE-TASK-CPU-LIMIT 490
2.52 CHANGE-TASK-PRIORITY 492
2.53 CHANGE-VOLUME-SET-LIST-CATALOG 495
2.54 CHECK-DISK-MOUNT 497
2.55 CHECK-FILE-CONSISTENCY 499
2.56 CHECK-IMPORT-DISK-FILE 502

2.57 CHECK-PUBSET-MIRRORS 508
2.58 CHECK-SNAPSET-CONFIGURATION 510
2.59 CHECK-TAPE-MOUNT 512
2.60 CLOSE-VARIABLE-CONTAINER 514
2.61 CLOSE-VIRTUAL-DEVICE-DIALOG 516
2.62 COMPARE-DISK-FILES 517
2.63 CONCATENATE-DISK-FILES 521
2.64 CONNECT-CMD-SERVER 524
2.65 CONSOLE 527
2.66 CONVERT-FILE-TO-PDF 530
2.67 COPY-FILE 545
2.68 COPY-JV 578
2.69 COPY-POSIX-FILE 581
2.70 COPY-SYSTEM-FILE 589
2.71 CREATE-ALTERNATE-INDEX 591
2.72 CREATE-DUMP 596
2.73 CREATE-FILE 597
2.74 CREATE-FILE-GENERATION 642
2.75 CREATE-FILE-GROUP 656
2.76 CREATE-ISAM-POOL 669
2.77 CREATE-JV 676
2.78 CREATE-OPERATOR-ROLE 685
2.79 CREATE-PAGING-FILE 687
2.80 CREATE-SNAPSET 689
2.81 CREATE-STORAGE-CLASS 691
2.82 CREATE-TAPE-SET 696
2.83 CREATE-VOLUME-SET-LIST 700
2.84 DEACTIVATE-SNAPSHOT 702
2.85 DECLARE-PARAMETER 703
2.86 DECLARE-VARIABLE 706
2.87 DECRYPT-FILE 711
3 DELETE-ALTERNATE-INDEX - LOGOFF 714
3.1 DELETE-ALTERNATE-INDEX 715
3.2 DELETE-FILE 717
3.3 DELETE-FILE-GENERATION 777
3.4 DELETE-FILE-GROUP 806
3.5 DELETE-ISAM-POOL 822
3.6 DELETE-JV 825
3.7 DELETE-OPERATOR-ROLE 844
3.8 DELETE-PAGING-FILE 846

3.9 DELETE-SNAPSET 849
3.10 DELETE-STORAGE-CLASS 851
3.11 DELETE-SYSTEM-FILE 857
3.12 DELETE-TAPE-SET 862
3.13 DELETE-VARIABLE 863
3.14 DELETE-VOLUME-SET-LIST 865
3.15 DETACH-DEVICE 868
3.16 DISCONNECT-CMD-SERVER 875
3.17 EDIT-FILE-ATTRIBUTES 876
3.18 EDIT-FILE-GENERATION-SUPPORT 877
3.19 EDIT-FILE-GROUP-ATTRIBUTES 878
3.20 EDIT-FILE-LINK 879
3.21 EDIT-JOB 880
3.22 EDIT-JOB-OPTIONS 882
3.23 EDIT-JV 884
3.24 EDIT-JV-ATTRIBUTES 886
3.25 EDIT-MASTER-CATALOG-ENTRY 887
3.26 EDIT-POSIX-USER-ATTRIBUTES 888
3.27 EDIT-POSIX-USER-DEFAULTS 889
3.28 EDIT-PUBSET-CACHE-ATTRIBUTES 890
3.29 EDIT-PUBSET-DEFINITION-FILE 892
3.30 EDIT-PUBSET-SPACE-DEFAULTS 893
3.31 EDIT-SPACE-SATURATION-LEVELS 895
3.32 EDIT-STORAGE-CLASS 897
3.33 EDIT-USER-ATTRIBUTES 898
3.34 EDIT-USER-PUBSET-ATTRIBUTES 899
3.35 ELSE 900
3.36 ENCRYPT-FILE 902
3.37 END-CJC-ACTION 907
3.38 END-IF 908
3.39 END-PARAMETER-DECLARATION 910
3.40 END-PROCEDURE 911
3.41 ENDP-RESUME 913
3.42 ENTER-JOB 915
3.43 ENTER-PROCEDURE 932
3.44 EOF 949
3.45 EXECUTE-POSIX-CMD 950
3.46 EXIT-JOB 953
3.47 EXIT-PROCEDURE 957
3.48 EXPORT-FILE 960

3.49 EXPORT-NODE-FILE 985
3.50 EXPORT-PUBSET 1008
3.51 EXTEND-PAGING-AREA 1014
3.52 EXTEND-TAPE-SET 1018
3.53 FIND-CMD-OUTPUT 1020
3.54 FIND-FILE 1024
3.55 FORCE-JOB-CANCEL 1034
3.56 FORCE-PUBSET-EXPORT 1037
3.57 GENERATE-FIND-CMD-TEMPLATE 1039
3.58 GET-JOB-FROM-VIRTUAL-DEVICE 1041
3.59 GOTO 1044
3.60 HELP-MSG-INFORMATION 1046
3.61 HELP-SDF 1049
3.62 HOLD-ALIAS-SUBSTITUTION 1061
3.63 HOLD-HARDWARE-AUDIT 1064
3.64 HOLD-JOB 1066
3.65 HOLD-JOB-CLASS 1068
3.66 HOLD-JOB-STREAM 1070
3.67 HOLD-LINKAGE-AUDIT 1072
3.68 HOLD-PRINT-JOB 1074
3.69 HOLD-PROCEDURE 1077
3.70 HOLD-PROGRAM 1082
3.71 HOLD-SUBSYSTEM 1083
3.72 HOLD-TASK 1086
3.73 IF 1088
3.74 IF-BLOCK-ERROR 1090
3.75 IMPORT-FILE 1096
3.76 IMPORT-NODE-FILE 1118
3.77 IMPORT-PUBSET 1123
3.78 INCLUDE-DEVICE-CONNECTION 1135
3.79 INFORM-ALL-JOBS 1138
3.80 INFORM-JOB 1140
3.81 INFORM-OPERATOR 1142
3.82 INFORM-PROGRAM 1144
3.83 LIST-CATALOG-ENTRY 1147
3.84 LIST-FILE-FROM-SNAPSET 1149
3.85 LIST-JV-FROM-SNAPSET 1154
3.86 LIST-NET-DIRECTORIES 1158
3.87 LIST-NODE-FILES 1162
3.88 LOAD-ALIAS-CATALOG 1168

3.89 LOAD-EXECUTABLE-PROGRAM 1174
3.90 LOAD-PROGRAM 1188
3.91 LOCK-FILE-LINK 1191
3.92 LOCK-PRODUCT-VERSION 1196
3.93 LOCK-USER 1198
3.94 LOGOFF 1201
4 MAIL-FILE - MOVE-TASK-TO-CATEGORY 1203
4.1 MAIL-FILE 1204
4.2 MESSAGE 1212
4.3 MODIFY-ACCOUNTING-PARAMETERS 1214
4.4 MODIFY-ACS-OPTIONS 1218
4.5 MODIFY-ACS-SYSTEM-FILE 1224
4.6 MODIFY-ALIAS-CATALOG-ENTRY 1226
4.7 MODIFY-ASE-PARAMETERS 1230
4.8 MODIFY-CHANGE-DATE 1231
4.9 MODIFY-CONSOLE-OPTIONS 1233
4.10 MODIFY-DBL-DEFAULTS 1236
4.11 MODIFY-DEFAULT-ACCOUNT 1247
4.12 MODIFY-FILE-ATTRIBUTES 1249
4.13 MODIFY-FILE-GENERATION-SUPPORT 1300
4.14 MODIFY-FILE-GROUP-ATTRIBUTES 1311
4.15 MODIFY-HEL-CHECK 1325
4.16 MODIFY-HEL-LOGGING 1330
4.17 MODIFY-HEL-TELESERVICE-ALARM 1334
4.18 MODIFY-IMON-SCI 1337
4.19 MODIFY-IO-OPTIONS 1340
4.20 MODIFY-IO-UNIT 1345
4.21 MODIFY-ISAM-CACHING 1350
4.22 MODIFY-JOB 1351
4.23 MODIFY-JOB-CLASS 1370
4.24 MODIFY-JOB-OPTIONS 1373
4.25 MODIFY-JOB-STREAM 1380
4.26 MODIFY-JOB-SWITCHES 1382
4.27 MODIFY-JV 1384
4.28 MODIFY-JV-ATTRIBUTES 1390
4.29 MODIFY-JV-CONDITIONALLY 1398
4.30 MODIFY-MASTER-CATALOG-ENTRY 1404
4.31 MODIFY-MEMORY-PARAMETERS 1413
4.32 MODIFY-MIP-OPTIONS 1417
4.33 MODIFY-MIP-PARAMETERS 1419

4.34 MODIFY-MONJV 1422
4.35 MODIFY-MOUNT-PARAMETER 1425
4.36 MODIFY-MSG-ATTRIBUTES 1429
4.37 MODIFY-MSG-FILE-ASSIGNMENT 1431
4.38 MODIFY-MSG-OPTIONS 1433
4.39 MODIFY-MSG-SUBSCRIPTION 1435
4.40 MODIFY-OPERATOR-ATTRIBUTES 1440
4.41 MODIFY-OPERATOR-ROLE 1442
4.42 MODIFY-PAGING-AREA-ATTRIBUTES 1444
4.43 MODIFY-POSIX-USER-ATTRIBUTES 1447
4.44 MODIFY-POSIX-USER-DEFAULTS 1452
4.45 MODIFY-PRINT-JOB-ATTRIBUTES 1455
4.46 MODIFY-PRINTER-OUTPUT-STATUS 1499
4.47 MODIFY-PROCEDURE-OPTIONS 1514
4.48 MODIFY-PUBSET-CACHE-ATTRIBUTES 1518
4.49 MODIFY-PUBSET-DEFINITION-FILE 1523
4.50 MODIFY-PUBSET-PROCESSING 1529
4.51 MODIFY-PUBSET-RESTRICTIONS 1535
4.52 MODIFY-PUBSET-SPACE-DEFAULTS 1541
4.53 MODIFY-RESOURCE-COLLECTION 1545
4.54 MODIFY-SDF-OPTIONS 1547
4.55 MODIFY-SDF-PARAMETERS 1558
4.56 MODIFY-SPACE-SATURATION-LEVELS 1566
4.57 MODIFY-SPOOLOUT-OPTIONS 1570
4.58 MODIFY-STORAGE-CLASS 1572
4.59 MODIFY-SUBSYSTEM-PARAMETER 1577
4.60 MODIFY-SYSFILE-OPTIONS 1597
4.61 MODIFY-SYSTEM-BIAS 1599
4.62 MODIFY-SYSTEM-PARAMETERS 1601
4.63 MODIFY-TAPE-OUTPUT-STATUS 1604
4.64 MODIFY-TASK-CATEGORIES 1614
4.65 MODIFY-TERMINAL-OPTIONS 1617
4.66 MODIFY-TEST-OPTIONS 1627
4.67 MODIFY-USER-ATTRIBUTES 1634
4.68 MODIFY-USER-PROTECTION 1651
4.69 MODIFY-USER-PUBSET-ATTRIBUTES 1656
4.70 MODIFY-USER-SWITCHES 1666
4.71 MODIFY-VOLUME-SET-LIST 1669
4.72 MOUNT-NET-STORAGE 1672
4.73 MOVE-DISK 1674

4.74 MOVE-JOBS 1681
4.75 MOVE-PRINT-JOBS 1693
4.76 MOVE-TASK-TO-CATEGORY 1698
5 OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION 1702
5.1 OPEN-VARIABLE-CONTAINER 1703
5.2 OPEN-VIRTUAL-DEVICE-DIALOG 1707
5.3 PRINT-DOCUMENT 1709
5.4 PROTECT-FITC-APPLICATION 1780
5.5 PURGE-ALIAS-CATALOG 1782
5.6 READ-IOCF 1783
5.7 REDIRECT-PRINT-JOB 1785
5.8 REDUCE-PAGING-AREA 1792
5.9 RELEASE-OPERATOR-ROLE 1794
5.10 RELEASE-SUBSYSTEM-SPACE 1796
5.11 REMARK 1797
5.12 REMOVE-ACS-SYSTEM-FILE 1799
5.13 REMOVE-ALIAS-CATALOG-ENTRY 1800
5.14 REMOVE-ASE-ELEMENT 1802
5.15 REMOVE-CE-LOCK 1803
5.16 REMOVE-CHANGE-DATE 1805
5.17 REMOVE-CJC-ACTION 1806
5.18 REMOVE-CONSOLE-FILTER 1808
5.19 REMOVE-CRYPTO-PASSWORD 1810
5.20 REMOVE-DCAM-APPLICATION-LINK 1812
5.21 REMOVE-DCAM-CONNECTION-LINK 1813
5.22 REMOVE-DEVICE-CONNECTION 1814
5.23 REMOVE-DEVICE-DEPOT 1819
5.24 REMOVE-FILE-ALLOCATION-LOCKS 1821
5.25 REMOVE-FILE-LINK 1825
5.26 REMOVE-IO-UNIT 1828
5.27 REMOVE-ISAM-POOL-LINK 1830
5.28 REMOVE-JV-LINK 1832
5.29 REMOVE-MASTER-CATALOG-ENTRY 1834
5.30 REMOVE-NET-STORAGE-VOLUME 1836
5.31 REMOVE-PASSWORD 1839
5.32 REMOVE-PUBSET-LOCK 1841
5.33 REMOVE-RFA-CONNECTION 1845
5.34 REMOVE-SUBSYSTEM 1847
5.35 REMOVE-TASKLIB 1849
5.36 REMOVE-USER 1850

5.37 REPAIR-DISK-FILES 1852
5.38 REPAIR-FILE-LOCKS 1859
5.39 REQUEST-MAIN-CONSOLE-FUNCTIONS 1861
5.40 REQUEST-OPERATOR-ROLE 1863
5.41 RESET-DBL-DEFAULTS 1865
5.42 RESET-INPUT-DEFAULTS 1867
5.43 RESET-MSG-BUFFER 1872
5.44 RESET-MSG-SUPPRESSION 1874
5.45 RESTART-PROGRAM 1877
5.46 RESTORE-FILE-FROM-SNAPSET 1885
5.47 RESTORE-JV-FROM-SNAPSET 1893
5.48 RESTORE-PUBSET-FROM-SNAPSET 1898
5.49 RESTORE-SDF-INPUT 1902
5.50 RESTORE-SOFTWARE-INVENTORY 1907
5.51 RESUME-ALIAS-SUBSTITUTION 1908
5.52 RESUME-HARDWARE-AUDIT 1909
5.53 RESUME-JOB 1911
5.54 RESUME-JOB-CLASS 1913
5.55 RESUME-JOB-STREAM 1914
5.56 RESUME-LINKAGE-AUDIT 1916
5.57 RESUME-PRINT-JOB 1918
5.58 RESUME-PROCEDURE 1921
5.59 RESUME-PROGRAM 1924
5.60 RESUME-PUBSET-RECONFIGURATION 1925
5.61 RESUME-SUBSYSTEM 1927
5.62 RESUME-TASK 1929
5.63 RETURN-JOB-TO-VIRTUAL-DEVICE 1931
5.64 RUN 1933
5.65 SAVE-RETURNCODE 1937
5.66 SAVE-SOFTWARE-INVENTORY 1938
5.67 SAVE-SUBSYSTEM-CATALOG 1940
5.68 SAVE-VARIABLE-CONTAINER 1943
5.69 SECURE-RESOURCE-ALLOCATION 1945
5.70 SELECT-PRODUCT-VERSION 1958
5.71 SELECT-PROGRAM-VERSION 1960
5.72 SEND-MSG 1962
5.73 SET-CONSLOG-READ-MARK 1964
5.74 SET-DCAM-APPLICATION-LINK 1965
5.75 SET-DCAM-CONNECTION-LINK 1967
5.76 SET-DISK-DEFAULTS 1969

5.77 SET-DISK-PARAMETER 1971
5.78 SET-DSSM-OPTIONS 1975
5.79 SET-FILE-LINK 1977
5.80 SET-FILE-NAME-PREFIX 1986
5.81 SET-INSTALLATION-PATH 1996
5.82 SET-JOB-STEP 2000
5.83 SET-JV-LINK 2002
5.84 SET-LOGON-PARAMETERS 2004
5.85 SET-MSG-SUPPRESSION 2014
5.86 SET-NET-CLIENT-ALTERNATE 2017
5.87 SET-PROCEDURE-OPTIONS 2020
5.88 SET-PUBSET-ATTRIBUTES 2026
5.89 SET-REPLOG-READ-MARK 2032
5.90 SET-RESTART-OPTIONS 2033
5.91 SET-RFA-CONNECTION 2035
5.92 SET-SNAPSET-PARAMETER 2040
5.93 SET-SPACE-SATURATION-LEVEL 2043
5.94 SET-SYSLST-READ-MARK 2045
5.95 SET-SYSOUT-READ-MARK 2047
5.96 SET-TASKLIB 2049
5.97 SET-VARIABLE 2051
5.98 SHOW-ACCOUNTING-STATUS 2054
5.99 SHOW-ACS-OPTIONS 2058
5.100 SHOW-ACS-SYSTEM-FILES 2063
5.101 SHOW-ACTIVE-SPOOL-DEVICES 2065
5.102 SHOW-ADDRESS-SPACE-STATUS 2087
5.103 SHOW-ALIAS-CATALOG-ENTRY 2094
5.104 SHOW-ASE-ELEMENT 2098
5.105 SHOW-ASE-LOGGING 2101
5.106 SHOW-ASE-PARAMETERS 2103
5.107 SHOW-ASE-STATUS 2104
5.108 SHOW-AUDIT-STATUS 2106
5.109 SHOW-BLOCK-TO-FILE-ASSIGNMENT 2110
5.110 SHOW-CALENDAR 2112
5.111 SHOW-CCOPY-SESSION 2129
5.112 SHOW-CE-LOCK 2133
5.113 SHOW-CHANGE-DATES 2135
5.114 SHOW-CJC-STATUS 2137
5.115 SHOW-CMD 2142
5.116 SHOW-CMD-ATTRIBUTES 2146

5.117 SHOW-CONSLOG-ATTRIBUTES 2151
5.118 SHOW-CONSOLE-FILTER 2153
5.119 SHOW-CONSOLE-OPTIONS 2158
5.120 SHOW-CONSOLE-STATUS 2159
5.121 SHOW-DBL-DEFAULTS 2166
5.122 SHOW-DEVICE-CONFIGURATION 2169
5.123 SHOW-DEVICE-DEPOT 2182
5.124 SHOW-DEVICE-STATUS 2185
5.125 SHOW-DISK-DEFAULTS 2196
5.126 SHOW-DISK-STATUS 2199
5.127 SHOW-DSSM-INFORMATION 2209
6 SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS 2211
6.1 SHOW-FILE 2212
6.2 SHOW-FILE-ATTRIBUTES 2236
6.3 SHOW-FILE-LINK 2336
6.4 SHOW-FILE-LOCKS 2355
6.5 SHOW-FILE-NAME-PREFIX 2364
6.6 SHOW-GCF-CATALOGS 2366
6.7 SHOW-GCF-OBJECT-TYPES 2368
6.8 SHOW-GCF-SERVER-TASKS 2370
6.9 SHOW-HARDWARE-AUDIT 2372
6.10 SHOW-HEL-CHECK 2375
6.11 SHOW-HEL-LOGGING 2381
6.12 SHOW-HEL-STATUS 2386
6.13 SHOW-HEL-TELESERVICE-ALARM 2388
6.14 SHOW-INDEX-ATTRIBUTES 2389
6.15 SHOW-INPUT-DEFAULTS 2392
6.16 SHOW-INPUT-HISTORY 2395
6.17 SHOW-INSTALLATION-PATH 2398
6.18 SHOW-IO-OPTIONS 2403
6.19 SHOW-IOCF 2407
6.20 SHOW-ISAM-CACHING 2410
6.21 SHOW-ISAM-POOL-ATTRIBUTES 2416
6.22 SHOW-ISAM-POOL-LINK 2421
6.23 SHOW-JOB-CLASS 2425
6.24 SHOW-JOB-OPTIONS 2432
6.25 SHOW-JOB-STATUS 2435
6.26 SHOW-JOB-STREAM 2464
6.27 SHOW-JOB-SWITCHES 2467
6.28 SHOW-JV 2469

6.29 SHOW-JV-ATTRIBUTES 2473
6.30 SHOW-JV-LINK 2498
6.31 SHOW-LINKAGE-AUDIT 2502
6.32 SHOW-LIVE-MIGRATION-HISTORY 2506
6.33 SHOW-MASTER-CATALOG-ENTRY 2512
6.34 SHOW-MEMORY-CONFIGURATION 2526
6.35 SHOW-MEMORY-POOL-STATUS 2531
6.36 SHOW-MIP-PARAMETERS 2536
6.37 SHOW-MOUNT-PARAMETER 2539
6.38 SHOW-MSG-FILE-ASSIGNMENT 2544
6.39 SHOW-MSG-OPTIONS 2549
6.40 SHOW-MSG-SUBSCRIPTION 2551
6.41 SHOW-MSG-SUPPRESSION 2553
6.42 SHOW-NET-CLIENT-ALTERNATE 2556
6.43 SHOW-NET-STORAGE 2559
6.44 SHOW-NET-STORAGE-OCCUPATION 2565
6.45 SHOW-OPERATOR-ATTRIBUTES 2568
6.46 SHOW-OPERATOR-ROLE 2570
6.47 SHOW-PAGING-CONFIGURATION 2575
6.48 SHOW-PENDING-MSG 2582
6.49 SHOW-POSIX-STATUS 2590
6.50 SHOW-POSIX-USER-ATTRIBUTES 2592
6.51 SHOW-POSIX-USER-DEFAULTS 2599
6.52 SHOW-PRINT-JOB-ATTRIBUTES 2602
6.53 SHOW-PRINT-JOB-STATUS 2619
6.54 SHOW-PRINTER-POOLS 2645
6.55 SHOW-PUBSET-ATTRIBUTES 2648
6.56 SHOW-PUBSET-CACHE-ATTRIBUTES 2654
6.57 SHOW-PUBSET-CATALOG-ALLOCATION 2670
6.58 SHOW-PUBSET-CONFIGURATION 2675
6.59 SHOW-PUBSET-DEFINITION-FILE 2688
6.60 SHOW-PUBSET-FILE-SERVICES 2695
6.61 SHOW-PUBSET-IMPORT-EXPORT 2705
6.62 SHOW-PUBSET-LOCKS 2709
6.63 SHOW-PUBSET-NET-STORAGE 2713
6.64 SHOW-PUBSET-OCCUPATION 2718
6.65 SHOW-PUBSET-PARAMETERS 2724
6.66 SHOW-PUBSET-PROCESSING 2754
6.67 SHOW-PUBSET-RESTRICTION 2759
6.68 SHOW-PUBSET-SPACE-ALLOCATION 2764

6.69 SHOW-PUBSET-SPACE-DEFAULTS 2770
7 SHOW-RESOURCE-ALLOCATION - WRITE-TEXT 2776
7.1 SHOW-RESOURCE-ALLOCATION 2777
7.2 SHOW-RESOURCE-REQUESTS 2783
7.3 SHOW-RESTART-OPTIONS 2789
7.4 SHOW-RETURNCODE 2791
7.5 SHOW-RFA-CONNECTIONS 2792
7.6 SHOW-SDF-OPTIONS 2795
7.7 SHOW-SDF-PARAMETERS 2803
7.8 SHOW-SELECTED-PRODUCT-VERSION 2808
7.9 SHOW-SERSLOG-STATUS 2810
7.10 SHOW-SNAPSET-CONFIGURATION 2811
7.11 SHOW-SNAPSHOT-STATUS 2818
7.12 SHOW-SPACE-SATURATION-LEVELS 2821
7.13 SHOW-SPOOL-CHARACTER-SETS 2830
7.14 SHOW-SPOOL-DEVICES 2839
7.15 SHOW-SPOOL-FILTERS 2878
7.16 SHOW-SPOOL-FORMS 2885
7.17 SHOW-SPOOL-PARAMETERS 2903
7.18 SHOW-STORAGE-CLASS 2926
7.19 SHOW-SUBSYSTEM-ATTRIBUTES 2938
7.20 SHOW-SUBSYSTEM-INFO 2952
7.21 SHOW-SUBSYSTEM-STATUS 2955
7.22 SHOW-SYNTAX-VERSIONS 2961
7.23 SHOW-SYSEVENT-LOG 2964
7.24 SHOW-SYSEVENT-LOG-ATTRIBUTES 2976
7.25 SHOW-SYSTEM-FILE-ASSIGNMENTS 2980
7.26 SHOW-SYSTEM-INFORMATION 2991
7.27 SHOW-SYSTEM-PARAMETERS 3007
7.28 SHOW-SYSTEM-STATUS 3036
7.29 SHOW-TAPE-STATUS 3050
7.30 SHOW-TERMINAL-ATTRIBUTES 3058
7.31 SHOW-TERMINAL-OPTIONS 3068
7.32 SHOW-TEST-OPTIONS 3072
7.33 SHOW-TRACE-STATUS 3079
7.34 SHOW-USER-ATTRIBUTES 3091
7.35 SHOW-USER-STATUS 3143
7.36 SHOW-USER-SWITCHES 3160
7.37 SHOW-VARIABLE 3162
7.38 SHOW-VOLUME-SET-LIST 3167

7.39 SHUTDOWN 3173
7.40 SKIP-COMMANDS 3177
7.41 START-ACCOUNTING 3181
7.42 START-ACS 3186
7.43 START-CONFIGURATION-UPDATE 3188
7.44 START-EXECUTABLE-PROGRAM 3190
7.45 START-FILE-CACHING 3205
7.46 START-HARDWARE-AUDIT 3208
7.47 START-HEL-LOGGING 3211
7.48 START-JOB-STREAM 3213
7.49 START-LINKAGE-AUDIT 3215
7.50 START-POSIX-INSTALLATION 3219
7.51 START-POSIX-SHELL 3223
7.52 START-PRINTER-OUTPUT 3227
7.53 START-PROGRAM 3242
7.54 START-PUBSET-CACHING 3245
7.55 START-RESLOG-EVALUATION 3248
7.56 START-RESOURCE-COLLECTION 3253
7.57 START-SERSLOG 3254
7.58 START-SUBSYSTEM 3255
7.59 START-TAPE-OUTPUT 3261
7.60 START-TAPE-REPLAY 3268
7.61 START-TASK-MEASUREMENT 3276
7.62 START-TRACE 3281
7.63 STOP-ACCOUNTING 3286
7.64 STOP-CONFIGURATION-UPDATE 3287
7.65 STOP-FILE-CACHING 3289
7.66 STOP-HARDWARE-AUDIT 3291
7.67 STOP-HEL-LOGGING 3293
7.68 STOP-JOB-STREAM 3294
7.69 STOP-LINKAGE-AUDIT 3295
7.70 STOP-PRINTER-OUTPUT 3298
7.71 STOP-PUBSET-CACHING 3301
7.72 STOP-RESOURCE-COLLECTION 3303
7.73 STOP-SERSLOG 3304
7.74 STOP-SUBSYSTEM 3305
7.75 STOP-TAPE-OUTPUT 3308
7.76 STOP-TAPE-REPLAY 3309
7.77 STOP-TASK-MEASUREMENT 3310
7.78 STOP-TRACE 3312

7.79 STORE-ALIAS-CATALOG 3315
7.80 TURN 3317
7.81 UMOUNT-NET-STORAGE 3321
7.82 UNLOAD-TAPE 3325
7.83 UNLOCK-DEVICE 3327
7.84 UNLOCK-DISK 3329
7.85 UNLOCK-FILE-LINK 3333
7.86 UNLOCK-PRODUCT-VERSION 3334
7.87 UNLOCK-SUBSYSTEM 3335
7.88 UNLOCK-USER 3337
7.89 WAIT-EVENT 3341
7.90 WRITE-ACCOUNTING-RECORD 3345
7.91 WRITE-IOCF 3347
7.92 WRITE-SPOOL-TAPE 3349
7.93 WRITE-TEXT 3357

Commands

1 General Part

- Preface
  - Objectives and target groups of this manual
  - Summary of contents
  - Changes since the last edition of the manual
  - Notational conventions
- General Topics
  - Format of the SDF command language
  - Conventions for input
  - SDF syntax representation
  - Input compression
    - Abbreviation of names
    - Default values
    - Positional operands
    - Compressing structures
  - Replacing expressions in the input
  - Language for SDF output
  - Return codes
    - Structure of command return codes
    - General command return codes
  - Conditional expressions (job variables)
  - System files
  - Job switches
  - Volume type table
  - DMS volume types
    - Volume type for Net-Storage
    - Volume types for DMS tape processing
  - Information services of device management: Meanings of the output values of SHOW commands
  - Time limits in BS2000
  - Overview of test privileges

- Working with S variables
  - Command output in S variables
    - S variable stream mechanism (SYSINF, SYSMSG and SYSVAR)
    - Declaring S variables
    - Assigning S variable streams
    - S variable format
    - Accessing S variables
    - Re-using S variables
  - Command overview
  - Notes on conventions used in the tables
    - S variable data types
    - Explanation of the columns
- SDF-P-BASYS
  - Structured procedure format (S procedures)
  - Block-oriented error recovery
  - Variables concept (S variables)
    - Variable name
    - Variable type
    - Scope
    - Declaration
    - Expressions
  - Builtin functions
  - INSTALLATION-PATH( ) - Output path name
  - IS-CATALOGED-JV( ) - Interrogate job variable
  - IS-INITIALIZED( ) - Check variable initialization
  - IS-SDF-P( ) - Check whether SDF-P is loaded
  - JV( ) - Interrogate job variable
  - MAINCODE( ) - Interrogate error code
  - MSG( ) - Output message text
  - SDF-P-VERSION( ) - Interrogate SDF-P version
  - SUBCODE1( ) - Interrogate subcode1
  - SUBCODE2( ) - Interrogate subcode2
  - Commands supported by SDF-P-BASYS
  - Subsystem installation

- Overviews
  - Overview of main functions of the BS2000 commands
  - Domains
  - Commands and their privileges
  - Command aliases
  - Commands of internal components
- Related publications

1.1 Preface

The SDF command language (System Dialog Facility) supports entries in interactive mode, during the execution of procedures and in batch operation. SDF offers entry via an interactive menu interface (three levels), syntax check with subsequent correction dialog and the use of user-specific commands. SDF performance features are also available when entering program statements, provided the program utilizes the SDF interface.

The performance features of the SDF interface are explained in detail in the “SDF Dialog Interface” manual [15]. A brief description can be displayed using the HELP-SDF command. Further information concerning job-specific control options of the SDF interface is provided in the descriptions of the MODIFY-SDF-OPTIONS and SHOW-SDF-OPTIONS commands.

The SDF command language has replaced the ISP command language. Commands from the old command language ISP continue to be supported for the sake of compatibility. The full functionality of SDF can be exploited only with commands and statements employing the SDF syntax (ISP commands are checked only with regard to their names).

The “Commands” manual contains a general part and various command overviews, as well as a command section with all commands of the SDF command language for the operating system BS2000 (basic configuration). In addition, it contains commands which can only be used in conjunction with a specific software product. In such cases, the command description includes a note to this effect. These commands are also described in the relevant product manuals.

Software configuration described

This description is valid for BS2000 V21.0A. Where functions or commands are described which are only available when supplementary software products or components are used, a note to this effect is provided. The associated component is specified for each command in the “Component”.

Valid for

ACS V20.0B
AIDSYSA V20.0B
ASE V1.0C
BLSSERV V2.9A
BS2000 V21.0A
CALENDAR V20.0B
CCOPY V10.0C
CONV2PDF V1.0B
CPR V20.0B
DCAM V13.3A
DSSM V4.3D
GCF V2.0B
IMON-GPN V3.3B
IOCFCOPY V19.0A
JV V15.1B
MIP V20.0B
openSM2 V21.0A
POSIX-BC V11.0A
RESLOG V1.8B
RFA V21.0A
SDF V4.8A
SDF-P-BASYS V2.5G
SHOW-FILE V17.1B
SPOOL V4.9A
SPOOLSYS V3.0A
SRPMNUC V20.0A
STATUS V15.2A
SYSFILE V20.0B
TIAM V13.2A

1.1.1 Objectives and target groups of this manual

The “Commands” manual is designed for both privileged and nonprivileged users of the BS2000 command interface.

Users of nonprivileged commands need to be familiar with:

- the basics of the SDF dialog interface, as presented in the “SDF Dialog Interface” manual [15].
- the basics of the Data Management System (DMS), as presented in the “Introductory Guide to DMS” [13].

Users of privileged commands need to be familiar with systems support duties. These duties are presented in the “Introductory Guide to Systems Support” [14].

The additional commands and functions included here are described in detail in the manuals for the individual software products.

1.1.2 Summary of contents

The "Commands" manual is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

Components of a command description

A command description consists of the following components:

- Command name plus brief description
- Component
  Name of the component to which the command belongs.
- Functional area
  Name of the functional group to which the command is assigned (see the section "Overview of main functions of the BS2000 commands")
- Domain
  Name of one or more SDF domains (application areas) to which the command is allocated. In guided dialog the command is offered on the selection menu for these domains.
- Privileges
  To execute the command the user needs one of the privileges listed here. Nonprivileged BS2000 users have the STD-PROCESSING privilege. This means that they can run any command allocated the STD-PROCESSING privilege.

  Systems support duties are associated with various different privileges. These privileges and their default associations with system IDs are described in the “Introductory Guide to Systems Support” [14].

  Note the following with regard to “security manager” and “audit file management” duties:
  The SECURITY-ADMINISTRATION, SAT-FILE-MANAGEMENT and SAT-FILE-EVALUATION privileges which are associated with these duties restrict the use of certain commands to procedure mode. This is a feature of the security concept intended among other things to prevent the security officer directly calling procedures and programs unrestrictedly.
- Routing code (where appropriate)
  Privileged users (system operators) can enter the command only at consoles to which this routing code is allocated.
- Function
  A general description of the command’s functionality. If the command is available to both privileged and nonprivileged users, functions which are available only to privileged users are described in a separate section. Numbers down the left-hand side of the “Overview of functions” (if present) refer you to the appropriate page of the operand descriptions.

  Use of some operating commands is restricted to specific operating workstations. Such restrictions are indicated in the relevant command descriptions.
  Detailed information on operating is contained in the “Introductory Guide to Systems Support” [14].

- Format (syntax diagram)
  The syntax diagram describes the format in which to enter the command (see also section "Conventions for input").
- Operands (describes the operands if the command has any)
- Return codes
- Output format (optional in the case of SHOW commands)
- Output in S variable (optional in the case of SHOW commands)
- Notes (optional)
- Examples (optional)

Related publications

Literature references are given in the text in abbreviated form. The full titles of all publications referred to can be found under “Related publications”.

Additional product information

Current information, version and hardware dependencies, and instructions for installing and using a product version are contained in the associated Release Notice. These Release Notices are available online at http://bs2manuals.ts.fujitsu.com.

1.1.3 Changes since the last edition of the manual

The table below contains the most important changes to the existing commands.

Command	Change / Operand	Operand value	Function / Comment
ADD-NET-STORAGE-VOLUME	CONVERT=	IMPORT=*YES (...)	new Operand: specifies, if an existing Net-Storage volume of the type NETSTOR is to be converted into a Net-Storage volume of the type NETVOL.
FORCE-JOB-CANCEL	DUMP=	*YES / *NO	new operand: defines whether a system dump is to be output for the job to be canceled
LOAD-EXECUTABLE-PROGRAM	RESIDENT-PAGES=		Value range expanded at MINIMUM and MAXIMUM
MODIFY-HEL-CHECK	ATTRIBUTE=	*DALTA-RESPONSIBLE	Operand value omitted
MODIFY-HEL-LOGGING	ATTRIBUTE=	*DALTA-RESPONSIBLE	Operand value omitted
MODIFY-IO-OPTIONS	Modify IO device settings		Timeout and FastDPAV settings
MODIFY-PUBSET-CACHE-ATTRIBUTES	command omitted		
SET-SNAPSET-PARAMETER	SAVE-POOL-NAME=		Operand removed
	RA-GROUPS=		Operand removed
SHOW-AUDIT-STATUS	Information output		expanded: additional activity states
SHOW-CONSOLE-STATUS	CONSOLE=	*ALL(...)	operand expanded: selection criteria
	TYPE=		new operand: selection by type
	STATE=		new operand: selection by status
SHOW-IO-OPTIONS	Information output		Timeout and FastDPAV settings

SHOW-JOB-STATUS	Information output		Output of the fully qualified name of the original file (ENTER or procedure file) New S variable for fully qualified name
SHOW-LIVE-MIGRATION-HISTORY	Section VM2000-IDENTIFICATION		New output VM2000-MONITOR-SP
SHOW-PENDING-MSG	Information output		new S variable contains the text of the response message
SHOW-SYSTEM-INFORMATION	INFO=*VM2-MONITOR-SYSTEM		New output SERVICE-PACK
START-EXECUTABLE-PROGRAM	RESIDENT-PAGES=		Value range expanded at MINIMUM and MAXIMUM

Table 1: Changes

Omitted commands and functions

From BS2000 V21.0A, USER-PFA is no longer supported. This means that the EDIT / MODIFY-PUBSET-CACHE-ATTRIBUTES, SHOW-PUBSET-CACHE-ATTRIBUTES, START / STOP-FILE-CACHING and START / STOP-PUBSET-CACHING commands are no longer required.

Notes on the SE server

The released versions of the BS2000 operating system supports the SE server's Server Units

Name of the Server Unit	Architecture	Periphery type
Server Unit /390 (SU /390)	/390 architecture	Channel peripherals
Server Unit x86 (SU x86)	x86-64 architecture	Bus peripherals

General information

The name of the BS2000 basic configuration has changed and from version V21.0A becomes: BS2000 OS DX. Previous versions will be referred to by the previous name BS2000 OSD/BC.

In the command descriptions, the name of the component to which the command belongs is indicated without information on the version. The version overview for the commands has been omitted.

The device type table for BS2000 OS DX is also contained in the "System Installation" manual [46]. The devices currently supported are specified in the BS2000 Release Notice.

An overview over all system parameters (privileged and nonprivileged) is included with the description of the SHOW-SYSTEM-PARAMETERS command.

1.1.4 Notational conventions

The following notational conventions are used:

Draws your attention to important information relating to the preceding passage.

Note

The word "Note" ahead of an indented paragraph shows that the following paragraph contains important information.

“Cross-reference”

Cross-references to chapters, sections or other publications are placed within double quotes. Cross-references to pages begin with the tape number.

[1]

Numbers in square brackets refer to the corresponding item in the section "Related publications".

[K2]

Keyboard names in square brackets refer to the corresponding BS2000 function key.

Boldface

In explanations of syntax diagrams, the lines currently being explained are printed in boldface. Similarly, in examples input characters which appear on the screen are shown in boldface. Note the significance of boldface in the "SDF syntax representation".

`SYNTAX/Example`

Syntax diagrams and examples of input and output are shown in a different font for emphasis. Syntax diagrams are also surrounded by a frame.

[ ]

Square brackets in syntax or format diagrams: the characters within the brackets are optional. Note the significance of square brackets in the "SDF syntax representation".

{ }

Braces in syntax and format diagrams: one of the parameters within the braces is required.

$option_1$ / $option_2$ / $option_i$

If you can choose between multiple options the options are separated by a slash.

Inner running header

Within lengthy operand description sections, the inner running header refers to the first-level operand currently being described.

1.2 General Topics

The "General Topics" section contains the following sections:

- Format of the SDF command language
- Conventions for input
- SDF syntax representation
- Input compression
- Replacing expressions in the input
- Language for SDF output
- Return codes
- Conditional expressions (job variables)
- System files
- Working with S variables
- Job switches
- Device type table
- Assignment of volume type code to volume type (Device type table)
- Information services of device management: Meanings of the output values of SHOWcommands
- Time limits in BS2000
- Overview of test privileges
- SDF-P-BASYS

1.2.1 Format of the SDF command language

The syntax description of SDF commands and statements is contained in the syntax files (see “SDF syntax files” in the “SDF Dialog Interface” manual [15]):

- Commands begin with a slash which in dialog mode is set by the system. SDF expects command input from the logical system file SYSCMD.
- SDF statements, i.e. statements intended for programs with SDF interface, begin with two slashes which in dialog mode are set by the system. SDF expects statement input from the logical system file SYSSTMT, which has the same assignment as system file SYSDTA.

Input data, i.e. data, parameters and statements read in by programs without SDF interface, are not analyzed by SDF. Such programs expect input data from the logical system file SYSDTA.

Commands/statements consist of the following elements:

- command/statement name
- operand names
- possible operand values (keywords and variable values)
- additional help texts explaining the command/statement and its operands.

Command/statement names, operand names and keyword values are contained as keywords in the syntax description. Keywords are specified as such (see section "Input compression"). Variable operand values are described by means of data types (see table "Data types" (SDF syntax representation)). The data type defines the character set and the rules used to form an operand value. SDF checks whether the specification for a variable operand value lies within the range of permissible values as defined by the data type. A variable value may also be defined as a dedicated (constant) value of a data type. Then instead of the data type the syntax description gives the appropriate constants (such as the names of the S variable streams in the ASSIGN-STREAM command: STREAM-NAME = SYSVAR / SYSMSG / SYSINF).

Keywords usually consist of several portions (or subnames) connected by hyphens. As a rule, the respective names are taken from the ordinary English-language environment. They are chosen in such a way that analogous facts are described by means of identical keywords throughout the command set. Commands always start with a verb. They are followed by the associated object to which the activity is to be applied, e.g. MODIFY-FILE-ATTRIBUTES causes the attributes of a file to be modified.

There are also pairs of opposite activities; for example:

CREATE-XY and DELETE-XY for the creation/deletion of an object XY.

Commands are assigned to different domains (application areas), depending on their respective uses. A command may occur in more than one domain.

Every operand has a name and at least one possible value. Operands may be hierarchically subordinate to an operand value. In this case this operand value initiates a structure which contains all the lower-ranking operands. The operands of a structure are enclosed in parentheses. Further structures may be initiated within a structure, this phenomenon is referred to as structure nesting.

Example of a structure

Format (excerpt from SHOW-FILE-ATTRIBUTES):

,**SEL**ECT = ***ALL** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| ,**FILE-STRUC**TURE = ***ANY** / list-poss(5): ***PAM** / ***SAM** / ***ISAM** / ***BTAM** / ***NONE**

Input:

```
/show-file-attributes select=*by-attributes(file-structure=(*sam,*isam))
```

The FILE-STRUCTURE operand defines a specific file attribute and is subordinate to the operand value (the structure) *BY-ATTRIBUTES.

Concurrent specification of several operand values (in the form of a list) may be permissible. Operand values permitted as list elements are enumerated following “listposs(n):” (see table "Metasyntax" (SDF syntax representation)), where n indicates the maximum number of list elements allowed.

Example of a list

Format:

FILE-STRUCTURE = ***ANY** / list-poss(5): ***PAM** / ***SAM** / ***ISAM** / ***BTAM** / ***NONE**

Input:

```
/show-file-attributes select=*by-attributes(file-structure=(*sam,*isam))
```

The FILE-STRUCTURE operand defines the file attributes SAM and ISAM

Most operands are preset with a default value (in the example *ANY). This operand value is used if no explicit specification is made (see "Default values").

1.2.2 Conventions for input

The following should be noted when entering commands and statements:

- SDF interprets inputs in accordance with the standard code table **EBCDIC.DF.03** (e.g. uppercase/lowercase conversion).
  XHCS1 permits the use of extended character sets (CCS, Coded Character Set). The coding of dollar sign ($), number sign (#), commercial at (@), exclamation mark (!), circumflex (^), parentheses and brackets, the greater than and smaller than signs, asterisk (*), slash (/), colon, comma, semicolon, apostrophe and quotation mark (") in an extended character set must comply with the coding in the standard code table. SDF interprets additional characters of an extended character set only within the data types <c-string> and <text>, i.e. uppercase /lowercase conversion makes use of an XHCS-supplied code table for that extended character set. SDF rejects all additional characters used within any of the other data types and reports a syntax error.

  > ℹ The XHCS (eXtended Host Code Support) subsystem supports 8-bit code processing.

  The following distinctions are made when using an extended character set:

  - Input at the data display terminal: The CCS from the user entry is used for command input, provided 8-bit mode has been activated with the command MODIFY-TERMINAL-OPTIONS. For statement input, the CCS specified in the relevant macro call (CMDRST or RDSTMT, CMDTST or TRSTMT, or CMDCST or CORSTMT) is used. If no CCS has been specified, the same applies as for command input.
  - Input from a file or PLAM library member: For command input, the CCS of the input file is used, or the CCS of the PLAM library member, provided SYSDTA has been assigned with the ASSIGN-SYSDTA command. For statement input, the CCS specified in the relevant macro call must be identical with the CCS for SYSDTA inputs. The statement will be rejected if the two CCS are not identical. During a procedure interrupt, the CCS selected for input at the data display terminal is used.
  - Input from an S variable: If SYSDTA is assigned to a compound S variable, the CCS selected for input at the data display terminal is used in dialog mode. The CCS **EDF03IRV** is used in batch mode.
  - The macro calls CMD and TRCMD do **not** support extended character sets.
- The first character of a command input is the slash “/”; a statement is preceded by two slashes “//”. In the event of input at the display terminal, the slash(es) appear(s) automatically as a system prompt. In the event of input from a procedure file, the slash(es) must be included in the input records.
- A label may be placed between slash and command name. They identify the command line as a branch destination within procedures. At least one blank must separate the label from the command name. Labels have different formats for S and non-S procedures:
  - The S label consists of a name with up to 255 characters (corresponding to <structured-name 1..255>) which is followed by a colon. S labels do not belong to the command. They are evaluated by SDF-P only and can only be used in S procedures.
  - The non-S label consists of a leading period and a name with up to 8 characters (corresponding to <name 1..8>).
- The command/statement name must be separated from the ensuing operand(s) by at least one blank.
- Operands have to be separated from each other by a comma.
- Operand values within a list must be separated by a comma. If several list elements are specified, the enumeration must be enclosed in parentheses.

- Operands may be entered either as keyword operands or as positional operands. In keyword operands, an equals sign links operand name and operand value. In positional operands, only the operand value is specified. The assignment being determined via the relative position of the operand within the input stream (see "Positional operands").
- Further blanks between keywords, variable operand values, commas and equals signs are possible for documentation purposes and are ignored.
- Strings enclosed in quotes are interpreted as comments and ignored. Comments can be used in the same way as further blanks, but they are not permitted in front of labels.
- End-of-line comments: In S procedures the character string &* introduces an end-offline comment, i.e. all subsequent characters up to the end of the line are ignored. This means especially that continuation characters, semicolons and &-expressions lose their special meaning.
- Continuation lines: A hyphen as the last character of an input record (with any number of trailing blanks) is interpreted as a continuation character. The ensuing input line thus becomes the continuation line of the preceding command or statement. If input is from the display terminal, the system issues “/” or “//” as a prompt requesting continuation of input. If commands/statements are entered from procedure/ENTER files, the continuation line must start with “/” or “//”. The continuation character must be written within the range of columns 2 to 72 if CONTINUATION=*NEW-MODE has been set (see SHOW-SDF-OPTIONS or MODIFY-SDF-OPTIONS). In the case of CONTINUATION=*OLD-MODE the continuation character can only be in column 72. Any characters following after column 72 are ignored. The maximum total length of a command (including any continuation lines) may be 16364 bytes including any blanks and comments. The total length of ISP commands (which are still supported) is 4096 bytes.

  Input records for a statement may be longer than 72 characters and may have a continuation character in any column as of column 2. The maximum length of a statement is 16364 bytes.

  In interactive mode (terminal input) the input record length and the position of any continuation character depends on the size of the input buffer of the display terminal, but may not exceed 16364 bytes.

  In S procedures, the SET-PROCEDURE-OPTIONS INPUT-FORMAT=*FREE-RECORD-LENGTH can be used to freely define the length of command input records, as long as it does not exceed the maximum length of 16364 bytes. The continuation character may be entered in any column as of column 2.
- For input from non-S procedure files or ENTER files, keywords must be in uppercase format. The same is true of the values of procedure parameters, S variables and job variables if they are to replace part of the input.
- Using a semicolon between two commands permits the simultaneous input of a number of commands within one input record (with the possibility of continuation lines). This option exists in interactive mode and *S procedures* only.

1.2.3 SDF syntax representation

The following example shows the representation of the syntax of a command in a manual. The command format consists of a field with the command name. All operands with their legal values are then listed. Operand values which introduce structures and the operands dependent on these operands are listed separately.

HELP-SDF Alias: **HPSDF**

GUIDANCE**-MODE** = ***NO** / ***Y**ES

,**SDF-COM**MANDS = ***NO** / ***Y**ES

,**ABBR**EVIATION**-RULES** = ***NO** / ***YES**

,**GUID**ED**-DIA**LOG = ***YES** (...)

***Y**ES(...)

| **SCREEN-STEPS** = ***NO** / ***Y**ES

| ,**SPEC**IAL**-FUNC**TIONS = ***NO** / ***Y**ES

| ,**FUNC**TION**-KEYS** = ***NO** / ***Y**ES

| ,**NEXT-FIELD** = ***NO** / ***Y**ES

,**UNGUID**ED**-DIA**LOG = ***Y**ES (...) / ***NO**

***Y**ES(...)

| **SPEC**IAL**-FUNC**TIONS = ***NO** / ***Y**ES

| ,**FUNC**TION**-KEYS** = ***NO** / ***Y**ES

This syntax description is valid for SDF V4.8. The syntax of the SDF command/statement language is explained in the following three tables.

"Metasyntax" table

The meanings of the special characters and the notation used to describe command and statement formats are explained in table "Data types".

"Data types" table

Variable operand values are represented in SDF by data types. Each data type represents a specific set of values. The number of data types is limited to those described in the table.

The description of the data types is valid for the entire set of commands/statements. Therefore, only deviations (if any) from the attributes described in the table are explained in the relevant operand descriptions.

"Suffixes for data types" table

Data type suffixes define additional rules for data type input. They contain a length or interval specification and can be used to limit the set of values (suffix begins with *without*), extend it (suffix begins with *with*), or declare a particular task mandatory (suffix begins with *mandatory*). The following short forms are used in this manual for data type suffixes:

case-sensitive	case-sens
cat-id	cat
completion	compl
correction-state	corr
digits	dig
generation	gen
lower-case	low
manual-release	man
odd-possible	odd
path-completion	path-compl
separators	sep
special-characters	spec
temporary-file	temp-file
underscore	under
user-id	user
version	vers
wildcard-constr	wild-constr
wildcards	wild

The description of the ‘integer’ data type in table "Suffixes for data types" contains a number of items in italics which are not part of the syntax. They are only used to make the table easier to read. For special data types that are checked by the implementation, the table "Suffixes for data types" contains suffixes printed in italics (see the *special* suffix) which are not part of the syntax.

The description of the data type suffixes is valid for the entire set of commands/statements. Therefore, only deviations (if any) from the attributes described this table are explained in the relevant operand descriptions table "Suffixes for data types".

Metasyntax

Convention	Meaning	Examples
UPPERCASE	Uppercase letters denote keywords (command, statement or operand names, keyword values) and constant operand values. Keyword values begin with *.	**HELP-SDF** **SCREEN-STEPS** = ***NO**
UPPERCASE in boldface	Uppercase letters printed in boldface denote guaranteed or suggested abbreviations of keywords.	**GUID**ANCE**-MODE** = ***Y**ES

=	The equals sign connects an operand name with the associated operand values.	**GUID**ANCE**-MODE** = ***NO**
< >	Angle brackets denote variables whose range of values is described by data types and suffixes (see "Data types" and "Suffixes for data types").	**SYNTAX-F**ILE = <filename 1..54>
Underscoring	Underscoring denotes the default value of an operand.	**GUID**ANCE**-MODE** = ***NO**
/	A slash serves to separate alternative operand values.	**NEXT-FIELD** = ***NO** / ***Y**ES
(...)	Parentheses denote operand values that initiate a structure.	,**UNGUID**ED**-DIA**LOG = ***Y**ES (...) / ***NO**
[ ]	Square brackets denote operand values which introduce a structure and are optional. The subsequent structure can be specified without the initiating operand value.	**SELECT** = [***BY-ATTR**IBUTES](...)
Indentation	Indentation indicates that the operand is dependent on a higher-ranking operand.	,**GUID**ED**-DIA**LOG = ***Y**ES (...) ***Y**ES(...) | **SCREEN-STEPS** = ***NO** / | ***Y**ES
| | |	A vertical bar identifies related operands within a structure. Its length marks the beginning and end of a structure. A structure may contain further structures. The number of vertical bars preceding an operand corresponds to the depth of the structure.	**SUP**PORT = ***TAPE**(...) ***TAPE(...)** | **VOL**UME = ***ANY** (...) | ***ANY** (...) | | ...
,	A comma precedes further operands at the same structure level.	**GUID**ANCE**-MODE** = ***NO** / ***Y**ES ,**SDF-COM**MANDS = ***NO** / ***Y**ES
list-poss(n):	The entry “list-poss” signifies that a list of operand values can be given at this point. If (n) is present, it means that the list must not have more than n elements. A list of more than one element must be enclosed in parentheses.	list-poss: ***SAM** / ***ISAM** list-poss(40): <structured-name 1..30> list-poss(256): ***OMF** / ***SYSLST**(...) / <filename 1..54>
Alias:	The name that follows represents a guaranteed alias (abbreviation) for the command or statement name.	**HELP-SDF** Alias: **HPSDF**

Table 2: Metasyntax

Data types

Data type	Character set	Special rules
alphanum-name	A..Z 0..9 $, #, @	
cat-id	A..Z 0..9	Not more than 4 characters; must not begin with the string PUB
command-rest	freely selectable	
composed-name	A..Z 0..9 $, #, @ $, #, @ hyphen period	Alphanumeric string that can be split into multiple substrings by means of a period or hyphen. If a file name can also be specified, the string may begin with a catalog ID in the form :cat: (see data type filename).
c-string	EBCDIC character	Must be enclosed within single quotes; the letter C may be prefixed; any single quotes occurring within the string must be entered twice.
date	0...9 Structure identifier: hyphen	Input format: yyyy-mm-dd yyyy: year; optionally 2 or 4 digits mm: month dd: day
device	A...Z 0...9 hyphen	Character string, max. 8 characters in length, corresponding to a device type available in the system. In guided dialog, SDF displays the valid operand values. For notes on possible device types, see the relevant operand description.
fixed	+, - 0..9 period	Input format: [sign][digits].[digits] [sign]: + or - [digits]: 0..9 must contain at least one digit, but may contain up to 10 characters (0..9, period) apart from the sign.
filename	A...Z 0..9 $, #, @ hyphen period	Input format: [:cat:][$user.]{ file/ file(nr) / group / group{ (*abs) / (+rel) / (-rel) } }

:cat:

optional entry of the catalog identifier;
character set limited to A..Z and 0..9;
maximum of 4 characters; must be enclosed in colons;
default value is the catalog identifier assigned to the user ID, as specified in the user catalog.

$user.

optional entry of the user ID;
character set is A..Z, 0..9, $, #, @;
maximum of 8 characters; first character cannot be a digit; $ and period are mandatory; default value is the user's own ID.

$. (special case)

system default ID

file

file or job variable name;
may be split into a number of partial names using a period as a delimiter: $name_1[.name_2[...]]$
$name_i$ does not contain a period and must not begin or end with a hyphen;
file can have a maximum length of 41 characters; it must not begin with a $ and must include at least one character from the range A..Z.

#file (special case)
@file (special case)

or @ used as the first character indicates temporary files or job variables, depending on system parameter TEMPFILE.

file(no)

tape file name
no: version number;
character set is A...Z, 0...9, $, #, @.
Parentheses must be specified.

group

name of a file generation group
(character set: as for “file”)

group { (*abs) / (+rel) / (-rel) }

(*abs)

absolute generation number (1-9999);
* and parentheses must be specified.

		(+rel) (-rel) relative generation number (0-99); sign and parentheses must be specified.
integer	0..9, +, -	+ or -, if specified, must be the first character.
name	A..Z 0..9 $, #, @	Must not begin with 0..9.
partial-filename	A..Z 0..9 $, #, @ $, #, @ hyphen	Input format: [:cat:][$user.][partname.] :cat: see filename $user. see filename partname optional entry of the initial part of a name common to a number of files or file generation groups in the form: $name_1$.[$name_2$.[...]] $name_i$ see filename. The final character of “partname” must be a period. At least one of the parts :cat:, $user. or partname must be specified.
posix-filename	A..Z 0..9 special characters	String with a length of up to 255 characters; consists of either one or two periods or of alphanumeric characters and special characters. The special characters must be escaped with a preceding \ (backslash); the / is not allowed. Must be enclosed within single quotes if alternative data types are permitted, separators are used, or the first character is a ?, ! or ^. A distinction is made between uppercase and lowercase.
posix-pathname	A...Z 0...9 special characters structure identifier: slash	Input format: [/]$part_1$/.../$part_n$ where $part_i$ is a posix-filename; max. 1023 characters; must be enclosed within single quotes if alternative data types are permitted, separators are used, or the first character is a ?, ! or ^.

product-version	A..Z 0..9 period single quote	Input format: [[C]'][V][m]m.naso['] where m, n, s and o are all digits and a is a letter. a = release status o = correction status Whether the release and/or correction status may/must be specified depends on the suffixes to the data type (see suffixes without-corr, without-man, mandatory-man and mandatory-corr in table "Suffixes for data types"). product-version may be enclosed within single quotes (possibly with a preceding C). The specification of the version may begin with the letter V.
structured-name	A..Z 0..9 $, #, @ hyphen	Alphanumeric string which may comprise a number of substrings separated by a hyphen. First character: A..Z or $, #, @
text	freely selectable	For the input format, see the relevant operand descriptions.
time	0..9 structure identifier: colon	Time-of-day entry: Input format: { hh:mm:ss / hh:mm / hh } hh: hours mm: minutes ss: seconds Leading zeros may be omitted.
vsn	a) A..Z 0..9	a) Input format: pvsid.sequence-no 6 characters; pvsid: 2-4 characters; PUB must not be entered sequence-no: 1-3 characters
	b) A..Z 0..9 $,#,@	b) Max. 6 characters; PUB may be prefixed, but must not be followed by $, #, @.
x-string	Hexadecimal: 00...FF	Must be enclosed in single quotes; must be prefixed by the letter X. There may be an odd number of characters.
x-text	Hexadecimal: 00...FF	Must not be enclosed in single quotes; the letter X must not be prefixed. There may be an odd number of characters.

Table 3: Data types

Suffixes for data types

Suffix	Meaning
x..y *unit*	With data type “integer”: interval specification x Minimum value permitted for “integer”. x is an (optionally signed) integer. y Maximum value permitted for “integer”. y is an (optionally signed) integer. *unit* Additional units. The following units may be specified: *days, hours, minutes, seconds,* and *milliseconds* *byte, 2Kbyte* , *4Kbyte* , and *Mbyte*
x..y *special*	With the other data types: length specification For data types date, device, product-version and time the length specification is not displayed. x Minimum length for the operand value; x is an integer. y Maximum length for the operand value; y is an integer. x=y The length of the operand value must be precisely x. *special* Specification of a suffix for describing a special data type that is checked by the implementation. *special* can be preceded by other suffixes. The following units may be specified: *arithm-expr* arithmetic expression (SDF-P) *bool-expr* logical expression (SDF-P) *string-expr* string expression (SDF-P) *expr* freely selectable expression (SDF-P) *cond-expr* conditional expression (JV) *symbol* CSECT- or entry name (BLS)
with	Extends the specification options for a data type.
-compl	When specifying the data type “date”, SDF expands two-digit year specifications in the form yy-mm-dd to: 20jj-mm-dd if yy<60 19jj-mm-dd if yy>=60
-low	Uppercase and lowercase letters are differentiated.

-path-compl	For specifications for the data type “filename”, SDF adds the catalog and/or user ID if these have not been specified.

<table>
<tr><th>Suffix</th><th>Meaning</th></tr>
<tr><td>-under</td><td>Permits underscores (_) for the data type “name”.</td></tr>
<tr><td>-wild(n)</td><td>Parts of names may be replaced by the following wildcards.
n denotes the maximum input length when using wildcards. Due to the introduction of the data types posix-filename and posix-pathname, SDF now accepts wildcards from the UNIX world (referred to below as POSIX wildcards) in addition to the usual BS2000 wildcards. However, as not all commands support POSIX wildcards, their use for data types other than posix-filename and posix-pathname can lead to semantic errors.
Only POSIX wildcards or only BS2000 wildcards should be used within a search pattern.
Only POSIX wildcards are allowed for the data types posix-filename and posix-pathname. If a pattern can be matched more than once in a string, the first match is used.
<table>
<tr><th>BS2000 wildcards</th><th>Meaning</th></tr>
<tr><td>*</td><td>Replaces an arbitrary (even empty) character string. An * appearing at the first position must be duplicated if it is followed by other characters and if the entered string does not include at least one further wildcard.</td></tr>
<tr><td>Terminating period</td><td>Partially qualified entry of a name. Corresponds implicitly to the string “./*”, i.e. at least one other character follows the period.</td></tr>
<tr><td>/</td><td>Replaces any single character.</td></tr>
<tr><td><s_x:s_y></td><td>Replaces a string that meets the following conditions:
a) If s_x is shorter than or exactly as long as s_y:
It is at least as long as s_x and no longer than s_y
In the alphabetic collating sequence it lies in the range from s_x to s_y
s_x may be empty (=1 character with the lowest coding)
b) If s_x is longer than s_y:
It is at least as long as s_y and no longer than s_x
In the alphabetic collating sequence it lies in the range from s_x to a string which begins with s_y and is filled with characters of the highest possible coding to the length of s_x
s_y may be empty (=1 character with the highest coding)</td></tr>
<tr><td><s_1,...></td><td>Replaces all strings that match any of the character combinations specified by s. s may also be an empty string. Any such string may also be a range specification “s_x:s_y” (see <sx:sy>).</td></tr>
</table>
</td></tr>
</table>

-s	Replaces all strings that do not match the specified string s. The minus sign may only appear at the beginning of string s. Within the data types filename or partial-filename the negated string -s can be used exactly once, i.e. -s can replace one of the three name components: cat, user or file.

Wildcards are not permitted in generation and version specifications for file names. Only system administration may use wildcards in user IDs. Wildcards cannot be used to replace the delimiters in name components cat (colon) and user ($ and period).

POSIX wildcards	Meaning
*	Replaces an arbitrary (even empty) character string. An * appearing at the first position must be duplicated if it is followed by other characters and if the entered string does not include at least one further wildcard.
?	Replaces any single character; not permitted as the first character outside single quotes.
[c_x-c_y]	Replaces any single character from the range defined by c_x and c_y, including the limits of the range. c_x and c_y must be normal characters.
[s]	Replaces exactly one character from string s. The expressions [c_x-c_y] and [s] can be combined into [s_1c_x-$c_ys_ys_2$]
[!c_x-c_y]	Replaces exactly one character not in the range defined by c_x and c_y, including the limits of the range. c_x and c_y must be normal characters. The expressions [!c_x-c_y] and [!s] can be combined into [!$s_1c_1c_x$-$c_ys_ys_2$]
[!s]	Replaces exactly one character not contained in string s. The expressions [!s] and [!c_x-c_y] can be combined into [!s_1c_x-c_ys_2]

with-wild-constr(n)	Specification of a constructor (string) that defines how new names are to be constructed from a previously specified selector (i.e. a selection string with wildcards). See also with-wild. n denotes the maximum input length when using wildcards. The constructor may consist of constant strings and patterns. A pattern (character) is replaced by the string that was selected by the corresponding pattern in the selector. The following wildcards may be used in constructors:

wildcard	Meaning
*	Corresponds to the string selected by the wildcard * in the selector.
Terminating period	Corresponds to the partially-qualified specification of a name in the selector; corresponds to the string selected by the terminating period in the selector.

/ or ?	Corresponds to the character selected by the / or ? wildcard in the selector.
<n>	Corresponds to the string selected by the n-th wildcard in the selector, where n is an integer.

Allocation of wildcards to corresponding wildcards in the selector:
All wildcards in the selector are numbered from left to right in ascending order (global index).
Identical wildcards in the selector are additionally numbered from left to right in ascending order (wildcard-specific index).
Wildcards can be specified in the constructor by one of two mutually exclusive methods:

a. Wildcards can be specified via the global index: <n>
b. The same wildcard may be specified as in the selector; substitution occurs on the basis of the wildcard-specific index. For example: the second “/” corresponds to the string selected by the second “/” in the selector

The following rules must be observed when specifying a constructor:

- The constructor can only contain wildcards of the selector.
- If the string selected by the wildcard <...> or [...] is to be used in the constructor, the index notation must be selected.
- The index notation must be selected if the string identified by a wildcard in the selector is to be used more than once in the constructor.
  For example: if the selector “A/” is specified, the constructor “A<n><n>” must be specified instead of “A//”.
- The wildcard * can also be an empty string. Note that if multiple asterisks appear in sequence (even with further wildcards), only the last asterisk can be a nonempty string, e.g. for “****” or “*//*”.
- Valid names must be produced by the constructor. This must be taken into account when specifying both the constructor and the selector.
- Depending on the constructor, identical names may be constructed from different names selected by the selector. For example: “A/*” selects the names “A1” and “A2”; the constructor “B*” generates the same new name “B” in both cases.
  To prevent this from occurring, all wildcards of the selector should be used at least once in the constructor.
- If the constructor ends with a period, the selector must also end with a period. The string selected by the period at the end of the selector cannot be specified by the global index in the constructor specification.

Examples:

Selector	Selection	Constructor	New name
A//*	AB1 AB2 A.B.C	D<3><2>	D1 D2 D.CB
C.<A:C>/<D,F>	C.AAD C.ABD C.BAF C.BBF	G.<1>.<3>.XY<2>	G.A.D.XYA G.A.D.XYB G.B.F.XYA G.B.F.XYB
C.<A:C>/<D,F>	C.AAD C.ABD C.BAF C.BBF	G.<1>.<2>.XY<2>	G.A.A.XYA G.A.B.XYB G.B.A.XYA G.B.B.XYB
A//B	ACDB ACEB AC.B A.CB	G/XY/	GCXYD GCXYE GCXY.[1] G.XYC

[1] The period at the end of the name may violate naming conventions (e.g. for fully-qualified file names).

without	Restricts the specification options for a data type.
-cat	Specification of a catalog ID is not permitted.
-corr	Input format: `[[C]'][V][m]m.na['] ` Specifications for the data type product-version must not include the correction status.
-dig	The file type name does not permit digits.
-gen	Specification of a file generation or file generation group is not permitted.
-man	Input format: `[[C]'][V][m]m.na['] ` Specifications for the data type product-version must not include either release or correction status.
-odd	The data type x-text permits only an even number of characters.
-sep	With the data type “text”, specification of the following separators is not permitted: ; = ( ) < > ' ' (i.e. semicolon, equals sign, left and right parentheses, greater than, less than, and blank).
-spec	The file type name does not permit any special characters.
-tempfile	Specification of a temporary file is not permitted (see #file or @file under filename).
-user	Specification of a user ID is not permitted.
-vers	Specification of the version (see “file(no)”) is not permitted for tape files.
-wild	The file types posix-filename and posix-pathname must not contain a pattern (character).

mandatory	Certain specifications are necessary for a data type.
-corr	Input format: `[[C]'][V][m]m.naso['` Specifications for the data type product-version must include the correction status and therefore also the release status.
-man	Input format: `[[C]'][V][m]m.na[so]['` Specifications for the data type product-version must include the release status. Specification of the correction status is optional if this is not prohibited by the use of the suffix without-corr.
-quotes	Specifications for the data types posix-filename and posix-pathname must be enclosed in single quotes.
case-sensitive	When specifications are made for the data types command-rest and text, a distinction is made between uppercase and lowercase. This also applies for specifications which are not enclosed in single quotes.

Table 4: Data type suffixes

1.2.4 Input compression

SDF offers the possibility of compressing the input of commands and statements in dialog or batch mode.

It should be noted, however, that an abbreviation which is unique today might be ambiguous in a functionally extended future BS2000 version. Users should therefore use abbreviations sparingly in automated command sequences.

1.2.4.1 Abbreviation of names

Basically, all names used (keywords) may be abbreviated:

- command/statement names
- operand names
- keyword values

Names can be abbreviated as follows:

- In compound names (name parts linked by a hyphen), portions can be omitted from right to left. The associated hyphen is omitted with a name part.
- Within a name portion or a simple name, characters can be omitted from right to left.
- A leading asterisk does not belong to the name it introduces. It is merely used to distinguish a keyword value from some other possible operand value whose range includes the string of the keyword value. The asterisk alone, even if it is unique, does not represent a valid abbreviation.
- Keyword values in guided dialog and in the syntax representation are always indicated by a leading asterisk. The leading asterisk of a keyword value can be omitted if no alternative variable operand value is possible whose value range contains the name of the keyword value. This abbreviation option can be restricted to allow for potential extensions in subsequent versions. For reasons of compatibility, operand values which were previously written without a leading asterisk are still accepted without the asterisk.
- The name or partial name of a keyword value can also contain a period (e.g. *V4.1 or *OSD-V2.0). The period is part of the (partial) name. If the name is abbreviated, the period must not be at the end of it.

For SDF to be able to interpret the abbreviated names correctly, the selected abbreviations must be unique in their immediate syntax environment. However, the syntax file may contain a minimum abbreviation for particular names. In this case, SDF will not accept any shorter input even if it would be unique.

Unique assignment is defined as follows:

- a command name is unique among all valid command names. If a partial name of a command is specified in full, this command is unique compared to a second command in which the specified partial name is an abbreviation of the same part of the name. With, for example, the commands START-C-COMPILER and START-COBOL-COMPILER, the input START-C-COMP can only refer to the command START-C-COMPILER.
- a statement name is unique among all valid statements of a loaded program
- an operand name is unique among all valid operands of the specified command or statement on the same structure level (for an operand name in a lower-ranking structure, only the valid operand names of this structure are considered)
- a keyword value is unique within the set of all possible values for the specified operand.

For example, the input `MOD-SDF-OPT SYN-F=*NONE,GUI=*MIN` is a possible abbreviation of `MODIFY-SDF-OPTIONS SYNTAX-FILE=*NONE, GUIDANCE=*MINIMUM`

The user manuals contain “guaranteed” abbreviations (emphasized by means of bold print in the text). These are not necessarily the shortest possible versions. However, they retain the basic meaning and will remain unique on a long-term basis. This cannot be ensured for any of the other abbreviations. Procedures should therefore contain only unabbreviated names, or guaranteed abbreviations, which also greatly enhances the clarity of the procedure.

In addition to the command or statement names, aliases may also be used in the manual. The defined command or statement alias is guaranteed in the long term. An alias comprises no more than 8 characters (A..Z), which are derived from the command or statement name. The alias cannot be further abbreviated. Example: MDSDFO instead of MODIFY-SDF-OPTIONS

The names listed in the manuals are also defined in the syntax files as standard names. These standard names will continue to be accepted even if the command names have been changed, albeit only in the unabbreviated form. For example, if the command name CREATE-FILE were changed to GENERATE-FILE, the entry CREATE-FILE would still be accepted, but CR-F would be rejected. For this reason, if procedures are to be completely immune against the renaming of commands, all names must be specified unabbreviated.

1.2.4.2 Default values

Specification of most operands is optional. Optional operands are preset with a default value. The default value is used for command/statement execution if no explicit specification is entered by the user. The operand values *UNCHANGED and *CURRENT stand for the existing setting, i.e. the present value is taken over.

Since only operand values that are not to have the default settings need to be specified explicitly, input can often be dramatically reduced.

If operands do not have default settings, or if they do not have the defaults that you require, you can define your own defaults for interactive input on a task-specific basis (for an example see the RESET-INPUT-DEFAULTS command; further details are given in the section headed “Task-specific default values” in the “SDF Dialog Interface” [15]).

For example, the entry `MOD-SDF-OPT SYN=*N,GUID=*MIN` is a possible abbreviation of:

```
MOD-SDF-OPT SYN=*NONE,GUID=*MIN,LOG=*UNCH,UT=*UNCH, PROC=*UNCH,
    CONT=*UNCH, MENU=*UNCH,MODE=*UNCH,DEFAULT-PROG=*UNCH, FUNCTION-KEYS=*UNCH,
    INPUT-HISTORY = *UNCH
```

Note

The default value of an operand should not be confused with the operand value *STD. The operand value *STD need not be the default value. The meaning of *STD is given individually in each operand description. *STD can be, for example, a value set at system installation (e.g. SPACE=*STD in the CREATE-FILE command) or a setting dependent upon the task mode (e.g. DIALOG-CONTROL=*STD in the DELETE-FILE command).

1.2.4.3 Positional operands

Any operand may be specified either as a keyword operand or as a positional operand. When keyword operands are entered, the operand name and the desired value are specified together in the format <operand-name>=<operand-value>. When positional operands are entered, only the operand value is specified; correct assignment is ensured via its position in the input stream as prescribed by the command/statement definition. Assignment takes place solely on the basis of the position in the input stream compared to the command/statement definitions. The following should be noted when entering positional operands:

- Whenever an operand preceding a positional operand is omitted, a comma must be entered instead.
- If an operand is entered as a keyword operand, no positional operands may be entered at the same structure level.

For example, the input `MOD-SDF-OPT *NONE,*MIN` is a possible abbreviation of `MOD-SDF-OPT SYN-F=*NONE, GUID=*MIN`.

It cannot be fully ruled out that an operand position will change in the event of a version change. For this reason, only keyword operands should be used in procedures.

1.2.4.4 Compressing structures

The specification of structures offers the following options for input compression:

STRUCTURE-IMPLICIT notation

Specification of the structure-initiating operand is omitted and the subordinate operand is entered outside the structure parentheses. The prerequisite for this is generally that the subordinate operand is unique with respect to the entire command/statement or to a higher ranking structure. Operands for which the STRUCTURE-IMPLICIT notation is guaranteed in the long term are listed explicitly in the corresponding command or statement description.

Example

```
SHOW-FILE-ATTR ACCESS-METHOD=*ISAM
```

is the abbreviated notation for

```
SHOW-FILE-ATTR SEL=*BY-ATTR(ACCESS-METHOD=*ISAM)
```

Note

In many cases in which the STRUCTURE-IMPLICIT notation is not possible, “flat notation” as outlined below can be used.

Flat notation

The structure-initiating operand is specified. The subordinate operand, however, is entered outside the structure parentheses. The subordinate operand need not be unique with respect to the entire command/statement. It must not occur in more than one active structure. Note that a structure is activated not only explicitly but also implicitly via the default value, if an operand specification is omitted.

Flat notation is not guaranteed on a long-term basis.

Example

```
CRE-FILE FILE1,SUP=*PRIV-DISK,VOL=ABC123,DEV-TYPE=D3435
```

is the abbreviated notation for

```
CRE-FILE FILE1,SUP=*PRIV-DISK(VOL=ABC123,DEV-TYPE=D3435)
```

Notation if NULL-ABBREVIATION=YES

The subordinate operand is entered within the structure parentheses, but the structure initiating operand value is reduced to a null string, i.e. omitted. The prerequisite for this is that the structure-initiating operand value has been defined with the attribute NULL-ABBREVIATION=YES in the syntax file. This attribute can be assigned only once within the set of possible operand values (if several structure-initiating operands are admitted; see the “SDF-A” manual [33]).

In the syntax representation, operand values for which the attribute NULL-ABBREVIATION is guaranteed on a long-term basis are enclosed in square brackets (see "SDF syntax representation").

Example

```
MOD-FILE-ATTR FILE1,PROTECTION=(ACCESS=*READ)
```

is the abbreviated notation for

```
MOD-FILE-ATTR FILE1,PROTECTION=*PARAMETERS(ACCESS=*READ)
```

1.2.5 Replacing expressions in the input

The value of a procedure parameter, an S variable expression or a job variable can substitute a command /statement portion. The expression to be substituted is marked by a '&' character, followed immediately by the name of the procedure parameter or job variable or by an S variable expression enclosed in parentheses. SDF substitutes the actual value for the expression prior to execution of the command/statement. It performs a syntax check on the resulting input. This substitution of expressions is permissible in unguided dialog, in procedures, and in batch mode. In (temporarily) guided dialog, it is restricted to the NEXT line and to input for operand values.

Substituting procedure parameters

In non-S procedures, expressions of the form '&parameter', when used in commands, are replaced by the value assigned to *parameter* in the command BEGIN-PROCEDURE or CALL-PROCEDURE or during prompting. Expressions are replaced in commands. When used in input data (read from SYSDTA), such expressions are replaced only if an escape character (#, @, & or *) has been defined in the ESCAPE-CHARACTER operand of the BEGIN-PROCEDURE command and the expression begins with this character. When used in statements (read from SYSSTMT), such expressions are currently replaced as in commands. It is, however, advisable to define ESCAPE-CHARACTER='&', because the handling of such expressions may be modified.

The following restrictions apply to substituting procedure parameters:

- No substitution is possible within CJC command sequences.
- In procedures or ENTER files, procedure parameters cannot replace the slash introducing commands or the two slashes introducing statements, the period introducing non-S labels, the semicolon separating commands or the continuation character.
- Expressions cannot be nested.
- A double “&” or escape character inhibits substitution, the second “&” or escape character is ignored.

Substituting job variables

This function requires the chargeable subsystem JV to be loaded.

Expressions to be replaced by job variables are specified as follows:

- directly via the job variable name in the form “`&(jv-name)`”
- indirectly via the job variable link name in the form “`&(*jv-link)`”. The assignment of the link name to the job variable takes place prior by means of the command `SET-JV-LINK LINK-NAME = jv-link, JV-NAME = jv-name`.

Note

Before job variable replacement, ACS, if required, replaces the alias of a JV by its real path name (in accordance with the alias catalog entry).

The following restrictions apply to substituting job variables:

- An expression can be replaced only by a job variable in its full length.
- Read access must have been granted to the job variable value to be substituted for the expression, otherwise, the input will be rejected as a syntax error.
- No substitution is possible within CJC command sequences.
- Job variables cannot be substituted for input data. SDF treats statements intended for programs with SDF interface like commands and not like input data.

- In procedures, job variables cannot replace the slash introducing commands or the two slashes introducing statements, the period introducing non-S labels, the semicolon separating commands or the continuation character.
- Job variables cannot be used as procedure parameters. This restriction can be circumvented, for instance, by using a link name (see example 3).
- Expressions cannot be nested.
- With interactive mode or S procedures, job variable substitution in the manner outlined above is effected only if no identical S variable or builtin function is known. This mechanism can be replaced, however, by the builtin function JV(). In this case, the appropriate entry would take the form `“&(JV(JV-NAME=<c-string 1..54>))”` . (See builtin function "JV( ) - Interrogate job variable". If the job variable name contains the catalog and/or user ID, only job variable substitution is possible.

Substituting S variable expressions

In dialog mode and in S procedures, expressions of the form “&(expression)”, when used in commands, are replaced by the value of *expression*, where *expression* may be the name of an S variable, a builtin function or a valid S variable expression. If the expression is to be substituted by an S variable whose name does not contain any period, it may also have the form “&s-variable”. Procedure parameters of an S procedure are S variables and are replaced in expressions also.

Expressions are replaced in commands. When used in input data (read from SYSDTA), such expressions are replaced only if an escape character (#, @, & or *) has been defined in the DATA-ESCAPE-CHARACTER operand of the SET-PROCEDURE-OPTIONS command and the expression begins with this character. When used in statements (read from SYSSTMT), such expressions are currently replaced as in commands.

Expressions may be nested.

The following restrictions apply to substituting S variable expressions:

- Control flow commands cannot be generated.
- The S variable expression to be replaced is converted to type STRING.
- S labels cannot be generated.
- No substitution is possible within CJC command sequences.
- In procedures or ENTER files, S variable expressions cannot replace the slash introducing commands or the two slashes introducing statements, the period introducing non-S labels, the semicolon separating commands or the continuation character.
- A double “&” or escape character inhibits substitution, the second “&” or escape character is ignored.

Examples

1. Substituting job variables in dialog mode

```
/cre-jv jv=cmd        ————————————————————————————————————————————— (1)
/mod-jv jv=cmd,set-value='SHOW-FILE-ATTR'     ———————————————————————— (2)
/&(cmd)                    ———————————————————————————————————————— (3)
```

```
%         3 :2OSG:$USER1.ALT.SYS.LOGON.USERPROC.X1
%        51 :2OSG:$USER1.ALT.SYSSDF.USER.EXAMPLE.1
%        21 :2OSG:$USER1.DATEI.1
%        48 :2OSG:$USER1.DATEI.2
%        84 :2OSG:$USER1.DATEI.3
%        66 :2OSG:$USER1.OUT.SORT1-2
%         3 :2OSG:$USER1.PROC.JV
%:2OSG: PUBLIC:     7 FILES RES=      276 FRE=       39 REL=      21 PAGES
```

```
/mod-jv jv=egon,set-value='-FILE-ATTR F-NAME=PROC.'     ——————————————— (4)
/set-jv-link link-name=walter,jv-name=egon     ———————————————————————— (5)
/sh&(*walter)
```

```
%         3 :2OSG:$USER1.PROC.JV   ——————————————————————————————————— (6)
%:2OSG: PUBLIC:     1 FILE  RES=        3 FRE=       2 REL=       0 PAGES
```

(1) The job variable name ‘CMD’ is declared.

(2) The job variable CMD is assigned the value ‘SHOW-FILE-ATTR’ (short for the name of the command SHOW-FILE-ATTRIBUTES).

(3) After the command has been sent off, the variable string is replaced with the command defined in the job variable, and the command is executed.

(4) The value of job variable EGON is changed. It now contains only part of the command name (‘-FILE-ATTRIBUTES’) and the partially qualified file name ‘PROC.’.

(5) Job variable EGON is assigned the link name ‘WALTER’.

(6) After the command has been sent off, the variable string is replaced with the command portion assigned to the job variable, and the command is executed. The reference to the job variable is established via the link name.

2. Substituting job variables and S variables in dialog mode

```
/sh-jv cmd    ------------------------------------------------------------ (1)
%SHOW-FILE-ATTR
/&(cmd) proc.jv    ------------------------------------------------------- (2)
%         3 :2OSG:$USER1.PROC.JV
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
/cmd='PRINT-DOCUMENT'   ---------------------------------------------------- (3)
/sh-var cmd
CMD = PRINT-DOCUMENT
/&(cmd) proc.jv    ------------------------------------------------------- (4)
%  SCP0810 SPOOLOUT FOR FILE ':2OSG:$USER1.PROC.JV' ACCEPTED. TSN: '1FAL', SPOOL
OUT-NAME: 'SDFTEST', MONJV: '*NONE'
%  SCP1025 PRINT JOB ACCEPTED BY SERVER 'GH5090Y0' WITH TSN '5BXC'
/&(:2osg:cmd) proc.jv   ---------------------------------------------------- (5)
%         3 :2OSG:$USER1.PROC.JV
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
/&(jv(jv-name='CMD')) proc.jv   ------------------------------------------- (6)
%         3 :2OSG:$USER1.PROC.JV
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
/
```

(1) The job variable `CMD` has the value `SHOW-FILE-ATTR`.

(2) The command name from the job variable `CMD` is substituted i.e. SHOW-FILE-ATTRIBUTES is executed for the file `PROC.JV`.

(3) The S variable `CMD` is created implicitly by being assigned the value `PRINT-DOCUMENT.`

(4) The expression `&(CMD)` in the input is now replaced by the contents of the S variable `CMD`, i.e. the command PRINT-DOCUMENT is executed for the file `PROC.JV.`

(5) The name of the job variable `CMD` is prefixed by the catalog ID in order to retain its contents during substitution.

(6) Job variable substitution can alternatively be achieved using the builtin function JV( ).

3. Submitting the name of the job variable to be substituted as procedure parameter of a non-S procedure

```
/BEGIN-PROC PAR=*YES(PROC-PAR=(&PARAM1))   ————————————————————  (1)
    .
    .
    .
/SET-JV-LINK LINK-NAME=PARAM1,JV-NAME=&PARAM1   ——————————————  (2)
/&(*PARAM1) ,FILE-NAME=LST.JOB     ———————————————————————————  (3)
    .
    .
    .
/END-PROC
```

(1) The job variable to be specified via procedure parameter PARAM1 is to contain the current command to be executed. As the entry “&(&PARAM1)” is illegal, a link name will have to be assigned. See (4) in Example 4 for the optional use of a nested expression.

(2) The current job variable name is inserted for procedure parameter PARAM1 and assigned the link name PARAM1.

(3) The contents of the declared job variable are substituted for the link name PARAM1. For instance, if the job variable value is `PRINT-DOCUMENT DOCUMENT-FORMAT=*TEXT(LINE-SPACING=*BY-EBCDIC-CONTROL), LAYOUT-CONTROL=*PAR(ROTATION=90,LEFT-MARGIN=10)` then the file LST.JOB is printed as specified. If the job variable value changes to `SHOW-FILE-ATTRIBUTES INFORMATION=*PAR(HISTORY=*YES,SECURITY=*YES)`, the requested file attributes of the file LST.JOB are displayed.

4. Substituting job variables and S variables in an S procedure, the job variable name being submitted as a procedure parameter:

Contents of procedure file DO.JVTEST:

```
/        SET-PROC-OPT  JV-REPLACE=*AFTER-BUILTIN
/        DECL-PAR      JV-1(INIT=*PROMPT)
/        &(JV(JV-NAME=JV-1))   FILE-NAME=LST.JOB
/ERR:    IF-BLOCK-ERROR
/            WRITE-TEXT  C'** Error &MC **'
/        ELSE
/            WRITE-TEXT  C'** Command &(&(JV-1)) executed **'
/        END-IF
/END:    EXIT-PROC
```

Procedure execution:

```
/show-jv jv=cmd  ------------------------------------------------------------ (1)
%SHOW-FILE-ATTR
/call-proc do.jvtest,log=*yes
%          1  1 /SET-PROC-OPT  JV-REPLACE=*AFTER-BUILTIN
%          2  1 /DECL-PAR      JV-1(INIT=*PROMPT)
%JV-1: cmd   ---------------------------------------------------------------- (2)
%          3  1 /SHOW-FILE-ATTR   FILE-NAME=LST.JOB  ------------------------ (3)
%       3 :N:$USER0001.LST.JOB
%:N:    PUBLIC:      1 FILE  RES=        3  FREE=        3  REL=        3 PAGES
%          4  1 /FEHL:
%          4  1 /   IF-BLOCK-ERROR
%          6  1 /ELSE
%          7  1 /WRITE-TEXT  C''** Command SHOW-FILE-ATTR executed **'
'** Command SHOW-FILE-ATTR executed ** ----------------------------------- (4)
%          8  1 /END-IF
%          9  1 /ENDE:
%          9  1 /   EXIT-PROC
/
```

(1) SHOW-FILE-ATTR is displayed as the contents of job variable CMD.

(2) After invoking the procedure `DO.JVTEST`, the procedure parameter `JV-1` is prompted for and assigned the value `CMD`. The expression is replaced by the job variable value as ascertained by the builtin function JV( ). The desired job variable name is passed to the builtin function via S variable `JV-1`.

(3) The command SHOW-FILE-ATTRIBUTES is executed.

(4) A nested expression is used at this point: A job variable is to be substituted, its name being derived from the expression to be substituted for S variable `JV-1`. As a result, the contents of job variable CMD are substituted.

1.2.6 Language for SDF output

All SDF output occurs in the language that has been set for the output of system messages. The syntax files supplied by Fujitsu Technology Solutions contain texts for the respective language codes (D=German, E=English). These texts are:

- command/statement-specific help texts
- help texts on data types
- SDF-specific messages (e.g. command input request “%KDO:” or “%CMD:”)
- identifiers used in guided dialog (names of input fields, identifiers of data types and their suffixes)

The system language is globally defined in the MSGLPRI system parameter. In addition, system administration can specify the desired language for each user ID in the user catalog; this entry supersedes the globally defined system language. Users may obtain the currently applicable setting by issuing the SHOW-USER-ATTRIBUTES command. The user may also change the system language for a particular task by means of the MODIFY-MSG-ATTRIBUTES command.

If the language code set is not defined in the syntax files activated by a task, i.e. the global information in the activated syntax files does not contain any general text for the language code set, then SDF uses the globally defined system language. It informs the user of this fact by means of message CMD0159.

If the activated syntax files do contain global information for the language code set, then SDF outputs the command/ statement-specific help texts defined for this language code. Any help texts that may not be defined for this language code are output in the globally defined system language.

1.2.7 Return codes

SDF provides the user with information on the analysis of command input and execution in the form of a command return code. This command return code is comparable to return codes at the program level. It enables users to take specific action in response to typical error situations.

1.2.7.1 Structure of command return codes

Command return codes consist of three parts:

- the **maincode**, a message code that can be specified with the HELP-MSG-INFORMATION command in order to obtain detailed information.
- **subcode 1**, which assigns the error situation to an error class that indicates how serious an error is. Subcode 1 has a *decimal* value. The following five error classes are defined in BS2000:
  - Class A: no error

    The value is zero. Processing can proceed normally.
  - Class B: syntax error

    The value is a number between 1 and 31. The command was entered with incorrect syntax. The command can be entered again after the syntax error has been corrected.
  - Class C: internal error (system error)

    The value is 32. Input can be repeated if the internal error has been recovered.
  - Class D: errors that cannot be assigned to any other error class.

    The value is a number between 64 and 127. Evaluate the maincode to determine how to proceed.
  - Class E: the command cannot be executed at the moment.

    The value is a number between 128 and 130. Command input can be repeated without modification. The wait time may be short, long or indefinite. 128 indicates a short wait time, considered practical in interactive mode. 129 indicates a long wait time, considered practical in batch mode.

    130 indicates an indefinite wait time and uncertainty as to whether the error will be recovered at all.
- **subcode 2**, which can contain additional information (value is not zero). Subcode 2 has a *decimal* value. In the event of an error (subcode 1 is not zero), there are no rules regarding the use of subcode 2. The value of subcode 2 may be zero, 1 or 2 if no error has occurred.

  Subcode 2 with the value 1 indicates that the requested function was already available before the command was issued. Subcode 2 with the value 2 indicates an exception situation and should be classified as a warning.

Command return codes can only be evaluated with SDF-P resources in S procedures and dialog blocks (see the “SDF-P” manual [34]). For information on evaluation see also the descriptions of the IF-BLOCK-ERROR command and of the builtin functions MAINCODE, SUBCODE1 and SUBCODE2 in the section "Builtin functions".

Representation of command return codes

Command return codes are represented in tabular form in the order: subcode 2, subcode 1, maincode, meaning. A subcode 2 with the value zero (i.e. no additional information present) is not listed in the table. If messages are guaranteed in a table for a specific command return code, the heading “Meaning” is supplemented by “/Guaranteed messages”, and the message codes of the guaranteed messages are given after the meaning. The user can output the meanings of these message codes with the HELP-MSG command.

Example

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command terminated without errors
1	32	CMD0500	Incorrect syntax description in current syntax file Guaranteed message: CMD0500
	64	CMD0554	Command execution not successful. Guaranteed message: CMD0300, CMD0302, CMD0490, CMD0508, CMD0509, CMD0552, CMD0554, CMD0555, CMD0579

1.2.7.2 General command return codes

Command return codes which a BS2000 command may pass upon execution are part of the respective command descriptions. The table below contains general command return codes that are automatically passed by SDF if

- SDF senses an error prior to command execution (e.g. syntax error)
- the command cannot be executed
- the command, i.e. the execution module itself, does not pass a command return code. In this case, the command description does not contain any specific command return codes.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	0	CMD0002	Command executed with warning [4]
1	0	CMD0026	Command no longer supported
2	0	CMD0093	Procedure ended in test mode [1]
2	0	CMD0201	End of file reached [1]
2	0	CMD0214	End of program [3]
	1	CMD0211	SDF transfer area too small
	1	CMD0202	Syntax error [5] [6]
	1	CMD0205	SPIN-OFF [1] [2]
	1	CMD2201	Internal parameter error
	2	CMD0200	Command presently not available
	2	CMD2202	Subsystem not defined
	3	CMD2203	Installation error
	32	CMD0221	Internal SDF error
	32	CMD2009	Error during output to variables
	32	IMO9101	Internal error in IMON-GPN
	64	CMD0216	Requisite privilege missing
	64	IMO9100	Installation unit, version or logical name not found, etc.; the cause can be found in the SYSOUT message
	65	CMD2241	Subsystem not loaded
	66	CMD2242	Subsystem not connected
	128	CMD2280	Subsystem not available for a short period

	129	CMD2281	Subsystem not available for a long period
	130	CMD2282	Subsystem not available for an indefinite period
	130	NBR0748	After /SHUTDOWN, the only command that can be entered at the console is /SHOW-PENDING-MSG

1) Command return codes CMD0093, CMD0201 and CMD0205 are not possible if the command is issued via the CMD macro.

2) Command return code CMD0205 is passed if spin-off was initiated. Example: end of program with TERM macro call with UNIT=STEP, and no command return code has been set with the CMDRC macro call during the program run.

3) Command return code CMD0214 cannot be passed to the calling program by the CMD macro because the program has been terminated by CMD macro execution.

4) Command return code CMD0002 is passed by SDF if a command triggers spin-off despite error-free execution. This compatibly supports the previous spin-off behavior of commands (and thus error handling in non-S and ENTER procedures). In S procedures in which ERROR-MECHANISM=*BY-RETURNCODE applies (see the SET-/MODIFY-PROCEDURE-OPTIONS command), error recovery is not initiated automatically since the related subcode 1 has the value zero.

5) Command return code CMD0202 is passed by SDF if a command does not initiate spin-off on incorrect execution. CMD0202 indicates syntactical and semantic errors detected during command execution. This compatibly supports the previous spinoff behavior of commands (and thus error handling in non-S and ENTER procedures). In S procedures in which ERROR-MECHANISM=*BY-RETURNCODE applies (see the SET-/MODIFY-PROCEDURE-OPTIONS command), error recovery is initiated since the related subcode 1 has a value other than zero.

6) Command return code CMD0202 is passed by SDF from the execution module for both syntactical and semantically errors.

Notes

- In user programs the CMDRC macro call can be used to set a command return code. This return code is retained up to the next CMDRC macro call. On program termination the current command return code from the program is passed to the caller and triggers error recovery in S procedures for subcode 1 with a value other than zero if ERROR-MECHANISM=*BY-RETURNCODE was specified (see the SET-/MODIFY-PROCEDURE-OPTIONS command).
- Return codes set within the program can be evaluated like command return codes after each statement (see the BEGIN-BLOCK command in section "Builtin functions").

1.2.8 Conditional expressions (job variables)

A conditional expression is used to render the processing of commands ADD-CJC-ACTION, SKIP-COMMANDS or WAIT-EVENT dependent on job variable values. A conditional expression may be “true” or “false”. It consists of one or more relational expressions <relation.expr>, which have the following structure. Alternative expressions are separated by “/”; freely selectable specifications are enclosed in square brackets. The use of special job variables in conditional expressions is permitted only with the SKIP-COMMANDS command.

<relation.expr>	::=	(<term> <comparative-op> <term>)											
<term>	::=	<jvid> / <jv-substring-def> / <const>											
<comparative-op>	::=	<	/	>	/	=	/	<=	/	>=	/	<>	/
		LT	/	GT	/	EQ	/	LE	/	GE	/	NE	
<jvid>	::=	<jvname> / <*jvlink> / <#jvname> / <special-jvname> As CJC compares at most 64 bytes, <jvid> is equivalent to specifying (<jvid>,1,64).											
<jvname>	::=	Name of a permanent user job variable											
<*jvlink>	::=	Link name of a user job variable with leading asterisk(*)											
<#jvname>	::=	Name of a temporary user job variable											
<special-jvname>	::=	Name of a special job variable without a catalog ID, but with the user ID SYSJV specified											
<jv-substring-def>	::=	(<jvid> [,[<start>][,<length>]])											
<start>	::=	<integer 1..256>						Default value = 1					
<length>	::=	<integer 1..64> (<start> + <length> <= 257)						Default value = 64					
<const>	::=	<c-string 1..64> / <x-string 1..128> for example: C’HALLO’ or ’HALLO’ or X’00FF’ or X’0FF’											

Note

If required ACS replaces the alias of a JV specified in <jv-name> by its real path name (in accordance with the alias catalog entry).

The operators LT, GT, EQ, LE, GE and NE must be separated by a blank from constants, JV names or link names. It should be noted in particular that uppercase and lowercase letters are retained in conditional expressions. Complex conditional expressions are formed by combining relational expressions with the help of logical operators:

<cond.expr>	::=	(<relation.expr> <logical.op> <relation.expr> / <cond.expr> <logical.op> <cond.expr> / NOT <cond.expr>				
<logical.op>	::=	AND	/	OR	/	XOR
		logical and		logical or		exclusive or

Example

```
(JV1=C'START')
```

```
((JV2=C'O.K.') AND (*LINK<=C'12'))
```

```
(((JV4,10,3)=C'NEU') OR (#TEMP.JV=C'Y') AND (*LINK2=X'00'))
```

Note

A conditional expression is evaluated “from the lowest to the highest level” within the parentheses. At the same level within the parentheses, the logical operations are performed in the following order:

1. NOT
2. AND
3. OR
4. XOR

The following expression, for instance,

```
(NOT (JV1=C'ABC') OR (JV2=C'Z') AND (JV3<>JV4))
```

is evaluated as if it had been expressed as follows

```
((NOT (JV1=C'ABC')) OR ((JV2=C'Z') AND (JV3<>JV4)))
```

When comparing job variable values, a few special aspects have to be taken into account:

- The evaluation of relational expressions proceeds by byte from left to right. The result of a comparison is determined by the EBCDIC bit pattern for the given values. Thus, for example, the printable digits 0 to 9 (X'F0' to X'F9') are “greater” than the letters A ... Z (X'C1' ... X'E9'), and uppercase letters are greater than lowercase letters.
- If the comparison value lies completely outside the defined range of a job variable or the job variable is empty (e. g. after declaration), the results of comparison are “false” in every case, even if the test was for “not equal” (<>). As a result, the WAIT-EVENT command, for example, will always switch to wait state in these instances; it will then recognize if the required JV range is written and defined at a later point.
- If the reference value lies partly inside the defined range of a JV, it’s length is reduced to the currently defined part of the JV. Example: If the job variable X contains the value C'123456', the substring (X,3,8) is evaluated as if it was (X,3,4). Therefore, the comparison (X,3,8) = C'3456' will have the result “equal”, despite the fact that a comparison between an 8 byte string and a 4 byte value may appear syntactically impossible.

Example

The following expressions are “true”

```
         C' ' < C'A'
         C'a' < C'A'                     X'81' < X'C1'
         C'A' < C'B'                   X'0123' < X'0124'
         C'B' < C'BB'                    X'C1' < X'C100'
C'GUTEN ABEND' < C'GUTEN MORGEN'
  C'ZZZZZZZZZ' < C'0'       (!)      X'F0F0F0F0' < X'F1'
         C'8' < C'9'
  C'899999999' < C'9'       (!)          X'3FFF' < C' '
```

The response to the following queries is “false”.

```
(IN)     CALL-PROC PROC.JV
(IN)     /BEG-PROC LOG=*ALL
(IN)     /CRE-JV JV=JV1
(IN)     /SKIP-COMMAND TO-LABEL=END,IF=JV(COND=((JV1,11,1) NE '2')
(OUT)    %  CJC0011 SKIP-COMMANDS: CONDITION = FALSE
(IN)     /MOD-JV JV=(JV-NAME=JV1,POS=1,LENGTH=5),SET-VALUE=C'12345'
(IN)     /SKIP-COMMAND TO-LABEL=END,IF=JV(COND=((JV1,6,2) EQ 'A1')
(OUT)    %  CJC0011 SKIP-COMMANDS: CONDITION = FALSE
(IN)     /SKIP-COMMAND TO-LABEL=END,IF=JV(COND=((JV1,6,2) NE 'A1')
(OUT)    %  CJC0011 SKIP-COMMANDS: CONDITION = FALSE
(IN)     /.END END-PROC
```

A conditional expression will be rejected in the following cases:

- A JV to which reference is made cannot be accessed (catalog destroyed).
- A JV to which reference is made is not present in the specified catalog.
- The user does not have authorization to access a password-protected or nonshareable JV.

1.2.9 System files

The (standard) file names SYSDTA, SYSSTMT, SYSCMD, SYSIPT, SYSLST, SYSLST01, SYSLST02, ..., SYSLST99, SYSOPT and SYSOUT designate (system) files used by the operating system for data and command input to the operating system and for data output by the operating system. These files are created in each case by the task and initially designate (primary) specified input or output areas.
Users may cancel the primary assignment and assign their own cataloged files or complex S variables (when the SDF-P software product is used) to the (standard) file names.

The following **system files** are available to a job for **input**:

SYSCMD — Commands given by users to control the execution of their jobs are expected from SYSCMD. During the processing of the commands, i.e. in command mode (system mode), SYSCMD is active.

SYSDTA — The system file SYSDTA is used for the input of input data, i.e. data, parameters and statements, which a program reads in without the SDF interface (see the CMDRST or RDATA macro in the “Executive Macros” manual [22]). SYSDTA is active the moment a program begins execution, i.e. in program mode.

SYSIPT — This system file is only still available for reasons of compatibility and is consequently no longer described.

SYSSTMT — This system file is used for the input of statements to programs. The statements must be defined in a syntax file (see the “SDF-A” manual [33]).
The allocation made for the system file SYSDTA also applies for system file SYSSTMT. The continuation lines, continuation characters and comments used when entering SYSSTMT statements must comply with the rules for SYSCMD command entry.

The following **system files** are available to a job for **output**:

SYSOUT — The system directs logging messages and error messages arising during the currently executing job to SYSOUT. Utility routines and compilers also use SYSOUT in this way.
File name on primary allocation: *S.OUT.tsn.yyyy-mm-dd.hhmmss.nnnn*
If the system parameter SSMMILOG=Y is set during allocation to a PLAM library member then the output records are also written to the file *S.OUT.lib.elem.tsn.nnnn*.

SYSLST — In general larger data sets, such as memory dumps and listings generated by utility routines and compilers, are written to the system file SYSLST. In addition, SYSLST may contain records from the SYSOUT system file, if desired (specify LOGGING in the SET-LOGON-PARAMETERS or MODIFY-JOB-OPTIONS command).
File name on primary allocation: *S.LST.tsn.yyyy-mm-dd.hhmmss.nnnn*
If the system parameter SSMMILOG=Y is set during allocation to a PLAM library member then the output records are also written to the file *S.LST.lib.elem.tsn.nnnn*.

SYSLST01, SYSLST02, ..., SYSLST99

Unlike the system file SYSLST, these system files do not have their own EAM area for storing output data. They are used for buffering and are operative only when cataloged files are assigned to them.

SYSOPT — This system file is only still available for reasons of compatibility and is consequently no longer described.

Meaning of the file name parts:

tsn	TSN of the task (4 characters)
yyyy-mm-dd	File creation date, where mm=month, dd=day of the month, yyyy=4-digit year specification
hhmmss	File creation time, where hh=hours, mm=minutes and ss=seconds
nnnn	4-digit counter
lib	First 7 characters of the PLAM library
elem	First 7 characters of the element name

The system files for output are normally output when a job is ended (EXIT-JOB or LOGOFF command) if no cataloged file or a complex S variable has been assigned to them and output was not suppressed on job termination. Depending on the setting of the system parameter SSMOUT, the files are output to printer or sent by email. If they cannot be sent by email, they are output to printer. Before the job has been completed, the system file can be output to printer using the PRINT-DOCUMENT command or sent by email using the MAIL-FILE command. Using the COPY-SYSTEM-FILE command, the system file SYSLST can also be copied to a file if SYSLST has the primary assignment.

In the PRINT-DOCUMENT and DELETE-SYSTEM-FILE commands, the (standard) file names SYSOUT and SYSLST may also be specified when cataloged files or complex S variables have been assigned to them. SYSLST and SYSOUT are rejected in the MAIL-FILE command if an S variable is assigned to them.

Accessing system files

With the help of system files, user programs can input and output data. The system file SYSCMD represents an exception; it is accessible only to the system via privileged macros. The following table lists the macros and statements required to access system files.

System file	Macros that access system files	Language statements referring to system files:			
	Assembler	COBOL	FORTRAN	PL/I	RPG3
SYSCMD	privileged	-	-	-	-
SYSDTA	RDATA	ACCEPT dataname FROM TERMINAL	READ (1,... READ (5,... READ (97,...	GET without FILE option	(DEVICE=) READER, no explicit statement
SYSSTMT	CMDRST [1] RDSTMT	[1]	[1]	-	-
SYSIPT [2]	-	-	-	-	-
SYSOUT	WROUT	DISPLAY dataname UPON TERMINAL	WRITE (2,...	DISPLAY dataname (without REPLY)	DSPLY
SYSLST	WRLST	DISPLAY dataname; DISPLAY dataname UPON SYSLST	WRITE (6,... WRITE (99,...	PUT without FILE option	(DEVICE=) PRINTER, no explicit statement
SYSOPT [2]	-	-	-	-	-

Table 5: Accessing system files

1) There exists a High-**L**evel **L**anguages program interface for the programming languages C, COBOL and FORTRAN. The functions of the most important SDF macros (such as RDSTMT, CORSTMT and TRSTMT) are supported in function calls (see the “SDF-A” manual [33]).

2) The system files SYSIPT and SYSOPT are only still available for reasons of compatibility.

Primary assignment and redirection of system files

In general, a specific assignment for the system files is preset. With the help of commands, this primary assignment can be changed; the following table provides an overview of this. Examples may be found in the descriptions of the commands involved.

System file	Primary assignment	Further assignments	Commands for changing the assignment
SYSCMD	in dialog: terminal in batch: spooling file (S.IN.), spooled in via magnetic tape device or ENTER file.	cataloged disk file (SAM/ISAM), library member or complex S variable	CALL-PROCEDURE: assignment to a cataloged file, a library member or a complex S variable End of procedure: assignment in effect when the last procedure was exited.
SYSDTA	same as SYSCMD primary assignment	cataloged file (SAM /ISAM), library member, complex S variable	ASSIGN-SYSDTA: assignment to a cataloged file, to a library member, to a complex S variable, to SYSCMD or back to the primary assignment. End of procedure: assignment in effect when the last procedure was exited.
SYSSTMT	same as SYSDTA primary assignment	same as SYSDTA	same as SYSDTA
SYSIPT	This system file is still provided for reasons of compatibility.	-	-
SYSOUT	in dialog: terminal in batch: temporary spoolout file (S.OUT.) which at the end of the job is printed out or sent by email and then deleted	cataloged file (SAM /ISAM), library member or complex S variable; no automatic printout or transfer by email	ASSIGN-SYSOUT: assignment to a cataloged file, to a library member, to a complex S variable, to SYSCMD or back to the primary assignment. End of procedure: assignment in effect when the last procedure was exited.
SYSLST	temporary spoolout file (S.LST.) which at the end of the job is printed out and then deleted (created only when needed)	cataloged file (SAM), library member or complex S variable; no automatic printout or transfer by email	ASSIGN-SYSLST: assignment to a cataloged file, to a library member, to a complex S variable, to SYSCMD or back to the primary assignment. End of procedure: assignment in effect when the last procedure was exited.

System file	Primary assignment	Further assignments	Commands for changing the assignment
SYSLST01 . . . SYSLST99	current assignment of SYSLST	same as SYSLST; also possible between each other	same as SYSLST
SYSOPT	This system file is still provided for reasons of compatibility.	-	-

Table 6: Primary assignment and redirection of system files

Termination of the procedure and the resultant change in assignment can be explicitly effected by means of an EXIT-PROCEDURE, CANCEL-PROCEDURE or END-PROCEDURE command (only non-S procedures). A procedure is implicitly terminated on reaching end of file (EOF condition).

1.2.10 Job switches

Every job in BS2000 has available to it job-specific switches, which can only be changed or queried when that job is executing (note in this regard: user switches are user-ID-specific, see the MODIFY-USER-SWITCHES command). There are 32 job switches (numbered 0 to 31) available per job. Each of these switches may be given a value of 0 or 1. At the beginning of the job, all job switches are cleared (setting: 0). While the job is executing, these switches can be changed:

- **explicitly**, using the MODIFY-JOB-SWITCHES command
- **implicitly**, using the SET-JOB-STEP command (resets switches 16 to 31) or using utility routines (software products)

At the end of the job, all job switches are cleared again.

The following table shows which software products normally use job switches:

Software product	Job switches
ARCHIVE	30, 31
BCAMDEF	1, 4, 5, 20, 31
DAMP	5, 30
EDT	4 to 7
EDTU	4 to 8
FMS	5
LMS (ISP)	1, 4, 9
LMS (SDF)	4, 31
PRSERVE	0, 2, 3
SDF-A	15
SHOW-FILE	5
TSOSLNK	4

Table 7: Job switches used by software products

The following applies here:

Setting switch 4 causes the BLS0500 message from the binder loader to be suppressed.

ARCHIVE

Information regarding the course of the process may be obtained from the setting of the switches that ARCHIVE sets during/after the run.

Switch 30 set by ARCHIVE: Warning message in procedures

Switch 30 is set by ARCHIVE when the ARCHIVE statement was executed but a warning message was issued.

Switch 31 set by ARCHIVE: Errors in procedures

Switch 31 is set by ARCHIVE when an error was detected but the ARCHIVE statement was nevertheless executed.

BCAMDEF

Switches 0, 4, 5, 31 are used:

Within the BCAMDEF procedure, switches 0, 4, 5, 31 are set and then cleared again.

DAMP

Switch 5 set for DAMP

Before the DAMP program is called, task switch 5 must be set in the procedure.

If, in procedure mode, a DAMP statement is followed by a system command that is not permitted at the DAMP program level, DAMP switches from procedure mode to interactive mode and resets task switch 5. The last DAMP output screen is then displayed on the screen. In batch mode, a system command which is not permitted causes the job to be aborted.

Switch 30 set for DAMP

Suppresses a dump (user dump) if DAMP terminates in case of a program or system error:

- In interactive mode, a message is issued asking whether a dump should be generated.
- In batch mode, no dump is generated.

DBL/ELDE (Binder/Lader)

Switch 4 set

The system messages (`BLS0500`, `BLS0517`,...) about loading a module are suppressed.

EDT

Switch 4 set for EDT: Suppress start and end messages

Setting this switch causes the message BLS0500 following the loading of EDT to be suppressed. When EDT is terminated, message EDT8000 and, where applicable, messages EDT0900 and EDT0904 are also suppressed. In batch mode, logging is suppressed (equivalent to @LOG NONE).

Switch 5 set for EDT: Activate L mode and edit-only mode

When this switch is set, EDT reads via RDATA from SYSDTA and not via WRTRD, i.e. EDT operates in edit-only mode (equivalent to @EDIT ONLY).
Instead of the current line number, EDT displays * as a prompt in dialog mode.
If the switch is changed during EDT operation, this has no effect.
Explicit switching (with @EDIT without operands to L mode or with @EDIT FULL SCREEN to F mode) is still possible.

Switch 6 set for EDT: 160 print positions per line

When outputting to SYSLST (e.g. @LIST statement), EDT normally writes no more than 132 characters per line. If job switch 6 is set, EDT writes up to 160 characters per line. Longer outputs are distributed over several lines.
Job switch 6 must already be set when EDT starts.

Switch 7 set for EDT: Excess memory space is not released

This job switch can be set both before starting EDT and during EDT execution. It prevents the automatic release of pre-allocated, excess disk space after writing a SAM or ISAM file by EDT, which normally releases unused disk space using the FILE macro.

EDTU

The switches 4 to 7 are evaluated as in EDT.

Switch 8 set for EDTU set: Redirect outputs to SYSOUT

In batch mode, the EDT writes messages and the output of a series of instructions (e.g. @STATUS) to SYSLST. If the job switch 8 is set, the EDT writes this output to SYSOUT.
The job switch 8 must already be set when the EDT starts.

FMS

Switch 5 set for FMS: FMS suppresses interactive queries

LMS

Switch 1 set for LMS (ISP only): Alternative input of statements

In interactive mode, unless otherwise specified, statements to LMS are read from the interactive terminal by means of the WRTRD macro. When switch 1 is set, statements are read with the RDATA macro, from the file assigned to the SYSDTA system file.

Switch 4 set for LMS: Suppress start and end messages

Setting switch 4 causes the LMS start and end messages to be suppressed. At the same time, the runtime log of LMS is reduced to the minimum.

Switch 9 set for LMS (ISP only): Request additional memory space

Setting switch 9 makes it possible to process up to 1200 records of different length in one comparison, and to continuously sort larger directories with the TOC function.

Switch 31 set for LMS: Set test condition for diagnostic purposes (see the “LMS” manual [21]).

PRSERVE

Switch 0 set for PRSERVE: Suppress output of the character frame

Setting switch 0 causes output of the secondary statement indicator (character frame) to SYSOUT to be suppressed. However, this is unrelated to the screen display, produced by means of the DISPLAY statement.

Switch 2 set for PRSERVE: Suppress output of the LOOP record

Setting switch 2 causes the output of the LOOP record (following a CHECK statement) in interactive mode to be suppressed.

Switch 3 set for PRSERVE: Suppress information regarding the current mode of operation

Unless otherwise specified, the user receives from PRSERVE an error message and information regarding the currently active operational status after an incorrect PRSERVE statement has been entered. By setting switch 3, output of the information is suppressed.

SDF-A

Switch 15 set for SDF-A: Process syntax files in the old format

Syntax files in the old format (supported by SDF V1.4) are processed without being automatically converted into the new format. However, this means that only the syntax and functionality of SDF-A V1.0D are available.

> By default, reference syntax files are not assigned, i.e. *NO applies rather than *CURRENT. Only reference syntax files in the old format can be explicitly assigned. It is not possible to generate new system syntax files or output syntax file objects.

TSOSLNK

Switch 4 set for TSOSLNK: Suppress page feed

Setting switch 4 causes all page feeds to be omitted when the linkage editor listing is output on SYSLST.

1.2.11 Volume type table

The manual „System Installation“ [46] contains a device type table with all codes which are required for the BS2000 operating system. For information on which devices are currently supported, please refer to the Release Notice.

Volume type table

Volume type code	Volume type	Meaning
A8	NETVOL	Net-Storage volume of type NETVOL in DMS commands and macros(there is no device type code for this)
A9	NETSTOR	Net-Storage volume of type NETSTOR in DMS commands and macros(there is no device type code for this)
B4	T6250 / T9G	(Emulated) long tape with recording density of 6250 bpi (CD, DVD or file) (device type code: E8)
B7	TAPE-C5	128-track tape cartridge (device type code: C5)
BB	TAPE-C3	36-track tape cartridge (device type code: C4)
BC	TAPE-C4	36-track tape cartridge, compressed (device type code: C4)
BF	TAPE-C6	256-track tape cartridge (device type code: C6)
C1	TAPE-U8E	6656-track tape cartridge, data is written in encrypted form. (device type code: C1)
C7	TAPE-U4E	896-track tape cartridge, data is written in encrypted form, see the "MAREN" manual [23] (device type code: CE)
C8	TAPE-U5E	1280-track tape cartridge, data is written in encrypted form, see the "MAREN" manual [23] (device type code: CF)
C9	TAPE-U6E	2176-track tape cartridge, data is written in encrypted form, see the "MAREN" manual [23] (device type code: D1)
CA	TAPE-U7E	3584-track tape cartridge, data is written in encrypted form, see the "MAREN" manual [23] (device type code: D2)
CC	TAPE-U2	512-track tape cartridge (device type code: CC)
CD	TAPE-U3	704-track tape cartridge (device type code: CD)
CE	TAPE-U4	896-track tape cartridge, data is written in unencrypted form, see the "MAREN" manual" [23]. (device type code: CE)
CF	TAPE-U5	1280-track tape cartridge, data is written in unencrypted form, see the "MAREN" manual" [23]. (device type code: CF)
D1	TAPE-U6	2176-track tape cartridge, data is written in unencrypted form, see the "MAREN" manual" [23]. (device type code: D1)

D2	TAPE-U7	3584-track tape cartridge, data is written in unencrypted form, see the "MAREN" manual" [23]. (device type code: D2)
D3	TAPE-U8	6656-track tape cartridge, data is written in unencrypted form. (device type code: D3)

Table 8: Assignment of volume type code to volume type

1.2.12 DMS volume types

During file processing, DMS requests the required volumes using the VSN and device type in device management. Strictly speaking, the device type which is used in DMS specifies the volume type.

For a requested volume type the device management provides a device of the appropriate device type. In the case of tapes/MTCs, the volume is mounted on the device provided. In the case of disks, the volume is already “mounted” on the device (here the volume and device type are identical).

1.2.12.1 Volume type for Net-Storage

Net-Storage is made available to the BS2000 system by means of one or more Net-Storage volumes which extend a pubset. While the Net-Storage volume on the net server corresponds to a directory in the file system released for BS2000, from the BS2000 viewpoint it is a disk.

In contrast to “normal” BS2000 disks, in BS2000 no device exists on which a Net-Storage volume could be mounted. Consequently, Net-Storage volumes are not generated.

As of BS2000 V21.0A, there is a second Net Storage volume type NETVOL (internal type A8) in addition to the previous Net Storage volume type NETSTOR (internal type A9).

While only the catalog entries exist in TSOSCAT of the pubset for files on a Net-Storage volume of the NETVOL type, each Net-Storage volume of the NETSTOR type has its own file catalog with the name .BS2FSCAT.
It contains a copy of the catalog entry in TSOSCAT of the pubset to which the Net-Storage volume is assigned for all files that are stored on the NETSTOR type Net-Storage volume.

As of BS2000 V21.0A, the ADD-NET-STORAGE-VOLUME command is always used to set up Net Storage volumes of the NETVOL type and assign them to a pubset.

Existing Net-Storage volumes of the NETSTOR type will continue to be supported in BS2000 V21.0A.

The volume type NETSTOR or NETVOL must be specified in the DEVICE-TYPE (or TYPE) operand for a Net-Storage volume.

1.2.12.2 Volume types for DMS tape processing

When tape files are processed, device requests are made via the volume type specification in the DEVICE-TYPE operand. Device management then supplies a device that supports the specified volume type. The following values can be specified in the DEVICE-TYPE (or TYPE) operand:

Command	**Permissible specifications for the volume type in the DEVICE-TYPE or TYPE operand:**		
	TAPE T6250	**WORK**	**TAPE-C3/C4/ U2/U3/U4/U4E/U5/U5E/U6/U7/U7E/U8/U8E**
CREATE-FILE	X	X	X
CREATE-FILE-GENERATION	X	X	X
CREATE-TAPE-SET	X		X
EXTEND-TAPE-SET	X		X
MODIFY-FILE-ATTRIBUTES	X		X
MODIFY-FILE-GENERATION-SUPPORT	X		X
IMPORT-FILE	X		X
SECURE-RESOURCE-ALLOCATION	X	X	X

Table 9: Device types for DMS tape processing

The overview below indicates which devices (see device table for device types) can be assigned to the various volume types.

Volume types for magnetic tape devices

T6250	9-track tape devices which support a recording density of 6250 bpi (**b**ytes **p**er **i**nch); (T9G is a synonymous volume type)
TAPE	9-track tape devices independent of the supported recording density: same device types as for T6250
WORK	9-track tape devices independent of the supported recording density: same device types as for T6250 A device on which a work tape is mounted is assigned (assignment of a VSN can only be performed by the operator). A work tape is not normally archived, and it is therefore a good idea to only use it for output data that is no longer required after processing. *No* owner entered the VOL1 label, i.e. the volume is not protected against unauthorized access.

Volume types of magnetic tape cartridge devices (MTC)

TAPE-C3	MTC (device type 3590E) 36-track, uncompressed recording
TAPE-C4	MTC (device type 3590E) 36-track, compressed recording MTC (device type 3590E) 128-track, emulated
TAPE-U2	MTC (device type LTO-U2) 512-track
TAPE-U3	MTC (device type LTO-3) 704-track
TAPE-U4	MTC (device type LTO-U4) 896-track, Data is written in unencrypted form, (see the “MAREN” manual [23])
TAPE-U4E	MTC (device type LTO-U4E) 896-track, Data is written in encrypted form, (see the “MAREN” manual [23])
TAPE-U5	MTC (device type LTO-U5) 1280-track, Data is written in unencrypted form, (see the “MAREN” manual [23])
TAPE-U5E	MTC (device type LTO-U5E) 1280-track, Data is written in encrypted form, (see the “MAREN” manual [23])
TAPE-U6	MTC (device type LTO-U6) 2176-track, Data is written in unencrypted form, (see the “MAREN” manual [23])
TAPE-U6E	MTC (device type LTO-U6) 2176-track, Data is written in encrypted form, (see the “MAREN” manual [23])
TAPE-U7	MTC (device type LTO-U7) 3584-track, Data is written in unencrypted form, (see the “MAREN” manual [23])
TAPE-U7E	MTC (device type LTO-U7) 3584-track, Data is written in unencrypted form, (see the “MAREN” manual [23])
TAPE-U8	MTC (device type LTO-U7) 6656-track, Data is written in unencrypted form
TAPE-U8E	MTC (device type LTO-U7) 6656-track, Data is written in encrypted form

An overview of the devices which are supported by the current version of BS2000 operating system is contained in the device table in the “System Installation” manual [46]. For information on which devices are currently supported, please refer to the Release Notice.

1.2.13 Information services of device management: Meanings of the output values of SHOW commands

The NDM information services provide the operator with certain output fields appropriate to the specified command and the desired scope of information. The various output formats are described with the command concerned. The meaning of the output fields is described below in alphabetical order.

Information is supplied for the following commands:

Command	Abbreviated name used in the table
SHOW-DEVICE-CONFIGURATION	SH-DEV-CONF
SHOW-DEVICE-DEPOT	SH-DEV-DEPOT
SHOW-DEVICE-STATUS	SH-DEV-STA
SHOW-DISK-DEFAULTS	SH-DISK-DEF
SHOW-DISK-STATUS	SH-DISK
SHOW-MOUNT-PARAMETER	SH-MOUNT
SHOW-RESOURCE-ALLOCATION	SH-RES
SHOW-RESOURCE-REQUESTS	SH-RES-REQ
SHOW-TAPE-STATUS	SH-TAPE

<table>
<tr><th>Keyword</th><th>Meaning</th><th>Used in command</th></tr>
<tr><td>ACCESS</td><td>WRITE = Read and write access to the disk is permitted.

ALL = The disk is not yet allocated. Only when the disk is allocated is ACCESS=WRITE set.</td><td>SH-DISK (INF=PAR)</td></tr>
<tr><td>ACTION</td><td>Shows which (re)mount operation is being performed for a volume by volume monitoring. This can have been initiated by one of the following actions:

• operator intervention(inadvertently dismounting a volume that is in use)
• commands (DETACH-DEVICE, CHANGE-DISK-MOUNT ACTION=MOVE...)
• Device Error Recovery (DER) e.g. with INOP
• user request (mount message for volumes that have not yet been mounted)

The following states are possible:

<table><tr><td>CANCELLED:</td><td>The tape or disk is permanently locked; the interrupt is not cleared.</td></tr><tr><td>DISMOUNT:</td><td>A remount message has not been received for the same volume on another device, or a remount, mount or premount message has not been received for another volume on the same device.</td></tr><tr><td>INOP:</td><td>The device is temporarily unavailable (inoperable).</td></tr><tr><td>MOUNT:</td><td>The response to a mount message is not yet sent for the relevant volume.</td></tr><tr><td>NO ACTION:</td><td>No interrupt.</td></tr><tr><td>NO DEVICE:</td><td>There no longer exists a device allocation for a volume owing to a previous reconfiguration command (DETACH-DEVICE, REMOVE-DEVICE-CONFIGURATION); processing of the volume is interrupted until a standby device is provided.</td></tr><tr><td>POSITION:</td><td>The tape in use is being repositioned.</td></tr><tr><td>PREMOUNT:</td><td>The response to a PREMOUNT message has not been received for the relevant volume.</td></tr><tr><td>RECOVER:</td><td>An interrupt procedure which is not specified in more detail is being carried out for the volume in use.</td></tr><tr><td>REMOUNT:</td><td>The volume is being remounted.</td></tr></table></td><td>SH-RES
SH-DEV-STA
SH-DISK
SH-TAPE</td></tr>
</table>

	<table><tr><td>SVL-UPDATE:</td><td>The system allocation log is being stored on disk.</td></tr><tr><td>SNATCHED:</td><td>The allocation which was passed to another task has been revoked by the device owner.</td></tr><tr><td>UNLOCK:</td><td>An UNLOCK job for the removal of a system ID stored in the SVL is being executed.</td></tr><tr><td>WP-MISSING:</td><td>The write-enable ring for a tape is to be mounted or the write protection for a disk is to be canceled.</td></tr></table>	
ADMISSION-TIME	Date and time of day at which the task entered the secure queue (yyyy-mm-dd hh:mm:ss)	SH-RES-REQ
ALIAS1 ALIAS2 ALIAS3 ... ALIAS7	Shows the mnemonic alias name of a PAV device in the format <mnemoname>-xy. Up to three alias names are possible. The status indicator xy means: x = P for “preferred” devices, F for FastDPAV devices or ’-’ for other devices y = A for “active”, R for “ready” or N for “not ready”	SH-DEV-CONF (INF=PAV)
ALLOC	Indicates whether the disk is allocated. • YES: Disk is allocated. • NO: Disk is not currently allocated.	SH-DISK
ALLOCATE-TAPE	Indicates whether the system will execute the allocation of tapes already online without the support of the operator (without a mount message). • YES: Premount, mount and remount messages are answered automatically by the system, provided the tape is recognized as online. • NO: Premount, mount and remount messages must be answered by the operator.	SH-MOUNT
ASS[IGN]-TIME	For a private disk in the USE=DMS mode, this shows the time at which it is allocated or released (SH-DISK INF=PAR). For SH-DISK-DEF, the value for ASSIGN-TIME shows the time of disk allocation or release for all disks for which this value has not been set explicitly.	SH-DISK (INF=PAR) SH-DISK-DEF
ATT[ACH]	Number of devices in the “attached” state belonging to the device type specified in the output (independent of allocation)	SH-DEV-STA (INF=SUM)
AVAIL	Number of devices of the device type defined in the output which are still free (available)	SH-DEV-STA (INF=SUM)

Keyword	Meaning	Used in command
BASE	Shows the mnemonic base name of a PAV device in the format <mnemo-name>-xy. The status indicator xy means: x = P for “preferred” devices, F for FastDPAV devices or ’-’ for other devices y = A for “active”, R for “ready” or N for “not ready”	SH-DEV-CONF (INF=PAV)
CAR	Shows the state of the CARTRIDGE-LOADER of the MTC devices from the point of view of BS2000. The state ascertained last is displayed. It is updated at ATTACH or during device selection. The device's control panel may indicate a different operating mode, e.g. because device management sets its internal state to MANUAL when dismounting the magazine, or because the magazine has not been locked after mounting. The following states are possible: AUT Automatic Mode MAN Manual Mode ON Devices of type 3590E: Device with volume stacker; the stacker is active OFF Devices of type 3590E: Device with volume stacker; the stacker is not active RAN Random Access Mode SEQ Sequential Access Mode	SH-TAPE (INF=CAR)
CONF-STATE	Configuration state of the specified device; serves as an indicator of the availability of the device. The following states are possible: ATTACHED: The device is available to the system for input/output. A distinction is made between ATT(EXplicitly) and ATT(IMplicitly). ATTACHED *: The device is attached but not assigned. The ROBAR product decides on the basis of the displayed state whether the mount request for a volume is to be permitted or rejected. DETACHED: The device is not available to the system for input/output. A distinction is made between DET(EXplicitly) and DET(IMplicitly). DISABLED: The FastDPAV alias device is not activated. It cannot be used for input/output.	

Keyword	Meaning	Used in command	SH-DEV-STA SH-DEV-CONF
CTL CHPID CUU	Inner virtual connection of the device via the controller (CTL) to the channel (CHPID).	SH-DEV-CONF (INF=PATH)	
CUU	Path addresses (CHN, CTL, DVC) to a device.	SH-DEV-CONF (INF=PATH)	
DET	Number of generated devices of the specified type which are not available as they are in the configuration state “detached”.	SH-DEV-CONF (INF=PATH)	
DET-P	Number of devices of the particular type which are still required by the system for user requests and which are to assume the “detached” state after their release. Reallocation of these devices is not possible.	SH-DEV-STA (INF=SUM)	
DEV-A	Type of device allocation:(See VOL-A for meaning of values): FREE — The device is not yet allocated; it is available for allocation. DMS — The specified device is implicitly allocated by a DMS application on the private disk mounted on it. PUBLIC — The device is implicitly allocated by an active public disk mounted on it. PAGING — The disk is used exclusively for paging. DMS-PAG — The disk is used for paging and is also allocated as shareable by tasks. DRV — The device is explicitly allocated by an action initiated by DRV.	SH-DEV-STA SH-DISK SH-TAPE	

	DMS-DRV The device is implicitly allocated by a DMS application on the private disk mounted on it as a DRV disk. PUB-DRV The device is implicitly allocated as a DRV disk by an active public disk mounted on it. DRV-PAG: The device in question is implicitly allocated as a DRV disk by an active paging disk mounted on it. =tsn TSN of the job that exclusively allocates the device • In the case of a disk device, it was requested with SECURE-RESOURCE-ALLOCATION UNIT=... or the occupying job is using the allocated disk for a USE= SPECIAL application (PHASE=IN-USE/MOUNT) • In case of tape devices, the occupying task is using the allocated tape in any allocation mode (DMS, SPECIAL, WORK; PHASE=PREMOUNT/MOUNT/IN-USE). • For all other devices (e.g. printers), no distinction is made between USE modes.	
DEV-TYPE	Device type of generation (D3480, 3590E,...) or volume type (tape processing) specified by the user for device allocation (e.g. TAPE-C4).	SH-RES SH-DEV-STA
DISABLED ALIAS	Shows the number of FastDPAV alias devices in the DISABLED state.	SH-DEV-CONF (INF=PAV)
DISK-MOUNT	Indicates whether the operator is ready to perform disk mount operations. • YES: The operator is ready to execute disk mount requests. • NO: Requests for the mounting of new private disks are automatically rejected by the system.	SH-MOUNT
DVC	Mnemonic device name of a specified hardware unit.	SH-DEV-CONF (INF=PATH)
ENABLED ALIAS	Shows the number of FastDPAV alias devices in the ENABLED state.	SH-DEV-CONF (INF=PAV)
FRMT	Indicates the disk format: • 2KB: NK2 disk: the minimum transfer unit of the disk is 2KB. • 4KB: NK4 disk: the minimum transfer unit of the disk is 4KB.	SH-DISK (INF=SYS)

Keyword	Meaning	Used in command
FPAV ALIAS CTL	Shows the mnemonic alias name of any FastDPAV alias device in format <mnemo-name>-xy. The status indicator xy means: x = F for FastDPAV devices, P for “preferred” devices or '-' for others. y = A for “active”, R for “ready” or N for “not ready”.	SH-DEV-CONF (INF=PAV)
FPAV BASE CTL	Shows the mnemonic basic name of any FastDPAV device in format <mnemo-name>-xy. The status indicator xy means: x = F for FastDPAV devices, P for “preferred” devices or '-' for others. y = A for “active”, R for “ready“ or N for “not ready”.	SH-DEV-CONF (INF=PAV)
INNER CONNECTION	Describes the availability of created connections from the specified unit to all associated internal units (from CPU perspective). The following states are possible: • INCLUDED: The connection (path) is available to the system for input/output. The WWPN of the port is also displayed for a channel of the type FC. • REMOVED: The path is not available to the system for input/output. A distinction is made between REM (EXplicitly) and REM (IMplicitly). • REM-PENDING: The path is declared unavailable by the system after end of usage.	SH-DEV-CONF (INF=INNER
LABEL	Describes the type of volume label (see SVL). The following values are possible: • STD: The volume uses standard labels. • TAPE-MARK: The tape starts with a tape mark. • NON-STD: The label has neither of the above attributes.	SH-TAPE
LOC[ATION]	Provides information on the name of a depot (eight alphanumeric characters).	SH-DEV-DEPOT SH-DEV-STA SH-MOUNT SH-RES
MAX USED	Shows the maximum number of FastDPAV alias devices simultaneously used at alias control.	SH-DEV-CONF (INF=PAV)

MNEM	This field contains the mnemonic name of a device as defined at generation time.	SH-RES SH-DEV-STA SH-DISK SH-TAPE SH-DEV-CONF

Keyword	Meaning	Used in command
NAME/ID	Provides information on the job name of the job referred to or on the user ID under which it is running.	SH-RES
OP-CTL OPERATOR-CONTROL	Specifies whether the operator wishes to be informed of new disk allocations by tasks (with the possibility of rejecting such allocation requests). The suffix “(D)” indicates that the data was taken from the DISK-DEFAULTS.	SH-DISK (INF=PAR) SH-DISK-DEF
OUTER CONNECTION	Describes the configuration state of the generated connections from the specified unit to all outer units directly connected to it (in the direction of the terminal). Possible values: see INNER CONNECTION.	SH-DEV-CONF (INF=OUTER/ALL)
PAMKEY	For disks, indicates whether use of the PAMKEY is permitted. • YES: Use of PAMKEY is permitted. • NO: Use of PAMKEY is not permitted.	SH-DISK (INF=SYS)
PATH	Describes the availability of a complete input/output path (from CHN via CTL to the device). AVAIL: Input/output path is available. N.AV: Input/output path is not available. N.OP: Input/output path is not operational.	SH-DEV-CONF (INF=PATH)
PHASE	Describes the monitoring mode for tapes and disks. The following states are possible: ONLINE: The volume is mounted without being allocated. PREMOUNT: The state exists only for tapes. The volume is allocated; for this volume a device allocation exists for a previous or later usage. This state is initiated by: ■ /SECURE-RESOURCE-ALLOCATION for implicit or explicit tape reservation with device allocation ■ /ADD-FILE-LINK; exists up to OPEN time ■ CLOSE macro; exists up to release of the TFT entry If the tape is not yet mounted on a suitable device, the operator receives a premount request (see also ACTION). MOUNT:	SH-DEV-STA SH-DISK SH-TAPE SH-RES

	The volume is already allocated but must still be mounted by the operator. IN-USE: The volume is released for usage (except for ACTION=CANCELLED). For both of the allocation states IN-USE and PREMOUNT, volume monitoring takes place (a volume is always monitored if a valid allocation exists for it). Volume monitoring has the following functions: ■ it guarantees a device allocation for tapes in the PREMOUNT state; ■ it requests the operator to make a volume available again which has been allocated but is currently not accessible (INOP); ■ it instigates clearing of a NO-DEVICE state once a device of the required type becomes free; ■ it initiates automatic repositioning of tapes in the event of illegal operator intervention (e.g. unloading the wrong tape device). INVENTORY: Only for cartridge volumes in the magazine of an MTC device that can be operated in random access mode at the BS2000 system. Device management is taking stock of the cartridges in the magazine. No allocation will be made until stocktaking is complete. IN-CAR: Only for cartridge volumes in the magazine of an MTC device that can be operated in random access mode at the BS2000 system. The cartridge has been assigned to the magazine and is currently in the magazine or drive. OFF-CAR: Only for cartridge volumes in the magazine of an MTC device that can be operated in random access mode at the BS2000 system. The cartridge has been assigned to the magazine but is currently not in the magazine or drive.	
PID	Device address for input/output. The PID (Physical device ID) is updated at ATTACH.	SH-DEV-CONF
PM	PATH-MASK	SH-DEV-CONF

POOL	Defines the availability of a device in relation to several systems: NO: This device is only available from the home system. Access to a volume mounted there is not possible from another system. Unit record devices are only generated with this POOL attribute. SH: (shareable) This device is usually generated for multiple systems and possesses a multiprocessor connection. It offers hardware attributes suitable for the parallel use of multiple systems. Disks are generated as shareable by default.	SH-DEV-STA SH-DEV-CONF
PRE-USE/ IN-USE	Specifies the number of devices of the type defined which have been reserved implicitly by volumes of the relevant phase: PREMOUNT, MOUNT, IN-USE	SH-DEV-STA (INF=SUM)
PREMOUNT-MSG	Specifies whether and how the premount message (NKVT012) for a tape volume is to be output.	SH-MOUNT
RES-BY-MN	Specifies the number of devices of the type concerned which a user has reserved with the command SECURE-RESOURCE-ALLOCATION UNIT=mn.	SH-DEV-STA (INF=SUM)
RES-BY-TYPE	Specifies how many free devices of the type specified are needed to handle reservation and allocation requests already granted (e.g. /SEC-RES DEVICE= (TYPE=TAPE-C4,NUMBER=2)).	SH-DEV-STA (INF=SUM)
RESOURCES REQUESTED/ COLLECTED	List of devices or volumes specified with SEC-RES or list of devices and volumes already reserved by the collector task	SH-RES-REQ
RTC	Specifies the routing code of the depot (see LOCATION)	SH-DEV-DEPOT
SVL-ALLOC	Specifies the mode (system-shareable or system-exclusive) in which the disk is allocated (actual allocation); it does not have to conform to the presetting made by the operator by means of the command SET-DISK VOL=vsn,SYS=....	SH-DISK (INF=SYS)

SVL-RECORDING-MODE	Defines the recording mode in which the disk was last used and whether the flag indicating a recorded inconsistency is set in the SVL. The possible values are: SRV: The disk is allocated in SRV mode (single recording by volume). Data is recorded on one disk. DRV: The disk is allocated in DRV mode (dual recording by volume); recording of data for a logical volume (visible at the user interface) generally takes place on two physical (mirror) disks. SRV (INCONS): The disk is allocated in SRV mode (single recording by volume) and the inconsistency flag is set in the SVL (possible, for example, during formatting or initialization; this flag remains set if formatting or initialization of the disk is prematurely terminated with VOLIN). DRV (INCONS): The disk is allocated in DRV mode (dual recording by volume) and the inconsistency flag is set in the SVL (e.g. indicating failure of one of the DRV disks or termination by means of a command). To remedy the inconsistent state: Reinitialize the disk or read in FDDRL backup copy.	SH-DISK (INF=SYS)
SYSTEMS	System IDs of the systems occupying the disk. Allocation is stored on the disk's SVL.	SH-DISK (INF=SUM)
SYS-ALLOC	Value specifying in which mode a private disk is to be used by the home system in relation to other systems when USE=DMS applies. Possible modes: EXCL[USIVE]: Other systems are excluded from simultaneous use of this disk. ALL: The system allocation mode of a private disk is not determined until allocation (/SET-DISK-PAR SYS-ALLOC=... command). An “(A)” following the above indicates the generation attribute (ALL) of the device.	SH-DISK (INF=PAR)
TAPE-MNEMONICS	Contains the location of the assigned tape devices.	SH-DEV-DEPOT

TAPE-MOUNT	Indicates whether the operator is ready to perform tape mount operations. • YES: Allocation requests for new tapes to be mounted lead to mount messages. • NO: Allocation requests for new tapes to be mounted are automatically rejected by the system.	SH-MOUNT
TAPE-SELECT	Specifies how tapes are selected: BEST-GENERATED: Default. The first suitable free device is selected from the device table at system generation time. LEAST-RECENTLY-USED: From all the suitable free devices the one selected is the one which has been out of use the longest. BY-CONTROLLER: From all the suitable free devices the one selected is the one with the controller with the lightest load.	SH-MOUNT
TASKS-WITH-RESERVATIONS	List of tasks with the number of devices of the specified type occupied /reserved by them.	SH-DEV-STA (INF=TASK /ALL)
TIME-STAMP	Specifies the exact date and time of day at which the SVL of the disk last registered an initial allocation (date/time of day of the first system ID stored in the SVL). This time stamp is used, in addition to the VSN, for disk identification.	SH-DISK (INF=SYS)
TIME-WEIGHT	Provides information on the wait time which was set by the START-RESOURCE-COLLECTION command and which is a factor in calculating the weighting by the system for the collector task.	SH-RES-REQ
TSK-PRIO	Priority of the relevant job.	SH-RES-REQ
TSK-TYPE	Informs the operator whether the task is a batch or interactive task or has been generated by RFA on the remote computer (SECURE requests were issued by another computer).	SH-RES-REQ
TSN	4-digit task sequence number assigned when a task is created.	SH-RES SH-DISK (INF=TASK)

TYPE	Specifies the device type of the volume from which information is requested. The device type can be influenced not only by a user request (CREATE-FILE, SECURE-RESOURCE-ALLOCATION, etc.) but also by the following events: online-event: The activation interrupt assigns the volume to a device whose device type determines the device type of the volume in the event of a VSN request. SET-DISK-PAR: If the device type is predefined with this command then it is possible to specify the type before any volume allocation. If the device type is not predefined, it is defined implicitly when the disk is allocated	SH-DISK (INF=PAR) SH-RES SH-DEV-STA
UN-CLASS	Device class to which the specified unit belongs. • DVC defines an end-user device (disk, tape, printer,...) • CTL defines a controller • CHN defines a channel • CPU defines a central processing unit	SH-DEV-CONF
UN-TYPE	Generic term for “device type”. It covers not only the set of all possible device types but also the values of all controller, channel and CPU types.	SH-DEV-CONF
UNLOAD-RELEASED-TAPE	Indicates whether tapes are unloaded following their release, provided they have not been unloaded by the user. ACCORDING-TO-USER-REQ: Default; tape and MTC devices are only unloaded on release if the user so requests. REGARDLESS-OF-USER-REQ (ALL): Tape and MTC devices are automatically unloaded on release, irrespective of any user request. REGARDLESS-OF-USER-REQ (MBK): MTC devices are automatically unloaded on release, irrespective of any user request. Tape devices are only unloaded if the user so requests. IGNORE-USER-REQ: For tape devices, a user request to unload is ignored. For MTC devices, a request to unload is ignored if the device is being operated in MANUAL mode, otherwise the device is unloaded at the request of the user.	SH-MOUNT

USE	Provides information on: • the usage mode in which a mounted volume is to be operated; • the resultant degree of monitoring; • the scope of checking when the assignment is performed by the monitors. The following values are possible: DMS: The volume is occupied by one or more DMS applications. Only readable volumes are accepted for allocation, i.e.: ▪ disks can only be processed with an STD label; ▪ tapes can be processed with or without an STD label as long as they are uniquely identifiable. The standard task allocation mode for USE=DMS is task-shareable for private disks and task-exclusive for tapes. Each operator intervention during PHASE=IN-USE results in a REMOUNT-RECOVER and, in the case of tapes, in repositioning. It is ensured that only one volume with a particular VSN is allocated in the DMS usage mode. SPECIAL: The volume is occupied by a special application (privileged application, e.g. VOLIN, INIT, test and debugging programs, FDDRL,...). The task and system allocation mode is EXCLUSIVE. Checks carried out upon allocation (VOLIN, INIT) or monitoring functions such as repositioning or MOVE (organized by online FDDRL itself) can be deactivated by the special application. There is no check to determine whether the VSN is unique. WORK: The tape mounted is used as a work tape (it is made available to the DMS user for the processing of work files).	SH-DISK SH-TAPE
USER-ALLOC [ATION]	Specifies which allocation requests issued by the user (task-shareable, task-exclusive) are allowed for a private disk working with USE=DMS. The suffix “(D)” indicates that the data was taken from the DISK-DEFAULTS.	SH-DISK (INF=PAR) SH-DISK-DEF

VM-ASSIGN	Shows which device assignments or possible assignments exist to a VM: BY-GUEST — The device is implicitly assigned to its own VM. BY-VM-ADMIN — The device is explicitly assigned to its own VM. BY-GUEST-POSS — The device is no assigned to its own VM, but implicit assignment is possible. In the following cases the device is not assigned to its own VM and an implicit assignment is not possible: VM-INHIBITED — The VM is not authorized for implicit assignment. DEV-INHIBITED — The implicit assignment is not permitted for the device. ELSEWHERE — The device is exclusively assigned to a different VM.	SH-DEV-CONF (INF=VM2000)

VM-USAGE	Shows which type of usage is being used for the device by VM2000. The meaning depends on VM-ASSIGN. *If VM-ASSIGN = BY-GUEST / BY-VM-ADMIN:* EXCL The device id explicitly assigned to its own VM. SH(D) The device is assigned to its own VM as shared with direct I/O processing (only a VM sharer). SH(I) The device is assigned to its own VM as shared with indirect I/O processing. *If VM-ASSIGN = BY-GUEST-POSS:* EXCL The device is explicitly assigned to a different VM, however, an assignment is possible due to the KEEP status of the device (MTC). SH(D) The device is assigned to its own VM as shared with direct I/O processing (only a VM sharer). SH(I) The device is assigned to a different VM as shared with indirect I /O processing. NONE The device is not assigned. *If VM-ASSIGN = VM-INHIBITED / DEV-INHIBITED:* EXCL: The device is exclusively assigned to a different VM. SH(D): The device is assigned to a different VM as shared with direct I /O processing (only a VM sharer). SH(I): The device is assigned to a different VM as shared with in direct I /O processing. NONE: The device is not assigned. *If VM-ASSIGN = ELSEWHERE:* EXCL: The device is exclusively assigned to a different VM.	SH-DEV-CONF (INF=VM2000)

<table>
<tr>
<td>VOL-A</td>
<td>For public disks, this field merely indicates whether the mounted disk is the system disk SYSRES, a shareable disk, a paging disk or a “normal” public disk without any special attributes.
For private volumes (exclusive disks), it provides information on the allocation of the volume by the user:

PAGING The disk is part of the allocated pubset and is used for paging.

PUBLIC: The disk is part of the allocated pubset.

SHARE: The disk is shareable and already occupied by one or more jobs. Requests from other users are permitted.

CANCEL: Use of the disk was canceled.

FREE: Currently no user is accessing the volume.

EXCL: The private volume is exclusively allocated to a user job (other users cannot work with this volume).</td>
<td>SH-RES
SH-TAPE
SH-DISK</td>
</tr>
<tr>
<td></td>
<td>The values PAGING, PUBLIC and SHARE have the following meanings in connection with the values output for DEV-A:

<table>
<tr><th>DEV-A</th><th>VOL-A</th><th>Meaning</th></tr>
<tr><td>PUBLIC</td><td>PUBLIC</td><td>The disk is IMCATed and is not used for paging</td></tr>
<tr><td>PUBLIC</td><td>PAGING</td><td>The disk is IMCATed and is used for paging.</td></tr>
<tr><td>PAGING</td><td>PAGING</td><td>The disk is used exclusively for paging.</td></tr>
<tr><td>PUB-DRV</td><td>PAGING</td><td>The disk is IMCATed as a DRV volume and is used for paging.</td></tr>
<tr><td>DRV-PAG</td><td>PAGING</td><td>One disk of the DRV pair is allocated for paging in DRV mode.</td></tr>
<tr><td>DRV-PAG</td><td>(empty)</td><td>The other disk of the DRV pair is not used by paging.</td></tr>
<tr><td>DMS-PAG</td><td>SHARE</td><td>The disk is used for paging and is also allocated by shareable tasks</td></tr>
</table>
</td>
<td></td>
</tr>
</table>

VSN	"Name" of a volume: the "VOLUME SERIAL NUMBER" of a volume (VOLIN, INIT) defined when a volume is initialized. If the volume does not have a readable label or if no VSN was included in the volume request, synonyms can also be displayed. The following values are possible: <vsn>: The VSN of a volume specified with VOLIN or INIT, see VOLUME operand of the CREATE-FILE, SECURE-RESOURCE-ALLOCATION commands. *UNKNO[WN]: The volume does not have a standard BS2000 label. *SCRAT[CH]: The volume request is not accompanied by a VSN (e.g. for tapes CREATE-FILE without a VOLUME operand or VOLUME=*NO/*ANY). *WORK: The tape concerned was requested with /CREATE-FILE with the SUPPORT=TAPE(DEVICE=WORK) operand. The following values are also possible with SH-RES, SH-DEV and SH-DISK: F-<mn>: What is known as a substitute VSN is displayed for foreign disks which have no BS2000 label. This is formed from the prefix "F" and the mnemonic device name <mn> of the foreign disk.	SH-RES SH-DEV-STA SH-DISK SH-TAPE
VTOC-SYS	Catalog ID of the system which currently holds the VTOC lock for the disk and thus temporarily excludes other systems from space and catalog operations on this disk. The VTOC system is stored in the SVL of the disk.	SH-DISK (INF=SYS)
WAIT-TIME	Time the specified task has already waited for the release of the requested resources (hh:mm:ss).	SH-RES-REQ
#PHYS-HALF-PAGES	Displays the capacity of the disk in PAM pages (Number of Physical Half Pages).	SH-DISK (INF=SYS)

1.2.14 Time limits in BS2000

In BS2000 there are three different time limits which are of relevance to time-sharing users: These are specific to user IDs, tasks and program runs respectively.

A user-ID-specific time limit is defined by systems support in the user entry. At task termination the accounting system in BS2000 deducts the CPU time used from this time allotment.

For a task, the maximum CPU time (task time limit, TTL) can be specified at start time. The maximum CPU time that can be specified is the minimum possible from the time allotment in the user entry and from the maximum value from the job class definition. If no maximum CPU time is specified, the default value from the job class definition or, if applicable, the lower time allotment in the user entry is taken over as the maximum CPU time for the task. The TSOS user ID and users having the privilege No-Time-Limit in their user entry can start tasks without any time limit (NTL tasks). In a job class in whose job class definition, the default value for the maximum CPU time is not restricted (CPU-LIMIT is displayed with DEFAULT=NO-LIMIT and MAXIMUM=NO-LIMIT in the output from the SHOW-JOB-CLASS command), users can start tasks without any restriction on time even if there is no corresponding user entry.

Since the time allotment in the user entry is not updated until the task has terminated, the maximum CPU time (and possibly the CPU time actually used) for two or more tasks of one user ID may together exceed the time allotment.

When a program is loaded or started, a maximum program run time can be specified for the relevant program run (program time limit, PTL).

Interactive and batch jobs behave differently in respect of the maximum CPU time for the task (TTL) and the maximum program run time (PTL). The description below initially examines the normal case, i.e. the CPU time for an interactive job is not limited by the system parameter DIATTL (= presetting DIATTL=N).

TTL reached in batch job

The user can specify a task time limit (TTL) in the ENTER-JOB or ENTER-PROCEDURE command when starting a batch job. Once the batch job has used its maximum CPU time, message EXC0070 is displayed on the operator terminal (console). Systems support now has a maximum of 20 minutes in which to raise the batch job’s TTL using the CHANGE-TASK-CPU-LIMIT command. This is a way of preventing important batch jobs being terminated prematurely because they have exceeded their TTL.

If the maximum CPU time for the batch job is not increased within the wait time of 20 minutes, the batch job is terminated. A distinction must be drawn between two cases:

1. If the TTL is reached during processing of BS2000 commands, the task terminates with message CMD1011.
2. If the TTL is reached during a program run, message EXC0072 is output and, where applicable, an STXIT routine is executed, but this may use no more than 30 CPU seconds. After execution of the STXIT routine or when 30 CPU seconds have elapsed, the program terminates with message EXC0073. Then the task terminates.

PTL reached in a batch job

If the PTL is reached during a program run in a batch job, message EXC0072 is output and, where applicable, an STXIT routine defined for the purpose is executed, but this may use no more than 30 CPU seconds. After execution of the STXIT routine or when 30 CPU seconds have elapsed, the program terminates with message EXC0073 and spin-off is triggered. If an error handling mechanism has been defined, further processing starts at the next SET-JOB-SET or IF-BLOCK-ERROR command. If not, processing ends at the next EXIT-JOB or LOGOFF command.

PTL or TTL reached in an interactive job

The user can specify a time limit in the SET-LOGON-PARAMETERS command. The user can basically continue working if a time limit is exceeded. If the TTL is exceeded and no program is loaded, message EXC0067 is output and the user can continue working for 30 CPU seconds until this process is repeated. If a program is loaded and the TTL or PTL is exceeded, the following applies: In procedure mode, message EXC0068 is output and execution continues. The time limit is incremented by 100 CPU seconds, i.e. the process is then repeated. In interactive dialog, message EXC0075 is output. The user can specify whether he wishes to continue or terminate execution. If he continues execution, the process is repeated after 30 CPU seconds.

Behavior when the default of the system parameter DIATTL is modified

The DIATTL=Y and DIATTL=Q settings enable systems support to limit the CPU time for an interactive task. These settings cause the following changes to the behavior described above:

DIATTL=Y

The interactive task is terminated when Task-Time-Runout is reached.

If the TTL is exceeded, first the message EXC0076 is issued. If a program run STXIT for timeout exists, this STXIT routine will be started after the time specified with the message has elapsed. By default, the STXIT routine is granted another 30 CPU seconds.

DIATTL=Q (quick and quiet)

As with DIATTL=Y, the interactive job is terminated when Task-Time-Runout is reached.

Furthermore, both for an interactive job and for a batch job the additional times or wait times which otherwise apply for TTL and PTL are shortened to one second (“quick”). In addition, in the case of a batch job message EXC0070 is suppressed on the console (“quiet”).

1.2.15 Overview of test privileges

The test privileges control the executability of software and hardware diagnostic activities in BS2000. The main user is the debugger AID.

The test privileges are split into read and write privileges. A user’s write privilege may not be greater than his/her read privilege. Read and write privileges are defined hierarchically from 1 (low) to 9 (high):

A privilege with the value n implicitly covers the access permissions on the lower privilege levels 1 to n-1.

Systems support defines the maximum test privileges for a user ID using the ADD-USER or MODIFY-USER ATTRIBUTES command. System-wide maximum values for the read and write privileges can be defined using the system parameters RDTESTPR and WRTESTPR. These are set for a specific task using the MODIFY-TEST-OPTIONS command.

Test privileges with AID

If data is loaded (dynamically) from a read-protected file and if the read password was not specified, an “execute only” situation exists. Testing with AID is not possible in an “execute only” situation, regardless of the test privileges set.

Read test privileges for AID read accesses

Value	Characteristics
1	• Access to the pages in the user’s own user address space[1] and in the system addressspace[2] which are readable with the access rights of the normal user and are not secret pages[3] • Access to the user PCBs of the user’s own task
2	• Additional access to the TCB of the user’s own task
3	• Additional access to the secret pages in the user’s own user address space which are readable with the access rights of the normal user
4	• Not assigned
5	• Not assigned
6	• Additional access to the pages in the user’s own user address space which are only readable with the access rights of the operating system and are not secret pages • Additional access to the system PCBs of the user’s own task and to the XVT
7	• Not assigned
8	• Additional access to all pages in the system address space, all secret pages and all pages of other tasks • Additional access to the user PCBs, system PCBs and TCBs of other tasks
9	• Not assigned

Table 10: Read test privileges for AID read accesses

1 Program space and data spaces of the user

2 System space and data spaces of the system

3 Pages protected against diagnostic accesses

Write test privileges for AID write accesses

Value	Characteristics
1	• Access to the pages in the user's own user address space[1] which can be written using the access rights of the normal user and are not secret pages[2] • Additional access to the user's local task pages in the user's own program space which are "only readable"[3] with the access rights of the normal user and are not secret pages or "trusted UTM"[4] pages • Access to the user PCBs of the user's own ask
2	• Not assigned
3	• Additional access to the secret pages in the user's own user address space which can be written using the access rights of the normal user • Additional access to the user's local task secret pages in the user's own program space which are "only readable" with the access rights of the normal user and are not "trusted UTM" pages
4	• Not assigned
5	• Not assigned
6	• Additional access to the pages in the user's own user address space which can be written using the access rights of the operating system and are not secret pages
7	• Not assigned
8	• Additional access to all pages in the system address space[5], all secret pages and all pages of other tasks • Additional access to the XVT and to the user PCBs, system PCBs and TCBs of all tasks

9	• Not assigned

Table 11: Write test privileges for AID write accesses

1 Program space and data spaces of the user

2 Pages protected against diagnostic accesses

3 The page attribute “only readable” is ignored by AID in this case

4 Pages of user jobs which run with the system privilege SECURE-OLTP

5 System space and data spaces of the system

Note on OWN-UID-DEBUGGING

The “static AID test with low test privilege” can be permitted for other tasks which run under the user’s own user ID by means of the OWN-UID-DEBUGGING operand in the MODIFY-TEST-OPTIONS command. If this is the case, the same privileges as for accessing your own user address space are sufficient for the read accesses to this task’s user address space.

A write privilege of at least 2 is required for write accesses to this task’s user address space. In addition, the same test privileges apply as for write accesses to the user address space of the user’s own task. In the case of write accesses to these tasks’ memory pool pages, write privilege 8 is always required.

Test privileges for the other software diagnostic products

Read test privileges

Value	Product	Characteristics
3	CDUMP	• System dump may be taken under a normal user ID
8	ANITA	• Active system may be diagnosed with DAMP and other user programs which use ANITA

1.2.16 Working with S variables

General notes on command output

The output of SHOW commands can be sent to the system files SYSOUT and/or SYSLST and, in the case of commands which support this, also in S variables.
SYSOUT and SYSLST output consists of constant labels and items of variable information. In order for current parts of the full set of information to be further processed in procedures, the output must be redirected to a file. Then the individual items can be selected by string processing. This calls for precise understanding of the output layout. As SYSOUT and SYSLST output is subject to change from version to version, user-defined procedures need to be continually updated to match.
With structured output in S variables, each item of information can be stored as the contents of an S variable. The names of the S variables allow the user to access the required individual item of information in the SHOW command, regardless of the output layout. The names of the S variables are preset for each SHOW command and are guaranteed for subsequent versions; in other words, they are not subject to change.

1.2.16.1 Command output in S variables

- S variable stream mechanism (SYSINF, SYSMSG and SYSVAR)
- Declaring S variables
- Assigning S variable streams
- S variable format
- Accessing S variables
- Re-using S variables

S variable stream mechanism (SYSINF, SYSMSG and SYSVAR)

SDF-P supports a mechanism known as “streams for structured variables” (henceforth referred to as S variable streams). S variable streams are an alternative or a supplement to output in system files. SDF-P is responsible for controlling the S variable streams. By default, the operating system supplies three S variable streams: SYSINF, SYSMSG and SYSVAR. If necessary, users can also declare and name their own S variable streams.

The SYSINF, SYSMSG and SYSVAR S variable streams

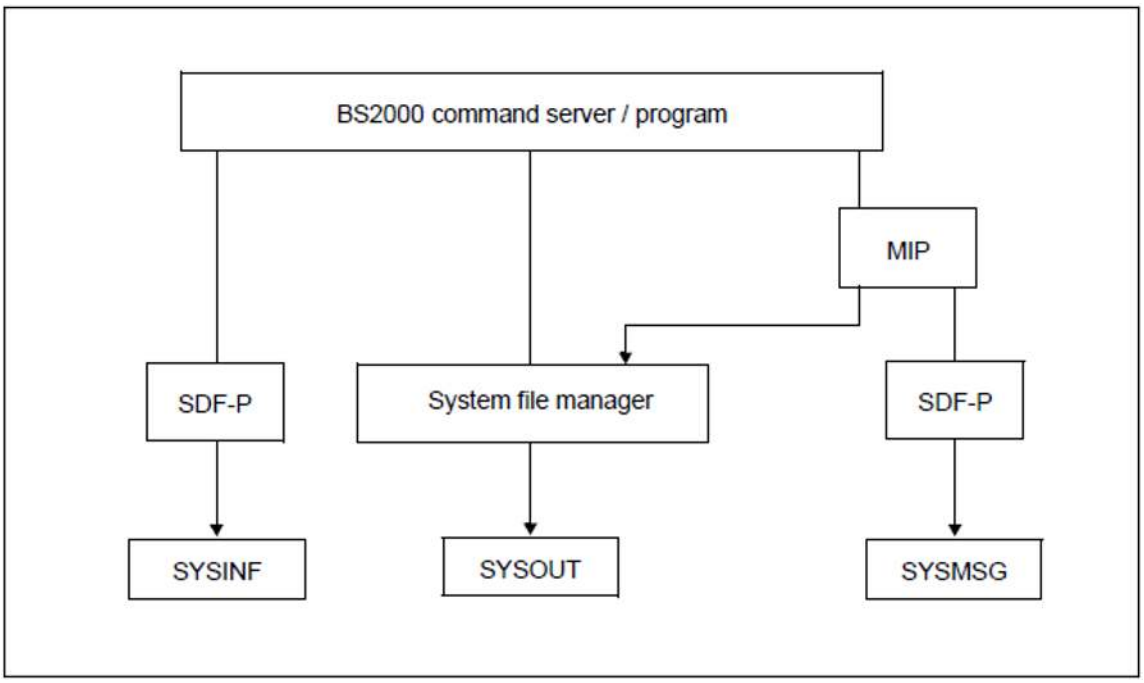
SYSINF: Structured output from commands and programs is passed to the assigned S variables.

SYSMSG: Guaranteed messages are passed to the assigned S variables in structured output format.

SYSVAR: Both structured command and program output and guaranteed messages are passed to the assigned S variables. SYSVAR subsumes SYSINF and SYSMSG.

For further information on S variable streams refer to the “SDF-P” manual [34].

The following diagram illustrates both output to SYSOUT by the system file manager and redirection of output information to the SYSINF and SYSMSG S variable streams under the control of SDF-P.



Command and program output to the SYSINF and SYSMSG S variable streams or to SYSOUT

SYSINF

Working with S variables generated in the structured output of specific SHOW commands is discussed in detail in section "Declaring S variables" and the following subsections, starting on.

SYSMSG

The format and contents of the S variables generated for guaranteed messages by the system component MIP are briefly discussed here. For further information on the subject refer to the “Introduction to System Administration” manual [14].

SDF-P is responsible for controlling the SYSMSG S variable stream, which serves to redirect guaranteed messages to S variables. In guaranteed messages, the message ID and the numbering and meaning of the inserts are constant message components.

The following actions are required in order for guaranteed messages to be output in a structured S variable:

1. The user must declare a list variable of type STRUCTURE.

   ```
   /DECLARE-VARIABLE VAR-NAME=<var-name>(TYP=*STRUCTURE),
                     MULTIPLE-ELEMENT=*LIST
   ```

2. The user must assign the SYSMSG S variable stream for structured output in S variables. One of the following declarations is required:

   On command level:

   a. Using the EXECUTE-CMD command: structured output in S variables is declared for one command.

      ```
      /EXEC-CMD (<cmd-name>),MSG-STRUCTURE-OUTPUT=<var-name>
      ```

   b. Using the ASSIGN-STREAM command: the assignment of the S variable stream remains valid for all subsequent commands until it is explicitly canceled (ASSIGN-STREAM SYSMSG,TO=*STD).

      ```
      /ASSIGN-STREAM STREAM-NAME=SYSMSG,TO=*VARIABLE(<var-name>)
      ```

   On program level:

   The CMD macro declares structured output in S variables for a number of commands.

   ```
   CMD '<cmd-name>',...,VER=4,MSGVAR@=<add>,MSGVARL=<length>,[,MSGEXT=YES]
   ```

   <add> is the symbolic address of the location containing the name of the S variable. For details of the CMD macro refer to the “Executive Macros” manual [22].

3. The message output destination must be defined in the MSG7X macro. If DESTINATION=SYSOUT is specified, guaranteed messages will always be output in S variables, provided that the user has declared an S variable. In addition, the BUFFER operand can be assigned a user-specific storage area, and BUFFUSE=EXTERNAL can be assigned. On the MSG7X macro refer to the “Executive Macros” manual [22].

4. Using the MSGMAKER utility, the message must be identified as guaranteed (also refer to the “Utility Routines” manual [9]). MIP generates the following S variables for guaranteed messages:

   MSG-ID: contains the message ID.

   REPLY: contains the reply to the message if it expects an answer from the user.

   I0 through I14: default insert names; I0 through I14 are the defaults used by MIP as names for S variables. If the user defines names for inserts with the MSGMAKER utility, these names (in uppercase) are used as S variable names.

   MSG-TEXT: contains the message text inclusive of all replaced inserts.

   Note

   The S variables that MIP generates are of the type *ANY, the values contained are of the data type *STRING.

The completed S variable that MIP outputs is composed of the S variable name declared by the user and the S variable name generated by MIP. These two subnames, separated by a dot, form the actual name of the S variable. Each S variable that exists for a guaranteed message is associated with an element of a list. Each additional guaranteed message is incorporated as a new list element.

Declaring S variables

Before an S variable stream is assigned to an S variable, it must be declared. This is done by using the DECLARE-VARIABLE command to declare a compound S variable of type STRUCTURE, with the structure being defined as an element of a list. The name of this S variable is freely selectable within the terms of the SDF-P naming conventions. The defined structure should be dynamically extensible (DEFINITION=*DYNAMIC is the default setting).

```
/DECLARE-VARIABLE VAR-NAME=OUT(TYPE=*STRUCTURE),MULTIPLE-ELEMENTS=*LIST
```

Note

The S variable name declared here is OUT. In the tables of this manual, which contain the S variables for each SHOW command, this S variable name replaces the pseudo variable name "var".

Example:

The following S variable is described in the S variable table of a command: var(*LIST).CAT-ID
With /SHOW-VARIABLE OUT the variable OUT(*LIST).CAT-ID is output.

For further information on the DECLARE-VARIABLE command refer to the “SDF-P” manual [34].

Assigning S variable streams

The ASSIGN-STREAM or EXECUTE-CMD commands allow to specify that you require structured output in an S variable.

For further information on these commands refer to the “SDF-P” manual [34].

ASSIGN-STREAM

You use ASSIGN-STREAM to request structured output to an S variable for all subsequent commands. As long as this assignment remains in force, the S variable will be added to accordingly for each SHOW command that is issued which supports structured output in S variables.

Example

The S variable OUT is declared as described above. The SHOW-STREAM-ASSIGNMENT command is then used to display the current assignments of the SYSINF, SYSMSG and SYSVAR S variable streams. SYSINF and SYSMSG are by default assigned to SYSVAR; the assignment of SYSVAR is *DUMMY, which means that neither command output nor guaranteed messages are assigned to an S variable stream.

```
/SHOW-STREAM-ASSIGNMENT
```

Output to SYSOUT

```
STREAM-NAME   = SYSINF
 ASSIGN-LEVEL = 0
 DESTINATION  = SYSVAR
STREAM-NAME   = SYSMSG
 ASSIGN-LEVEL = 0
 DESTINATION  = SYSVAR
STREAM-NAME   = SYSVAR
 ASSIGN-LEVEL = 0
 DESTINATION  = *DUMMY
```

The ASSIGN-STREAM command specifies that structured command output is to be routed via the SYSINF S variable stream and written to S variable OUT.

```
/ASSIGN-STREAM STREAM-NAME=SYSINF,TO=*VAR(VAR-NAME=OUT)
```

The SHOW-STREAM-ASSIGNMENT command can now be used to display the current assignment of SYSINF. This command also supports structured output in S variables, so its output is already being written to the VAR S variable.

```
/SHOW-STREAM-ASSIGNMENT
```

Output to SYSOUT

```
STREAM-NAME   = SYSINF
 ASSIGN-LEVEL = 0
 DESTINATION  = *VARIABLE
      VARIABLE-NAME = OUT
          VAR-MODE = *EXTEND
      RETURN-VARIABLE-NAME = *NONE
      CONTROL-VAR-NAME = *NONE
      RET-CONTROL-VAR-NAME = *NONE
STREAM-NAME   = SYSMSG
 ASSIGN-LEVEL = 0
 DESTINATION  = SYSVAR
STREAM-NAME   = SYSVAR
 ASSIGN-LEVEL = 0
 DESTINATION  = *DUMMY
```

The SHOW-FILE-ATTRIBUTES command likewise supports structured output in S variables. The information on storage space usage is output separately for public and private volumes. The data is written to OUT as an additional list element.

```
/SHOW-FILE-ATTRIBUTES *ALL,INF=*SPACE-SUM
```

Output to SYSOUT

```
%:2OSG: PUBLIC: 396 FILES RES= 9006 FRE= 1805 REL= 867 PAGES
%:2OSG: PUB/S2: 50 FILES RES= 10872 FRE= 1936 REL= 1867 PAGES
```

The contents of OUT are displayed with the SHOW-VARIABLE command.

```
/show-var out,inf=*par(list-index-number=*yes)
```

```
OUT#1.STREAM-NAME = SYSINF    <------structured output of SHOW-STREAM-ASSIGNMENT
OUT#1.ASS-LEV = 0
OUT#1.SERVER-NAME =
OUT#1.SERVER-INFO =
OUT#1.VAR-NAME = OUT
OUT#1.VAR-MODE = *EXT
OUT#1.RET-VAR-NAME = *NONE
OUT#1.RET-VAR-MODE =
OUT#1.CONTR-VAR-NAME = *NONE
OUT#1.CONTR-VAR-MODE =
OUT#1.RET-CONTR-VAR-NAME = *NONE
OUT#1.RET-CONTR-VAR-MODE =
OUT#1.DEST = *VAR
OUT#2.STREAM-NAME = SYSMSG
OUT#2.ASS-LEV = 0
OUT#2.SERVER-NAME =
OUT#2.SERVER-INFO =
OUT#2.VAR-NAME =
OUT#2.VAR-MODE =
OUT#2.RET-VAR-NAME =
OUT#2.RET-VAR-MODE =
OUT#2.CONTR-VAR-NAME =
OUT#2.CONTR-VAR-MODE =
OUT#2.RET-CONTR-VAR-NAME =
OUT#2.RET-CONTR-VAR-MODE =
OUT#2.DEST = SYSVAR
OUT#3.STREAM-NAME = SYSVAR
OUT#3.ASS-LEV = 0
OUT#3.SERVER-NAME =
OUT#3.SERVER-INFO =
OUT#3.VAR-NAME =
OUT#3.VAR-MODE =
OUT#3.RET-VAR-NAME =
OUT#3.RET-VAR-MODE =
OUT#3.CONTR-VAR-NAME =
OUT#3.CONTR-VAR-MODE =
OUT#3.RET-CONTR-VAR-NAME =
OUT#3.RET-CONTR-VAR-MODE =
OUT#3.DEST = *DUMMY
OUT#4.PUBSET-ID = 2OSG    <------structured output of SHOW-FILE-ATTRIBUTES
OUT#4.PUBSET.NUM-OF-F = 396
OUT#4.PUBSET.REL = 867
OUT#4.PUBSET.RESERVED = 9006
OUT#4.PUBSET.FREE = 1805
OUT#4.MIGRATE-S1.NUM-OF-F = 0
OUT#4.MIGRATE-S1.REL = 0
OUT#4.MIGRATE-S1.RESERVED = 0
OUT#4.MIGRATE-S1.FREE = 0
OUT#4.MIGRATE-S2.NUM-OF-F = 50
OUT#4.MIGRATE-S2.REL = 1867
OUT#4.MIGRATE-S2.RESERVED = 10872
OUT#4.MIGRATE-S2.FREE = 1936
OUT#4.PRIV.NUM-OF-F = 0
OUT#4.PRIV.REL = 0
OUT#4.PRIV.RESERVED = 0
OUT#4.PRIV.FREE = 0
OUT#4.TAPE.NUM-OF-F = 0
```

Next the command `ASSIGN-STREAM SYSINF,TO=*STD` is used to re-assign the S variable stream to its default setting. This terminates structured output to S variable `OUT`.

EXECUTE-CMD

To restrict structured output to a single command you use the `EXECUTE-CMD` command to invoke a SHOW command, specifying that the structured output is to be passed to the S variable `OUT` that you have already declared (see section "Declaring S variables").

```
/EXECUTE-CMD CMD=(SHOW-USER-ATTR INF=*ATTR), STRUCTURE-OUTPUT=OUT,
    TEXT-OUTPUT=*NONE
```

`TEXT-OUTPUT=*NONE` suppresses output to SYSOUT.

S variable format

A structure is defined for an object (such as a file: `SHOW-FILE-ATTRIBUTES FILE-NAME=name`) specified in the SHOW command. If a number of objects are specified (using a wildcard, for example: `SHOW-FILE-ATTRIBUTES FILE-NAME=nam*`), or if a number of command outputs are written to a single S variable (see `ASSIGN-STREAM`, "Assigning S variable streams"), a list of structures is created. For each item of information relating to the object (e. g. catalog ID, file size), an S variable is defined as an element of the structure and assigned the information item as its contents.

Example 1

```
/declare-var var-name=out(type=*structure),multiple-elements=*list
/execute-cmd cmd=(show-file-attr file-name=job*,inf=*name-and-space),
             text-output=*none,structure-output=out
/show-var out,inf=*par(list-index-number=*yes)
OUT#1.F-NAME = :2OSG:$USER1.JOBA
OUT#1.CAT-ID = 2OSG
OUT#1.USER-ID = USER1
OUT#1.SHORT-F-NAME = JOBA
OUT#1.F-SIZE = 3
OUT#2.F-NAME = :2OSG:$USER1.JOBB
OUT#2.CAT-ID = 2OSG
OUT#2.USER-ID = USER1
OUT#2.SHORT-F-NAME = JOBB
OUT#2.F-SIZE = 3
OUT#3.F-NAME = :2OSG:$USER1.JOBC
OUT#3.CAT-ID = 2OSG
OUT#3.USER-ID = USER1
OUT#3.SHORT-F-NAME = JOBC
OUT#3.F-SIZE = 3
```

Key to Example 1

The user-defined S variable `OUT` contains the entire output. The string `(#i)` indicates that `OUT` is a list variable that may contain many elements. In this example there are three elements (i = 1 to 3).
A structure composed of various separate items of information is generated for each object selected by `FILE-NAME=JOB*`. Each item is stored in a separate S variable, such that the S variable `OUT(#i).CAT-ID`, for example, contains the catalog ID.

Example 2

```
/execute-cmd cmd=(show-file-attr file-name=job*,inf=*par(alloc=*yes)),
text-output=*none,structure-output=out
/show-var out,inf=*par(list-index-number=*yes)
OUT#1.F-NAME = :2OSG:$USER1.JOBA
OUT#1.CAT-ID = 2OSG
OUT#1.USER-ID = USER1
OUT#1.SHORT-F-NAME = JOBA
OUT#1.F-SIZE = 3
OUT#1.SUP = *PUB
OUT#1.HIGHEST-USED-PAGES = 1
OUT#1.SEC-ALLOC = 24
OUT#1.BLOCK-COUNT = 0
OUT#1.EXT#1.VOL = GVS2.2
OUT#1.EXT#1.DEV = D3435
OUT#1.EXT#1.NUM-OF-EXT = 1
OUT#1.NUM-OF-EXT = 1
OUT#2.F-NAME = :2OSG:$USER1.JOBB
OUT#2.CAT-ID = 2OSG
OUT#2.USER-ID = USER1
OUT#2.SHORT-F-NAME = JOBB
OUT#2.F-SIZE = 3
OUT#2.SUP = *PUB
OUT#2.HIGHEST-USED-PAGES = 1
OUT#2.SEC-ALLOC = 24
OUT#2.BLOCK-COUNT = 0
OUT#2.EXT#1.VOL = GVS2.3
OUT#2.EXT#1.DEV = D3435
OUT#2.EXT#1.NUM-OF-EXT = 1
OUT#2.NUM-OF-EXT = 1
OUT#3.F-NAME = :2OSG:$USER1.JOBC
OUT#3.CAT-ID = 2OSG
OUT#3.USER-ID = USER1
OUT#3.SHORT-F-NAME = JOBC
OUT#3.F-SIZE = 3
OUT#3.SUP = *PUB
OUT#3.HIGHEST-USED-PAGES = 1
OUT#3.SEC-ALLOC = 24
OUT#3.BLOCK-COUNT = 0
OUT#3.EXT#1.VOL = GVS2.0
OUT#3.EXT#1.DEV = D3435
OUT#3.EXT#1.NUM-OF-EXT = 1
OUT#3.NUM-OF-EXT = 1
```

Key to Example 2

The user-defined list variable `OUT` from Example 1 again holds three elements in Example 2. The argument `INF=*PAR(ALLOC=*YES)` causes all file attributes relating to space allocation to be output for the selected files. The attributes `F-NAME, CAT-ID, USER-ID,....,EXT` form the elements of the structure. The `EXT` element is in turn a list composed of the elements `VOL`, `DEV` and `NUM-OF-EXT`.

If information for an object can be further subdivided hierarchically (see the EXT element), a compound S variable is defined as an element of the higher-ranking structure for each hierarchy. A hierarchically lower-ranking S variable may be a simple S variable (see VOL, DEV, NUM-OF-EXT), a structure or a list of simple S variables and/or structures.

S variable name components

The names of the list elements (e.g. F-NAME, F-SIZE) are preset for each SHOW command. They are appended to the S variable name declared by the user. The names match the corresponding operand names as closely as possible. If the information on this level is further subdivided hierarchically, further names are appended, preceded by a dot as separator.

S variable contents

The contents of S variables match the corresponding operand values as closely as possible. The data type and thus the character set that BS2000 uses to output the values is specified for each variable in the manual: String, Integer or Boolean.

S variable data types

The type of the S variable is always *ANY.

Accessing S variables

The string (*LIST) appears only if you output the S variable with the SHOW-VARIABLE command (if the element number #i is displayed instead of (*LIST), the LIST-INDEX-NUMBER=*YES operand must be specified). Access to specific items of information is achieved with the string #i, where i is the i-th element of the list.

Example 3

```
/show-var out#3.sec-alloc ------------------------------------------------------(1)
OUT(*LIST).SEC-ALLOC = 24
/show-var out#3.ext#1.vol ------------------------------------------------------(2)
OUT#3.EXT#1.VOL = GVS2.0
/show-var out#3.ext#.vol -------------------------------------------------------(3)
OUT#3.EXT#1.VOL = GVS2.0
```

Key to Example 3

Example 3 is based on the structured output of Example 2.

(1) `out#3.sec-alloc` directly accesses the “Secondary Allocation” item which is an attribute of file JOBC. The attributes of JOBC form the third element in the output list.

(2) `out#3.ext#1.vol` causes the first element of list variable EXT to be output.

(3) Has the same effect as (2). To refer to the first list element it is sufficient to specify out#`3.ext#.vol`.

Re-using S variables

Example 4

```
/write-text 'There are &(var#3.F-SIZE) PAM pages reserved for
file &(var#3.SHORT-F-NAME)'
There are 3 PAM pages reserved for file JOBC
```

Example 4 is based on the structured output of Example 2.

The contents of S variables `var#3.SHORT-F-NAME` and `var#3.F-SIZE` can be re-used by means of expression substitution.

Example 5

The contents of S variable `FILES` are to be re-used in S procedure `proc.s-var`.

S procedure proc.s-var

```
/DECL-VAR FILES(TYPE=*STRUCTURE),MULTIPLE-ELEM=*LIST--------------------------(1)
/DECL-VAR INCR(TYPE=*STRUCTURE)-----------------------------------------------(2)
/DECL-VAR FILES-OLD,MULTIPLE-ELEM=*LIST---------------------------------------(3)
/
/WRITE-TEXT '*****************************************************'
/WRITE-TEXT '** This procedure lists all files which have         **'
/WRITE-TEXT '** not been modified for over 365 days               **'
/WRITE-TEXT '*****************************************************'
/
/
/EXEC-CMD (SHOW-FILE-ATTR *ALL,INF=*PAR(HIST=*YES),
/          SELECT=*BY-ATTR(LAST-ACCESS-DATE=*INTERVAL(TO=-365))),
/          STRUCTURE-OUTPUT=FILES,TEXT-OUTPUT=*NONE --------------------------(4)
/
/WRITE-TEXT 'The following files have not been modified in the last 365 days:'
/FOR INCR=*LIST(FILES)
/    WRITE-TEXT 'FILE: &(INCR.SHORT-F-NAME)' ---------------------------------(5)
/    MODIFY-FILE-ATTRIBUTES FILE-NAME=&(INCR.SHORT-F-NAME),
/           NEW-NAME=&('OLD.'//INCR.SHORT-F-NAME) ---------------------------(6)
/    IF-CMD-ERROR ------------------------------------------------------------(7)
/       WRITE-TEXT 'Error renaming file: -
/                   &(INCR.SHORT-F-NAME)'
/    END-IF
/    ELSE
/       SET-VAR FILES-OLD='&('OLD.'//INCR.SHORT-F-NAME)',WRITE-MODE=*EXTEND ---(8)
/    END-IF
/END-FOR
/WRITE-TEXT 'List of all files with the prefix OLD'
/SHOW-VAR FILES-OLD,INF=*PAR(LIST-INDEX-NUMBER=*YES) --------------------------(9)
```

(1) S variable `FILES` is declared as a structured list variable.

(2) An incrementing variable is declared for the subsequent FOR loop; this must also be of type STRUCTURE.

(3) `FILES-OLD` is declared as a list variable. Here all the file names starting with the prefix “OLD” will be stored.

(4) The EXECUTE-CMD command causes the output of `SHOW-FILE-ATTRIBUTES INF=*PAR(HIST=*YES)` to be stored in the `FILES` S variable. Output to SYSOUT is suppressed by `TEXT-OUTPUT=*NONE`. The `SELECT` operand selects all files last modified over 365 days ago.

(5) Each file that has not been modified for over 365 days is listed under its file name as stored in the `INCR.SHORT-F-NAME` S variable.

(6) The `MODIFY-FILE-ATTRIBUTES` command adds the prefix “OLD.” to the names of the selected files.

(7) If an error occurs while `MODIFY-FILE-ATTRIBUTES` is executing, it is handled by the IF-CMD-ERROR block.

(8) The `SET-VARIABLE` command assigns the new file name with the prefix “OLD.” to the `FILES-OLD` S variable. The `MODE=*EXTEND` argument causes `FILES-OLD` to be extended by one list element each time the rename loop iterates.

(9) The contents of `FILES-OLD` are output by the `SHOW-VAR` command.

Execution log

`/call-proc proc.s-var`

```
******************************************************
** This procedure lists all files which have         **
** not been modified for over 365 days               **
******************************************************
The following files have not been modified in the last 365 days:
FILE: ISAM
FILE: MESSAGEMAKER
FILE: MSE1
FILE: MSE2
FILE: MSG.OUTPUT
FILE: MSG.PROC
FILE: README.RZ
FILE: README.RZ.ISAM
FILE: README.RZ.OLD
FILE: VAR.PROC
List of all files with the prefix OLD
FILES-OLD#1 = OLD.ISAM
FILES-OLD#2 = OLD.MESSAGEMAKER
FILES-OLD#3 = OLD.MSE1
FILES-OLD#4 = OLD.MSE2
FILES-OLD#5 = OLD.MSG.OUTPUT
FILES-OLD#6 = OLD.MSG.PROC
FILES-OLD#7 = OLD.README.RZ
FILES-OLD#8 = OLD.README.RZ.ISAM
FILES-OLD#9 = OLD.README.RZ.OLD
FILES-OLD#10 = OLD.VAR.PROC
```

Example 6

Example 6 builds on the S procedure described in Example 5. If you want to restore the original file names of all files with the prefix “OLD.”, you can do so interactively using the following commands:

```
/decl-var restore(type=struc),mult-elem=*list
/exec-cmd (show-file-attr old.*,inf=*all),struc-output=restore,text-output=*none
/decl-var y(type=struc)
/for y=*list(restore)
%FOR/mod-fi-attr &(y.SHORT-F-NAME),&(substring(y.SHORT-F-NAME,5))
%FOR/end-for
```

1.2.16.2 Command overview

The table below lists all the SHOW commands for which the S variables are described in this manual. For detailed command descriptions refer to the product manuals listed in the right-hand column.

A command description may also be looked up in the mentioned product manuals.

Command	available additional description
LIST-NET-DIRECTORIES	
LIST-NODE-FILES	
SHOW-ACCOUNTING-STATUS	
SHOW-ACS-OPTIONS	
SHOW-ACS-SYSTEM-FILES	
SHOW-ACTIVE-SPOOL-DEVICES	see also „SPOOL“ [42]
SHOW-ADDRESS-SPACE-STATUS	
SHOW-ALIAS-CATALOG-ENTRY	
SHOW-BLOCK-TO-FILE-ASSIGNMENT	
SHOW-CACHE-CONFIGURATION	
SHOW-CALENDAR	
SHOW-CCOPY-SESSION	
SHOW-CE-LOCK	
SHOW-CJC-STATUS	see also „JV“ [20]
SHOW-CONSLOG-ATTRIBUTES	
SHOW-CONSOLE-FILTER	
SHOW-CONSOLE-STATUS	
SHOW-DEVICE-CONFIGURATION	
SHOW-DEVICE-DEPOT	
SHOW-DEVICE-STATUS	
SHOW-DISK-DEFAULTS	
SHOW-DISK-STATUS	
SHOW-FILE-ATTRIBUTES	

SHOW-FILE-LINK	
SHOW-FILE-LOCKS	
SHOW-FILE-NAME-PREFIX	
SHOW-GCF-CATALOGS	
SHOW-GCF-OBJECT-TYPES	
SHOW-GCF-SERVER-TASKS	
SHOW-HEL-CHECK	
SHOW-HEL-LOGGING	
SHOW-INDEX-ATTRIBUTES	
SHOW-INSTALLATION-PATH	see also „IMON“ [19]
SHOW-ISAM-POOL-ATTRIBUTES	
SHOW-ISAM-POOL-LINK	
SHOW-JOB-CLASS	
SHOW-JOB-OPTIONS	
SHOW-JOB-STATUS	
SHOW-JOB-STREAM	
SHOW-JV-ATTRIBUTES	see also „JV“ [20]
SHOW-JV-LINK	see also „JV“ [20]
SHOW-MASTER-CATALOG-ENTRY	
SHOW-MEMORY-CONFIGURATION	
SHOW-MEMORY-POOL-STATUS	
SHOW-MIP-PARAMETERS	
SHOW-MOUNT-PARAMETER	
SHOW-MSG-FILE-ASSIGNMENT	
SHOW-MSG-OPTIONS	
SHOW-MSG-SUBSCRIPTION	
SHOW-MSG-SUPPRESSION	
SHOW-NET-CLIENT-ALTERNATE	

SHOW-NET-STORAGE	
SHOW-NET-STORAGE-OCCUPATION	
SHOW-OPERATOR-ATTRIBUTES	
SHOW-OPERATOR-ROLE	
SHOW-PAGING-CONFIGURATION	
SHOW-PENDING-MSG	
SHOW-POSIX-USER-ATTRIBUTES	see also „POSIX commands“ [28]
SHOW-POSIX-USER-DEFAULTS	see also „POSIX commands“ [28]
SHOW-PRINT-JOB-ATTRIBUTES	see also „SPOOL“ [42]
SHOW-PRINT-JOB-STATUS	see also „SPOOL“ [42]
SHOW-PRINTER-POOLS	see also „SPOOL“ [42]
SHOW-PUBSET-ATTRIBUTES	
SHOW-PUBSET-CACHE-ATTRIBUTES	
SHOW-PUBSET-CATALOG-ALLOCATION	
SHOW-PUBSET-CONFIGURATION	
SHOW-PUBSET-DEFINITION-FILE	
SHOW-PUBSET-FILE-SERVICES	
SHOW-PUBSET-IMPORT-EXPORT	
SHOW-PUBSET-NET-STORAGE	
SHOW-PUBSET-OCCUPATION	
SHOW-PUBSET-PARAMETERS	
SHOW-PUBSET-PROCESSING	
SHOW-PUBSET-RESTRICTION	
SHOW-PUBSET-SPACE-ALLOCATION	
SHOW-PUBSET-SPACE-DEFAULTS	
SHOW-RESOURCE-ALLOCATION	
SHOW-RESOURCE-REQUESTS	
SHOW-RESTART-OPTIONS	

SHOW-RFA-CONNECTIONS	see also „RFA“ [31]
SHOW-SDF-OPTIONS	
SHOW-SDF-PARAMETERS	
SHOW-SELECTED-PRODUCT-VERSION	see also „IMON“ [19]
SHOW-SPACE-SATURATION-LEVELS	
SHOW-SPOOL-CHARACTER-SETS	see also „SPOOL“ [42]
SHOW-SPOOL-DEVICES	see also „SPOOL“ [42]
SHOW-SPOOL-FILTERS	see also „SPOOL“ [42]
SHOW-SPOOL-FORMS	see also „SPOOL“ [42]
SHOW-SPOOL-PARAMETERS	see also „SPOOL“ [42]
SHOW-STORAGE-CLASS	
SHOW-SUBSYSTEM-ATTRIBUTES	
SHOW-SUBSYSTEM-STATUS	
SHOW-SYNTAX-VERSIONS	
SHOW-SYSEVENT-LOG-ATTRIBUTES	
SHOW-SYSTEM-FILE-ASSIGNMENTS	
SHOW-SYSTEM-INFORMATION	
SHOW-SYSTEM-PARAMETERS	
SHOW-SYSTEM-STATUS	
SHOW-TAPE-STATUS	
SHOW-TERMINAL-ATTRIBUTES	
SHOW-TERMINAL-OPTIONS	
SHOW-TRACE-STATUS	
SHOW-USER-ATTRIBUTES	see also „SECOS“ [35]
SHOW-USER-STATUS	
SHOW-VOLUME-SET-LIST	

Table 12: Commandos with S variables

1.2.16.3 Notes on conventions used in the tables

The S variable tables are sorted according to the names of the S variables in the second column; this column has a gray background.

In the S variable tables, the entries in the columns “Name of the S variable”, “T” and “Contents” are represented using conventions explained on the following pages.

Example

Output information	Name of the S variable	T	Contents	Condition
Name of guard with shown access conditions	var(*LIST).GUARD-NAME	S	'' <filename 1..40>	INF=ADM
Scope of use for a guard: *HOST-SYS: anyone may use the guard *USER-GROUP: members of the owner's user group may use the guard *USER-ID: only the owner may use the guard	var(*LIST).SCOPE	S	'' *HOST-SYS *USER-GROUP *USER-ID	INF=ALL /ATT

Conventions

Convention	Meaning	Examples
UPPERCASE	Uppercase letters are used for the following: • names of S variables • S variable data types • keywords • the list structure identifier	• GUARD-NAME • S • *NO, ACTIVE • (*LIST)
lowercase	Lowercase letters are used for the following: • the name of the variable declared by the user • contents of S variables	• var • <filename 1..54> <integer> <host-name>
< >	Angle brackets enclose the contents of S variables.	<integer> <host-name>
(*LIST)	An S variable with the (*LIST) extension is an element in a list.	var(*LIST)

S variable data types

The “T” column of the S variable tables denotes the data type: S(string), I(integer) or B(Boolean). The table below contains the character set which belongs to each data type and the notation used for S variable contents in the “Contents” column of the S variable tables.

Data type	Character set	Notes
String	all EBCDIC characters	Strings in the table are shown without quotes. The following string contents are possible: • an SDF data type, e.g. <name 1..8>, <c-string 1..8>, <filename 1..54> In this case the applicable character set is as described in the SDF syntax diagram (see table "Data types" (SDF syntax representation)). • a descriptive name, e.g. <tsn>, <host-name>, <server-name> • numbers • keywords with and without the leading asterisk (*), e.g. *LEFT-TO-RIGHT or ACTIVE • a null string ''
Integer	[+-] 0..2147483647	Integers in the table are shown as follows: • SDF data type with range, e.g. <integer 0..255> • SDF data type without range <integer>
Boolean	FALSE TRUE	Boolean values in the table are shown as TRUE and FALSE.

Explanation of the columns

The columns of the S variable tables are:

Output information	Name of the S variable	T	Contents	Condition

Column: Output information

This column provides notes on the contents of the S variable. If the contents and name of the S variable are self-explanatory, the notes are often restricted to one or two key terms. If the relationship between the contents and name of the S variable is not sufficiently obvious, more information is given about the contents of the S variable. If the possible contents of an S variable are *YES or *NO, the explanation may be formulated as a question, which can be answered with Yes or No.

Column: Name of the S variable

This column contains the alphabetically arranged names of the S variables. The order within the S variable table is governed by this column.

The names of the S variables consist of at least two subnames. In this manual the first subname is consistently given as var(*LIST); the actual name can be freely selected by the user within the terms of the SDF-P naming conventions. This S variable must always be declared as a list variable.

The full name of the S variable is composed of var(*LIST) and the command-specific preset S variable name. These names match the corresponding operand names or unique abbreviations as closely as possible. The subnames are separated by a dot. The preset S variable name may in turn comprise several subnames, similarly separated by dots. If the structure elements on this level form a list, the subname is also given the extension (*LIST).

ℹ The extension (*LIST) indicates that the S variable is an element in a list. (*LIST) appears when the contents of the S variable are displayed with the SHOW-VARIABLE command. For assignments, the user must replace (*LIST) by a particular list index. On request, the command SHOW-VARIABLE shows the value instead of (*LIST) in its output.
Example:

```
/SHOW-VARIABLE OPS
OPS(*LIST).F-NAME = :2OSH:$TSOS.X.OUT
OPS(*LIST).CAT-ID = 2OSH
OPS(*LIST).USER-ID = TSOS
OPS(*LIST).SHORT-F-NAME = X.OUT
OPS(*LIST).F-SIZE = 3
```

```
/SHOW-VARIABLE OPS, INF = *PAR(NAME = *FULL-NAME(LIST-INDEX-NUMBER = *YES))
OPS#1.F-NAME = :2OSH:$TSOS.X.OUT
OPS#1.CAT-ID = 2OSH
OPS#1.USER-ID = TSOS
OPS#1.SHORT-F-NAME = X.OUT
OPS#1.F-SIZE = 3
```

Column: T

The possible values are:This column indicates the data type of the S variable.

S: String

I: Integer

B: Boolean

The data type specifies the character set from which the contents of an S variable come (see the table in section “Notes on conventions used in the tables”).

Column: Contents

This column lists the contents of the S variable. These contents match the corresponding operand values or unique abbreviations as closely as possible. The notational conventions are partly based on the customary SDF data type notation (e.g. <filename 1..54>, see table “Data types " (SDF syntax representation)) and partly make use of names descriptive of the contents of the S variables (such as <tsn>). For further conventions refer to the table in section “Notes on conventions used in the tables", “Notes” column.

Column: Condition

With some commands there is an operand (usually INFORMATION) which identifies the S variables which are to be assigned values on output. These operand conditions are either noted directly in this column or are referenced there by means of a code number and/or letter. The association between this code and the corresponding operand value is explained above the S variable table.

1.2.17 SDF-P-BASYS

The software product SDF-P extends the BS2000 command language to the status of a programming language which enables structured programming in a manner analogous to higher programming languages. SDF-P incorporates the following major elements:

- Structured procedure format (S procedures)
- data structures, data types
- Variables concept (S variables)
- function calls (builtin functions)
- block-oriented error handling
- control structures
- source and object procedures

The software product SDF-P comprises the subsystems SDFPBASY and SDF-P. The following sections describe the scope of SDF-P as it affects the subsystem SDFPBASY. A detailed description of the SDF-P capabilities and how to use them can be found in the “SDF-P” manual [34].

The following description is valid for SDF-P V2.5.

Coexistence of SDF-P and SDF-P-BASYS

SDFPBASY subsystem can run with earlier SDF-P versions. In other words, migration of SDFPBASY does not necessarily require the chargeable subsystem SDF-P to be migrated.

New SDF-P versions require the same or a higher version of SDFPBASY. In other words, migration of the chargeable subsystem SDF-P requires the free subsystem SDFPBASY to be migrated.

1.2.17.1 Structured procedure format (S procedures)

S procedures consist of a procedure header and a procedure body. Logically associated blocks can be defined in both parts. The first record in an S procedure must be a command.

The procedure header normally begins with the SET-PROCEDURE-OPTIONS command, which is used to define the procedure attributes. If no explicit specifications are made, the default values for this command apply implicitly. Once the procedure attributes have been defined, the DECLARE-PARAMETER command can be used to define symbolic parameters, which are replaced by the values of the like-named S variables during execution.

Processing of the commands, SDF statements and input data is terminated by the CANCEL-PROCEDURE or EXIT-PROCEDURE command or by the last record. If an error occurs, SDF error recovery is triggered (see section "Block-oriented error recovery").

Compiled procedures

Two different procedure formats are possible:

- Source procedure
  The S procedure is available in the original text form. The full range of SDF-P functions is available only if the chargeable subsystem SDF-P is loaded when the procedure is called. In libraries, element type J should be used for source procedures. (If SDF-P is not loaded, all SDF-P commands in source procedures are subjected to a syntax analysis, with the exception of chargeable control flow commands and the COMPILE-PROCEDURE command. All chargeable commands and functions are not rejected until execution time.)
- Object procedure
  With the aid of the COMPILE-PROCEDURE command, a source procedure can be compiled in an intermediate format. The COMPILE-PROCEDURE command is part of the chargeable SDF-P subsystem. The object procedure can utilize the full functionality of SDF-P (apart from the COMPILE-PROCEDURE command) irrespective of whether the SDF-P subsystem is currently available or not. In libraries, element type SYSJ (the default for COMPILE-PROCEDURE) should be used for source procedures.

1.2.17.2 Block-oriented error recovery

In contrast to non-S procedures, problem-specific error recovery is possible in S procedures, namely at command level.

Error recovery in S procedures is block-oriented, i.e. it is implemented on block level. In the case of nested blocks, error recovery can be performed for each block level. However, it can also be called exclusively for higher-ranking, surrounding blocks. In this case, the errors detected in inner blocks are passed to these blocks and processed there.

In SDF-P-BASYS the IF-BLOCK-ERROR command makes it possible to initiate block oriented error recovery in an *S procedure*. The command block initiated in this way must be terminated by an END-IF command.

When error recovery is initiated, control branches in SDF-P-BASYS to the next IF-BLOCK-ERROR command (only the current command block or, in the case of nested blocks, also the higher-ranking command blocks are searched in the direction of the end of the procedure file). If no IF-BLOCK-ERROR is found, the procedure terminates when the end of the procedure file is reached. The error is passed to the caller. The error situation ends when an IF-BLOCK-ERROR block is encountered or when procedure level zero is reached.

For reasons of compatibility, the error situation is ended when a SET-JOB-STEP command is reached. In *non-S procedures* error recovery is still controlled via spin-off (see error recovery with the SET-JOB-STEP command).

Type of error recovery

The type of error recovery in an S procedure depends on what is specified in the ERROR-MECHANISM operand of the SET-PROCEDURE-OPTIONS command.

If nothing has been specified in the procedure with regard to ERROR-MECHANISM or if ERROR-MECHANISM=*SPIN-OFF-COMPATIBLE has been defined, SDF-P triggers error recovery if a command returns spin-off. In this case, error recovery is not dependent on the command return code. This error mechanism is preset and means that S procedures do not change their error behavior if commands in the procedures return a command-specific return code in a follow-up version for the first time.

If ERROR-MECHANISM=*BY-RETURNCODE has been set, SDF-P triggers error recovery if a command returns a return code with a subcode not equal to zero. In this case, error recovery is **not** dependent on the command's spin-off behavior. This error mechanism must be defined explicitly.

1.2.17.3 Variables concept (S variables)

An S variable is a named data object that can be addressed via its name and whose value can be modified. A distinction is made between *simple* S variables and *composite* S variables. Composite S variables are made up of two or more S variables under the same name in the form of a list, an array or a structure. Only *simple* S variables are possible under SDF-P-BASYS (see the “SDF-P” manual [34]).

An S variable is uniquely identified by its name, the variable type and the scope.

Variable name

The following applies to simple S variables:

```
variablename = <structured-name 1..20>
```

The following applies to composite S variables:

```
variablename = <composed-name 1..255>
```

The name is formatted in accordance with the SDF data type <composed-name>. The following restrictions should be borne in mind:

- Names of structured S variables are formed in accordance with <structured-name> and can be up to 20 characters long.
- SDF-P only supports special characters in variable names internally. The dollar sign (**$**) is reserved as the first character for TPR variables (task-privileged) and the hash character (#) is reserved as the identifier for composite variables (arrays and lists).
- The string **SYS** at the start of a name is reserved for system components.
- Keywords which are used as operators or Boolean constants are not permitted as variable names. This applies to:
  AND, DIV, EQ, FALSE, GE, GT, LE, LT, MOD, NE, NO, NOT, OFF, ON, OR, TRUE, XOR and YES

Variable type

A simple S variable can be one of the following three types:

- STRING with the value range <c-string 0..4096>
- INTEGER with the value range <integer -2147483648..2147483647>
- BOOLEAN with the value TRUE or FALSE

These three types are subject to a rigid set of type rules: a variable type can only be converted to a different type by means of builtin functions (see the “SDF-P” manual [34]).

In addition, there is also the variable type ANY. In this case, the variable is given the same type as the value assigned to it. The current type can be changed at any time by means of an assignment.

Scope

There are three scopes for S variables:

- INCLUDE:
  Variables declared within an S procedure called with INCLUDE-PROCEDURE are only valid within this procedure (component of the chargeable subsystem SDF-P).
- PROCEDURE:
  The variables can be used locally in procedures or in interactive mode. Procedure parameters of an S procedure called with CALL-PROCEDURE are automatically local for that procedure. If the procedure is interrupted (e.g. by [K2]), the local variables of the procedure can also be accessed and modified in interactive mode.
- TASK:
  The variables are defined as task-local and can be processed in all procedures and in interactive mode (only available with SDF-P).

Declaration

When first declared, an S variable is created in class 5 memory. Its lifespan is determined by its scope. For example, a procedure-local variable ceases to exist when the procedure is terminated. At the most, an S variable continues to exist until the task is terminated. The contents of a variable can be stored permanently in a job variable (chargeable component) or in a variable container (available with SDF-P-BASYS).
An S variable can be declared implicitly or explicitly.

Implicit declaration means that the S variable is created automatically by assigning it a value. This is possible only if IMPLICIT-DECLARATION=*YES has been specified (see the SET-PROCEDURE-OPTIONS command). Variables declared implicitly are of the type ANY.

S variables are declared explicitly (as procedure parameters) by means of the DECLARE-PARAMETER command in the procedure header of an S procedure. The DECLARE-VARIABLE command declares S variables explicitly.

Expressions

An expression defines how a new value is calculated from existing values. An expression is created by linking base terms with operators. Base terms can be:

- <c-string>
- <x-string>
- Boolean constants with ON, TRUE, YES for Boolean one and with OFF, FALSE, NO for Boolean zero
- the name of an S variable
- the function call of a builtin function

Depending on what operators are used, a distinction is made between:

- string expressions
- arithmetic expressions
- comparison expressions
- logical expressions

Only comparison expressions and logical expressions (negation only) are possible with SDF-P-BASYS. The other expressions are described in the “SDF-P” manual [34].

Comparison expressions have the format:

```
( expression1 operator expression2 )
```

expression $_1$ or *expression* $_2$ can be any expressions (base term or a permissible expression), but they must be of the same type. If they are not, an error message is issued and SDF-P error recovery is triggered.

The following *operators* are possible:

LT	or	<	less than
LE	or	<=	less than or equal to
EQ	or	= or ==	equal to
NE	or	<>	not equal to
GT	or	>	greater than
GE	or	>=	greater than or equal to

The complete expression must be enclosed in parentheses. Operators must be enclosed in blanks.

The result of a comparison is of the type BOOLEAN, i.e. it is either TRUE or FALSE.

Strings are compared byte by byte and from left to right. The comparison is based on the position of the characters in EBCDIC code. The result is determined by the first non-match. No further characters are compared after that. If no differences are detected up to the final character in the shorter of the operands, the longer operand is larger. Operands are equal if all of their characters match up.

Example

A = ’ABC’		
B = ’ABCDE’		
(B > A)	->	result TRUE
(’A’ = X’C1’)	->	result TRUE
(B > ’1’)	->	result FALSE
C = (A = B)	->	variable C has FALSE

A logical operator links expressions of the type BOOLEAN. Only the logical operator NOT is available with SDF-P-BASYS; this returns the negation of an expression as the result:

```
NOT( expression1 )
```

Example

A = ’AB’		
B = ’ABCD’		
(B > A)	->	result TRUE
NOT(B > A)	->	result FALSE

Note

The term “string expression”, which is used as a parameter in builtin functions, can have the following values:

- a string enclosed in apostrophes (<c-string>)
- the name of a variable containing a string (<composed-name>)
- an expression returning a string as the result

Example

/JV-NAME = ’MY-JV’		
/MY-VAR = JV(’JV-NAME’)	->	Value of the job variable JV-NAME
/MY-VAR = JV(JV-NAME)	->	Value of the job variable MY-JV
/MY-VAR = JV(’&JV-NAME’)	->	Value of the job variable MY-JV
/MY-VAR = JV(JV(JV-NAME))	->	Value of the job variable whose name is stored in the job variable MY-JV

1.2.17.4 Builtin functions

SDF uses builtin functions (predefined functions) both for editing S variables and character strings and for determining environment information. A builtin function forms precisely one return value from input parameters (if available) and environment information. With certain builtin functions, the type of return value is dependent on the input parameters.

Calling a builtin function without parameters: `function( )`

Specification of the parentheses is optional. If they are omitted, however, *function* must not be an S variable name, as otherwise the value of the like-named S variable will be returned.

Calling a builtin function with parameters:

$$\texttt{function(sympar}_1\texttt{ =value}_1\texttt{ ,...,sympar}_n\texttt{ =value}_n\texttt{)}$$

where $sympar_i$ (i = 1...n) is the name of the i-th parameter and $value_i$ is the value of the i-th parameter. An expression can also be specified as a parameter value. Parameters can be specified as keyword parameters or as positional parameters. Parameter names (i.e. keywords) can be abbreviated as desired as long as they remain unambiguous. Function names, on the other hand, can only be abbreviated if this is explicitly described in the builtin function.
The builtin functions available with the subsystem SDF-P-BASYS are described below. For a description of all available builtin functions and how to use them, see the “SDF-P” manual [34].

The following overview lists all builtin functions available with SDF-P-BASYS:

Name of the builtin function	Function
INSTALLATION-PATH( )	Output path name
IS-CATALOGED-JV( )	Interrogate job variable
IS-INITIALIZED( )	Check variable initialization
IS-SDF-P( )	Check whether SDF-P is loaded
JV( )	Interrogate job variable
MAINCODE( )	Interrogate error code
MSG( )	Output message text
SDF-P-VERSION( )	Interrogate SDF-P or SDF-P-BASYS version
SUBCODE1( )	Interrogate subcode1
SUBCODE2( )	Interrogate subcode2

1.2.17.5 INSTALLATION-PATH( ) - Output path name

Domain: **Environment information**

The INSTALLATION-PATH( ) function outputs the path name that has been assigned from the SCI for the logical name of a file (installation item) that belongs to a particular product version.

The assignment of a path name to a logical name is only available if the file is a component of a product that was installed with IMON. The assignment can also be entered into the SCI by systems support using the SET-INSTALLATION-PATH command. For more details, see the “IMON” manual [19].

An expression must be specified in the DEFAULT-PATH-NAME operand which is returned as an alternative result if no path name has been assigned (the product is not registered in the SCI or no file exists for the logical name specified).

Format

INSTALLATION-PATH( )
LOGICAL-ID = string_expression ,INSTALLATION-UNIT = string_expression ,VERSION = *STD / string_expression ,DEFAULT-PATH-NAME = string_expression

Result type

STRING

Input parameters

LOGICAL-ID = string_expression
Designates the logical name of the file (installation item) whose path name is to be output (e.g. SYSPRG).

INSTALLATION-UNIT = string_expression
Designates the product name (name of the installation unit).

VERSION = *STD / string_expression
Designates the product version (up to 8 characters). A version can be specified explicitly in the *[V][m]m.naso* format (see also SDF data type composed-name). If the specified version does not exist in the SCI, the function call is aborted without returning a result (or an alternative character string).

DEFAULT-PATH-NAME = string_expression
Determines the alternative character string (e.g. a path name that definitely exists) that is output if no assigned path name is available (product or installation item is not registered in the SCI).

Result

A string conforming to the rules for the SDF data type <filename 1..54>.

Error messages

```
SDP0469    INVALID PARAMETER '(&00)' SPECIFIED
SDP0470    INTERNAL ERROR RETURNED BY GETINSP/GETINSV INTERFACE. RETURN CODE
           '(&00)' RECEIVED
SDP0489    Warning: Installation-Unit '(&00)' not found in IMON Software
           Inventory. Default value assumed
SDP0490    Installation-Unit '(&00)' version '(&01)' not found
SDP0491    Warning: Logical-id '(&00)' not found in Installation-Unit '(&01)'
           version '(&02)'. Default value assumed
```

Examples

```
/A = INSTALLATION-PATH(LOGICAL-ID='SYSLNK',INSTALLATION-UNIT='EDT',
DEFAULT-PATH-NAME='*** no pathname available! ***')
/SHOW-VARIABLE A
A = :2OSH:$TSOS.SYSLNK.EDT.171
```

The path name of the load module library for the product EDT is output. Subsequently, it is checked whether there exists a readme file:

```
/A = INSTALLATION-PATH(LOGICAL-ID='SYSRME.D',INSTALLATION-UNIT='EDT',
DEFAULT-PATH-NAME='*** no readme file available! ***')
%  SDP0491 Warning: Logical-id 'SYSRME.D' not found in Installation-Unit
'EDT' version '*STD'. Default value assumed
/SHOW-VARIABLE A
A = *** no readme file available! ***
```

1.2.17.6 IS-CATALOGED-JV( ) - Interrogate job variable

Domain: **Job variables**

The IS-CATALOGED-JV( ) function checks whether a catalog entry exists for the specified job variable names, i.e. whether the specified job variable exists. This function can only be used if the JV subsystem has been loaded in the system. For more detailed information on job variables see the “Job Variables” manual [20].

Format

IS-CATALOGED-JV( ) IS-CAT-JV( )
JV = string_expression ,ERROR-REPORTING = *PROC-ERROR-MECHANISM / *RETURN-FALSE ,ERROR-VARIABLE = *NONE / string_expression

Result type

BOOLEAN

Input parameters

JV = string_expression
Designates a job variable. When a JV name is specified directly it must be enclosed in quotes.

ERROR-REPORTING =
In the event of an error, you can define whether error processing is triggered or the message code is stored in an S variable.

ERROR-REPORTING = *PROC-ERROR-MECHANISM
In the event of an error, error processing is triggered (see section "Block-oriented error recovery").

ERROR-REPORTING = *RETURN-FALSE
In the event of an error, the result *FALSE* is output. An error message is not output. The message code of the error message is written to the variable specified in ERROR-VARIABLE = ...

ERROR-VARIABLE =
An S variable can be defined for the message code. The message code is only written to the variable if in the function call ERROR-REPORTING=*RETURN-FALSE is specified in the function call.

ERROR-VARIABLE = *NONE
No S variable is specified.

ERROR-VARIABLE = string_expression
The name of the S variable where the message code of the error message is written. Note the following:

- If the variable name is directly specified, it must be enclosed in quotes. Otherwise, the contents of the variable are interpreted as the variable name.
- Message codes are only written to the S variable if an error occurs (result=FALSE) and ERROR-REPORTING=*RETURN-FALSE was specified. Example of possible error codes: SDP0439, SDP0440 or DMSxxxx.
- If an error occurs when writing to the S variable, the corresponding error message is output to SYSOUT, regardless of the specification in ERROR-REPORTING and the S variable contains no return value.

Result

TRUE
The job variable designated in the JV parameter has been cataloged.

FALSE
The job variable designated in the JV parameter has not been cataloged or an error occurred when calling with ERROR-REPORTING=*RETURN-FALSE.

Error message

```
SDP0495    '(&00)' NOT A CORRECT JV NAME
SDP1054    JOB VARIABLE ERROR: JVS ERROR CODE '(&00)' WHILE ACCESSING JOB
          VARIABLE '(&01)'. IN SYSTEM MODE: /HELP-MSG JVS(&00)
```

Example

```
/IF (IS-CATALOGED-JV(JV='PS'))
/WRITE-TEXT 'EXISTS'
/ELSE
/WRITE-TEXT 'CREATE'
/END-IF
```

Output:
CREATE

1.2.17.7 IS-INITIALIZED( ) - Check variable initialization

Domain: **Variable access / test functions**

The IS-INITIALIZED( ) function checks whether the specified variable has been initialized, i.e. whether its contents are valid. Even a null string is valid as the contents. A variable cannot be initialized unless it has been declared.

Format

IS-INITIALIZED( )
VARIABLE-NAME = string_expression

Result type

BOOLEAN

Input parameters

VARIABLE-NAME = string_expression
Designates a variable. The variable name must be enclosed in apostrophes if it is specified directly, i.e. as a literal. A list variable must be identified in the form 'listenname#'. Individual list elements can be specified in the form 'listenname#elementindex'.

Result

TRUE
The variable designated by the VARIABLE-NAME parameter has been initialized.

FALSE
The variable designated by the VARIABLE-NAME parameter has not been initialized.

Error message

```
SDP1101      SYNTAX ERROR IN VARIABLE NAME
```

1.2.17.8 IS-SDF-P( ) - Check whether SDF-P is loaded

Domain: **Test functions**

The IS-SDF-P( ) function checks whether SDF-P has been loaded in the system. If it has, the result TRUE is returned. The result FALSE is returned in the following cases:

- SDF-P has not been loaded.
- SDF-P is loaded but SDF-P-BASYS functionality is currently being simulated in the task (FUNCTIONALITY=*BASIC setting in the MODIFY-PROCEDURE-TEST-OPTIONS command, see “SDF-P” manual [34]).

If SDF-P has been loaded (i.e. the result is TRUE), it is possible to use functions or commands of the chargeable subsystem SDF-P in an IF branch (see example). However, this does not apply to chargeable control flow commands such as FOR, WHILE, REPEAT, since control flow commands are checked as part of pre-analysis, i.e. before the builtin function is called. If SDF-P is not loaded or SDF-P-BASYS functionality is being simulated, using the control flow command FOR, for example, will always result in an error.

Format

IS-SDF-P( )

Result type

BOOLEAN

Input parameters

None

Result

TRUE
SDF-P has been loaded in the system.

FALSE
SDF-P has not been loaded in the system or SDF-P-BASYS functionality is being simulated in the task.

Error message

None

Example 1

```
/A = IS-SDF-P
/SHOW-VAR A
A = TRUE
```

Example 2

```
/SET-PROCEDURE-OPTIONS
.
.
.
/   IF  (IS-SDF-P)
/       "In this IF branch, all commands and builtin"
/       " functions of SDF-P can be used."
/       "However, SDF-P control flow commands cannot"
/       " be used (e.g. FOR, WHILE, REPEAT)."
.
.
.
/   ELSE
/       "In the ELSE branch, only the basic functions of"
/       " SDF-P-BASYS can be used."
.
.
.
/   END-IF
.
.
.
```

1.2.17.9 JV( ) - Interrogate job variable

Domain: **Job variable functions**

The JV function supplies the contents of the specified job variable or of a subarea defined by the START and LENGTH parameters. The chargeable subsystem JV must be loaded and the user must have read authorization for the job variable.

Format

JV( )
JV-NAME = string_expression ,START = 1 / arithm_expression$_1$,LENGTH = *REST-LENGTH / arithm_expression$_2$

Result type

STRING

Input parameters

JV-NAME = string_expression
Designates a job variable; “string_expression” must therefore be a valid job variable name or a JV link name identified by a preceding asterisk (*).

START = 1 / arithm_expression$_1$
Designates the start position of the subarea to be extracted. The default value is the first character. arithm_expression$_1$ must be a positive integer value which is less than the length of the JV value. If the value specified for arithm_expression$_1$ is not valid, a null string will be returned.

LENGTH = *REST-LENGTH / arithm_expression$_2$
Designates the length of the subarea to be extracted. The default value *REST-LENGTH indicates that the subarea to be extracted begins at the position specified by START and extends to the end. If arithm_expression$_2$ specifies a length differing from this which is too long, LENGTH = *REST-LENGTH is assumed implicitly.

Result

Contents of the job variable designated by “string_expression” or the part of it designated by “arithm_expression$_1$” and “arithm_expression$_2$”.

Error messages

```
SDP0412       START POSITION OUT OF RANGE
SDP0414       WARNING: *REST-LENGTH OF FUNCTION 'SUBSTRING' USED
SDP1022       JOB VARIABLE '...' NOT ACCESSIBLE
SDP1024       JOB VARIABLE '...' DOES NOT EXIST
SDP1027       VALUE FOR JOB VARIABLE '...' IS NOT A STRING
SDP1054       JOB VARIABLE ERROR: JVS ERROR CODE '...' WHILE ACCESSING
              JOB VARIABLE'...'. IN SYSTEM MODE: /HELP-MSG DMS...
```

1.2.17.10 MAINCODE( ) - Interrogate error code

Domain: **Return codes**

The MAINCODE function returns the value of the maincode of the current return code. The maincode contains a message code which can be used to output the contents of the message. Output of the message contents can be initiated with the HELP-MSG-INFORMATION command or with the builtin function MSG( ). If subcode1 is equal to zero, SDF-P does not report an error. In this case, a return code cannot be interpreted unless it has been saved with the SAVE-RETURNCODE command.

MAINCODE( ) or return codes in general cannot be interrogated outside of dialog blocks and procedures.

Format

MAINCODE( ) MC( )

Result type

STRING (<string 7..7>)

Input parameters

None

Result

The value of the maincode is returned as the result in the form of a message code.

1.2.17.11 MSG( ) - Output message text

Domain: **Return codes** (messages)

The MSG( ) function supplies the message text assigned to the specified message code; this is done in the specified language and in the specified output format.

For some SDF-P commands, the message code may have been previously requested from the command return code, using the MAINCODE( ) function.

Format

MSG( )
MSG-IDENTIFICATION = string_expression ,LANGUAGE = *STD / *ENGLISH / *GERMAN ,INSERT-00 = *NONE / string_expression ,INSERT-01 = *NONE / string_expression : : : ,INSERT-29 = *NONE / string_expression ,MSG-STRUCTURE-OUTPUT = *NONE / *SYSMSG

Result type

STRING (<string>)

Input parameters

MSG-IDENTIFICATION = string_expression
string_expression contains the 7-byte message code in the following format:

Bytes 1-3: Letters identifying the message class

Bytes 4-7: Digits 0-9, letters A-F as the hexadecimal representation of the exact error number

LANGUAGE = *STD / *ENGLISH / *GERMAN
The message text is output in English or German. The default setting is *STD, i.e. the text is output in the language set for the task. The (former) operand values *E for *ENGLISH and *D for *GERMAN are still supported for reasons of compatibility.

INSERT-nn = *NONE / string_expression
Designates the additional content of a message.

MSG-STRUCTURE-OUTPUT =
Specifies whether variables for the output of messages must be created and sent on.

MSG-STRUCTURE-OUTPUT = *NONE
Variables for the output of messages are not sent on via S variable stream SYSMSG. The message text is not supplied by the command /HELP-MSG-INFORMATION MSG-ID=*LAST.

MSG-STRUCTURE-OUTPUT = *SYSMSG
If messages are guaranteed, variables for the output of messages are sent on via S variable stream SYSMSG. The message text can be obtained by the command /HELP-MSG-INFORMATION MSG-ID=*LAST.

Result

Message text in the form of a string.

Null string ('') means, that no text has been assigned to this message code.

Error messages

```
SDP0413  ILLEGAL LENGTH

SDP0418  INVALID MSG-IDENTIFICATION
```

Example

```
/A=MSG(MSG-IDENTIFICATION='SDP1018',"This message is guaranteed" -
/                 INSERT-00='MY-VARIABLE', -
/                 MSG-STRUCTURE-OUTPUT = *SYSMSG)
/B=MSG(MSG-IDENTIFICATION='SDP1010',"This message is NOT guaranteed" -
/                 INSERT-00='MY-SECOND-VARIABLE', -
/                 MSG-STRUCTURE-OUTPUT = *SYSMSG)
/SHOW-VARIABLE *ALL
A =  %  SDP1018 VARIABLE 'MY-VARIABLE' ALREADY EXISTS BUT WITH OTHER
ATTRIBUTES
B =  %  SDP1010 VARIABLE 'MY-SECOND-VARIABLE' HAS NO VALUE
*END-OF-CMD
```

1.2.17.12 SDF-P-VERSION( ) - Interrogate SDF-P version

Domain: **Procedure information**

The SDF-P-VERSION( ) function provides information on the installed version of the (chargeable) subsystem SDF-P or on the current version of the subsystem SDF-P-BASYS contained in the basic configuration.

Format

SDF-P-VERSION( )
FUNCTION-RANGE = *STD / *BASIC

Result type

STRING

Input parameters

FUNCTION-RANGE = *STD
Current version of the (chargeable) subsystem SDF-P, if this is loaded, otherwise the current SDF-P-BASYS version.

FUNCTION-RANGE = *BASIC
Current version of the subsystem SDF-P-BASYS contained in the basic configuration.

Result

Version information in the form of a string.

Error messages

None

Example

```
/A = SDF-P-VERSION
/B = SDF-P-VERSION(FUNCTION-RANGE=*BASIC)
/SHOW-VARIABLE (A,B)
A = V02.5E10
B = V02.5E10
```

1.2.17.13 SUBCODE1( ) - Interrogate subcode1

Domain: **Return codes**

The SUBCODE1 function supplies the value of subcode1 of the current return code.
A subcode1 not equal to zero means that an error has occurred, in which case SDF-P branches to the next IF-BLOCK-ERROR or IF-CMD-ERROR command (see corresponding descriptions). If subcode1 is equal to zero, SDF-P does not report an error. In this case, a return code cannot be interpreted unless it has been saved with the SAVE-RETURNCODE command.

SUBCODE1( ) is not available outside of procedures and dialog blocks.

Format

SUBCODE1( ) SC1( )

Result type

INTEGER (<integer 0..255>)

Input parameters

None

Result

Designation of the error class in the form of an integer value <integer 0..255>

0
No error has occurred in the current procedure or the return code was saved with /SAVE-RETURNCODE after an error-free command.

1.2.17.14 SUBCODE2( ) - Interrogate subcode2

Domain: **Return codes**

The SUBCODE2 function supplies the value of subcode2 of the current return code. Subcode2 can contain additional information. If subcode1 is equal to zero, SDF-P does not report an error. In this case, a return code cannot be interpreted unless it has been saved with the SAVE-RETURNCODE command.

SUBCODE2( ) is not available outside of procedures and dialog blocks.

Format

SUBCODE2( ) SC2( )

Result type

INTEGER (<integer 0..255>)

Input parameters

None

Result

Value of subcode2 as an integer value (<integer 0..255>)

1.2.17.15 Commands supported by SDF-P-BASYS

The following table contains all SDF-P commands which are available with the nonchargeable subsystem SDF-P-BASYS. The commands are described in this “Commands” manual.

Command	Brief description
ASSIGN-STREAM	Assign S variable stream
BEGIN-PARAMETER-DECLARATION	Initiate declaration of procedure parameters in procedure header
CALL-PROCEDURE	Start command sequence
CLOSE-VARIABLE-CONTAINER	Close variable container
DECLARE-PARAMETER	Declare procedure parameters
DECLARE-VARIABLE	Declare variable
DELETE-VARIABLE	Delete a variable
ELSE	Initiate ELSE branch in IF block
END-IF	Terminate IF block
END-PARAMETER-DECLARATION	Terminate declaration of procedure parameters
EXIT-PROCEDURE	Terminate procedure
GOTO	Branch to marker
IF	Initiate IF block
IF-BLOCK-ERROR	Initiate block error recovery
MODIFY-PROCEDURE-OPTIONS (only with the SUPPRESS-SDP-MSG operand)	Modify procedure options during program execution
OPEN-VARIABLE-CONTAINER	Open variable container stored as PLAM library element
SAVE-RETURNCODE	Save current command return code
SAVE-VARIABLE-CONTAINER	Save variable container
SET-PROCEDURE-OPTIONS	Define procedure attributes
SET-VARIABLE	Assign value to variable
SHOW-VARIABLE	Output contents of variable

1.2.17.16 Subsystem installation

The following files are delivered along with SDF-P-BASYS V2.5:

File name	Contents
SIPLIB.SDF-P-BASYS.025	Library for privileged interfaces
SKMLNK.SDF-P-BASYS.025	Independent part of SDF-P-BASYS, which is loaded automatically at startup (for SU x86)
SYSLIB.SDF-P-BASYS.025	SDF-P-BASYS Assembler macros
SYSLNK.SDF-P-BASYS.025	Independent part of SDF-P-BASYS, which is loaded automatically at startup (for SU /390)
SYSMES.SDF-P-BASYS.025	Message file containing SDF-P messages
SYSPRC.SDF-P-BASYS.025	Procedures for SDF-P-BASYS (e.g. FHDR)
SYSRMS.SDF-P-BASYS.025	RMS delivery sets for SDF-P-BASYS
SYSSDF.SDF-P-BASYS.025	Syntax file containing only commands which SDF-P-BASYS executes itself
SYSSII.SDF-P-BASYS.025 [1)]	Structure and installation information file of IMON
SYSSSC.SDF-P-BASYS.025	SSCM catalog which defines the SDF-P-BASYS subsystem

[1)] After SYSSII files have been successfully installed on the target system they are deleted. They are, however, saved in the $SYSSAG.SOLLIB.IMON.SYSSII library as X elements.

IMON installation information for SDF-P-BASYS

Logical IMON name	Default file name
SIPLIB	$TSOS.SIPLIB.SDF-P-BASYS.025
SYSLIB	$TSOS.SYSLIB.SDF-P-BASYS.025
SYSLNK	$TSOS.SYSLNK.SDF-P-BASYS.025
SYSLNK	$TSOS.SKMLNK.SDF-P-BASYS.025
SYSMES	$TSOS.SYSMES.SDF-P-BASYS.025
SYSPRC	$TSOS.SYSPRC.SDF-P-BASYS.025
SYSREP	$TSOS.SYSREP.SDF-P-BASYS.025
SYSRMS	$TSOS.SYSRMS.SDF-P-BASYS.025
SYSSDF	$TSOS.SYSSDF.SDF-P-BASYS.025
SYSSII	$TSOS.SYSSII.SDF-P-BASYS.025 [1)]
SYSSSC	$TSOS.SYSSSC.SDF-P-BASYS.025

[1)] After SYSSII files have been successfully installed on the target system they are deleted. They are, however, saved in the $SYSSAG.SOLLIB.IMON.SYSSII library as X elements.

1.3 Overviews

This chapter contains the following overviews:

- Overview of main functions of the BS2000 commands
- Domains
- Commands and their privileges
- Command aliases
- Commands of internal components

1.3.1 Overview of main functions of the BS2000 commands

The following tables show the commands collected in functional groups. Basically, the allocation of the commands to one of the functional groups is based on the assignments of the commands to the SDF domains.
However, in the present case, subfunctions were taken into account within individual groups and a number of commands have been assigned to various groups.

The following functional groups have been formed:

- Accounting system control
- AUDIT mode control
- Job processing
- Operator terminal control
- User management
- Caching media control
- File processing
- Data communication control
- Error logging
- Device management
- Job variables
- Editing command files
- Message processing
- Net-Storage administration
- Operator function control
- POSIX administration and application
- Program control
- Procedures
- Pubset and MRSCAT management
- SDF control
- Controlling spoolout job
- Subsystem management
- System control and optimization

Accounting system control

CHANGE-ACCOUNTING-FILE
CHANGE-RESLOG-FILE
MODIFY-ACCOUNTING-PARAMETERS
SHOW-ACCOUNTING-STATUS
START-ACCOUNTING
START-RESLOG-EVALUATION
STOP-ACCOUNTING
WRITE-ACCOUNTING-RECORD

AUDIT mode control

HOLD-HARDWARE-AUDIT
HOLD-LINKAGE-AUDIT
RESUME-HARDWARE-AUDIT
RESUME-LINKAGE-AUDIT
SHOW-AUDIT-STATUS
SHOW-HARDWARE-AUDIT
SHOW-LINKAGE-AUDIT
START-HARDWARE-AUDIT
START-LINKAGE-AUDIT
STOP-HARDWARE-AUDIT
STOP-LINKAGE-AUDIT

Controlling spoolout job

CANCEL-PRINT-JOB
CLOSE-VIRTUAL-DEVICE-DIALOG
GET-JOB-FROM-VIRTUAL-DEVICE
HOLD-PRINT-JOB
MODIFY-PRINTER-OUTPUT-STATUS
MODIFY-PRINT-JOB-ATTRIBUTES
MODIFY-SPOOLOUT-OPTIONS
MODIFY-TAPE-OUTPUT-STATUS
MOVE-PRINT-JOBS
OPEN-VIRTUAL-DEVICE-DIALOG
PRINT-DOCUMENT
REDIRECT-PRINT-JOB
RESUME-PRINT-JOB
RETURN-JOB-TO-VIRTUAL-DEVICE
SHOW-ACTIVE-SPOOL-DEVICES
SHOW-PRINTER-POOLS
SHOW-PRINT-JOB-ATTRIBUTES
SHOW-PRINT-JOB-STATUS
SHOW-SPOOL-CHARACTER-SETS
SHOW-SPOOL-DEVICES
SHOW-SPOOL-FILTERS
SHOW-SPOOL-FORMS
SHOW-SPOOL-PARAMETERS
START-PRINTER-OUTPUT
START-TAPE-OUTPUT
START-TAPE-REPLAY
STOP-PRINTER-OUTPUT
STOP-TAPE-OUTPUT
WRITE-SPOOL-TAPE

Data communication control

PROTECT-FITC-APPLICATION
REMOVE-DCAM-APPLICATION-LINK
REMOVE-DCAM-CONNECTION-LINK
SET-DCAM-APPLICATION-LINK
SET-DCAM-CONNECTION-LINK

Device management

ADD-DEVICE-DEPOT
ADD-IO-UNIT
ATTACH-DEVICE
CHANGE-DISK-MOUNT
CHANGE-TAPE-MOUNT
CHECK-DISK-MOUNT
CHECK-TAPE-MOUNT
DETACH-DEVICE
INCLUDE-DEVICE-CONNECTION
MODIFY-IO-OPTIONS022////////////////////////////
MODIFY-IO-UNIT
MODIFY-MOUNT-PARAMETER
MODIFY-RESOURCE-COLLECTION
REMOVE-DEVICE-CONNECTION
REMOVE-DEVICE-DEPOT
REMOVE-IO-UNIT
SET-DISK-DEFAULTS
SET-DISK-PARAMETER
SHOW-DEVICE-CONFIGURATION
SHOW-DEVICE-DEPOT
SHOW-DEVICE-STATUS
SHOW-DISK-DEFAULTS
SHOW-DISK-STATUS
SHOW-IO-OPTIONS
SHOW-MOUNT-PARAMETER
SHOW-RESOURCE-ALLOCATION
SHOW-RESOURCE-REQUESTS
SHOW-TAPE-STATUS
START-CONFIGURATION-UPDATE
START-RESOURCE-COLLECTION
STOP-CONFIGURATION-UPDATE
STOP-RESOURCE-COLLECTION
UNLOAD-TAPE
UNLOCK-DEVICE
UNLOCK-DISK

Editing command files

AGOGO
ASTOP
CANCEL-RUN-PROCESS
REMARK
RUN

Error logging

ADD-ASE-ELEMENT
CHANGE-CONSLOG-FILE
CHANGE-HEL-FILE
CHANGE-SERSLOG-FILE
MODIFY-ASE-PARAMETERS
MODIFY-HEL-CHECK
MODIFY-HEL-LOGGING
MODIFY-HEL-TELESERVICE-ALARM
REMOVE-ASE-ELEMENT
SET-CONSLOG-READ-MARK
SHOW-ASE-ELEMENT
SHOW-ASE-LOGGING
SHOW-ASE-PARAMETERS
SHOW-ASE-STATUS
SHOW-CONSLOG-ATTRIBUTES
SHOW-HEL-CHECK
SHOW-HEL-LOGGING
SHOW-HEL-STATUS
SHOW-HEL-TELESERVICE-ALARM
SHOW-SERSLOG-STATUS
SHOW-TRACE-STATUS
START-HEL-LOGGING
START-SERSLOG
START-TRACE
STOP-HEL-LOGGING
STOP-SERSLOG
STOP-TRACE
TURN

File processing

ADD-ACS-SYSTEM-FILE
ADD-ALIAS-CATALOG-ENTRY
ADD-CRYPTO-PASSWORD
ADD-FILE-LINK
ADD-ISAM-POOL-LINK
ADD-PASSWORD
ASSIGN-SYSDTA
ASSIGN-SYSLST
ASSIGN-SYSOUT
CHANGE-FILE-LINK
CHECK-FILE-CONSISTENCY
CHECK-IMPORT-DISK-FILE
CHECK-PUBSET-MIRRORS
COMPARE-DISK-FILES
CONCATENATE-DISK-FILES
CONVERT-FILE-TO-PDF

COPY-FILE
COPY-POSIX-FILE
COPY-SYSTEM-FILE
CREATE-ALTERNATE-INDEX
CREATE-FILE
CREATE-FILE-GENERATION
CREATE-FILE-GROUP
CREATE-ISAM-POOL
CREATE-TAPE-SET
DECRYPT-FILE
DELETE-ALTERNATE-INDEX
DELETE-FILE
DELETE-FILE-GENERATION
DELETE-FILE-GROUP
DELETE-ISAM-POOL
DELETE-SYSTEM-FILE
DELETE-TAPE-SET
EDIT-FILE-ATTRIBUTES
EDIT-FILE-GENERATION-SUPPORT
EDIT-FILE-GROUP-ATTRIBUTES
EDIT-FILE-LINK
ENCRYPT-FILE
EOF
EXPORT-FILE
EXPORT-NODE-FILE
EXTEND-TAPE-SET
HOLD-ALIAS-SUBSTITUTION
IMPORT-FILE
IMPORT-NODE-FILE
LIST-FILE-FROM-SNAPSET
LIST-NODE-FILES
LOAD-ALIAS-CATALOG
LOCK-FILE-LINK
MAIL-FILE
MODIFY-ACS-OPTIONS
MODIFY-ACS-SYSTEM-FILE
MODIFY-ALIAS-CATALOG-ENTRY
MODIFY-FILE-ATTRIBUTES
MODIFY-FILE-GENERATION-SUPPORT
MODIFY-FILE-GROUP-ATTRIBUTES
MODIFY-SYSFILE-OPTIONS
PURGE-ALIAS-CATALOG
REMOVE-ACS-SYSTEM-FILE
REMOVE-ALIAS-CATALOG-ENTRY
REMOVE-CE-LOCK
REMOVE-CRYPTO-PASSWORD
REMOVE-FILE-ALLOCATION-LOCKS
REMOVE-FILE-LINK
REMOVE-ISAM-POOL-LINK

REMOVE-PASSWORD
REPAIR-DISK-FILES
REPAIR-FILE-LOCKS
RESTORE-FILE-FROM-SNAPSET
RESUME-ALIAS-SUBSTITUTION
SET-FILE-NAME-PREFIX
SET-JOB-STEP
SET-SYSLST-READ-MARK
SET-SYSOUT-READ-MARK
SHOW-ACS-OPTIONS
SHOW-ACS-SYSTEM-FILES
SHOW-CE-LOCK
SHOW-FILE
SHOW-FILE-ATTRIBUTES
SHOW-FILE-LINK
SHOW-FILE-LOCKS
SHOW-FILE-NAME-PREFIX
SHOW-GCF-CATALOGS
SHOW-GCF-OBJECT-TYPES
SHOW-GCF-SERVER-TASKS
SHOW-INDEX-ATTRIBUTES
SHOW-ISAM-POOL-ATTRIBUTES
SHOW-ISAM-POOL-LINK
SHOW-PUBSET-FILE-SERVICES
SHOW-SNAPSET-CONFIGURATION
SHOW-STORAGE-CLASS
SHOW-SYSTEM-FILE-ASSIGNMENTS
START-ACS

STORE-ALIAS-CATALOG
UNLOCK-FILE-LINK

Job processing

ASSIGN-SYSDTA
ASSIGN-SYSEVENT
ASSIGN-SYSOUT
CANCEL-JOB
CHANGE-TASK-CPU-LIMIT
CHANGE-TASK-PRIORITY
DELETE-SYSTEM-FILE
EDIT-JOB
EDIT-JOB-OPTIONS
ENTER-JOB
ENTER-PROCEDURE
EOF
EXIT-JOB
FORCE-JOB-CANCEL
HELP-MSG-INFORMATION

HOLD-JOB
HOLD-JOB-CLASS
HOLD-JOB-STREAM
HOLD-TASK
INFORM-OPERATOR
INFORM-PROGRAM
LOGOFF
MODIFY-DEFAULT-ACCOUNT
MODIFY-JOB
MODIFY-JOB-CLASS
MODIFY-JOB-OPTIONS
MODIFY-JOB-STREAM
MODIFY-JOB-SWITCHES
MODIFY-MSG-OPTIONS
MODIFY-SYSFILE-OPTIONS
MODIFY-TERMINAL-OPTIONS
MOVE-JOBS
MOVE-TASK-TO-CATEGORY
RESUME-JOB
RESUME-JOB-CLASS
RESUME-JOB-STREAM
RESUME-TASK
SECURE-RESOURCE-ALLOCATION
SET-LOGON-PARAMETERS
SET-SYSLST-READ-MARK
SET-SYSOUT-READ-MARK
SHOW-CALENDAR
SHOW-JOB-CLASS
SHOW-JOB-OPTIONS
SHOW-JOB-STATUS
SHOW-JOB-STREAM
SHOW-JOB-SWITCHES
SHOW-MSG-OPTIONS
SHOW-RESOURCE-ALLOCATION
SHOW-SYSEVENT-LOG
SHOW-SYSEVENT-LOG-ATTRIBUTES
SHOW-SYSTEM-FILE-ASSIGNMENTS
SHOW-SYSTEM-STATUS
SHOW-TERMINAL-ATTRIBUTES
SHOW-TERMINAL-OPTIONS
SHOW-USER-STATUS
SKIP-COMMANDS
START-JOB-STREAM
STOP-JOB-STREAM
WRITE-TEXT

Job variables

ADD-CJC-ACTION
COPY-JV
CREATE-JV
DELETE-JV
EDIT-JV
EDIT-JV-ATTRIBUTES
END-CJC-ACTION
LIST-JV-FROM-SNAPSET
MODIFY-JV
MODIFY-JV-ATTRIBUTES
MODIFY-JV-CONDITIONALLY
MODIFY-MONJV
REMOVE-CJC-ACTION
REMOVE-JV-LINK
RESTORE-JV-FROM-SNAPSET
SET-JV-LINK
SHOW-CJC-STATUS
SHOW-JV
SHOW-JV-ATTRIBUTES
SHOW-JV-LINK
SHOW-SNAPSET-CONFIGURATION
WAIT-EVENT

Message processing

HELP-MSG-INFORMATION
MODIFY-MIP-OPTIONS
MODIFY-MIP-PARAMETERS
MODIFY-MSG-ATTRIBUTES
MODIFY-MSG-FILE-ASSIGNMENT
MODIFY-MSG-SUBSCRIPTION
RESET-MSG-BUFFER
RESET-MSG-SUPPRESSION
SET-MSG-SUPPRESSION
SHOW-MIP-PARAMETERS
SHOW-MSG-FILE-ASSIGNMENT
SHOW-MSG-SUBSCRIPTION
SHOW-MSG-SUPPRESSION

Net-Storage administration

ADD-NET-STORAGE-VOLUME
LIST-NET-DIRECTORIES
MOUNT-NET-STORAGE
REMOVE-NET-STORAGE-VOLUME
SET-NET-CLIENT-ALTERNATE
SHOW-NET-CLIENT-ALTERNATE
SHOW-NET-STORAGE
SHOW-NET-STORAGE-OCCUPATION
SHOW-PUBSET-NET-STORAGE
UMOUNT-NET-STORAGE

not allocated

BROADCAST
CONNECT-CMD-SERVER
DISCONNECT-CMD-SERVER
MESSAGE
SEND-MSG
SET-FILE-LINK

Operator function control

CONNECT-CMD-SERVER
CREATE-OPERATOR-ROLE
DELETE-OPERATOR-ROLE
DISCONNECT-CMD-SERVER
MODIFY-OPERATOR-ATTRIBUTES
MODIFY-OPERATOR-ROLE
RELEASE-OPERATOR-ROLE
REQUEST-OPERATOR-ROLE
SHOW-OPERATOR-ATTRIBUTES
SHOW-OPERATOR-ROLE

Operator terminal control

ADD-CONSOLE-FILTER
ASR
ASSIGN-SYSEVENT
CONSOLE
INFORM-JOB
MODIFY-CONSOLE-OPTIONS
MODIFY-MSG-SUBSCRIPTION
REMOVE-CONSOLE-FILTER
REQUEST-MAIN-CONSOLE-FUNCTIONS
RESET-MSG-BUFFER
RESET-MSG-SUPPRESSION
SET-MSG-SUPPRESSION
SHOW-CMD-ATTRIBUTES
SHOW-CONSOLE-FILTER
SHOW-CONSOLE-OPTIONS
SHOW-CONSOLE-STATUS
SHOW-MSG-SUBSCRIPTION
SHOW-MSG-SUPPRESSION
SHOW-PENDING-MSG
SHOW-SYSEVENT-LOG
SHOW-SYSEVENT-LOG-ATTRIBUTES

POSIX administration and application

ADD-POSIX-USER
COPY-POSIX-FILE
EDIT-POSIX-USER-ATTRIBUTES
EDIT-POSIX-USER-DEFAULTS
EXECUTE-POSIX-CMD
MODIFY-DEFAULT-ACCOUNT
MODIFY-POSIX-USER-ATTRIBUTES
MODIFY-POSIX-USER-DEFAULTS
SHOW-POSIX-STATUS
SHOW-POSIX-USER-ATTRIBUTES
SHOW-POSIX-USER-DEFAULTS
START-POSIX-INSTALLATION
START-POSIX-SHELL

Procedures

ASSIGN-STREAM
BEGIN-PARAMETER-DECLARATION
BEGIN-PROCEDURE
CALL-PROCEDURE
CANCEL-PROCEDURE
CLOSE-VARIABLE-CONTAINER
DECLARE-PARAMETER
DECLARE-VARIABLE
DELETE-VARIABLE
ELSE
END-IF
END-PARAMETER-DECLARATION
ENDP-RESUME
END-PROCEDURE
ENTER-PROCEDURE
EXIT-PROCEDURE
GOTO
HOLD-PROCEDURE
IF
IF-BLOCK-ERROR
MODIFY-PROCEDURE-OPTIONS
OPEN-VARIABLE-CONTAINER
RESUME-PROCEDURE
SAVE-RETURNCODE
SAVE-VARIABLE-CONTAINER
SET-PROCEDURE-OPTIONS
SET-VARIABLE
SHOW-VARIABLE

Program control

CANCEL-PROGRAM
CREATE-DUMP
HOLD-PROGRAM
INFORM-PROGRAM
LOAD-EXECUTABLE-PROGRAM
LOAD-PROGRAM
MODIFY-DBL-DEFAULTS
MODIFY-TEST-OPTIONS
REMOVE-TASKLIB
RESET-DBL-DEFAULTS
RESTART-PROGRAM
RESUME-PROGRAM
SELECT-PRODUCT-VERSION
SELECT-PROGRAM-VERSION
SET-REPLOG-READ-MARK
SET-TASKLIB
SHOW-DBL-DEFAULTS
SHOW-SELECTED-PRODUCT-VERSION
SHOW-TEST-OPTIONS
START-EXECUTABLE-PROGRAM
START-PROGRAM
START-TASK-MEASUREMENT
STOP-TASK-MEASUREMENT

Pubset and MRSCAT management

ADAPT-SNAPSET-ACCESS
ADD-CATALOG-FILE
ADD-MASTER-CATALOG-ENTRY
CANCEL-CCOPY-SESSION
CANCEL-PUBSET-EXPORT
CANCEL-PUBSET-IMPORT
CHANGE-STORAGE-CLASS-CATALOG
CHANGE-VOLUME-SET-LIST-CATALOG
CHECK-SNAPSET-CONFIGURATION
CREATE-SNAPSET
CREATE-STORAGE-CLASS
CREATE-VOLUME-SET-LIST
DELETE-SNAPSET
DELETE-STORAGE-CLASS
DELETE-VOLUME-SET-LIST
EDIT-MASTER-CATALOG-ENTRY

EDIT-PUBSET-DEFINITION-FILE
EDIT-PUBSET-SPACE-DEFAULTS
EDIT-SPACE-SATURATION-LEVELS
EDIT-STORAGE-CLASS

EDIT-USER-PUBSET-ATTRIBUTES
EXPORT-PUBSET
FORCE-DESTROY-CACHE
FORCE-PUBSET-EXPORT
IMPORT-PUBSET
LIST-CATALOG-ENTRY
MODIFY-MASTER-CATALOG-ENTRY

MODIFY-PUBSET-DEFINITION-FILE
MODIFY-PUBSET-PROCESSING
MODIFY-PUBSET-RESTRICTIONS
MODIFY-PUBSET-SPACE-DEFAULTS
MODIFY-SPACE-SATURATION-LEVELS
MODIFY-STORAGE-CLASS
MODIFY-USER-PUBSET-ATTRIBUTES
MODIFY-VOLUME-SET-LIST
REMOVE-MASTER-CATALOG-ENTRY
REMOVE-PUBSET-LOCK
REMOVE-RFA-CONNECTION
RESTORE-PUBSET-FROM-SNAPSET
RESUME-PUBSET-RECONFIGURATION
SET-PUBSET-ATTRIBUTES
SET-RFA-CONNECTION
SET-SNAPSET-PARAMETER
SHOW-CACHE-CONFIGURATION
SHOW-CCOPY-SESSION
SHOW-MASTER-CATALOG-ENTRY
SHOW-PUBSET-ATTRIBUTES

SHOW-PUBSET-CATALOG-ALLOCATION
SHOW-PUBSET-CONFIGURATION
SHOW-PUBSET-DEFINITION-FILE
SHOW-PUBSET-FILE-SERVICES
SHOW-PUBSET-IMPORT-EXPORT
SHOW-PUBSET-LOCKS
SHOW-PUBSET-OCCUPATION
SHOW-PUBSET-PARAMETERS
SHOW-PUBSET-PROCESSING
SHOW-PUBSET-RESTRICTION
SHOW-PUBSET-SPACE-ALLOCATION
SHOW-PUBSET-SPACE-DEFAULTS
SHOW-RFA-CONNECTIONS
SHOW-SPACE-SATURATION-LEVELS
SHOW-STORAGE-CLASS
SHOW-VOLUME-SET-LIST

SDF control

HELP-SDF
MODIFY-SDF-OPTIONS
MODIFY-SDF-PARAMETERS
RESET-INPUT-DEFAULTS
RESTORE-SDF-INPUT
SHOW-CMD
SHOW-INPUT-DEFAULTS
SHOW-INPUT-HISTORY
SHOW-RETURNCODE
SHOW-SDF-OPTIONS
SHOW-SDF-PARAMETERS
SHOW-SYNTAX-VERSIONS

Subsystem management

ADD-SUBSYSTEM
HOLD-SUBSYSTEM
MODIFY-SUBSYSTEM-PARAMETER
RELEASE-SUBSYSTEM-SPACE
REMOVE-SUBSYSTEM
RESUME-SUBSYSTEM
SAVE-SUBSYSTEM-CATALOG
SET-DSSM-OPTIONS
SHOW-DSSM-INFORMATION
SHOW-RESTART-OPTIONS
SHOW-SUBSYSTEM-ATTRIBUTES
SHOW-SUBSYSTEM-INFO
SHOW-SUBSYSTEM-STATUS
START-SUBSYSTEM
STOP-SUBSYSTEM
UNLOCK-SUBSYSTEM

System control and optimization

ACTIVATE-SNAPSHOT
ADD-CHANGE-DATE
CREATE-PAGING-FILE
DEACTIVATE-SNAPSHOT
DELETE-PAGING-FILE
EDIT-PUBSET-SPACE-DEFAULTS
EDIT-SPACE-SATURATION-LEVELS
EXTEND-PAGING-AREA
LOAD-EXECUTABLE-PROGRAM
LOCK-PRODUCT-VERSION
MODIFY-CHANGE-DATE
MODIFY-IMON-SCI
MODIFY-ISAM-CACHING
MODIFY-MEMORY-PARAMETERS
MODIFY-PAGING-AREA-ATTRIBUTES
MODIFY-PUBSET-SPACE-DEFAULTS
MODIFY-SPACE-SATURATION-LEVELS
MODIFY-SYSTEM-BIAS
MODIFY-SYSTEM-PARAMETERS
MODIFY-TASK-CATEGORIES
READ-IOCF
REDUCE-PAGING-AREA
REMOVE-CHANGE-DATE
RESTORE-SOFTWARE-INVENTORY
SAVE-SOFTWARE-INVENTORY
SET-INSTALLATION-PATH
SET-RESTART-OPTIONS
SET-SPACE-SATURATION-LEVEL
SHOW-ADDRESS-SPACE-STATUS
SHOW-BLOCK-TO-FILE-ASSIGNMENT
SHOW-CHANGE-DATES
SHOW-INSTALLATION-PATH
SHOW-IOCF
SHOW-ISAM-CACHING
SHOW-LIVE-MIGRATION-HISTORY
SHOW-MEMORY-CONFIGURATION
SHOW-MEMORY-POOL-STATUS
SHOW-PAGING-CONFIGURATION
SHOW-SNAPSHOT-STATUS
SHOW-SYSTEM-INFORMATION
SHOW-SYSTEM-PARAMETERS
SHUTDOWN
UNLOCK-PRODUCT-VERSION
WRITE-IOCF

User management

ADD-POSIX-USER
ADD-USER
EDIT-POSIX-USER-ATTRIBUTES
EDIT-POSIX-USER-DEFAULTS
EDIT-USER-ATTRIBUTES
EDIT-USER-PUBSET-ATTRIBUTES
LOCK-USER
MODIFY-DEFAULT-ACCOUNT
MODIFY-POSIX-USER-ATTRIBUTES
MODIFY-POSIX-USER-DEFAULTS
MODIFY-USER-ATTRIBUTES
MODIFY-USER-PROTECTION
MODIFY-USER-PUBSET-ATTRIBUTES
MODIFY-USER-SWITCHES
REMOVE-USER
SHOW-POSIX-USER-ATTRIBUTES
SHOW-POSIX-USER-DEFAULTS
SHOW-USER-ATTRIBUTES
SHOW-USER-SWITCHES
UNLOCK-USER

1.3.2 Domains

The commands are assigned to application areas known as domains according to their function. A command can be contained in more than one domain. An overview of all domains can be displayed in the SDF user interface and the desired command can be selected by way of the domain. Domains containing commands for the user are not displayed.

Overview of domains

Domain	Meaning
ACCOUNTING	Outputs information about the user ID and inserts data into accounting records
ALL-COMMANDS [1)]	Contains all the commands that are allocated to an domain
AUTOMATED-OPERATING	Commands for automating operator tasks
CONSOLE-MANAGEMENT	Console control and management
DATA-BASE	Database management and administration
DCAM	Controls transaction mode (DCAM)
DEVICE	Outputs information on devices and volumes
ERROR-LOGGING	Manages error logging files (hardware and software errors)
FILE	Manages files
FILE-GENERATION-GROUP	Manages file generation groups
FILE-TRANSFER	Transfers files between systems via network connections
JOB	Job control
JOB-VARIABLES	Manages job variables
MESSAGE-PROCESSING	Manages message files
MULTI-CATALOG-AND-PUBSET-MGMT [2)]	Controls file access in the local BS2000 computer network and handles pubset management
NETWORK-MANAGEMENT	Manages networking functionality
PREVENTIVE-DIAGNOSTIC-SUPPORT	Supports diagnostic aids
PROCEDURE	Controls command procedures
PROGRAM	Controls program runs
PROGRAMMING-SUPPORT	Calls compilers and programming tools
SDF	Commands for managing the SDF interface

SECURITY-ADMINISTRATION	Manages access authorizations and auditing
SNAPSET	Manages Snapsets, data backup and restoration
SPOOL-PRINT-ADMINISTRATION [3)]	Manages spool and print resources
SPOOL-PRINT-SERVICES [4)]	Spool and print functions for all users
STORAGE-MANAGEMENT	Manages external storages
SYSTEM-MANAGEMENT [5)]	Dynamic control of subsystem configuration
SYSTEM-TUNING	System monitoring and optimization
USER-ADMINISTRATION	User administration
UTILITIES	Calls utility routines
VM2000-VIRTUAL-MACHINE	Manages the virtual machine system

Table 13: Overview of domains

1 The domain includes all the commands that can be entered in dialog mode.

2 The domain is a long-term replacement for the MULTI-CATALOG domain.

3 The domain is a long-term replacement for the RSO-SPOOL-ADMNISTRATION domain.

4 The domain is a long-term replacement for the SPOOL domain.

5 The domain is a long-term replacement for the SUBSYSTEM-MANAGEMENT domain.

Domains and the associated commands

The following overview groups the commands that are described in this manual under the domains to which they are allocated. Domains which do not contain any of the commands described in the manual are not listed.

ACCOUNTING

CHANGE-ACCOUNTING-FILE
CHANGE-RESLOG-FILE
MODIFY-ACCOUNTING-PARAMETERS
SHOW-ACCOUNTING-STATUS
START-ACCOUNTING
START-RESLOG-EVALUATION
STOP-ACCOUNTING
WRITE-ACCOUNTING-RECORD

CONSOLE-MANAGEMENT

ADD-CONSOLE-FILTER
ASSIGN-SYSEVENT
MODIFY-MSG-SUBSCRIPTION
RELEASE-OPERATOR-ROLE
REQUEST-OPERATOR-ROLE
RESET-MSG-SUPPRESSION
SET-MSG-SUPPRESSION
SHOW-CMD-ATTRIBUTES
SHOW-CONSOLE-FILTER
SHOW-CONSOLE-STATUS
SHOW-MSG-SUBSCRIPTION
SHOW-MSG-SUPPRESSION
SHOW-OPERATOR-ATTRIBUTES
SHOW-OPERATOR-ROLE
SHOW-PENDING-MSG
SHOW-SYSEVENT-LOG
SHOW-SYSEVENT-LOG-ATTRIBUTES

DEVICE

ADD-DEVICE-DEPOT
ADD-IO-UNIT
ATTACH-DEVICE
CHANGE-DISK-MOUNT
CHANGE-TAPE-MOUNT
CHECK-DISK-MOUNT
CHECK-TAPE-MOUNT
DETACH-DEVICE
INCLUDE-DEVICE-CONNECTION
LIST-NET-DIRECTORIES
MODIFY-IO-OPTIONS
MODIFY-IO-UNIT
MODIFY-MOUNT-PARAMETER
MODIFY-RESOURCE-COLLECTION
MOUNT-NET-STORAGE
REMOVE-DEVICE-CONNECTION
REMOVE-DEVICE-DEPOT
REMOVE-IO-UNIT
SET-DISK-DEFAULTS
SET-DISK-PARAMETER
SET-NET-CLIENT-ALTERNATE
SHOW-DEVICE-CONFIGURATION
SHOW-DEVICE-DEPOT
SHOW-DISK-DEFAULTS
SHOW-DISK-STATUS
SHOW-IO-OPTIONS
SHOW-MOUNT-PARAMETER
SHOW-NET-CLIENT-ALTERNATE
SHOW-NET-STORAGE
SHOW-RESOURCE-ALLOCATION
SHOW-RESOURCE-REQUESTS
SHOW-TAPE-STATUS
START-CONFIGURATION-UPDATE
START-RESOURCE-COLLECTION
STOP-CONFIGURATION-UPDATE
STOP-RESOURCE-COLLECTION
UNLOAD-TAPE
UNLOCK-DEVICE
UNLOCK-DISK

ERROR-LOGGING

ADD-ASE-ELEMENT
CHANGE-CONSLOG-FILE
CHANGE-HEL-FILE
CHANGE-SERSLOG-FILE
MODIFY-ASE-PARAMETERS
MODIFY-HEL-CHECK
MODIFY-HEL-LOGGING
MODIFY-HEL-TELESERVICE-ALARM
REMOVE-ASE-ELEMENT
SET-CONSLOG-READ-MARK
SHOW-ASE-ELEMENT
SHOW-ASE-LOGGING
SHOW-ASE-PARAMETERS
SHOW-ASE-STATUS
SHOW-CONSLOG-ATTRIBUTES
SHOW-HEL-CHECK
SHOW-HEL-LOGGING
SHOW-HEL-STATUS
SHOW-HEL-TELESERVICE-ALARM
SHOW-SERSLOG-STATUS
SHOW-TRACE-STATUS
START-HEL-LOGGING
START-SERSLOG
START-TRACE
STOP-HEL-LOGGING
STOP-SERSLOG
STOP-TRACE

FILE

ADD-ACS-SYSTEM-FILE
ADD-ALIAS-CATALOG-ENTRY
ADD-CRYPTO-PASSWORD
ADD-FILE-LINK
ADD-ISAM-POOL-LINK
ADD-PASSWORD
CHANGE-FILE-LINK
CHECK-FILE-CONSISTENCY
CHECK-IMPORT-DISK-FILE
COMPARE-DISK-FILES
CONCATENATE-DISK-FILES
CONVERT-FILE-TO-PDF
COPY-FILE
COPY-POSIX-FILE
CREATE-ALTERNATE-INDEX
CREATE-FILE
CREATE-ISAM-POOL

CREATE-TAPE-SET
DECRYPT-FILE
DELETE-ALTERNATE-INDEX
DELETE-FILE
DELETE-ISAM-POOL
DELETE-SYSTEM-FILE
DELETE-TAPE-SET
EDIT-FILE-ATTRIBUTES
EDIT-FILE-LINK
ENCRYPT-FILE
EXPORT-FILE
EXPORT-NODE-FILE
EXTEND-TAPE-SET
HOLD-ALIAS-SUBSTITUTION
IMPORT-FILE
IMPORT-NODE-FILE
LIST-FILE-FROM-SNAPSET
LIST-NODE-FILES
LOAD-ALIAS-CATALOG
LOCK-FILE-LINK
MAIL-FILE
MODIFY-ACS-OPTIONS
MODIFY-ACS-SYSTEM-FILE
MODIFY-ALIAS-CATALOG-ENTRY
MODIFY-FILE-ATTRIBUTES
MODIFY-ISAM-CACHING
PURGE-ALIAS-CATALOG
REMOVE-ACS-SYSTEM-FILE
REMOVE-ALIAS-CATALOG-ENTRY
REMOVE-CE-LOCK
REMOVE-CRYPTO-PASSWORD
REMOVE-FILE-ALLOCATION-LOCKS
REMOVE-FILE-LINK
REMOVE-ISAM-POOL-LINK
REMOVE-PASSWORD
REPAIR-DISK-FILES
REPAIR-FILE-LOCKS
RESTORE-FILE-FROM-SNAPSET
RESUME-ALIAS-SUBSTITUTION
SET-FILE-NAME-PREFIX
SHOW-ACS-OPTIONS
SHOW-ACS-SYSTEM-FILES
SHOW-ALIAS-CATALOG-ENTRY
SHOW-CE-LOCK
SHOW-FILE
SHOW-FILE-ATTRIBUTES
SHOW-FILE-LINK
SHOW-FILE-LOCKS
SHOW-FILE-NAME-PREFIX

SHOW-GCF-CATALOGS
SHOW-GCF-OBJECT-TYPES
SHOW-GCF-SERVER-TASKS
SHOW-INDEX-ATTRIBUTES
SHOW-ISAM-CACHING
SHOW-ISAM-POOL-ATTRIBUTES
SHOW-ISAM-POOL-LINK
SHOW-MEMORY-POOL-STATUS
SHOW-SYSTEM-FILE-ASSIGNMENTS
START-ACS

STORE-ALIAS-CATALOG
UNLOCK-FILE-LINK

FILE-GENERATION

REMOVE-CE-LOCK
SHOW-CE-LOCK

FILE-GENERATION-GROUP

ADD-PASSWORD
CHECK-IMPORT-DISK-FILE
CREATE-FILE-GENERATION
CREATE-FILE-GROUP
DELETE-FILE-GENERATION
DELETE-FILE-GROUP
EDIT-FILE-GENERATION-SUPPORT
EDIT-FILE-GROUP-ATTRIBUTES
IMPORT-FILE
MODIFY-FILE-GENERATION-SUPPORT
MODIFY-FILE-GROUP-ATTRIBUTES
REMOVE-PASSWORD

JOB

ASSIGN-SYSDTA
ASSIGN-SYSEVENT
ASSIGN-SYSLST
ASSIGN-SYSOUT
CANCEL-JOB
CHANGE-TASK-CPU-LIMIT
CHANGE-TASK-PRIORITY
COPY-SYSTEM-FILE
DELETE-SYSTEM-FILE
EDIT-JOB
EDIT-JOB-OPTIONS
ENTER-JOB
EOF
EXIT-JOB

FORCE-JOB-CANCEL
HELP-MSG-INFORMATION
HOLD-JOB
HOLD-JOB-CLASS
HOLD-JOB-STREAM
INFORM-ALL-JOBS
INFORM-JOB
INFORM-OPERATOR
LOGOFF
MODIFY-JOB
MODIFY-JOB-CLASS
MODIFY-JOB-OPTIONS
MODIFY-JOB-STREAM
MODIFY-JOB-SWITCHES
MODIFY-MSG-OPTIONS
MODIFY-SYSFILE-OPTIONS
MODIFY-TERMINAL-OPTIONS
MOVE-JOBS
MOVE-TASK-TO-CATEGORY
REMARK
RESUME-JOB
RESUME-JOB-CLASS
RESUME-JOB-STREAM
SECURE-RESOURCE-ALLOCATION
SEND-MSG
SET-JOB-STEP
SET-LOGON-PARAMETERS
SET-SYSLST-READ-MARK
SET-SYSOUT-READ-MARK
SHOW-JOB-CLASS
SHOW-JOB-OPTIONS
SHOW-JOB-STATUS
SHOW-JOB-STREAM
SHOW-JOB-SWITCHES
SHOW-MSG-OPTIONS
SHOW-RESOURCE-ALLOCATION
SHOW-SYSEVENT-LOG
SHOW-SYSEVENT-LOG-ATTRIBUTES
SHOW-SYSTEM-FILE-ASSIGNMENTS
SHOW-SYSTEM-STATUS
SHOW-TERMINAL-ATTRIBUTES
SHOW-TERMINAL-OPTIONS
SHOW-USER-STATUS
SKIP-COMMANDS
START-JOB-STREAM
STOP-JOB-STREAM
WRITE-TEXT

JOB-VARIABLES

ADD-CJC-ACTION
ADD-PASSWORD
COPY-JV
CREATE-JV
DELETE-JV
EDIT-JV
EDIT-JV-ATTRIBUTES
END-CJC-ACTION
LIST-JV-FROM-SNAPSET
MODIFY-JV
MODIFY-JV-ATTRIBUTES
MODIFY-JV-CONDITIONALLY
MODIFY-MONJV
REMOVE-CJC-ACTION
REMOVE-JV-LINK
REMOVE-PASSWORD
RESTORE-JV-FROM-SNAPSET
SET-JV-LINK
SHOW-CJC-STATUS
SHOW-JV
SHOW-JV-ATTRIBUTES
SHOW-JV-LINK
SKIP-COMMANDS
WAIT-EVENT

MESSAGE-PROCESSING

HELP-MSG-INFORMATION
MODIFY-MIP-OPTIONS
MODIFY-MIP-PARAMETERS
MODIFY-MSG-ATTRIBUTES
MODIFY-MSG-FILE-ASSIGNMENT
SHOW-MIP-PARAMETERS
SHOW-MSG-FILE-ASSIGNMENT

MULTI-CATALOG-AND-PUBSET-MGMT

ADAPT-SNAPSET-ACCESS
ADD-MASTER-CATALOG-ENTRY
CANCEL-PUBSET-EXPORT
CANCEL-PUBSET-IMPORT
CHANGE-STORAGE-CLASS-CATALOG
CHANGE-VOLUME-SET-LIST-CATALOG
CHECK-PUBSET-MIRRORS
CHECK-SNAPSET-CONFIGURATION
CREATE-SNAPSET
CREATE-STORAGE-CLASS
CREATE-VOLUME-SET-LIST
DELETE-SNAPSET
DELETE-STORAGE-CLASS
DELETE-VOLUME-SET-LIST
EDIT-MASTER-CATALOG-ENTRY

EDIT-PUBSET-DEFINITION-FILE
EDIT-PUBSET-SPACE-DEFAULTS
EDIT-SPACE-SATURATION-LEVELS
EDIT-STORAGE-CLASS
EXPORT-PUBSET

FORCE-PUBSET-EXPORT
IMPORT-PUBSET
MODIFY-MASTER-CATALOG-ENTRY

MODIFY-PUBSET-DEFINITION-FILE
MODIFY-PUBSET-PROCESSING
MODIFY-PUBSET-RESTRICTIONS
MODIFY-PUBSET-SPACE-DEFAULTS
MODIFY-SPACE-SATURATION-LEVELS
MODIFY-STORAGE-CLASS
MODIFY-VOLUME-SET-LIST
REMOVE-MASTER-CATALOG-ENTRY
REMOVE-PUBSET-LOCK
REMOVE-RFA-CONNECTION
RESTORE-PUBSET-FROM-SNAPSET
RESTORE-SOFTWARE-INVENTORY
RESUME-PUBSET-RECONFIGURATION
SAVE-SOFTWARE-INVENTORY
SET-PUBSET-ATTRIBUTES
SET-RFA-CONNECTION
SET-SNAPSET-PARAMETER
SHOW-CACHE-CONFIGURATION
SHOW-MASTER-CATALOG-ENTRY
SHOW-PUBSET-ATTRIBUTES

SHOW-PUBSET-CATALOG-ALLOCATION
SHOW-PUBSET-CONFIGURATION
SHOW-PUBSET-DEFINITION-FILE
SHOW-PUBSET-FILE-SERVICES
SHOW-PUBSET-IMPORT-EXPORT
SHOW-PUBSET-LOCKS
SHOW-PUBSET-OCCUPATION
SHOW-PUBSET-PARAMETERS
SHOW-PUBSET-PROCESSING
SHOW-PUBSET-RESTRICTION
SHOW-PUBSET-SPACE-ALLOCATION
SHOW-PUBSET-SPACE-DEFAULTS
SHOW-RFA-CONNECTIONS
SHOW-SNAPSET-CONFIGURATION
SHOW-SPACE-SATURATION-LEVELS
SHOW-STORAGE-CLASS
SHOW-VOLUME-SET-LIST

NETWORK-MANAGEMENT

REMOVE-DCAM-APPLICATION-LINK
REMOVE-DCAM-CONNECTION-LINK
SET-DCAM-APPLICATION-LINK
SET-DCAM-CONNECTION-LINK

not allocated

AGOGO
ASR
ASTOP
BROADCAST
CANCEL-RUN-PROCESS
CONSOLE
MESSAGE
MODIFY-CONSOLE-OPTIONS
REMOVE-CONSOLE-FILTER
REQUEST-MAIN-CONSOLE-FUNCTIONS
RESET-MSG-BUFFER
RUN
SET-FILE-LINK
SET-RESTART-OPTIONS
SHOW-CONSOLE-OPTIONS
TURN

PROCEDURE

ASSIGN-STREAM
ASSIGN-SYSDTA
ASSIGN-SYSLST
ASSIGN-SYSOUT
BEGIN-PARAMETER-DECLARATION
BEGIN-PROCEDURE
CALL-PROCEDURE
CANCEL-PROCEDURE
CLOSE-VARIABLE-CONTAINER
COPY-SYSTEM-FILE
DECLARE-PARAMETER
DECLARE-VARIABLE
DELETE-SYSTEM-FILE
DELETE-VARIABLE
ELSE
END-IF
END-PARAMETER-DECLARATION
ENDP-RESUME
END-PROCEDURE
ENTER-PROCEDURE
EOF
EXECUTE-POSIX-CMD
EXIT-PROCEDURE
GOTO
HOLD-PROCEDURE
IF
IF-BLOCK-ERROR
MODIFY-PROCEDURE-OPTIONS
OPEN-VARIABLE-CONTAINER
REMARK
RESUME-PROCEDURE
SAVE-RETURNCODE
SAVE-VARIABLE-CONTAINER
SET-JOB-STEP
SET-PROCEDURE-OPTIONS
SET-SYSLST-READ-MARK
SET-SYSOUT-READ-MARK
SET-VARIABLE
SHOW-SYSTEM-FILE-ASSIGNMENTS
SHOW-VARIABLE
SKIP-COMMANDS
START-POSIX-SHELL
WRITE-TEXT

PROGRAM

ASSIGN-SYSDTA
ASSIGN-SYSLST
ASSIGN-SYSOUT
CANCEL-PROGRAM
COPY-SYSTEM-FILE
CREATE-DUMP
DELETE-SYSTEM-FILE
EOF
HOLD-HARDWARE-AUDIT
HOLD-LINKAGE-AUDIT
HOLD-PROGRAM
INFORM-OPERATOR
INFORM-PROGRAM
LOAD-EXECUTABLE-PROGRAM
LOAD-PROGRAM
MODIFY-DBL-DEFAULTS
MODIFY-TEST-OPTIONS
REMOVE-TASKLIB
RESET-DBL-DEFAULTS
RESTART-PROGRAM
RESUME-HARDWARE-AUDIT
RESUME-LINKAGE-AUDIT
RESUME-PROGRAM
SELECT-PRODUCT-VERSION
SELECT-PROGRAM-VERSION
SEND-MSG
SET-REPLOG-READ-MARK
SET-SYSLST-READ-MARK
SET-SYSOUT-READ-MARK
SET-TASKLIB
SHOW-AUDIT-STATUS
SHOW-DBL-DEFAULTS
SHOW-HARDWARE-AUDIT
SHOW-LINKAGE-AUDIT
SHOW-SELECTED-PRODUCT-VERSION
SHOW-SYSTEM-FILE-ASSIGNMENTS
SHOW-TEST-OPTIONS
START-EXECUTABLE-PROGRAM
START-HARDWARE-AUDIT
START-LINKAGE-AUDIT
START-PROGRAM
START-TASK-MEASUREMENT
STOP-HARDWARE-AUDIT
STOP-LINKAGE-AUDIT
STOP-TASK-MEASUREMENT

PROGRAMMING-SUPPORT

SELECT-PRODUCT-VERSION
SHOW-SELECTED-PRODUCT-VERSION

SDF

ENDP-RESUME
HELP-SDF
MODIFY-SDF-PARAMETERS
RESET-INPUT-DEFAULTS
RESTORE-SDF-INPUT
SHOW-CMD
SHOW-INPUT-DEFAULTS
SHOW-INPUT-HISTORY
SHOW-RETURNCODE
SHOW-SDF-OPTIONS
SHOW-SDF-PARAMETERS
SHOW-SYNTAX-VERSIONS
WRITE-TEXT

SECURITY-ADMINISTRATION

CHANGE-CONSLOG-FILE
CREATE-OPERATOR-ROLE
DELETE-OPERATOR-ROLE
MODIFY-OPERATOR-ATTRIBUTES
MODIFY-OPERATOR-ROLE
PROTECT-FITC-APPLICATION
SHOW-CONSLOG-ATTRIBUTES
SHOW-OPERATOR-ATTRIBUTES
SHOW-OPERATOR-ROLE

SNAPSET

ADAPT-SNAPSET-ACCESS
CHECK-SNAPSET-CONFIGURATION
CREATE-SNAPSET
DELETE-SNAPSET
LIST-FILE-FROM-SNAPSET
LIST-JV-FROM-SNAPSET
RESTORE-FILE-FROM-SNAPSET
RESTORE-JV-FROM-SNAPSET
RESTORE-PUBSET-FROM-SNAPSET
SET-SNAPSET-PARAMETER
SHOW-SNAPSET-CONFIGURATION

SPOOL-PRINT-ADMINISTRATION

CANCEL-PRINT-JOB
HOLD-PRINT-JOB
MODIFY-PRINTER-OUTPUT-STATUS
MODIFY-PRINT-JOB-ATTRIBUTES
MODIFY-SPOOLOUT-OPTIONS
MODIFY-TAPE-OUTPUT-STATUS
MOVE-PRINT-JOBS
REDIRECT-PRINT-JOB
RESUME-PRINT-JOB
SHOW-ACTIVE-SPOOL-DEVICES
SHOW-PRINTER-POOLS
SHOW-PRINT-JOB-ATTRIBUTES
SHOW-PRINT-JOB-STATUS
SHOW-SPOOL-CHARACTER-SETS
SHOW-SPOOL-DEVICES
SHOW-SPOOL-FILTERS
SHOW-SPOOL-FORMS
SHOW-SPOOL-PARAMETERS
START-PRINTER-OUTPUT
START-TAPE-OUTPUT
START-TAPE-REPLAY
STOP-PRINTER-OUTPUT
STOP-TAPE-OUTPUT
STOP-TAPE-REPLAY
WRITE-SPOOL-TAPE

SPOOL-PRINT-SERVICES

CANCEL-PRINT-JOB
CLOSE-VIRTUAL-DEVICE-DIALOG
CONVERT-FILE-TO-PDF
GET-JOB-FROM-VIRTUAL-DEVICE
OPEN-VIRTUAL-DEVICE-DIALOG
PRINT-DOCUMENT
RETURN-JOB-TO-VIRTUAL-DEVICE
SHOW-ACTIVE-SPOOL-DEVICES
SHOW-PRINTER-POOLS
SHOW-PRINT-JOB-ATTRIBUTES
SHOW-PRINT-JOB-STATUS
SHOW-SPOOL-CHARACTER-SETS
SHOW-SPOOL-DEVICES
SHOW-SPOOL-FILTERS
SHOW-SPOOL-FORMS
SHOW-SPOOL-PARAMETERS

STORAGE-MANAGEMENT

ADD-NET-STORAGE-VOLUME
CANCEL-CCOPY-SESSION
LIST-NET-DIRECTORIES
MOUNT-NET-STORAGE
REMOVE-NET-STORAGE-VOLUME
SET-NET-CLIENT-ALTERNATE
SHOW-CCOPY-SESSION
SHOW-NET-CLIENT-ALTERNATE
SHOW-NET-STORAGE
SHOW-NET-STORAGE-OCCUPATION
SHOW-PUBSET-NET-STORAGE
UMOUNT-NET-STORAGE

SYSTEM-MANAGEMENT

ACTIVATE-SNAPSHOT
ADD-CHANGE-DATE
ADD-POSIX-USER
ADD-SUBSYSTEM
CREATE-PAGING-FILE
DEACTIVATE-SNAPSHOT
DELETE-PAGING-FILE
EXTEND-PAGING-AREA
HOLD-SUBSYSTEM
LOCK-PRODUCT-VERSION
MODIFY-CHANGE-DATE
MODIFY-IMON-SCI
MODIFY-MEMORY-PARAMETERS
MODIFY-PAGING-AREA-ATTRIBUTES
MODIFY-SUBSYSTEM-PARAMETER
READ-IOCF
REDUCE-PAGING-AREA
RELEASE-SUBSYSTEM-SPACE
REMOVE-CHANGE-DATE
REMOVE-SUBSYSTEM
RESUME-SUBSYSTEM
SAVE-SUBSYSTEM-CATALOG
SET-DSSM-OPTIONS
SET-INSTALLATION-PATH
SHOW-ADDRESS-SPACE-STATUS
SHOW-CHANGE-DATES
SHOW-DSSM-INFORMATION
SHOW-INSTALLATION-PATH
SHOW-IOCF
SHOW-LIVE-MIGRATION-HISTORY
SHOW-MEMORY-CONFIGURATION
SHOW-PAGING-CONFIGURATION
SHOW-POSIX-STATUS
SHOW-RESTART-OPTIONS
SHOW-SELECTED-PRODUCT-VERSION
SHOW-SNAPSHOT-STATUS
SHOW-SUBSYSTEM-ATTRIBUTES
SHOW-SUBSYSTEM-INFO
SHOW-SUBSYSTEM-STATUS
SHUTDOWN
START-POSIX-INSTALLATION
START-SUBSYSTEM
STOP-SUBSYSTEM
UNLOCK-PRODUCT-VERSION
UNLOCK-SUBSYSTEM
WRITE-IOCF

SYSTEM-TUNING

CREATE-PAGING-FILE
DELETE-PAGING-FILE
EXTEND-PAGING-AREA
HOLD-TASK
MODIFY-MEMORY-PARAMETERS
MODIFY-PAGING-AREA-ATTRIBUTES
MODIFY-SYSTEM-BIAS
MODIFY-SYSTEM-PARAMETERS
MODIFY-TASK-CATEGORIES
MOVE-TASK-TO-CATEGORY
REDUCE-PAGING-AREA
RESUME-TASK
SET-SPACE-SATURATION-LEVEL
SHOW-ADDRESS-SPACE-STATUS
SHOW-BLOCK-TO-FILE-ASSIGNMENT
SHOW-MEMORY-CONFIGURATION
SHOW-PAGING-CONFIGURATION
SHOW-SYSTEM-INFORMATION
SHOW-SYSTEM-PARAMETERS

USER-ADMINISTRATION

ADD-USER
EDIT-POSIX-USER-ATTRIBUTES
EDIT-POSIX-USER-DEFAULTS
EDIT-USER-ATTRIBUTES
EDIT-USER-PUBSET-ATTRIBUTES
LOCK-USER
MODIFY-DEFAULT-ACCOUNT
MODIFY-POSIX-USER-ATTRIBUTES
MODIFY-POSIX-USER-DEFAULTS
MODIFY-USER-ATTRIBUTES
MODIFY-USER-PROTECTION
MODIFY-USER-PUBSET-ATTRIBUTES
MODIFY-USER-SWITCHES
REMOVE-USER
SHOW-OPERATOR-ATTRIBUTES
SHOW-POSIX-USER-ATTRIBUTES
SHOW-POSIX-USER-DEFAULTS
SHOW-USER-ATTRIBUTES
SHOW-USER-STATUS
SHOW-USER-SWITCHES
SKIP-COMMANDS
UNLOCK-USER
WAIT-EVENT

UTILITIES

CONVERT-FILE-TO-PDF
SELECT-PRODUCT-VERSION
SHOW-CALENDAR
SHOW-SELECTED-PRODUCT-VERSION
START-POSIX-SHELL

1.3.3 Commands and their privileges

The table below contains all the commands which are described in this manual.

The last two columns show the routing code (RC) of the operator commands in accordance with the system parameter NBCONOPI (see the “Introduction to System Administration” [14]).

The following abreviations are used in the table:

Abbreviation	Meaning
AC	ACS-ADMINISTRATION
HW	HARDWARE-MAINTENANCE
HS	HSMS-ADMINISTRATION
PO	POSIX-ADMINISTRATION
PR	PRINT-ADMINISTRATION
SAE	SAT-FILE-EVALUATION
SAM	SAT-FILE-MANAGEMENT
SEC	SECURITY-ADMINISTRATION
STD	STD-PROCESSING
SUB	SUBSYSTEM-MANAGEMENT
MO	SW-MONITOR-ADMINISTRATION
TP	TAPE-ADMINISTRATION
TS	TSOS-PRIVILEG
US	USER-ADMINISTRATION
OP	OPERATING
BN	BS bei NBCONOPI=N
BY	BS bei NBCONOPI=Y

Command	Privileges																
	AC	HW	HS	PO	PR	SAE	SAM	SEC	STD	SUB	MO	TP	TS	US	OP	BN	BY
ACTIVATE-SNAPSHOT													X		X	R	R
ADAPT-SNAPSET-ACCESS			X										X				
ADD-ACS-SYSTEM-FILE	X																
ADD-ALIAS-CATALOG-ENTRY	X					X	X	X	X								
ADD-ASE-ELEMENT													X				
ADD-CATALOG-FILE													X				
ADD-CHANGE-DATE													X				
ADD-CJC-ACTION		X				X	X	X	X								
ADD-CONSOLE-FILTER															X	@	@
ADD-CRYPTO-PASSWORD		X				X	X	X	X								
ADD-DEVICE-DEPOT															X	T	T
ADD-FILE-LINK		X				X	X		X							$	E
ADD-IO-UNIT															X	G	G
ADD-ISAM-POOL-LINK									X								
ADD-MASTER-CATALOG-ENTRY													X			$	$
ADD-NET-STORAGE-VOLUME													X				
ADD-PASSWORD		X				X	X	X	X							$	E
ADD-POSIX-USER													X	X			
ADD-SUBSYSTEM										X							
ADD-USER									X					X		$	$
AGOGO															X	E	E
ASR															X	E	E
ASSIGN-STREAM		X				X	X	X	X						X		

ASSIGN-SYSDTA		X				X	X	X	X								
ASSIGN-SYSEVENT									X						X		
ASSIGN-SYSLST		X				X	X	X	X								
ASSIGN-SYSOUT		X				X	X	X	X								
ASTOP															X	@	@
ATTACH-DEVICE															X	G	G
BEGIN-PARAMETER-DECLARATION		X				X	X	X	X						X		
BEGIN-PROCEDURE		X				X	X	X	X								
BROADCAST													X		X	E	E
CALL-PROCEDURE		X				X	X	X	X						X		
CANCEL-CCOPY-SESSION			X										X				
CANCEL-JOB		X				X	X	X	X						X	P	P
CANCEL-PRINT-JOB					X	X	X	X	X						X		
CANCEL-PROCEDURE		X				X	X	X	X								
CANCEL-PROGRAM		X				X	X	X	X								
CANCEL-PUBSET-EXPORT													X		X	R	R
CANCEL-PUBSET-IMPORT													X		X	R	R
CANCEL-RUN-PROCESS															X	E	E
CHANGE-ACCOUNTING-FILE													X				
CHANGE-CONSLOG-FILE							X						X		X	R	R
CHANGE-DISK-MOUNT															X	D	D
CHANGE-FILE-LINK						X	X		X								
CHANGE-HEL-FILE		X											X				
CHANGE-RESLOG-FILE											X		X				

CHANGE-SERSLOG-FILE											X		X			A	A
CHANGE-STORAGE-CLASS-CATALOG													X				
CHANGE-TAPE-MOUNT															X	T	T
CHANGE-TASK-CPU-LIMIT													X		X	P	P
CHANGE-TASK-PRIORITY						X	X	X	X						X	P	P
CHANGE-VOLUME-SET-LIST-CATALOG													X				
CHECK-DISK-MOUNT															X	D	D
CHECK-FILE-CONSISTENCY									X								
CHECK-IMPORT-DISK-FILE									X				X				
CHECK-PUBSET-MIRRORS													X				
CHECK-SNAPSET-CONFIGURATION			X										X				
CHECK-TAPE-MOUNT															X	T	T
CLOSE-VARIABLE-CONTAINER		X				X	X	X	X						X		
CLOSE-VIRTUAL-DEVICE-DIALOG					X				X								
COMPARE-DISK-FILES		X				X	X		X				X				
CONCATENATE-DISK-FILES									X				X				
CONNECT-CMD-SERVER															X	K	K
CONSOLE															X	*	1)
CONVERT-FILE-TO-PDF									X								
COPY-FILE		X				X	X	X	X				X			$	$

COPY-JV		X				X	X	X	X								
COPY-POSIX-FILE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
COPY-SYSTEM-FILE		X				X	X	X	X								
CREATE-ALTERNATE-INDEX									X								
CREATE-DUMP	X		X	X	X	X	X	X	X	X	X	X	X	X			
CREATE-FILE						X	X	X	X				X			$	E
CREATE-FILE-GENERATION									X				X			$	E
CREATE-FILE-GROUP									X				X			$	E
CREATE-ISAM-POOL									X								
CREATE-JV		X				X	X	X	X							$	J
CREATE-OPERATOR-ROLE								X									
CREATE-PAGING-FILE													X		X	R	R
CREATE-SNAPSET			X										X				
CREATE-STORAGE-CLASS													X				
CREATE-TAPE-SET									X							$	E
CREATE-VOLUME-SET-LIST													X				
DEACTIVATE-SNAPSHOT													X		X	R	R
DECLARE-PARAMETER		X				X	X	X	X						X		
DECLARE-VARIABLE		X				X	X	X	X						X		
DECRYPT-FILE						X	X		X				X				
DELETE-ALTERNATE-INDEX									X								
DELETE-FILE						X	X	X	X				X			$	E
DELETE-FILE-GENERATION		X							X				X			$	E
DELETE-FILE-GROUP		X							X				X			$	E

DELETE-ISAM-POOL									X								
DELETE-JV		X				X	X	X	X				X			$	J
DELETE-OPERATOR-ROLE								X									
DELETE-PAGING-FILE													X		X	R	R
DELETE-SNAPSET			X										X				
DELETE-STORAGE-CLASS													X				
DELETE-SYSTEM-FILE		X				X	X	X	X							$	E
DELETE-TAPE-SET									X							$	E
DELETE-VARIABLE		X				X	X	X	X						X		
DELETE-VOLUME-SET-LIST													X				
DETACH-DEVICE															X	G	G
DISCONNECT-CMD-SERVER															X	@	@
EDIT-FILE-ATTRIBUTES									X								
EDIT-FILE-GENERATION-SUPPORT									X								
EDIT-FILE-GROUP-ATTRIBUTES									X								
EDIT-FILE-LINK									X								
EDIT-JOB						X	X	X	X						X		
EDIT-JOB-OPTIONS		X				X	X	X	X				X		X		
EDIT-JV		X				X	X	X	X						X		
EDIT-JV-ATTRIBUTES		X				X	X	X	X								
EDIT-MASTER-CATALOG-ENTRY													X				
EDIT-POSIX-USER-ATTRIBUTES				X					X					X			
EDIT-POSIX-USER-DEFAULTS				X					X					X			

EDIT-PUBSET-DEFINITION-FILE													X				
EDIT-PUBSET-SPACE-DEFAULTS													X				
EDIT-SPACE-SATURATION-LEVELS													X				
EDIT-STORAGE-CLASS													X				
EDIT-USER-ATTRIBUTES									X					X			
EDIT-USER-PUBSET-ATTRIBUTES									X					X			
ELSE		X				X	X	X	X						X		
ENCRYPT-FILE						X	X		X				X				
END-CJC-ACTION		X				X	X	X	X								
END-IF		X				X	X	X	X						X		
END-PARAMETER-DECLARATION		X				X	X	X	X						X		
END-PROCEDURE		X				X	X	X	X								
ENDP-RESUME						X	X	X	X								
ENTER-JOB		X				X	X	X	X						X	P	P
ENTER-PROCEDURE		X							X								
EOF						X	X	X	X								
EXECUTE-POSIX-CMD									X								
EXIT-JOB	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[2]	@
EXIT-PROCEDURE		X				X	X	X	X						X		
EXPORT-FILE						X	X	X	X				X			$	E
EXPORT-NODE-FILE						X	X	X	X				X			$	E
EXPORT-PUBSET													X		X	R	R
EXTEND-PAGING-AREA													X		X	R	R
EXTEND-TAPE-SET									X							$	E

FORCE-DESTROY-CACHE													X				
FORCE-JOB-CANCEL													X		X	P	P
FORCE-PUBSET-EXPORT													X		X	R	R
GET-JOB-FROM-VIRTUAL-DEVICE					X				X								
GOTO		X				X	X	X	X						X		
HELP-MSG-INFORMATION		X				X	X	X	X				X		X	@	@
HELP-SDF		X				X	X	X	X								
HOLD-ALIAS-SUBSTITUTION						X	X	X	X								
HOLD-HARDWARE-AUDIT									X				X				
HOLD-JOB													X		X	J	J
HOLD-JOB-CLASS													X		X	J	J
HOLD-JOB-STREAM													X		X	J	J
HOLD-LINKAGE-AUDIT									X				X				
HOLD-PRINT-JOB					X	X	X	X	X						X	O	O
HOLD-PROCEDURE		X				X	X	X	X								
HOLD-PROGRAM						X	X	X	X								
HOLD-SUBSYSTEM										X					X	R	R
HOLD-TASK													X		X	J	J
IF		X				X	X	X	X								
IF-BLOCK-ERROR		X				X	X	X	X						X		
IMPORT-FILE						X	X		X				X			$	E
IMPORT-NODE-FILE						X	X	X	X				X			$	E
IMPORT-PUBSET													X		X	R	R
INCLUDE-DEVICE-CONNECTION															X	G	G
INFORM-ALL-JOBS													X		X	E	E
INFORM-JOB													X		X	E	E

INFORM-OPERATOR		X				X	X	X	X								
INFORM-PROGRAM		X				X	X	X	X				X		X	P	P
LIST-CATALOG-ENTRY													X				
LIST-FILE-FROM-SNAPSET									X				X				
LIST-JV-FROM-SNAPSET									X				X				
LIST-NET-DIRECTORIES													X		X	G	G
LIST-NODE-FILES		X				X	X	X	X							@	@
LOAD-ALIAS-CATALOG						X	X	X	X								
LOAD-EXECUTABLE-PROGRAM						X	X	X	X								
LOAD-PROGRAM						X	X	X	X								
LOCK-FILE-LINK						X	X		X								
LOCK-PRODUCT-VERSION										X							
LOCK-USER									X					X		$	$
LOGOFF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MAIL-FILE		X				X	X	X	X				X				
MESSAGE															X	E	E
MODIFY-ACCOUNTING-PARAMETERS													X				
MODIFY-ACS-OPTIONS	X					X	X	X	X								
MODIFY-ACS-SYSTEM-FILE	X																
MODIFY-ALIAS-CATALOG-ENTRY	X					X	X	X	X								
MODIFY-ASE-PARAMETERS													X				
MODIFY-CHANGE-DATES													X				

MODIFY-CONSOLE-OPTIONS															X	@	@
MODIFY-DBL-DEFAULTS									X								
MODIFY-DEFAULT-ACCOUNT		X				X	X	X	X						X		
MODIFY-FILE-ATTRIBUTES						X	X	X	X				X			$	E
MODIFY-FILE-GENERATION-SUPPORT									X				X			$	E
MODIFY-FILE-GROUP-ATTRIBUTES									X				X			$	E
MODIFY-HEL-CHECK		X															
MODIFY-HEL-LOGGING		X															
MODIFY-HEL-TELESERVICE-ALARM		X															
MODIFY-IMON-SCI										X							
MODIFY-IO-OPTIONS															X	G	G
MODIFY-IO-UNIT															X	G	G
MODIFY-ISAM-CACHING													X				
MODIFY-JOB						X	X	X	X						X	J	J
MODIFY-JOB-CLASS													X		X	J	J
MODIFY-JOB-OPTIONS		X				X	X	X	X				X		X		
MODIFY-JOB-STREAM													X		X	J	J
MODIFY-JOB-SWITCHES		X				X	X	X	X								
MODIFY-JV		X				X	X	X	X						X	J	J
MODIFY-JV-ATTRIBUTES		X				X	X	X	X							$	J

MODIFY-JV-CONDITIONALLY		X				X	X	X	X							
MODIFY-MASTER-CATALOG-ENTRY													X			$	$
MODIFY-MEMORY-PARAMETERS													X		X	R	R
MODIFY-MIP-OPTIONS													X				
MODIFY-MIP-PARAMETERS													X				
MODIFY-MONJV		X				X	X	X	X								
MODIFY-MOUNT-PARAMETER															X	G	G
MODIFY-MSG-ATTRIBUTES						X	X	X	X				X				
MODIFY-MSG-FILE-ASSIGNMENT						X	X	X	X				X		X	E	E
MODIFY-MSG-OPTIONS		X				X	X	X	X								
MODIFY-MSG-SUBSCRIPTION															X	E	E
MODIFY-OPERATOR-ATTRIBUTES								X									
MODIFY-OPERATOR-ROLE								X									
MODIFY-PAGING-AREA-ATTRIBUTES													X		X	R	R
MODIFY-POSIX-USER-ATTRIBUTES				X					X					X			
MODIFY-POSIX-USER-DEFAULTS				X					X					X			
MODIFY-PRINT-JOB-ATTRIBUTES					X	X	X	X	X						X		
MODIFY-PRINTER-OUTPUT-STATUS					X	X	X	X	X						X	S	S
MODIFY-PROCEDURE-OPTIONS		X				X	X	X	X						X		

MODIFY-PUBSET-DEFINITION-FILE													X				
MODIFY-PUBSET-PROCESSING													X				
MODIFY-PUBSET-RESTRICTIONS													X				
MODIFY-PUBSET-SPACE-DEFAULTS													X				
MODIFY-RESOURCE-COLLECTION															X	J	J
MODIFY-SDF-OPTIONS		X				X	X	X	X				X				
MODIFY-SDF-PARAMETERS													X			*	*
MODIFY-SPACE-SATURATION-LEVELS													X			$	$
MODIFY-SPOOLOUT-OPTIONS					X	X	X	X	X								
MODIFY-STORAGE-CLASS													X				
MODIFY-SUBSYSTEM-PARAMETER										X							
MODIFY-SYSFILE-OPTIONS									X								
MODIFY-SYSTEM-BIAS													X		X	R	R
MODIFY-SYSTEM-PARAMETERS													X				
MODIFY-TAPE-OUTPUT-STATUS					X										X	S	S
MODIFY-TASK-CATEGORIES													X		X	R	R
MODIFY-TERMINAL-OPTIONS		X				X	X	X	X				X				

MODIFY-TEST-OPTIONS	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MODIFY-USER-ATTRIBUTES									X					X		$	$
MODIFY-USER-PROTECTION		X				X	X	X	X						X	@	@
MODIFY-USER-PUBSET-ATTRIBUTES									X					X		$	$
MODIFY-USER-SWITCHES		X				X	X	X	X								
MODIFY-VOLUME-SET-LIST													X				
MOUNT-NET-STORAGE													X		X	G	G
MOVE-JOBS													X				
MOVE-PRINT-JOBS					X												
MOVE-TASK-TO-CATEGORY													X				
OPEN-VARIABLE-CONTAINER		X				X	X	X	X						X		
OPEN-VIRTUAL-DEVICE-DIALOG					X				X								
PRINT-DOCUMENT		X				X	X	X	X							$	$
PROTECT-FITC-APPLICATION	X		X	X	X	X	X	X	X	X	X	X	X	X			
PURGE-ALIAS-CATALOG						X	X	X	X								
READ-IOCF													X				
REDIRECT-PRINT-JOB					X	X	X	X	X						X	N	N
REDUCE-PAGING-AREA													X		X	R	R
RELEASE-OPERATOR-ROLE															X	@	@
RELEASE-SUBSYSTEM-SPACE		X							X	X							
REMARK		X				X	X	X	X						X	@	@

REMOVE-ACS-SYSTEM-FILE	X															
REMOVE-ALIAS-CATALOG-ENTRY						X	X	X	X							
REMOVE-ASE-ELEMENT												X				
REMOVE-CE-LOCK												X				
REMOVE-CHANGE-DATE												X				
REMOVE-CJC-ACTION		X				X	X	X	X							
REMOVE-CONSOLE-FILTER														X	@	@
REMOVE-CRYPTO-PASSWORD		X				X	X	X	X							
REMOVE-DCAM-APPLICATION-LINK		X							X							
REMOVE-DCAM-CONNECTION-LINK									X							
REMOVE-DEVICE-CONNECTION														X	G	G
REMOVE-DEVICE-DEPOT														X	T	T
REMOVE-FILE-ALLOCATION-LOCKS						X	X	X	X				X			
REMOVE-FILE-LINK		X				X	X		X							
REMOVE-IO-UNIT														X	G	G
REMOVE-ISAM-POOL-LINK									X							
REMOVE-JV-LINK		X				X	X	X	X						$	J
REMOVE-MASTER-CATALOG-ENTRY													X		$	$
REMOVE-NET-STORAGE-VOLUME													X			
REMOVE-PASSWORD		X				X	X	X	X						$	E

REMOVE-PUBSET-LOCK													X				
REMOVE-RFA-CONNECTION						X	X		X								
REMOVE-SUBSYSTEM										X							
REMOVE-TASKLIB		X							X								
REMOVE-USER									X					X		$	$
REPAIR-DISK-FILES						X	X	X	X								
REPAIR-FILE-LOCKS									X				X				
REQUEST-MAIN-CONSOLE-FUNCTIONS															X	E	E
REQUEST-OPERATOR-ROLE															X	@	@
RESET-DBL-DEFAULTS									X								
RESET-INPUT-DEFAULTS		X				X	X	X	X								
RESET-MSG-BUFFER															X	@	@
RESET-MSG-SUPPRESSION															X	@	@
RESTART-PROGRAM							X	X	X								
RESTORE-FILE-FROM-SNAPSET									X				X				
RESTORE-JV-FROM-SNAPSET									X				X				
RESTORE-PUBSET-FROM-SNAPSET			X										X				
RESTORE-SDF-INPUT		X				X	X	X	X								
RESTORE-SOFTWARE-INVENTORY										X							
RESUME-ALIAS-SUBSTITUTION						X	X	X	X								

RESUME-HARDWARE-AUDIT									X				X				
RESUME-JOB													X		X	J	J
RESUME-JOB-CLASS													X		X	J	J
RESUME-JOB-STREAM													X		X	J	J
RESUME-LINKAGE-AUDIT									X				X				
RESUME-PRINT-JOB					X	X	X	X	X						X	O	O
RESUME-PROCEDURE		X				X	X	X	X								
RESUME-PROGRAM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
RESUME-PUBSET-RECONFIGURATION													X				
RESUME-SUBSYSTEM										X					X	R	R
RESUME-TASK													X		X	J	J
RETURN-JOB-TO-VIRTUAL-DEVICE					X				X								
RUN															X	E	E
SAVE-RETURNCODE		X				X	X	X	X						X		
SAVE-SOFTWARE-INVENTORY										X							
SAVE-SUBSYSTEM-CATALOG										X							
SAVE-VARIABLE-CONTAINER		X				X	X	X	X						X		
SECURE-RESOURCE-ALLOCATION		X				X	X		X								
SELECT-PRODUCT-VERSION									X	X							
SELECT-PROGRAM-VERSION									X								
SEND-MSG		X				X	X	X	X				X		X	P	P

SET-CONSLOG-READ-MARK							X						X				
SET-DCAM-APPLICATION-LINK		X							X								
SET-DCAM-CONNECTION-LINK									X								
SET-DISK-DEFAULTS															X	D	D
SET-DISK-PARAMETER															X	D	D
SET-DSSM-OPTIONS										X					X	R	R
SET-FILE-LINK		X				X	X		X							$	E
SET-FILE-NAME-PREFIX						X	X	X	X								
SET-INSTALLATION-PATH										X							
SET-JOB-STEP		X				X	X	X	X								
SET-JV-LINK		X				X	X	X	X							$	J
SET-LOGON-PARAMETERS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[2]	@
SET-MSG-SUPPRESSION															X	@	@
SET-NET-CLIENT-ALTERNATE													X		X	G	G
SET-PROCEDURE-OPTIONS		X				X	X	X	X						X		
SET-PUBSET-ATTRIBUTES													X				
SET-REPLOG-READ-MARK							X						X				
SET-RESTART-OPTIONS															X	R	R
SET-RFA-CONNECTION						X	X		X								
SET-SNAPSET-PARAMETERS			X										X				
SET-SPACE-SATURATION-LEVEL													X				

SET-SYSLST-READ-MARK		X				X	X	X	X							
SET-SYSOUT-READ-MARK		X				X	X	X	X							
SET-TASKLIB		X							X							
SET-VARIABLE		X				X	X	X	X					X		
SHOW-ACCOUNTING-STATUS													X			
SHOW-ACS-OPTIONS	X					X	X	X	X							
SHOW-ACS-SYSTEM-FILES						X	X	X	X							
SHOW-ACTIVE-SPOOL-DEVICES					X	X	X	X	X					X	S	S
SHOW-ADDRESS-SPACE-STATUS									X		X		X			
SHOW-ALIAS-CATALOG-ENTRY						X	X	X	X							
SHOW-ASE-ELEMENT													X			
SHOW-ASE-LOGGING													X			
SHOW-ASE-PARAMETERS													X			
SHOW-ASE-STATUS													X			
SHOW-AUDIT-STATUS													X			
SHOW-BLOCK-TO-FILE-ASSIGNMENT													X			
SHOW-CACHE-CONFIGURATION		X									X		X			
SHOW-CALENDAR									X							
SHOW-CCOPY-SESSION			X										X			
SHOW-CE-LOCK									X				X			
SHOW-CHANGE-DATES													X			

SHOW-CJC-STATUS		X				X	X	X	X						X	E	E
SHOW-CMD		X				X	X	X	X								
SHOW-CMD-ATTRIBUTES															X	@	@
SHOW-CONSLOG-ATTRIBUTES							X						X		X	@	@
SHOW-CONSOLE-FILTER															X	@	@
SHOW-CONSOLE-OPTIONS															X	@	@
SHOW-CONSOLE-STATUS															X	@	@
SHOW-DBL-DEFAULTS									X								
SHOW-DEVICE-CONFIGURATION		X							X		X				X	E	E
SHOW-DEVICE-DEPOT		X							X						X	E	E
SHOW-DEVICE-STATUS		X				X	X		X		X	X			X	E	E
SHOW-DISK-DEFAULTS		X							X		X				X	E	E
SHOW-DISK-STATUS		X							X		X				X	E	E
SHOW-DSSM-INFORMATION										X							
SHOW-FILE		X				X	X	X	X								
SHOW-FILE-ATTRIBUTES		X				X	X	X	X							@	@
SHOW-FILE-LINK		X				X	X		X								
SHOW-FILE-LOCKS									X				X				
SHOW-FILE-NAME-PREFIX						X	X	X	X								
SHOW-GCF-CATALOGS													X				
SHOW-GCF-OBJECT-TYPES													X				

SHOW-GCF-SERVER-TASKS													X				
SHOW-HARDWARE-AUDIT									X				X				
SHOW-HEL-CHECK		X															
SHOW-HEL-LOGGING		X															
SHOW-HEL-STATUS		X											X				
SHOW-HEL-TELESERVICE-ALARM		X															
SHOW-INDEX-ATTRIBUTES									X								
SHOW-INPUT-DEFAULTS		X				X	X	X	X								
SHOW-INPUT-HISTORY		X				X	X	X	X								
SHOW-INSTALLATION-PATH									X	X							
SHOW-IOCF													X		X	@	@
SHOW-IO-OPTIONS															X	G	G
SHOW-ISAM-CACHING											X		X				
SHOW-ISAM-POOL-ATTRIBUTES									X		X		X				
SHOW-ISAM-POOL-LINK									X		X		X				
SHOW-JOB-CLASS									X		X						
SHOW-JOB-OPTIONS		X				X	X	X	X								
SHOW-JOB-STATUS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E
SHOW-JOB-STREAM											X		X				
SHOW-JOB-SWITCHES		X				X	X	X	X								
SHOW-JV		X				X	X	X	X						X	J	J

SHOW-JV-ATTRIBUTES		X				X	X	X	X							$	J
SHOW-JV-LINK		X				X	X	X	X							$	J
SHOW-LINKAGE-AUDIT									X				X				
SHOW-LIVE-MIGRATION-HISTORY									X				X		X		
SHOW-MASTER-CATALOG-ENTRY									X		X		X		X	E	E
SHOW-MEMORY-CONFIGURATION									X		X		X		X	R	R
SHOW-MEMORY-POOL-STATUS									X		X		X				
SHOW-MIP-PARAMETERS													X				
SHOW-MOUNT-PARAMETER		X							X						X	E	E
SHOW-MSG-FILE-ASSIGNMENT						X	X	X	X				X				
SHOW-MSG-OPTIONS		X				X	X	X	X								
SHOW-MSG-SUBSCRIPTION															X	@	@
SHOW-MSG-SUPPRESSION															X	@	@
SHOW-NET-CLIENT-ALTERNATE													X		X	G	G
SHOW-NET-STORAGE													X		X	G	G
SHOW-NET-STORAGE-OCCUPATION													X				
SHOW-OPERATOR-ATTRIBUTES								X	X						X	@	@
SHOW-OPERATOR-ROLE								X	X						X	@	@
SHOW-PAGING-CONFIGURATION									X		X		X		X	R	R

SHOW-PENDING-MSG													X		X	@	@
SHOW-POSIX-STATUS										X							
SHOW-POSIX-USER-ATTRIBUTES				X					X					X			
SHOW-POSIX-USER-DEFAULTS				X					X					X			
SHOW-PRINT-JOB-ATTRIBUTES					X	X	X	X	X								
SHOW-PRINT-JOB-STATUS					X	X	X	X	X							S	S
SHOW-PRINTER-POOLS					X	X	X	X	X							$	$
SHOW-PUBSET-ATTRIBUTES													X		X	E	E
SHOW-PUBSET-CATALOG-ALLOCATION													X				
SHOW-PUBSET-CONFIGURATION									X				X		X	@	@
SHOW-PUBSET-DEFINITION-FILE									X				X		X		
SHOW-PUBSET-FILE-SERVICES									X				X				
SHOW-PUBSET-IMPORT-EXPORT													X		X	@	@
SHOW-PUBSET-LOCKS													X				
SHOW-PUBSET-NET-STORAGE									X				X				
SHOW-PUBSET-OCCUPATION											X		X		X		
SHOW-PUBSET-PARAMETERS											X		X		X	@	@
SHOW-PUBSET-PROCESSING									X				X		X		
SHOW-PUBSET-RESTRICTION									X				X		X		

SHOW-PUBSET-SPACE-ALLOCATION													X		X	@	@
SHOW-PUBSET-SPACE-DEFAULTS											X		X		X		
SHOW-RESOURCE-ALLOCATION		X				X	X		X						X	E	E
SHOW-RESOURCE-REQUESTS													X		X	E	E
SHOW-RESTART-OPTIONS															X	R	R
SHOW-RETURNCODE		X				X	X	X	X								
SHOW-RFA-CONNECTIONS						X	X		X								
SHOW-SDF-OPTIONS		X				X	X	X	X				X				
SHOW-SDF-PARAMETERS													X			@	@
SHOW-SELECTED-PRODUCT-VERSION									X								
SHOW-SERSLOG-STATUS													X		X	A	A
SHOW-SNAPSET-CONFIGURATION			X						X				X		X		
SHOW-SNAPSHOT-STATUS													X		X	R	R
SHOW-SPACE-SATURATION-LEVELS											X		X		X		
SHOW-SPOOL-CHARACTER-SETS					X	X	X	X	X							$	$
SHOW-SPOOL-DEVICES					X	X	X	X	X							$	$
SHOW-SPOOL-FILTERS		X			X	X	X	X	X								
SHOW-SPOOL-FORMS					X	X	X	X	X							$	$

SHOW-SPOOL-PARAMETERS					X	X	X	X	X							$	$
SHOW-STORAGE-CLASS									X				X				
SHOW-SUBSYSTEM-ATTRIBUTES									X	X							
SHOW-SUBSYSTEM-INFO										X							
SHOW-SUBSYSTEM-STATUS									X	X					X	R	R
SHOW-SYNTAX-VERSIONS		X				X	X	X	X								
SHOW-SYSEVENT-LOG									X						X		
SHOW-SYSEVENT-LOG-ATTRIBUTES									X						X		
SHOW-SYSTEM-FILE-ASSIGNMENTS		X				X	X	X	X								
SHOW-SYSTEM-INFORMATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	@	@
SHOW-SYSTEM-PARAMETERS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	@	@
SHOW-SYSTEM-STATUS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E
SHOW-TAPE-STATUS		X				X	X		X			X			X	E	E
SHOW-TERMINAL-ATTRIBUTES		X				X	X	X	X				X				
SHOW-TERMINAL-OPTIONS		X				X	X	X	X				X				
SHOW-TEST-OPTIONS	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
SHOW-TRACE-STATUS											X		X		X	R	R
SHOW-USER-ATTRIBUTES		X				X	X	X	X					X		$	$
SHOW-USER-STATUS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E

SHOW-USER-SWITCHES		X				X	X	X	X								
SHOW-VARIABLE		X				X	X	X	X						X		
SHOW-VOLUME-SET-LIST													X				
SHUTDOWN															X	R	R
SKIP-COMMANDS		X				X	X	X	X								
START-ACCOUNTING													X				
START-ACS	X																
START-CONFIGURATION-UPDATE															X	G	G
START-EXECUTABLE-PROGRAM		X				X	X	X	X								
START-HARDWARE-AUDIT									X				X				
START-HEL-LOGGING		X											X				
START-JOB-STREAM													X		X	J	J
START-LINKAGE-AUDIT									X				X				
START-POSIX-INSTALLATION				X									X				
START-POSIX-SHELL									X								
START-PRINTER-OUTPUT					X	X	X	X	X						X	S	S
START-PROGRAM		X				X	X	X	X								
START-RESLOG-EVALUATION											X		X				
START-RESOURCE-COLLECTION															X	J	J
START-SERSLOG													X		X	A	A
START-SUBSYSTEM										X					X	R	R

START-TAPE-OUTPUT					X										X	S	S
START-TAPE-REPLAY					X										X	S	S
START-TASK-MEASUREMENT	X		X	X	X	X	X	X	X	X	X	X	X	X			
START-TRACE													X		X	R	R
STOP-ACCOUNTING													X				
STOP-CONFIGURATION-UPDATE															X	G	G
STOP-HARDWARE-AUDIT									X				X				
STOP-HEL-LOGGING		X											X				
STOP-JOB-STREAM													X		X	J	J
STOP-LINKAGE-AUDIT									X				X				
STOP-PRINTER-OUTPUT					X	X	X	X	X						X	S	S
STOP-RESOURCE-COLLECTION															X	J	J
STOP-SERSLOG													X		X	A	A
STOP-SUBSYSTEM										X					X	R	R
STOP-TAPE-OUTPUT					X										X	S	S
STOP-TAPE-REPLAY					X										X	S	S
STOP-TASK-MEASUREMENT	X		X	X	X	X	X	X	X	X	X	X	X	X			
STOP-TRACE													X		X	R	R
STORE-ALIAS-CATALOG	X					X	X	X	X								
TURN															X	E	E
UMOUNT-NET-STORAGE													X		X	G	G
UNLOAD-TAPE															X	T	T
UNLOCK-DEVICE															X	G	G

UNLOCK-DISK															X	D	D
UNLOCK-FILE-LINK		X				X	X		X								
UNLOCK-PRODUCT-VERSION										X							
UNLOCK-SUBSYSTEM										X							
UNLOCK-USER									X					X		$	$
WAIT-EVENT		X				X	X	X	X								
WRITE-ACCOUNTING-RECORD		X							X								
WRITE-IOCF													X				
WRITE-SPOOL-TAPE		X			X	X	X	X	X							$	$
WRITE-TEXT		X				X	X	X	X								

Table 14: Commands with privileges

1 With NBCONOPI = Y, the CONSOLE command has no routing code and is therefore not available.

2 With NBCONOPI = N, the EXIT-JOB and SET-LOGON-PARAMETERS command have no routing code and are therefore not available.

1.3.4 Command aliases

Some of the commonest commands have an additional alias name, marked “Alias” to the right of the full command name in the syntax diagram (see also section "SDF syntax representation").
The alias consists of up to 8 characters (A..Z). An exception is made in the case of the “START commands” (for example, POSIX-SHELL is the alias for START-POSIX-SHELL). The alias is derived from the full command name, with the name elements always being abbreviated in the same way (e.g. CR for CREATE).
In some cases there may be two aliases (e.g. CL and CLP for CALL-PROCEDURE).
The defined command alias is guaranteed in the long term. The alias cannot be further abbreviated.

The following overview lists all the commands described in Volumes 2 to 7 together with their aliases.

Command	Alias
ADD-CRYPTO-PASSWORD	ADCPW
ADD-FILE-LINK	ADFL
ADD-PASSWORD	ADPW
BROADCAST	BCST
CALL-PROCEDURE	CL / CLP
CANCEL-JOB	CNJ
CANCEL-PROCEDURE	CNP
CANCEL-PROGRAM	CNPG
CHANGE-FILE-LINK	CGFL
COPY-FILE	CPF
COPY-JV	CPJV
COPY-POSIX-FILE	CPXF / BS2CP
COPY-SYSTEM-FILE	CPSF
CREATE-FILE	CRF
CREATE-FILE-GENERATION	CRFGN
CREATE-FILE-GROUP	CRFGP
CREATE-JV	CRJV
DECLARE-VARIABLE	DCV
DELETE-FILE	DLF
DELETE-FILE-GENERATION	DLFGN

DELETE-FILE-GROUP	DLFGP
DELETE-JV	DLJV
DELETE-SYSTEM-FILE	DLSF
EDIT-FILE-ATTRIBUTES	EDFA
EDIT-FILE-LINK	EDFL
EDIT-JOB	EDJ
EDIT-JOB-OPTIONS	EDJO
EDIT-JV	EDJV
EDIT-JV-ATTRIBUTES	EDJVA
ENTER-JOB	ENJ
ENTER-PROCEDURE	ENP
EXECUTE-POSIX-CMD	ECXCMD
HELP-MSG-INFORMATION	HP / HPMSGI
HELP-SDF	HPSDF
INFORM-PROGRAM	IFPG
LOAD-ALIAS-CATALOG	LDAC
LOAD-EXECUTABLE-PROGRAM	LDX
LOAD-PROGRAM	LDPG
MESSAGE	MSG
MODIFY-FILE-ATTRIBUTES	MD / MDFA
MODIFY-FILE-GENERATION-SUPPORT	MDFGNS
MODIFY-FILE-GROUP-ATTRIBUTES	MDFGPA
MODIFY-ISAM-CACHING	MDISAMC
MODIFY-JOB	MDJ
MODIFY-JOB-CLASS	MDJCL
MODIFY-JOB-OPTIONS	MDJO
MODIFY-JOB-STREAM	MDJSR
MODIFY-JOB-SWITCHES	MDJSW

MODIFY-JV	MDJV
MODIFY-JV-ATTRIBUTES	MDJVA
MODIFY-JV-CONDITIONALLY	MDJVC
MODIFY-MONJV	MDMJV
MODIFY-SDF-OPTIONS	MDSDFO
MODIFY-TEST-OPTIONS	MDTSO
MODIFY-USER-SWITCHES	MDUSW
MOVE-JOBS	MVJ
MOVE-TASK-TO-CATEGORY	MTTC
PRINT-DOCUMENT	PRDO
PURGE-ALIAS-CATALOG	PGAC
REMOVE-CRYPTO-PASSWORD	RMCPW
REMOVE-FILE-LINK	RMFL
REMOVE-JV-LINK	RMJVL
REMOVE-PASSWORD	RMPW
REMOVE-TASKLIB	RMTL
RESET-INPUT-DEFAULTS	RSID
RESTORE-SDF-INPUT	RRSDFI
RESUME-PROCEDURE	RUP
RESUME-PROGRAM	RU / RUPG
SET-FILE-NAME-PREFIX	STFNP
SET-JOB-STEP	STJSP
SET-JV-LINK	STJVL
SET-LOGON-PARAMETERS	STLGP
SET-TASKLIB	STTL
SET-VARIABLE	STV
SHOW-FILE	SHF
SHOW-FILE-ATTRIBUTES	SH / SHFA

SHOW-FILE-LINK	SHFL
SHOW-FILE-NAME-PREFIX	SHFNP
SHOW-INPUT-DEFAULTS	SHID
SHOW-INPUT-HISTORY	SHIH
SHOW-ISAM-CACHING	SHISAMC
SHOW-JOB-OPTIONS	SHJO
SHOW-JOB-STATUS	SHJS
SHOW-JOB-SWITCHES	SHJSW
SHOW-JV	SHJV
SHOW-JV-ATTRIBUTES	SHJVA
SHOW-JV-LINK	SHJVL
SHOW-MASTER-CATALOG-ENTRY	SHMCE
SHOW-PENDING-MSG	SHMSG
SHOW-RETURNCODE	SHRTC
SHOW-SDF-OPTIONS	SHSDFO
SHOW-SYSTEM-FILE-ASSIGNMENTS	SHSFA
SHOW-SYSTEM-STATUS	SHSS
SHOW-TEST-OPTIONS	SHTSO
SHOW-USER-ATTRIBUTES	SHUA
SHOW-USER-STATUS	SHUS
SHOW-USER-SWITCHES	SHUSW
SHOW-VARIABLE	SHV
START-EXECUTABLE-PROGRAM	SRX
START-PRINTER-OUTPUT	SRPRTO
START-PROGRAM	SR / SRPG
START-POSIX-SHELL	POSIX-SH
STORE-ALIAS-CATALOG	STAC

Command	Alias
WRITE-TEXT	WRTX

Table 15: Command aliases

1.3.5 Commands of internal components

BS2000 contains some components which are used only for internal purposes, e.g. test purposes. Commands of these components are not described in this manual. These commands are listed in the table below.

Command	Component	Function
ACTIVATE-SYSTEM-HOOK	SYSHOOK	Activate system hook testpoints
ADD-SYSTEM-HOOK	SYSHOOK	Set a system hook testpoint
DEACTIVATE-SYSTEM-HOOK	SYSHOOK	Deactivate system hook testpoints
MODIFY-SYSTEM-HOOK	SYSHOOK	Change a system hook testpoint
MODIFY-SYSTEM-HOOK-PROCESSING	SYSHOOK	Change options for system hook testpoints
REMOVE-SYSTEM-HOOK	SYSHOOK	Remove a system hook testpoint
SHOW-MAP-INFORMATION	AIDSYSA	Display information on BLS icons
SHOW-SYMBOL-INFORMATION	AIDSYSA	Display information on DSect icons of the system
SHOW-SYSTEM-HOOK-ATTRIBUTES	SYSHOOK	Display system hook testpoints
SHOW-SYSTEM-HOOK-LOGGING	SYSHOOK	Display logging data for system hook testpoints
SHOW-SYSTEM-HOOK-PROCESSING	SYSHOOK	Display options for system hook testpoints
DELETE-ORDER	ASTI	Delete request for a service
MODIFY-SERVICE-PARAMETER	ASTI	Modify service parameters (e.g. use authorization)
PROCESS-ORDER	ASTI	Fetch jobs from ASTI or return results
REQUEST-ORDER-RESULT	ASTI	Request the result of an asynchronous job
SEND-ORDER	ASTI	Send a request for a service
SHOW-ORDER-STATUS	ASTI	Display the status of requests for services
SHOW-SERVICE-STATUS	ASTI	Display the status of one or all services
START-SERVICE	ASTI	Start a service
STOP-SERVICE	ASTI	Stop a service
ADD-TELESERVICE-MSG	BS2CP	Add the specified messages to the list of messages which are displayed in the diagnostics center

Command	Component	Function
GRANT-PROP-CONNECTION	BS2CP	Internal command: PROP-XT calls operating
REMOVE-TELESERVICE-MSG	BS2CP	Remove the specified messages from the list of messages which are displayed in the diagnostics center
SHOW-TELESERVICE-MSG	BS2CP	Display the messages which are displayed in the diagnostics center
LOAD-TPR-PROGRAM	CAPRI	Load a TPR program
SHOW-TPR-PROGRAM-STATUS	CAPRI	Display information on loaded entries
START-TPR-PROGRAM	CAPRI	Start a TPR program
UNLOAD-TPR-PROGRAM	CAPRI	Unload a TPR program
END-IDIAS	IDIAS	Task is no longer the IDIAS monitor task
ADD-INSTRUCTION-STOP	IDIAS	Set IDIAS instruction stop
ADD-WRITE-STOP	IDIAS	Set IDIAS write stop
BEGIN-IDIAS	IDIAS	Task becomes IDIAS monitor task
CREATE-SYSTEM-DUMP	IDIAS	Generate IDIAS-NO-EDIT dump
LOAD-IDIAS-EXIT	IDIAS	Load IDIAS exit module
MODIFY-IDIAS-DEFAULTS	IDIAS	Modify global IDIAS parameters
MODIFY-INSTRUCTION-STOP	IDIAS	Modify IDIAS instruction stop
MODIFY-WRITE-STOP	IDIAS	Modify IDIAS write stop
REMOVE-INSTRUCTION-STOP	IDIAS	Reset IDIAS instruction stop
REMOVE-WRITE-STOP	IDIAS	Reset IDIAS write stop
RESUME-IDIAS-TEST-TASK	IDIAS	Activate IDIAS test task
SHOW-IDIAS-DEFAULTS	IDIAS	Display global IDIAS parameters
SHOW-IDIAS-STATUS	IDIAS	Display all IDIAS stops and FTT
SHOW-IDIAS-TRACES	IDIAS	Display IDIAS foreign task traces
SHOW-INSTRUCTION-STOPS	IDIAS	Display IDIAS instruction stops
SHOW-SYSTEM-DUMP-STATUS	IDIAS	Display IDIAS system dump status
SHOW-WRITE-STOPS	IDIAS	Display IDIAS write stops
TRACE-INSTRUCTIONS	IDIAS	IDIAS foreign task trace (FTT)

UNLOAD-IDIAS-EXIT	IDIAS	Unload IDIAS exit module
WAIT-IDIAS-EVENT	IDIAS	Wait for IDIAS stop event

Table 16: Commands of internal components

1.4 Related publications

You will find the manuals on the internet at *http://bs2manuals.ts.fujitsu.com*.

[1] **BS2000 OS DX**
Commands
User Guide

[2] **openNet Server**
BCAM
Reference Manual

[3] **BLSSERV**
Dynamic Binder Loader / Starter in BS2000
User Guide

[4] **CALENDAR**
User Guide

[5] **DAB**
Disk Access Buffer
User Guide

[6] **DCAM**
Macros
User Guide

[7] **DCAM**
Program Interfaces
Description

[8] **BS2000 OS DX**
Diagnostics Handbook
User Guide

[9] **BS2000 OS DX**
Utility Routines
User Guide

[10] **Distributed Print Services**
Printing in Computer Networks
User Guide

[11] **-**

[12] **BS2000 OS DX**
DMS Macros
User Guide

[13] **BS2000 OS DX**
DMS Introduction
User Guide

[14] **BS2000 OS DX**
Introduction to System Administration
User Guide

[15] **SDF**
SDF Dialog Interface
User Guide

[16] **ELSA**
Error Logging System Analysis
User Guide

[17] **openFT (BS2000)**
User Guide

[18] **HSMS**
Hierarchical Storage Management System
Volume 1: Functions, Management and Installation
User Guide

[19] **IMON**
Installation Monitor
User Guide

[20] **JV**
Job variables
User Guide

[21] **LMS**
SDF Format
User Guide

[22] **BS2000 OS DX**
Executive Macros
User Guide

[23] **MAREN**
Tape Management in BS2000
User Guide

[24] **MAREN**
Tape Management in BS2000
System Administrator Guide

[25] **HIPLEX MSCF**
BS2000-Processor Networks
User Guide

[26] **PCS**
Performance Control Subsystem
User Guide

[27] **BS2000 Performance Handbook**
User Guide

[28] **POSIX**
POSIX Basics for Users and System Administrators
User Guide

[29] **POSIX**
Commands
User Guide

[30] **PRM**
User Guide

[31] **RFA**
Remote File Access
User Guide

[32] **RSO**
Remote SPOOL Output
User Guide

[33] **SDF-A**
User Guide

[34] **SDF-P**
Programming in the Command Language
User Guide

[35] **SECOS**
Security Control System - Access Control
User Guide

[36] **SECOS**
Security Control System - Audit
User Guide

[37] **SHC-OSD**
Storage Management for BS2000
User Guide

[38] **SPACEOPT**
Disk Optimization and Reorganization
User Guide

[39] **openSM2**
Software Monitor
User Guide

[40] **SORT**
SDF Format
User Guide

[41] **SPCONV**
User Guide

[42] **Spool & Print Commands**
User Guide

[43] **SPOOL**
User Guide

[44] **SPSERVE**
User Guide

[45] **BS2000**
System Managed Storage
User Guide

[46] **BS2000 OS DX**
System Installation
User Guide

[47] **TIAM**
User Guide

[48] **Unicode in BS2000**
Unicode Introduction

[49] **DSSM / SSCM**
Subsystem Management
User Guide

[50] **VM2000**
Virtual Machine System
User Guide

[51] **XHCS**
8-Bit Code Processing in BS2000
User Guide

[52] **Fujitsu Server BS2000 SE Series**
Operation and Administration
User Guide

[53] **BS2ZIP**
ZIP Archiving in BS2000
User Guide

2 ACTIVATE-SNAPSHOT - DECRYPT-FILE

The manual "Commands" is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

2.1 ACTIVATE-SNAPSHOT

Start dump generator SNAP

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The ACTIVATE-SNAPSHOT enables the SNAP dump function. Any suspended SNAP dump will be processed (i.e. it will be assigned index structures for evaluation with the DAMP program and copied to the SYSSNAP ID). The command can be executed multiple times, e.g. in order to modify the size of the system file $TSOS.SNAPFILE.

ACTIVATE-SNAPSHOT is executed asynchronously. Message NSP4000 confirms that the command has been received correctly. The SHOW-SNAPSHOT-STATUS command enables you to check the modified settings.

> Manual changes to the Snapshot files can lead to undefined statuses when the SNAP dump takes place. Modifications may only be made using the ACTIVATE-SNAPSHOT and DEACTIVATE-SNAPSHOT commands.

Format

ACTIVATE-SNAPSHOT
FILE-SIZE = ***UNCHA**NGED**-OR-STD** / <integer 16..1024 *Mbyte*>

Operands

FILE-SIZE = *UNCHANGED-OR-STD / <integer 16..1024> *Mbyte*
Determines the size of the system file $TSOS.SNAPFILE on the home pubset.

FILE-SIZE = *UNCHANGED-OR-STD
The size of the system file $TSOS.SNAPFILE remains unchanged. If it does not yet exist, it is created with the standard size of 144 MB.

FILE-SIZE = <integer 16..1024 *Mbyte*>
Size of the system file $TSOS.SNAPFILE on the home pubset. The system file is expanded or reduced as required. If it does not yet exist, a new system file is created with this size.

> A size of at least 144 MB is recommended.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

2.2 ADAPT-SNAPSET-ACCESS

Adapt access to Snapsets in the case of remote mirroring

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	SNAPSET MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS HSMS-ADMINISTRATION

Function

If access to the disks of the pubset is switched dynamically between the source and target controllers (e.g. by using SHC-OSD commands), access to the Snapsets assigned to the pubset is not also switched automatically. The ADAPT-SNAPSET-ACCESS command ensures that the Snapsets assigned are still available after such a switchover without the pubset having to be exported.

When the command is called, a check is made to see whether access to the assigned Snapsets takes place in the same controller as access to the disks of the pubset. If this is not the case, the switchover is emulated for the Snapsets assigned to the pubset:

- The Snapsets currently attached are taken out of service.
- The Snapsets of the local controller are then attached.

To execute the command the pubset must be in the LOCAL-ACCESSIBLE status. In the case of shared pubsets, Snapset access is adapted for all sharers of the pubset.

Format

ADAPT-SNAPSET-ACCESS
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which Snapset access is to be adapted.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0216	User does not have the necessary privilege
	64	DMS1386	Error in the memory request
	64	DMS138B	No MRSCAT entry
	64	DMS13D5	The specified Snapset does not exist on the pubset
1	64	DMS13D7	Internal error in Snapset management: Return code of GCF
4	64	DMS13D7	Internal error in Snapset management: Return code when setting/resetting the reconfiguration lock
6	64	DMS13D7	Internal error in Snapset management: Return code of SHC-OSD
7	64	DMS13D7	Internal error in Snapset management: Return code of CCOPY
	64	DMS13D8	The pubset has no Snapsets
	64	DMS13E5	Snapset catalog does not exist

2.3 ADD-ACS-SYSTEM-FILE

Declare ACS system file

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	ACS-ADMINISTRATION

Function

The ADD-ACS-SYSTEM-FILE command is used by system administration to declare a new AC system file identifier, and to assign the file name and attributes to this identifier. Users who wish to load the entries from an AC system file into their virtual alias catalog can use this identifier, i.e. the symbolic name of the AC system file, to address the file. The SHOW-ACS-SYSTEM-FILES command enables the user to request that the list of available AC system files is displayed. However, the ACS administrator can specify, when setting the attributes, that output of the identifier and its associated file name is suppressed. The system administration can also specify that the identifier which is being declared is to act as the default AC system file. In this case, the entries in this file will be read if the user specifies in command LOAD-ALIAS-CATALOG the identifier as “*STD”. The access protection of the AC system file is observed (e.g. user-ACCESS=*OWNER-ONLY denies access to the AC system file from a foreign userid).
If the specified identifier already exists for an AC system file, the existing definition will be replaced by the new one. The declarations relating to the AC system files remain in effect until shutdown. When the subsystem is unloaded, the declarations will only be deleted if the operand SUBSYSTEM-PARAMETER = ‘RESET’ is specified in the STOP-SUBSYSTEM command.

Format

ADD-ACS-SYSTEM**-FILE**
ALIAS-CATALOG**-ID** = <composed-name 1..20> ,**F**ILE**-NAME** = <filename 1..54> ,**ATTR**IBUTES = ***STD** / list-poss(4): ***SYS**TEM**-DEF**AULT / ***INVISIBLE** / ***SECRET-FILE-NAME** / ***PRIVIL**EGED

Operands

ALIAS-CATALOG-ID = <composed-name 1..20>
The symbolic name under which the AC system file can be addressed by a LOAD-ALIAS-CATALOG command. The user can request display of a list of all the available AC system files by a SHOW-ACS-SYSTEM-FILES command.

FILE-NAME = <filename 1..54>
The fully qualified actual name of the AC system file, in which the entries are stored. Before the file is added into the list of AC system files, the FILE-NAME operand will, if necessary, be supplemented by the user ID and default catalog ID of the calling task.

> ! The user must be able to read the file.

ATTRIBUTES =
Declares the attributes to be given to the AC system file.

ATTRIBUTES = *STD
Preset value: The AC system file is not to be given any of the following attributes.

ATTRIBUTES = *SYSTEM-DEFAULT
The AC system file is to be used as the default AC system file. The entries from this file will then automatically be loaded into the user's alias catalog if the ALIAS-CATALOG-ID operand in the LOAD-ALIAS-CATALOG command has the value *STD. If more than one AC system file is given the attribute SYSTEM-DEFAULT, then the last assignment will always be the one which applies. If none of the AC system files is explicitly given this attribute, it is implicitly given to the first which was declared as a system file.

ATTRIBUTES = *INVISIBLE
Specifies that when the AC system files which are available to the nonprivileged user are output (SHOW-ACS-SYSTEM-FILES command), the entry for this file should not be displayed. The identifier of this AC system file can thus only be used by users to whom it has previously been notified, or who can invoke specially prepared procedures. If the SHOW-ACS-OPTIONS command is used to output the AC files which are loaded then, instead of its ID, the character '*' will be shown for this file if the caller is not the ACS administration.

ATTRIBUTES = *SECRET-FILE-NAME
Specifies that when the list of AC files which are available to nonprivileged users is output (SHOW-ACS-SYSTEM-FILES and SHOW-ACS-OPTIONS commands), instead of the file name of this AC system file the string '*SYSTEM' is to appear. The (nonprivileged) user thus has no way of revealing the actual name of the file.

ATTRIBUTES = *PRIVILEGED
Specifies that when the AC system file is used (LOAD-ALIAS-CATALOG ALIAS-CATALOG-ID = <id> command), its entries are to be copied into the virtual alias catalog of the task as **system entries**.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
	32	CMD0221	Internal error
	64	ACS0013	Invalid ACSF declaration
	130	ACS0036	Resource bottleneck

2.4 ADD-ALIAS-CATALOG-ENTRY

Add entry to current alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING ACS-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The ADD-ALIAS-CATALOG-ENTRY command adds an entry into the current alias catalog of a task. Any existing entry for the same alias in the catalog is overwritten.

If no alias catalog yet exists for the task, it is automatically set up with the first entry. The following attributes can be defined by the user for the new entry created:

- real file or job variable name to be used for the alias name
- whether the alias substitution is to be logged
- whether the entry is displayed in the output of the SHOW-ALIAS-CATALOG-ENTRY command
- whether the entry is protected against changes or deletion by the MODIFY-ALIAS-CATALOG-ENTRY or REMOVE-ALIAS-CATALOG-ENTRY command
- the range of substitution: the entry should apply only for files, only for job variables, or for both (RANGE operand)

Entries created with ADD-ALIAS-CATALOG-ENTRY are only temporarily present in the task-local alias catalog, which means they are discarded when the alias catalog is deleted (explicitly with the PURGE-ALIAS-CATALOG command or implicitly when the task is terminated). If desired, however, such entries can be saved in a file by using the STORE-ALIAS-CATALOG command.

Privileged functions

When an individual catalog entry is being created, only the ACS administrator can explicitly make a distinction between user and system entries (TYPE operand). An alias explicitly created as a system entry is subject to less rigorous checking: it is always permissible to specify a catalog ID and user ID for it (except $SYS* and $TSOS).

Format

ADD-ALIAS-CATALOG-
ENTRY

ALIAS-FILE-NAME = <filename 1..54>

, **FILE-NAME** = <filename 1..54> / ***SAME**

, **ATTR**IBUTES = ***STD** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **LOG**GING = ***NO** / ***Y**ES

| , **VISIBILITY** = ***Y**ES / ***NO**

| , **PROTECTION** = ***NO** / ***Y**ES

, **TYPE** = ***USER** / ***SYS**TEM

, **RANGE** = ***STD** / ***FILE** / ***JV** / ***BOTH**

Operands

ALIAS-FILE-NAME = <filename 1..54>
Alias for which the actual file or job variable name is to be replaced by ACS.
Not permitted are names of temporary files or job variables, TSOS user ID files or job variables, files or job variables of a user ID beginning with *SYS* and file names containing a specification of a generation or version. The ACS administrator can impose a general inhibit on the specification of a catalog and/or user ID (see the MODIFY-ACS-OPTIONS command). Regardless of this, the user ID of the current task can always be contained in alias names.

FILE-NAME = <filename 1..54>
Actual file or job variable name to be substituted by ACS for the alias. The name of a temporary file is not allowed, nor is it permitted to specify a generation or version. If the actual name is identical to the alias, the entry is treated as a normal alias definition (in contrast to *SAME). The replacement of the file name is logged as ACS0000. The substitution of the job variable name is logged with ACS0049.

FILE-NAME = *SAME
The actual file or job variable name is the same as the alias. That is why no substitution takes place in this case. However, the entry prevents the insertion of the defined prefix (see SET-FILE-NAME-PREFIX command). The substitution of the file or job variable name is logged.

> ! The user must have read access rights for the file.

ATTRIBUTES = *STD / *PARAMETERS(...)
Defines the attributes of the new entry created in the alias catalog.

ATTRIBUTES = *STD
Specifies that the entry in the alias catalog is to have the following attributes:

- LOGGING=*NO
- VISIBILITY=*YES
- PROTECTION=*NO

ATTRIBUTES = *PARAMETERS(...)
Attributes of the new entry are to be defined.

LOGGING = *NO / *YES
Logs substitution of the alias names. Independently of that, logging can be requested via ACS options. For security reasons, logging takes place only if one of both settings requires it.

VISIBILITY = *YES / *NO
Prevents the entry in the alias catalog from appearing in the output of the SHOW-ALIAS-CATALOG-ENTRY command for a non-privileged user.

PROTECTION = *NO / *YES
Protects the entry in the alias catalog against changes and deletion with the MODIFY-ALIAS-CATALOG-ENTRY and REMOVE-ALIAS-CATALOG-ENTRY commands respectively.

TYPE = *USER / *SYSTEM
This operand is available only to users with the ACS-ADMINISTRATION privilege.
Indicates whether the specified entry is to be of the type USER or SYSTEM.

TYPE = *USER
Preset value: The entry made in the catalog will be a user entry. When the virtual catalog is saved, this entry will be included in the file records.

TYPE = *SYSTEM
The catalog entry is to be made as a system entry. If the catalog is saved to a nonprivileged user’s file, this entry will not be included.

RANGE = *STD / *FILE / *JV / *BOTH
Determines the range of the entry. Alias substitution can be defined for files and/or job variables.

RANGE = *STD
Default: Alias substitution takes place using the ACS setting which applies for the task (ACS option STANDARD-RANGE).

RANGE = *FILE
Alias substitution is only effective for files.

RANGE = *JV
Alias substitution is only effective for job variables.

RANGE = *BOTH
Alias substitution is effective for both files and job variables.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
	64	ACS0024	Invalid alias catalog entry
	64	ACS0029	Command is not permitted
	128	ACS0018	ACS is not available
	130	ACS0036	Resource bottleneck

Examples

Example 1: Load alias catalog, change entries, substitution function

```
/SHOW-ACS-SYSTEM-FILES ──────────────────────────────────────────────── (1)

%     ALIAS CATALOG ID     FILE NAME
%   >ALL-USER             $TSOS.SYSTEM.ACS.ALL-USER
%P   ALL-PRIV             $TSOS.SYSTEM.ACS.ALL-PIVILEGE

/SHOW-ALIAS-CATALOG-ENTRY ──────────────────────────────────────────────── (2)

%  ACS0017 ALIAS CATALOG NOT AVAILABLE. COMMAND REJECTED

/LOAD-ALIAS-CATALOG ALIAS-CATALOG-ID=ALL-PRIV ──────────────────────────── (3)

%  ACS0001 ALIAS CATALOG 'ALL-PRIV' LOADED (DESCRIPTOR=' ', DATE=2020-04-21, NUMBER
OF ENTRIES=2)

/SHOW-ALIAS-CATALOG-ENTRY ──────────────────────────────────────────────── (4)

%       ALIAS FILE NAME         ->     FILE NAME

%SB  : LOAD-BIND                -> $.BINDER

%SB  : LOAD-PAMCONV             -> $.PAMCONV

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 2 (FOR SYSTEM: 2, FOR USER: 0)

/SHOW-FILE-ATTRIBUTES FILE-NAME=LOAD-BIND ──────────────────────────────── (5)

        27 :SE11:$TSOS.BINDER

:SE11: PUBLIC:      1 FILE  RES=        27 FRE=         2 REL=         0 PAGES

/ADD-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=LMS,FILE-NAME=$.LMSCONV ──────── (6)

/SHOW-ALIAS-CATALOG-ENTRY ──────────────────────────────────────────────── (7)

%       ALIAS FILE NAME         ->     FILE NAME
%UB  : LMS                      -> $.LMSCONV

%SB  : LOAD-BIND                -> $.BINDER
```

```
%SB  : LOAD-PAMCONV             -> $.PAMCONV
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 2, FOR USER: 1)
/ADD-ALIAS-CAT-ENTRY ALIAS-F-NAME=SF.SDF,F-NAME=$TSOS.SYSSDF.BS2CP.210 ── (8)
/SHOW-ALIAS-CATALOG-ENTRY    ──────────────────────────────────────────── (9)
%       ALIAS FILE NAME         ->     FILE NAME
%UB  : LMS                      -> $.LMSCONV
%SB  : LOAD-BIND                -> $.BINDER
%SB  : LOAD-PAMCONV             -> $.PAMCONV
%UB  : SF.SDF                   -> $TSOS.SYSSDF.BS2CP.210
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 4 (FOR SYSTEM: 2, FOR USER: 2)
/ADD-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=BSP,FILE-NAME=LST.BSP.2    ──── (10)
/SHOW-ALIAS-CATALOG-ENTRY    ──────────────────────────────────────────── (11)
%       ALIAS FILE NAME         ->     FILE NAME
%UB  : BSP                      -> LST.BSP.2
%UB  : LMS                      -> $.LMSCONV
%SB  : LOAD-BIND                -> $.BINDER
%SB  : LOAD-PAMCONV             -> $.PAMCONV
%UB  : SF.SDF                   -> $TSOS.SYSSDF.BS2CP.210
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 5 (FOR SYSTEM: 2, FOR USER: 3)
/SHOW-FILE-ATTRIBUTES FILE-NAME=SF.SDF ──────────────────────────────── (12)
      1464 :SE11:$TSOS.SYSSDF.BS2CP.210
:SE11: PUBLIC:      1 FILE  RES=      1464 FRE=        14 REL=         0 PAGES
/SHOW-FILE-ATTRIBUTES FILE-NAME=SF.  ────────────────────────────────── (13)
         3 :SE11:$USERACS.SF.LMSCONV
         3 :SE11:$USERACS.SF.NEU
         3 :SE11:$USERACS.SF.TEST.DEV.1
/SHOW-ACS-OPTIONS    ──────────────────────────────────────────────────── (14)
% ALIAS CATALOG SYSTEM V21.0
% ============================
%
% STATUS: ACTIVE
%
```

```
% ACTIVATED ALIAS CATALOG FILE(S):

%  ID                   U-INFO   DESCR    DATE       FILE NAME

% ALL-PRIV                                2020-04-21 :SE11:$TSOS.SYSTEM.ACS.ALL-
PIVILEGE

% ENTRIES ADDED/MODIFIED BY INDIVIDUAL COMMANDS:       3

%

% LOGGING: ALIAS-SUBSTITUTION=STD, PREFIX-INSERTION=NO

% SUCCESS-MSG OPTIONS: USER-FILE=YES, SYSTEM-FILE=YES

% COMPLETE-ALIAS-NAMES=NOT-ALLOWED (USER-MODIF=NOT-ALLOWED)

% ALIAS-USERID        =NOT-ALLOWED (USER-MODIF=NOT-ALLOWED)

% STANDARD-
RANGE=BOTH
```

/PRINT-DOC FROM-FILE=BSP ——————————————————————————————— (15)

```
%  SCP0860 FILE ':SE11:$USERACS.LST.BSP.2' PROTECTED BY A READ OR EXEC PASSWORD.
COMMAND REJECTED
```

/LOAD-EXE FROM-FILE=LMS ——————————————————————————————— (16)

```
%  BLS0500 PROGRAM 'LMSCONV', VERSION '03.5B' OF '2017-03-09' LOADED

%  BLS0552 COPYRIGHT (C) 2017 FUJITSU TECHNOLOGY SOLUTIONS GMBH. ALL RIGHTS RESERVED
```

/SHOW-JOB-STATUS ——————————————————————————————— (17)

```
TSN:     0GX4       TYPE:    3 DIALOG   NOW:     2020-04-21.145739

JOBNAME: ACSTEST    PRI:     0 240

USERID:  USERACS    JCLASS:  JCDIALOG   LOGON:   2020-04-21.1447

ACCNB:   1          CPU-MAX:  32767     CPU-USED:000000.1236

STATION: STATE2DD   PROC:    G02DEXN0

TID:     009800E3   UNP/Q#:    00/000

CMD:     SHOW-JOB-STATUS               SIZE:         1

PROG:    :SE11:$TSOS.LMSCONV

MONJV:   *NONE
```

(1) The SHOW-ACS-SYSTEM-FILE command shows the IDs of the available AC system files.

(2) The SHOW-ALIAS-CATALOG-ENTRY command shows that no task-local alias catalog is loaded.

(3) The LOAD-ALIAS-CATALOG command loads system entries from the $TSOS.SYSTEM.ACS.ALL-PIVILEGE AC system file and activates the ACS replacement function.

(4) The SHOW-ALIAS-CATALOG-ENTRY command shows that two alias name definitions have been loaded.

(5) In the SHOW-FILE-ATTRIBUTES command, the alias name *LOAD-BIND* is replaced by the defined real file name *$.BINDER* before the command is executed.

(6) The ADD-ALIAS-CATALOG-ENTRY command adds to the alias catalog a definition containing the alias name *LMS* for the file *$.LMSCONV* (user entry).
(ADD-ALIAS-CATALOG-ENTRY for user is only allowed, if ACS was started with /START-ACS ..., SECURITY-LEVEL=*LOW)

(7) Shows the entries in the alias catalogs.

(8) The ADD-ALIAS-CATALOG-ENTRY command adds to the alias catalog a definition containing the alias name *SF.SDF* for the file *$TSOS.SYS.SDF.SYSTEM.SYNTAX* (user entry).

(9) Shows the entries in the alias catalogs.

(10) The ADD-ALIAS-CATALOG-ENTRY command adds to the alias catalog a definition with the alias name *BSP* for the file *LST.BSP.2*(user entry).

(11) Shows the entries in the alias catalogs.

(12) In the SHOW-FILE-ATTRIBUTES command the alias name *SF.SDF* is replaced by the defined real file name *$TSOS.SYSSDF.BS2CP.210* before the command is executed.

(13) As the specified name *SF.* does not correspond to an alias name, the SHOW-FILE-ATTRIBUTES command is used to display all files whose real file name begins with *SF.*

(14) Shows the current ACS settings with the SHOW-ACS-OPTIONS command.

(15) In the PRINT-DOCUMENT command, the alias name *BSP* is replaced by the defined real file name *LST.BSP.2* before the command is executed.

(16) The LOAD-EXECUTABLE-PROGRAM command loads a program not from file LMS, but from the file *LMSCONV* . The message *BLS0500* shows that the program *LMSCONV* has been loaded.

(17) The SHOW-JOB-STATUS command shows that the program *LMSCONV* has been loaded from the file *:SE11:$TSOS.LMSCONV* . The name *LMS* specified in LOAD-EXECUTABLE-PROGRAM corresponds to a defined alias name. It was therefore replaced by the assigned real file name *:SE11:$TSOS.LMSCONV* before the command was executed.

Example 2: Save alias catalog, change entries

```
/SHOW-ALIAS-CATALOG-ENTRY ──────────────────────────────────────────────── (1)
%       ALIAS FILE NAME          ->     FILE NAME
%UB   : ASS                      -> $.ASSEMBH
%UB   : BSP                      -> LST.BSP.2
%SB   : LOAD-BIND                -> $.BINDER
```

```
%SB  : LOAD-PAMCONV             -> $.PAMCONV

%UB  : SF.SDF                   -> :SE11:$TSOS.SYSSDF.BS2CP.210

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 5 (FOR SYSTEM: 2, FOR USER: 3)

/STORE-ALIAS-CATALOG TO-FILE=ACS.A1,USER-INF=USER1AC,DESCRIPTOR=V0001A — (2)

%  ACS0038 NUMBER OF ALIAS CATALOG ENTRIES STORED IN FILE ':SE11:$USERACS.ACS.A1': 3

/REMOVE-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=LOAD-BIND  ——————————————— (3)
/REMOVE-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=ASS  ———————————————————— (4)
/SHOW-ALIAS-CATALOG-ENTRY  ——————————————————————————————————————— (5)

%       ALIAS FILE NAME         ->     FILE NAME

%UB  : BSP                      -> LST.BSP.2

%SB  : LOAD-PAMCONV             -> $.PAMCONV

%UB  : SF.SDF                   -> $TSOS.SYSSDF.BS2CP.210

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 1, FOR USER: 2)

/MODIFY-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=SF.SDF, - ——————————————— (6)

/ATTRIBUTES=*PARAMETERS(VISIBILITY=*NO)

/SHOW-ALIAS-CATALOG-ENTRY ——————————————————————————————————————— (7)

%       ALIAS FILE NAME         ->     FILE NAME

%UB  : BSP                      -> LST.BSP.2

%SB  : LOAD-PAMCONV             -> $.PAMCONV

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 1, FOR USER: 2)

/MODIFY-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=SF.SDF, -  ——————————————— (8)

/ATTRIBUTES=*PARAMETERS(VISIBILITY=*YES,PROTECTION=*YES)
/SHOW-ALIAS-CATALOG-ENTRY  ——————————————————————————————————————— (9)

%       ALIAS FILE NAME         ->     FILE NAME

%UB  : BSP                      -> LST.BSP.2

%SB  : LOAD-PAMCONV             -> $.PAMCONV

%UB P: SF.SDF                   -> $TSOS.SYSSDF.BS2CP.210

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 1, FOR USER: 2)

/REMOVE-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=SF.SDF ———————————————— (10)

%  ACS0005 ALIAS CATALOG ENTRY CANNOT BE MODIFIED. COMMAND REJECTED

/MODIFY-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=SF.SDF, -  ——————————————— (11)

 /ATTRIBUTES=*PARAMETERS(PROTECTION=*NO)

%  ACS0005 ALIAS CATALOG ENTRY CANNOT BE MODIFIED. COMMAND REJECTED
```

```
/MODIFY-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=BSP,FILE-NAME=MAX.FILE.3 ——— (12)
/ADD-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=MAX,FILE-NAME=MAX.FILE.3   ——— (13)
/SHOW-ALIAS-CATALOG-ENTRY SELECT=*BY-ATTRIBUTES(TYPE=*USER-ENTRIES)  ——— (14)

%       ALIAS FILE NAME         ->     FILE NAME

%UB  : BSP                      -> MAX.FILE.3

%UB  : MAX                      -> MAX.FILE.3

%UB P: SF.SDF                   -> $TSOS.SYSSDF.BS2CP.210

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 0, FOR USER: 3)

/LOAD-ALIAS-CATALOG ALIAS-CATALOG-ID=*OWN(FROM-FILE=ACS.A1),MODE=*REPLACE (15)

%  ACS0001 ALIAS CATALOG 'USER1AC' LOADED (DESCRIPTOR='V0001A', DATE=2020-04-22,
NUMBER OF ENTRIES=3)

/SHOW-ALIAS-CATALOG-ENTRY ————————————————————————————————————————— (16)

%       ALIAS FILE NAME         ->     FILE NAME

%UB  : ASS                      -> $.ASSEMBH

%UB  : BSP                      -> LST.BSP.2

%UB  : SF.SDF                   -> $TSOS.SYSSDF.BS2CP.210

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 0, FOR USER: 3)
```

(1) The SHOW-ALIAS-CATALOG-ENTRY command shows all entries in the task-local alias catalog.

(2) The STORE-ALIAS-CATALOG command saves all user entries in the alias catalog into the AC file *ACS.A1*.

(3) Delete the entry with the alias name *LOAD-BIND* .

(4) Delete the entry with the alias name *ASS*.

(5) The SHOW-ALIAS-CATALOG-ENTRY command displays all entries in the task-local alias catalog. There remain only the three entries with the alias names *BSP*, *LOAD-PAMCONV,* and *SF.SDF*.

(6) For the entry with the alias name *SF.SDF* the attribute VISIBILITY in the MODIFY-ALIAS-CATALOG-ENTRY command is removed.

(7) On output with SHOW-ALIAS-CATALOG-ENTRY the entry with the alias name *SF.SDF* is not shown. The total line is however shown for all existing entries.

(8) For the entry with the alias name *SF.SDF* the attribute PROTECTION und VISIBILIY is defined in the MODIFY-ALIAS-CATALOG-ENTRY command.

(9) In the output with the SHOW-ALIAS-CATALOG-ENTRY command the entry with the alias name *SF.SDF* is flagged with the letter *P* (for PROTECTED).

(10) The entry with the alias name *SF.SDF* is to be deleted. The REMOVE-ALIAS-CATALOG-ENTRY command is rejected due to the attribute PROTECTION .

(11) The entry with the alias name *SF.SDF* is to be changed. The MODIFY-ALIAS-CATALOG-ENTRY command is rejected due to the attribute PROTECTION .

(12) For the entry *BSP* a new real file name (*MAX.FILE.3*) is defined with the MODIFY-ALIAS-CATALOG-ENTRY command.

(13) With the ADD-ALIAS-CATALOG-ENTRY command, a new entry with the alias name *MAX* is defined for the file *MAX.FILE.3*. The file *MAX.FILE.3* can now be accessed via both *MAX* and *BSP*.

(14) Shows the user entries in the alias catalog.

(15) The entries in the AC file *ACS.A1* are loaded into the alias catalog. All previous entries are thereby removed (`MODE=*REPLACE`).

(16) Output with the SHOW-ALIAS-CATALOG-ENTRY command shows only the three user IDs saved with STORE-ALIAS-CATALOG-ENTRY to the AC file *ACS.A1* (see 1 and 2 above). The system entries and all changes in the alias catalog made after saving have been removed.

Example 3: Working with JV

```
/ SHOW-ACS-SYSTEM-FILES      ──────────────────────────────────────────────── (1)

%     ALIAS CATALOG ID     FILE NAME
%   >ALL-USER             $TSOS.SYSTEM.ACS.ALL-USER
%P   ALL-PRIV             $TSOS.SYSTEM.ACS.ALL-PIVILEGE

/SHOW-ALIAS-CATALOG-ENTRY        ──────────────────────────────────────────── (2)

%  ACS0017 ALIAS CATALOG NOT AVAILABLE. COMMAND REJECTED

/LOAD-ALIAS-CATALOG ALIAS-CATALOG-ID=ALL-PRIV     ──────────────────────── (3)

%  ACS0001 ALIAS CATALOG 'ALL-PRIV' LOADED (DESCRIPTOR=' ', DATE=2020-04-21, NUMBER
OF ENTRIES=2)

/SHOW-ALIAS-CATALOG-ENTRY        ──────────────────────────────────────────── (4)

%       ALIAS FILE NAME         ->     FILE NAME

%SB  : LOAD-BIND                -> $.BINDER

%SB  : LOAD-PAMCONV             -> $.PAMCONV

%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 2 (FOR SYSTEM: 2, FOR USER: 0)

/ADD-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=TEST, -    ──────────────────────── (5)
              /FILE-NAME=JOB.TEST,RANGE=*BOTH

/ADD-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=J.JOB,FILE-NAME= -  ──────────────── (6)
  /JV.MONITOR.JOB.TEST,ATTRIBUTES=*PARAMETERS(LOGGING=*YES),RANGE=*JV

/ADD-ALIAS-CATALOG-ENTRY ALIAS-FILE-NAME=E.JOB, -   ──────────────────────── (7)
              /FILE-NAME=ENTER.JOB.TEST,RANGE=*FILE
```

```
/SHOW-ALIAS-CATALOG-ENTRY  ──────────────────────────────────────────────── (8)
%       ALIAS FILE NAME          ->     FILE NAME
%UF  : E.JOB                     -> ENTER.JOB.TEST
%UJ  + J.JOB                     -> JV.MONITOR.JOB.TEST
%SB  : LOAD-BIND                 -> $.BINDER
%SB  : LOAD-PAMCONV              -> $.PAMCONV
%UB  : TEST                      -> JOB.TEST
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 5 (FOR SYSTEM: 2, FOR USER: 3)
/SHOW-JV JV-CONTENTS=J.JOB  ─────────────────────────────────────────────── (9)
%  ACS0049 JOB VARIABLE NAME 'J.JOB' REPLACED BY 'JV.MONITOR.JOB.TEST'
RUNNING
/SHOW-FILE-ATTRIBUTES FILE-NAME=J.JOB  ──────────────────────────────────── (10)
%  DMS0807 ERROR FROM SHOW-FILE-ATTRIBUTES FILE-NAME ':SE11:$USERACS.J.JOB'
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET 'SE11'. COMMAND TERMINATED
/SHOW-FILE-ATTRIBUTES FILE-NAME=E.JOB  ──────────────────────────────────── (11)
         3 :SE11:$USERACS.ENTER.JOB.TEST
:SE11: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
/SHOW-JV JV-CONTENTS=TEST  ──────────────────────────────────────────────── (12)
INITIAL
/SHOW-FILE-ATTRIBUTES FILE-NAME=TEST  ───────────────────────────────────── (13)
         3 :SE11:$USERACS.JOB.TEST
:SE11: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
/SHOW-JV JV-CONTENTS=E.JOB  ─────────────────────────────────────────────── (14)
%  JVS0433 REQUESTED JOB VARIABLE NOT CATALOGED. COMMAND REJECTED
```

(1) The SHOW-ACS-SYSTEM-FILE command shows the IDs of the available AC system files.

(2) The SHOW-ALIAS-CATALOG-ENTRY command shows that no task-local alias catalog is loaded.

(3) The LOAD-ALIAS-CATALOG command loads system entries from the $TSOS.SYSTEM.ACS.ALL-PIVILEGE AC system file and activates the ACS replacement function.

(4) The SHOW-ALIAS-CATALOG-ENTRY command shows that two alias name definitions have been loaded.

(5) The ADD-ALIAS-CATALOG-ENTRY command adds to the alias catalog a definition containing the alias name *TEST* for the file or job variable name *JOB.TEST* (user entry).

(6) The ADD-ALIAS-CATALOG-ENTRY command adds to the alias catalog a definition containing the alias name *J.JOB only* for the job variable JV.MONITOR.JOB.TEST (user entry).

(7) The ADD-ALIAS-CATALOG-ENTRY command adds to the alias catalog a definition containing the alias name *E.JOB only* for the file ENTER.JOB.TEST (user entry).

(8) The SHOW-ALIAS-CATALOG-ENTRY shows new entries.

(9) The alias name J.JOB is replaced by the job variable name JV.MONITOR.JOB.TEST and the message ACS0049 is sent (Attribute Logging). The content RUNNING is shown for the job variable JV.MONITOR. JOB.TEST .

(10) The file name J.JOB of the SHOW-FILE-ATTRIBUTES command is not replaced, because the alias definition is only set for job variables. The file J.JOB does not exist.

(11) The alias name E.JOB is replaced by the file name ENTER.JOB.TEST and the SHOW-FILE-ATTRIBUTES command shows the file.

(12) The SHOW-JV command replaces the alias name TEST with the job variable JOB.TEST and shows the content INITIAL.

(13) The SHOW-FILE-ATTRIBUTES command replaces the alias name TEST with JOB.TEST and shows the file.

(14) The SHOW-JV command does not replace the alias name E.JOB, because the alias name E.JOB was only defined for files. The job variable E.JOB does not exist.

For further examples, see the HOLD-ALIAS-SUBSTITUTION, LOAD-ALIAS-CATALOG and SET-FILE-NAME-PREFIX commands.

2.5 ADD-ASE-ELEMENT

Declare an ASE element

Component:	ASE
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS

Function

The ADD-ASE-ELEMENT command defines, for a particular set of SERSLOG events, monitoring which triggers specific actions when a defined threshold value for the occurrence of these events is reached. The set of events (RECORD-ID operand) can be defined as a

- selection of all messages, with the option of excluding message classes or messages,
- selection of one or more specified messages,
- selection of a message class, with the option of specifying limitation to one message range and/or of excluding messages.

The defined set of SERSLOG events forms an ASE element within the ASE (Auxiliary SERSLOG Extensions) subsystem for which particular criteria for monitoring and triggering actions are defined in the declaration:

- For monitoring purposes, a threshold value (THRESHOLD operand) defines the number of events which can occur before a renewed occurrence will trigger actions. It is also possible to define whether and how the repeated occurrence of the same events is to be handled (SUPPRESS-DUPLICATES, AFTER and SLEEP-TIME operands).
- The actions to be triggered (ACTION operand) which can be defined are the logging of the event in the internal buffer, output of a console message or triggering of a Teleservice call. Multiple actions can be combined.
- Monitoring can take place for all tasks or be limited to one particular task (TASK operand).

After the declaration has been made, ASE assigns a unique element ID for the ASE element. This ID enables the ASE element to be specified for deletion or for information output.

Information on ASE elements can be requested using the SHOW-ASE-ELEMENT command.

Format

ADD-ASE-ELEMENT

RECORD**-ID** = ***ALL** (...) / ***CLASS**(...) / list-poss(10): <alphanum-name 7..7>

***ALL** (...)

| **EXCL**UDE**-CLASS** = ***NONE** / list-poss(10): <alphanum-name 3..3>

| ,**EXCL**UDE**-REC**ORD = ***NONE** / list-poss(10): <alphanum-name 7..7>

***CLASS**(...)

| **REC**ORD**-CLASS** = <alphanum-name 3..3>

| ,**FROM** = ***FIRST** /<alphanum-name 4..4>

| ,**TO** = ***LAST** / <alphanum-name 4..4>

| ,**EXCL**UDE**-REC**ORD = ***NONE** / list-poss(10): <alphanum-name 4..4> / <alphanum-name 7..7>

,**THRESH**OLD = ***NONE** / <integer 2..255>

,**SUPPR**ESS-**DUP**LICATES = ***NO** / ***Y**ES(...)

***Y**ES(...)

| **AFT**ER = **1** / <integer 1..9>

| ,**SLEEP-TIME** = ***UNLIM**ITED / <integer 1..999 *hours*> / <time>

,**ACT**ION = list-poss(3): ***INT**ERNAL**-LOG**GING / ***CONS**OLE**-MSG** / ***TELE**SERVICE-CALL

,**TASK** = ***ALL** / <alphanum-name 4..4> / <c-string 4..4>

Operands

RECORD-ID = *ALL(...) / *CLASS(...) / list-poss(10): <alphanum-name 7..7>
Determines the set of SERSLOG events which is to be monitored.

RECORD-ID = *ALL(...)
All SERSLOG events are to be monitored. Entire message classes or individual messages can then be excluded.

EXCLUDE-CLASS = *NONE / list-poss(10): <alphanum-name 3..3>
Specifies message classes which are to be excluded from monitoring. The default *NONE means that no message classes are excluded.

EXCLUDE-RECORD = *NONE / list-poss(10): <alphanum-name 7..7>
Specifies individual messages which are to be excluded from monitoring. The default *NONE means that no messages are excluded.

RECORD-ID = *CLASS(...)
One or all message ranges of a particular message class are to be monitored.

RECORD-CLASS = <alphanum-name 3..3>
Message class which is to be monitored.

FROM = *FIRST /<alphanum-name 4..4>
Specifies the lower limit of the range. The default *FIRST means that the range begins with the first message of the specified message class.

TO = *LAST / <alphanum-name 4..4>
Specifies the upper limit of the range. The default *LAST means that the range ends with the last message of the specified message class.

EXCLUDE-RECORD = *NONE / list-poss(10): <alphanum-name 4..4> / <alphanum-name 7..7>
Specifies individual messages of the specified range which are to be excluded from monitoring. The specification <alphanum-name 4..4> contains the message code which ends with this character string. The default *NONE means that no messages of the range are excluded.

THRESHOLD = *NONE / <integer 2..255>
Specifies a threshold value which, when it is reached, causes the actions specified in the ACTION operand to be executed.

THRESHOLD = *NONE
The first occurrence of a SERSLOG event from the set of record types specified in the RECORD-ID operand triggers actions.

THRESHOLD = <integer 2..255>
The specified number of SERSLOG events from the set specified in the RECORD-ID operand must have occurred in order to trigger actions.

SUPPRESS-DUPLICATES = *NO / *YES(...)
Defines how the repetition of SERSLOG events after the threshold value specified in the THRESHOLD operand has been reached is to be handled.

SUPPRESS-DUPLICATES = *NO
Repeated events trigger actions.

SUPPRESS-DUPLICATES = *YES(...)
Repeated events only trigger actions conditionally.

AFTER = 1 / <integer 1..9>
Determines the number of repetitions as of which the actions are to be suppressed. The default value 1 means that actions are suppressed from the first repetition on.

SLEEP-TIME = *UNLIMITED / <integer 1..999 *hours* > / <time>
Specifies how long actions are to be suppressed. After the specified period has elapsed, the count associated with the AFTER operand is reinitialized.

ACTION = list-poss(3): *INTERNAL-LOGGING / *CONSOLE-MSG / *TELESERVICE-CALL
Determines the actions which are to be executed when the specified trigger criteria are met. Up to three actions can be specified in a list.

ACTION = *INTERNAL-LOGGING
The event is logged in an internal buffer whose content can be displayed using the SHOW-ASE-LOGGING command.

ACTION = *CONSOLE-MSG
Console message ASE0815 is output.

ACTION = *TELESERVICE-CALL
A Teleservice call is triggered (message ASE0888).

TASK = *ALL / <alphanum-name 4..4> / <c-string 4..4>
Specifies the TSN of the task which is to be monitored. The default *ALL means that all tasks are monitored.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

2.6 ADD-CATALOG-FILE

Extend special catalog by another catalog file

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MANAGEMENT
Privileges:	TSOS

Function

The ADD-CATALOG-FILE command enables systems support to extend the special catalog of an SM pubset.

When the command executes, another catalog file is created for the special catalog selected. The file name of the new catalog file has the following format:

:<catid>:$TSOS.TSOSCAT#xnn

where:

- x designates the special catalog (M, J or P; see CATALOG operand)
- nn consecutive numbering of the special catalog (00 through 99)

The numbering of the special catalogs never has any gaps. No file with this name may already exist.

The command can only be issued on the master processor.

Format

ADD-CATALOG-FILE
PUBSET-ID = <cat-id 1..4> ,**CATALOG** = ***MIGRATED** / ***JV** / ***PRIVATE**

Operands

PUBSET-ID = <cat-id 1..4>
Designates the pubset for which a special catalog is to be extended.

CATALOG = *MIGRATED / *JV / *PRIVATE
Defines which special catalog is to be extended.

CATALOG = *MIGRATED
The catalog for the migrated files and the no space files is extended, i.e. a file with the format :<catid>:$TSOS.TSOSCAT.#Mnn is created.

CATALOG = *JV
The catalog for the job variables is extended, i.e. a file with the format :<catid>:$TSOS.TSOSCAT.#Jnn is created.

CATALOG = *PRIVATE
The catalog for the private disk and tape files is extended, i.e. a file with the format :<catid>:$TSOS.TSOSCAT.#Pnn is created.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0221	Internal error
	64	DMS0312	Catalog not known in system
	64	DMS0501	Catalog is not available in the system
	64	DMS134C	MRSCAT cannot be determined
	64	DMS13BB	Pubset is not master or not an SM pubset
	64	DMS13BC	File of the same name already exists
	64	DMS13BE	Catalog is not known in the catalog index
	128	DMS0506	Change of master running

2.7 ADD-CHANGE-DATE

Define a new changeover time

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS

Function

The ADD-CHANGE-DATE command defines a new future changeover time from standard daylight time to daylight saving time (and vice versa).

A valid GTIME parameter set with consistent changeover times for the past is required, see the “Introduction to System Administration” [14].

The new changeover time must satisfy the following conditions:

- It must be later than all changeover times which have already been defined
- It may not be within the next hour
- It must be at least 4 to 8 months later than the previous changeover time

> The ADD-CHANGE-DATE command defines the new changeover time for the current session. If required, also enter the new changeover time in the GTIME parameter set of the startup parameter file so that it is valid for future sessions.

Format

ADD-CHANGE-DATE
DATE = <date> ,**TIME** = <time>

Operands

DATE = <date>
Date of the new changeover time.

TIME = <time>
Time of day of the new changeover time in the format hh:mm.
No seconds may be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CHD0010	Syntax error in the command
	32	CMD0221	System error in the command
	64	CHD0011	Semantic error in the command

Note

Subsequently, inserting or deleting a changeover time can alter wait times that have already started and will end after the changeover time. Examples:

- An already accepted ENTER job is started one hour too early or too late if its start time lies after the changeover time.
- An already started /WAIT-EVENT waits an hour too short or too long if its wait time ends after the changeover time.

2.8 ADD-CJC-ACTION

Declare conditional execution of command sequence

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

Via the ADD-CJC-ACTION command, the user can make the execution of a CJC (conditional job control) command sequence dependent on a condition. The ADD-CJC-ACTION command defines

- the condition under which the CJC command sequence is to be started (operand CONDITION)
- the name of the CJC command sequence (operand NAME)
- the time period during which the command is to be in effect (operand TIME-LIMIT)
- the maximum number of executions of the CJC command sequence (operand REPEAT)
- the address (branch destination) of the CJC command sequence to be started in the case: time elapsed and “condition not satisfied” (operand TIMEOUT-LABEL)

The user enters the CJC command sequence following the ADD-CJC-ACTION command. The sequence may contain only ENTER-JOB, ENTER-PROCEDURE- and/or MODIFY-JV commands. ENTER-PROCEDURE is only permitted in a non-S procedure. The whole CJC command sequence between ADD-CJC-ACTION and END-CJC-ACTION is initially only stored.

The following table illustrates the order in which the commands in the sequence are to be entered:

Input	Meaning
`/ADD-CJC-ACTION_...`	Opens a CJC command sequence; defines the condition and type of execution

`/ENTER-JOB_...`
or
`/ENTER-PROCEDURE_...`
or
`/MODIFY-JV_...`
.
.
.
	CJC command sequence to be started in the case “condition satisfied”; merely stored initially. ENTER-PROCEDURE is only permitted in a non-S procedure.

`/.marke_ENTER-JOB_...`
or
`/.marke_ENTER-PROCEDURE_...`
or
`/.marke_MODIFY-JV_...`
.
.
.
	CJC (TIMEOUT) command sequence to be started in the case “condition not satisfied”; merely stored initially.
	This command sequence can also be defined. If it is used, the name of the command sequence (.marke) must be the same as the branch destination defined in ADD-CJC-ACTION (TIMEOUT-LABEL=marke). ENTER-PROCEDURE is only permitted in a non-S procedure.
	If the command sequence begins with an ENTER-JOB or ENTER-PROCEDURE command, a job name specified in the command must be the same as the name of the command sequence (JOB-NAME=marke).

`/END-CJC-ACTION`	Closes and activates the CJC command sequence

Table 17: Order of commands to be entered in the CJC command sequence

Both command sequences (“condition satisfied” or “condition not satisfied”) may be specified.

The END-CJC-ACTION command concludes the CJC command sequence and activates it. Subsequent commands are again executed immediately.

If “condition satisfied” occurs within the defined time period, processing is interrupted and the corresponding CJC command sequence is started. This applies for every “condition satisfied” until the specified time has elapsed or the maximum number of repetitions of the CJC command sequence has been reached. If the condition is already satisfied when the CJC command sequence is specified, the CJC commands are executed immediately.

If the time elapses without the maximum number of “condition satisfied” events having occurred, the TIMEOUT command sequence, if one has been defined, is started. When execution of a CJC command sequence has ended, processing continues from the point at which it was interrupted. If the CJC command sequence corresponding to the command ADD-CJC-ACTION is not given, only the event that fulfills the specified condition is logged by messages.

Format

ADD-CJC-ACTION
CONDITION = ***NONE** / <text 0..1800 with-low *cond-expr*> ,**NAME** = ***NONE** / <name 1..8> ,**TIME-LIMIT** = **600** / <integer 1..65535 *seconds*> ,**TIMEOUT**-LABEL = ***NONE** / <name 1..8> ,**REPEAT** = **1** / <integer 1..32767>

Operands

CONDITION = *NONE / <text 0..1800 with-low *cond-expr* >
Conditional expression (enclosed in parentheses). The CJC command sequence is executed as soon as “condition satisfied” occurs. The permissible entries are described in section "Conditional expressions (job variables)".
Uppercase and lowercase letters are differentiated. Special job variables are not permitted here. The default setting is *NONE, i.e. only a TIMEOUT command sequence can be started (see the TIMEOUT-LABEL operand).
Commands before the TIMEOUT mark and a REPEAT value greater than 1 are rejected.

NAME = *NONE / <name 1..8>
Name for the ADD-CJC-ACTION command. This name is displayed in messages beside the internal identification. The ADD-CJC-ACTION command can be referred to using this name. If the name specified is identical to the name of an ADD-CJC-ACTION command still in effect, the entry is accepted but a warning message is issued. The default is *NONE, i.e. messages show only the identification assigned by the system. The internal identification is then the only means of referring to the ADD-CJC-ACTION command.

TIME-LIMIT = 600 / <integer 1..65535 *seconds* >
Time specification, in seconds. The CJC command sequence is executed only if “condition satisfied” occurs within the specified time period and the maximum number of repetitions (REPEAT operand) is not exceeded.
The countdown begins after the END-CJC-ACTION command is executed; the average precision is 200 ms. A time specification greater than 65280 seconds means “unlimited life” (but not beyond job termination).

TIMEOUT-LABEL = *NONE / <name 1..8>
Branch destination. Name of the command with which processing is to be continued if the specified time runs out and the maximum number of “condition satisfied” events has not yet occurred (TIMEOUT command sequence).
The default value is *NONE, i.e. no TIMEOUT command sequence is specified.
If no TIMEOUT command sequence with the specified name is defined at the time END-CJC-ACTION is entered, then

- with procedures (interactive/batch): the whole CJC command sequence is rejected.
- in dialog (without procedure): a warning is issued and END-CJC-ACTION is rejected.

REPEAT = 1 / <integer 1..32767>
Maximum number of repetitions of the CJC command sequence within the specified period.

Return codes

Return codes relating to the ADD-CJC-ACTION command or the CJC command sequence commands are only returned once the CJC command sequence is terminated with END-CJC-ACTION.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	CJC command sequence executed
	1	CMD0202	Condition incorrect, syntax error, CJC command sequence command not allowed or unknown, END-CJC-ACTION not found or timeout label does not exist
	32	CMD0221	Internal error
	130	CJC0002	JV not accessible
	130	CJC0003	Memory saturation

Notes

- A CJC command sequence is always viewed by the system as a self-contained unit, i.e. processing must not branch to a CJC command sequence from an external source. For every branching operation to be performed (to a mark or to SET-JOB-STEP, for instance), a search is made for an END-CJC-ACTION following any ADD-CJC-ACTION detected; only then will the search for the desired branch destination be continued.
- An ADD-CJC-ACTION command becomes inoperative in the following cases:
  - The CJC command sequence has been carried out as often as was specified in the REPEAT operand.
  - The time interval specified in the TIME-LIMIT operand has elapsed and the TIMEOUT command sequence - if present - has been executed.
  - A REMOVE-CJC-ACTION command has been given.
  - The job is terminated or aborted.
  - The catalog containing a job variable involved is permanently exported.
- The starting time of a CJC command sequence depends on the mode in which the job is when the event “condition satisfied” occurs:

Program mode:	A system function called from the program is still being executed.
Command mode:	The current command is allowed to terminate.
BREAK/ESCAPE-mode:	The start is delayed until a one of the following commands is entered: CANCEL-/RESUME-PROGRAM or CANCEL-/END-/EXIT-/RESUME-PROCEDURE
WAIT mode or “condition immediately satisfied”:	The start occurs immediately.

> If the start of a CJC command sequence is delayed, its definition remains known in the system. Consequently, if BREAK/ESCAPE mode lasts long enough, the first “condition satisfied” event can occur in this time and then also the "TIME-LIMIT reached" event. Correspondingly, after BREAK /ESCAPE mode has been exited, if defined the two parts of the CJC command sequence are executed one after the other:
>
> - the part delayed so far for "condition satisfied within wait time"
> - and the part for "wait time expired"

- Within the CJC command sequence, only the commands ENTER-JOB, ENTER-PROCEDURE and MODIFY-JV are permitted. ENTER-PROCEDURE is only permitted in a non-S procedure. If an invalid command is specified before the sequence is terminated by END-CJC-ACTION, it is rejected.
- Table: Order of commands to be entered in the CJC command sequence ENTER-JOB or ENTER-PROCEDURE is the first command in the TIMEOUT command sequence, any job name that is specified must match the name of the command sequence. Example: `/.ERROR ENTER-JOB JOB.A, JOB-NAME=ERROR`
- In the event of an error in ADD-CJC-ACTION or in the CJC command sequence, procedures apply (interactive /batch): The ADD-CJC-ACTION command rejected and thus is ineffective; control branches to the next of the following commands (after END-CJC-ACTION): SET-JOB-STEP, EXIT-JOB, LOGOFF, CANCEL-PROCEDURE, END-PROCEDURE or EXIT-PROCEDURE. If END-CJC-ACTION is not specified, the procedure terminates abnormally.
- The END-CJC-ACTION command is ignored if the relevant ADD-CJC-ACTION command is missing.
- CJC command sequences are automatically provided by the system with an internal identification which can be used in the REMOVE-CJC-ACTION command.
- As long as an ADD-CJC-ACTION command is effective, no checkpoint (WRCPT macro) can be written. A restart (RESTART-PROGRAM command) terminates all ADD-CJC-ACTION commands still effective.

2.9 ADD-CONSOLE-FILTER

Define filter settings for message output

Component:	BS2000
Functional area:	Operator terminal control
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

The ADD-CONSOLE-FILTER command allows operators to define filter settings (combinations of routing codes and filter levels) for some or all routing codes to control message output at operator terminals (consoles) or from authorized user programs. Filter settings the command does not refer to stay as they are. Messages which expect a reply (response messages) and messages sent to a specific recipient (typically command result messages) cannot be suppressed. The ADD-CONSOLE-FILTER command appreciably reduces the volume of message output. It applies only to the operator terminal or authorized user program at or from which it was issued.

Running the command in a user task with the OPERATING privilege

Like any operator terminal, the user task can set filter levels exclusively for itself. The filter levels are effective only when the task is reading from the input stream. When the user task terminates, all the filter levels that it has set are returned to their previous settings.

This function is available regardless of system parameters.

Format

ADD-CONSOLE-FILTER
FILTER = ***ALL** / list-poss(5): <integer 1..5> ,**ROUTING-CODE** = ***ALL** / list-poss(40): <alphanum-name 1..1> / *

Operands

FILTER = *ALL / list-poss(5): <integer 1..5>
Defines which filter levels are to be set.

FILTER = *ALL
Sets all filter levels. All command-independent messages which do not expect a reply are suppressed.

FILTER = list-poss(5): <integer 1..5>
Sets the specified filter levels.

ROUTING-CODE = *ALL / list-poss(40): <alphanum-name 1..1> / *
There are 40 routing codes. The filter levels specified in the FILTER operand are set for the routing codes specified here.

ROUTING-CODE = *ALL
All 40 routing codes are affected by the change.

ROUTING-CODE = list-poss(40): <alphanum-name 1..1> / *
The routing codes explicitly specified here are affected by the change.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	1	CMD0202	Syntax error in the command
	2	CMD0198	Shutdown in progress
	64	CMD0216	User does not have the necessary privilege
	130	NBR1042	Not enough class 5 memory; cannot set filter levels

Note

Using the OPR parameter service, filter levels for routing codes can be defined for operator terminals and authorized user programs with generated authorization names. If this has not been done, all messages generated between the time the system is initialized and the time the ADD-CONSOLE-FILTER command is issued will be output.

Authorized user programs with dynamic authorization names have no routing codes when first connected. That means that there are no filter levels operative for them at that point.

When an authorized user program with a dynamic authorization name is disconnected, all its filter levels and routing codes are returned to their previous settings.

The REMOVE-CONSOLE-FILTER command can be used to cancel message suppression actions taken with the ADD-CONSOLE-FILTER command.

For further information on routing codes and filter levels see the manual “Introduction to System Administration” [14].

2.10 ADD-CRYPTO-PASSWORD

Enter crypto password in the crypto password table of the task

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION HARDWARE-MAINTENANCE

Function

The ADD-CRYPTO-PASSWORD command supplies a job with crypto passwords, which are required to decrypt encrypted files. The crypto password table is set up for the job the first time the ADD-CRYPTO-PASSWORD is issued with the crypto passwords specified there. The table is extended each time the command is called. The crypto password table is automatically deleted at the end of the job. The /REMOVE-CRYPTO-PASSWORD command can be used to delete individual crypto password entries or all the crypto password entries from the table before the end of the job.

When an encrypted file is accessed the system searches the crypto password table for the required crypto password. If it is entered there, access is permitted.

Note

> If the rare case of the command being rejected with message DMS066A should occur, this means that the caller has specified a crypto password that, for cryptographic reasons, may not be used. In this case another crypto password must be selected.

Crypto passwords can be up to 8 characters long. Crypto passwords with less than 8 characters are stored left-justified within the system and filled with binary zeros. This means that the two crypto passwords C’ABCD’ and C’ ABCD ’ which are specified in the form of a C string are not identical, and owing to the different internal representation two different crypto passwords are calculated by the cryptographic algorithm:

`/add-crypto-password c'ABCD'`	internal:	`X'C1C2C3C400000000'`
`/add-crypto-password c'ABCD  '`	internal:	`X'C1C2C3C440404040'`

All crypto passwords and crypto password specifications entered under an active task are counted. Crypto passwords which are entered more than once are ignored and not included in the count.

If the system threshold value for the maximum number of crypto passwords in the crypto password table which is defined with the system parameter PWACTIVE is reached when crypto passwords are entered, the message DMS0691 is output and any further crypto password entry is rejected. This applies for both normal users and systems support. The table entries can be reduced using the /REMOVE-CRYPTO-PASSWORD command and the table made ready to receive new entries.
If the system threshold value for the maximum number of crypto passwords entered into the crypto password table which is defined with the system parameter PWENTERD is reached when crypto passwords are entered under a task, the message DMS0692 is output and any further crypto password entry is rejected. This applies for both normal users and systems support.

Regardless of the setting for the system parameter ENCRYPT, crypto password are always stored in encrypted form in the crypto password table.

For information on encrypting files, see also the manual “Introductory Guide to DMS” [13].

REMOTE-FILE-ACCESS

The ADD-CRYPTO-PASSWORD command is automatically forwarded to all RFA partner processes by the requesting job.

Format

ADD-CRYPTO-PASSWORD	Alias: **ADCPW**
PASSWORD = ***SECRET** / list-poss(20): <c-string 1..8> / <x-string 1..16>	

Operands

PASSWORD = *SECRET / list-poss(20): <c-string 1..8> / <x-string 1..16>
Passwords which are to be entered into the crypto password table. Up to 20 crypto passwords can be specified in a command. The specification is not case-sensitive.
The operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	32	DMS05C7	Unexpected error in DMS
	64	DMS066A	Specified crypto password cannot be used
	64	DMS0691	Crypto password table at maximum size
	64	DMS0692	Maximum number of crypto passwords per task reached
	64	DMS06FF	BCAM connection severed
	130	DMS0594	Not enough virtual memory available

2.11 ADD-DEVICE-DEPOT

Define assignment of tape device to depot

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	T

This command is available only in conjunction with the MAREN product; the MAREN subsystem must be loaded.

Function

The ADD-DEVICE-DEPOT command is used to notify the device management facility (NDM) of the assignment of physical tape devices (using their mnemonics) to “depots”.

This command cannot be processed successfully unless the following conditions are satisfied:

- there is no allocation to the type of device specified in the command
- there are no allocations to a device type in an existing depot
- the MAREN subsystem is listed in the subsystem catalog

If the first two conditions are not satisfied, message `NKG0006` is issued to the operator; if the third is not satisfied, message `NKG0007` is issued.

If the MAREN subsystem is in the subsystem catalog, but is not available at command runtime, any tape devices specified in the command will be permanently inaccessible. Consequently, you should not use the command unless the MAREN subsystem is loaded. The system administration must ensure that the depots defined in the MAREN catalog match the depots specified in this command. If this is the case, BS2000 device management in conjunction with MAREN can arrive at a suitable selection of devices for a tape mounting request to be issued to the operator or to a robot-supported cartridge archive system. The definition of depots permits the reservation of devices from a specific device set, e.g. during robot operation (see also the command SECURE-RESOURCE-ALLOCATION, operand DEVICE=(...,LOCATION=...)).

Devices of the same device type assigned to exactly the same depots are administered in “device pools” within NDM. Devices that are not assigned to any depot are classified as “RESTPOOL devices”. The procedure for obtaining depot information is described under “Device management” in the “Introduction to System Administration” [14].

Format

ADD-DEVICE-DEPOT
UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
,**LOCATION** = <alphanum-name 1..8>(...)
,**ROUT**ING-**CODE** = ***UNCHA**NGED / <name 1..1>

Operands

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic names of one or more devices to be assigned to a depot. A maximum of 10 devices can be specified per command.

LOCATION = <alphanum-name 1..8>
Name of the depot. Up to 1024 devices can be assigned to a depot.

Note

The depot (LOCATION) is determined by means of MAREN for scratch tape requests. If MAREN is not available, an attempt is made to select a tape device from the RESTPOOL (tape devices which have not been allocated to a depot).

ROUTING-CODE =
Controls message output. If a routing code for which no console is defined in the system is specified, messages are output at the main console.

ROUTING-CODE = *UNCHANGED
The preset value for the routing code remains unchanged.

ROUTING-CODE = <name 1..1>
A defined routing code is specified. This enables the messages necessary for the devices assigned to this depot to be output to a specific console. The preset routing code is **T**.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
1	0	NKG0008	MAREN subsystem not available
2	0	NKG0007	MAREN subsystem not in subsystem catalog
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVT002	Tape monitor unavailable

2.12 ADD-FILE-LINK

Create TFT entry and assign values

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The ADD-FILE-LINK command creates a TFT (Task File Table) entry for the link name specified in the LINK-NAME operand. At the same time, the command assigns values to the TFT entry. If there is already a TFT entry for the specified link name, it is overwritten by the new entry.

The command cannot create new catalog entries or modify the catalog entries of disk files. The command can, however, modify the catalog entries of tape files (using the ADD-CATALOG-VOLUME, TAPE-SET-NAME and FILE-SEQUENCE operands, for example). The command cannot be used to modify the storage space allocation of a disk file.

The command cannot modify an existing TST (Tape Set Table) entry; this is the job of the EXTEND-TAPE-SET command.

The command is rejected in the following situations:

- A value other than *BY-PROGRAM, *DUMMY or the name of a file which is already in the catalog has been specified in the FILE-NAME operand.
- No disk space has been reserved for the disk file specified in the FILE-NAME operand (though a tape file which is in the catalog may be specified even if the volume table in the catalog entry is empty).

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Define the file link name for which a TFT entry is to be created	LINK-NAME =	
Name of file/file generation to which the ADD-FILE-LINK command refers	FILE-NAME =	
Access method (ISAM, SAM, BTAM ...)	ACCESS-METHOD =	
File OPEN mode	OPEN-MODE =	
File CLOSE mode	CLOSE-MODE =	

Import file attributes from the file	DATA-ATTRIBUTES =	
Record format	RECORD-FORMAT =	
Variable record format		
• feed control		PRINT-CONTROL =
Fixed record format	RECORD-FORMAT = *FIXED(...)	
• feed control		PRINT-CONTROL =
Undefined record format	RECORD-FORMAT =*UNDEFINED(...)	
• feed control		PRINT-CONTROL =
Record length	RECORD-SIZE =	
Block length	BUFFER-LENGTH =	
Block control information	BLOCK-CONTROL-INFO =	
Number of mount requests	NUMBER-OF-PREMOUNTS =	
Retention period	RETENTION-PERIOD =	
Define volume type	SUPPORT =	
Volume: disk	SUPPORT = *DISK(...)	
• write access for shared updating		SHARED-UPDATE =
• concurrent writing by jobs from different systems		LOCK-ENVIRONMENT =
• file size restriction		EXCEED-32GB =
• read-after-write checking		WRITE-CHECK =
• Performance requirements		IO-ATTRIBUTES =

• performance attribute for the file		PERFORMANCE =
• scope of performance requirements		USAGE =
• ISAM processing specifications		ISAM-ATTRIBUTES =
• Key position		KEY-POSITION =
• Key length		KEY-LENGTH =
• Length of value flag		VALUE-FLAG-LENGTH =
• evaluation of value flags		PROPAGATE-VALUE-FLAG =
• length of logical flags		LOGICAL-FLAG-LENGTH =
• block padding (for sequential processing)		PADDING-FACTOR =
• define pool link name for ISAM pool (NK-ISAM files)		POOL-LINK =
• Size of the file-specific ISAM pool (NK-ISAM files)		POOL-SIZE =
• Immediate writing out of updated blocks		WRITE-IMMEDIATE =
• Overlapped processing		READ-IN-ADVANCE =
• Duplicate keys		DUPLICATE-KEY =
Volume: tape	SUPPORT = *TAPE(...)	

• list of tapes to process		VOLUME-LIST =
• tape type		DEVICE-TYPE =
• label processing specifications		LABEL-PROCESSING =
• label types		LABEL-TYPE =
• Bypass label checking		BYPASS-LABEL-CHECK =
• Protection level		PROTECTION-LEVEL =
• tape marks		TAPE-MARK-WRITE =
• define translation table		CODE =
• EBCDIC translation		EBCDIC-TRANSLATION =
• define position in file set		FILE-SEQUENCE =
• automatic checkpoint writing		CHECKPOINT-WRITE =
• file usage on restart		RESTART-USAGE =
• maximum number of blocks per tape		BLOCK-LIMIT =
• Buffer offset		BLOCK-OFFSET =
• buffered/unbuffered processing		TAPE-WRITE =

• overwrite data on remainder of tape		DESTROY-OLD-CONTENTS =
• Chained input/output		IO-CHAINING =
Message output on completion of CLOSE processing	FILE-CLOSE-MSG =	

Table 18: Overview of ADD-FILE-LINK command functions

Format

ADD-FILE-LINK Alias: **ADFL**

LINK-NAME = <filename 1..8 without-gen>

,**F**ILE-**NAME** = ***BY-PROG**RAM / ***DUMMY** / <filename 1..54>

,**ACCESS-METHOD** = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG / ***SAM** / ***ISAM** /
***BTAM** / ***UPAM**

,**OPEN-MODE** = ***BY-PROG**RAM / ***INPUT** / ***OUTPUT** / ***EXTEND** / ***REV**ERSE / ***UPD**ATE / ***OUTIN** /
***INOUT** / ***SINOUT**

,**CLOSE-MODE** = ***BY-PROG**RAM / ***REWIND** / ***REPOS** / ***UNLOAD** / ***LEAVE** / ***INVALIDATE** /
***KEEP-DATA-IN-CACHE**

,**DATA-ATTR**IBUTES = ***STD** / ***FROM-FILE**(...) / ***BY-CAT**ALOG

***FROM-FILE**(...)

| **F**ILE-**NAME** = <filename 1..54>

,**REC**ORD-**FORM**AT = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG / ***VAR**IABLE(...) /
***FIXED**(...) / ***UNDEF**INED(...)

***VAR**IABLE(...)

| **PRINT-CONTR**OL = ***NONE** / ***ASA** / ***EBCDIC**

***FIXED**(...)

| **PRINT-CONTR**OL = ***NONE** / ***ASA** / ***EBCDIC**

***UNDEF**INED(...)

| **PRINT-CONTR**OL = ***NONE** / ***ASA** / ***EBCDIC**

,**REC**ORD-**SIZE** = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG / <integer 0..32768>

,**BUF**FER-**LEN**GTH = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG / ***STD**(...) /
<integer 1..32768>

*STD(...)

| SIZE = **1** / <integer 1..16>

,BLOCK-CONTROL-INFO = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG / ***NO** /
***WITHIN-DATA-BLOCK** / ***WITHIN-DATA-2K**-BLOCK /
***WITHIN-DATA-4K**-BLOCK / ***PAMKEY**

,NUMBER-OF-PREMOUNTS = ***STD** / <integer 0..255>

,RETENTION-PERIOD = ***BY-PROG**RAM / <integer 0..32767 *days*>

,SUPPORT = ***NONE** / list-poss(2): ***DISK**(...) / ***TAPE**(...)

*DISK(...)

| SHARED-UPDATE = ***BY-PROG**RAM / ***NO** / ***Y**ES / ***WEAK**

| ,LOCK-ENVIRONMENT = ***BY-PROG**RAM / ***HOST-SYS**TEM / ***XCS**

| ,EXCEED-32GB = ***BY-PROG**RAM / ***FORBID**DEN / ***ALLOW**ED

| ,WRITE-CHECK = ***BY-PROG**RAM / ***NO** / ***Y**ES

| ,IO-ATTRIBUTES = ***BY-PROG**RAM / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | PERFORMANCE = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***STD** / ***HIGH** / ***VERY-HIGH** /
| | ***USER-MAX**IMUM

| | ,USAGE = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***READ-WRITE** / ***WR**ITE / ***READ**

| ,ISAM-ATTRIBUTES = ***BY-PROG**RAM / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | KEY-POSITION = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG /
| | <integer 1..32767>

| | ,KEY-LENGTH = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG /
| | <integer 1..255>

| | ,VALUE-FLAG-LENGTH = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG /
| | <integer 0..255>

| | ,PROPAGATE-VALUE-FLAG = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***MIN**IMUM /
| | ***MAX**IMUM / ***BY-CAT**ALOG

| | ,LOGICAL-FLAG-LENGTH = ***BY-DATA-ATTR**IBUTES / ***BY-PROG**RAM / ***BY-CAT**ALOG /
| | <integer 0..255>

| | ,PADDING-FACTOR = ***BY-PROG**RAM / <integer 0..99>

```
|       |   ,POOL-LINK = *BY-PROGRAM / <name 1..8>
|       |   ,POOL-SIZE = *BY-PROGRAM / <integer 128..1048576 2Kbyte>
|       |   ,WRITE-IMMEDIATE = *BY-PROGRAM / *NO / *YES
|       |   ,READ-IN-ADVANCE = *BY-PROGRAM / *YES / *NO
|       |   ,DUPLICATE-KEY = *BY-PROGRAM / *YES / *NO
*TAPE(...)
|   VOLUME-LIST = *CATALOG (...) / *TEMPORARY(...) / *TAPE-SET(...)
|       *CATALOG(...)
|       |   ADD-CATALOG-VOLUME = *NONE / *ANY(...) / list-poss(255): <alphanum-name 1..6>
|       |       *ANY(...)
|       |       |   NUMBER-OF-DEVICES = 1 / <integer 1..9>
|       |   ,VOL-SEQUENCE-NUMBER = *NONE / *FROM-START-POSITION(...) /
|       |                                  list-poss(255): <integer 1..255>
|       |       *FROM-START-POSITION(...)
|       |       |   START-POSITION = <integer 1..255>
|       *TEMPORARY(...)
|       |   PROCESS-VOLUME = list-poss(255): <alphanum-name 1..6>
|       *TAPE-SET(...)
|       |   TAPE-SET-NAME = <alphanum-name 1..4>
|       |   , FILE-SET-IDENTIFIER = *BY-TAPE-SET / <alphanum-name 1..6>
|   ,DEVICE-TYPE = *ANY / <device>
|   ,LABEL-PROCESSING = *BY-PROGRAM / [*PARAMETERS](...)
|       [*PARAMETERS](...)
|       |   LABEL-TYPE = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *NO / *NON-STD / *STD(...)
|       |       *STD(...)
|       |       |   DIN-REVISION-NUMBER = *BY-PROGRAM / <integer 0..3>
|       |   ,BYPASS-LABEL-CHECK = *BY-PROGRAM / *NO-POSITIONING /
|       |                         *ABSOLUTE-POSITIONING(...) / *FORWARD-POSITIONING(...) /
|       |                         *BACKWARD-POSITIONING(...)
|       |       *ABSOLUTE-POSITIONING(...)
|       |       |   TAPE-MARK-NUMBER = <integer 0..32767>
```

```
|          |          *FORWARD-POSITIONING(...)
|          |              |  NUMBER-OF-TAPE-MARKS = <integer 0..127>
|          |          *BACKWARD-POSITIONING(...)
|          |              |  NUMBER-OF-TAPE-MARKS = <integer 0..127>
|          |  ,PROTECTION-LEVEL = *BY-PROGRAM / *LOW(...) / *HIGH(...)
|          |          *LOW(...)
|          |              |  OVERWRITE-PROTECTION = *NO / YES
|          |          *HIGH(...)
|          |              |  OVERWRITE-PROTECTION = *NO / YES
|          |  ,TAPE-MARK-WRITE = *BY-PROGRAM / *YES
|  ,CODE = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *EBCDIC / *ISO7 / *ISO7D /
|                *OWN
|  ,EBCDIC-TRANSLATION = *BY-PROGRAM / *YES / *NO
|  ,FILE-SEQUENCE = *BY-PROGRAM / *BY-CATALOG / *UNKNOWN / *NEW / <integer 0..9999>
|  ,CHECKPOINT-WRITE = *BY-PROGRAM / [*PARAMETERS](...)
|      [*PARAMETERS](...)
|          |  CHKPT-AT-BLOCK-LIMIT = *BY-PROGRAM / *YES
|          |  ,CHKPT-AT-FORCED-EOV = *BY-PROGRAM / *YES
|  ,RESTART-USAGE = *BY-PROGRAM / *DUMMY
|  ,BLOCK-LIMIT = *BY-PROGRAM / <integer 1..999999>
|  ,BLOCK-OFFSET = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *BY-HDR2 /
|                      <integer 0..99 byte>
|  ,TAPE-WRITE = *BY-PROGRAM / *DEVICE-BUFFER / *IMMEDIATE
|  ,DESTROY-OLD-CONTENTS = *BY-CATALOG / *NO / *YES
|  ,IO-CHAINING = *BY-PROGRAM / <integer 1..16>
,FILE-CLOSE-MSG = *STD / *NO / *YES
```

Operands

LINK-NAME = <filename 1..8 without-gen>
A link name under which programs can open the file.
The file link name/TFT links the program and file together. A TFT entry is set up for the file link name specified here, and the remaining operands are evaluated and the values copied into this TFT entry. If there is already an entry in the TFT under the specified link name, it is overwritten by the new one.

If the old TFT entry was locked by a LOCK-FILE-LINK command, the new entry is also locked.
The old volume and device reservations are canceled; tape devices remain available to the job but can be released by a SECURE-RESOURCE-ALLOCATION command.
A TSET name cannot be used as a file link name.

FILE-NAME = *BY-PROGRAM / *DUMMY / <filename 1..54>
Identifies the file to which the ADD-FILE-LINK command refers; FILE-NAME must not be a file generation group.
The file specified by FILE-NAME must already be cataloged. Unless it is a tape file, it must already have been allocated storage space.
Otherwise, the ADD-FILE-LINK command is rejected.

FILE-NAME = *BY-PROGRAM
The file name specified in the program is used.

FILE-NAME = *DUMMY
Creates a TFT entry for a DUMMY file under the specified link name. No devices, volumes or storage space are allocated.
DUMMY files are typically used during program debugging to simulate I/O transactions or during a restart with the RESTART-PROGRAM command to replace files which are no longer required for processing but without which the program will not run (see the RESTART-PROGRAM command description).
DUMMY file as input file: if an attempt is made to read the file, EOF processing is initiated, which means that the program acts as though the file had already been read. DUMMY file as output file: if an attempt is made to write to the file, the data is transferred to the program’s buffer areas, but output to a volume is suppressed.

FILE-NAME = <filename 1..54>
This is the file the ADD-FILE-LINK command refers to.

ACCESS-METHOD = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *SAM / *ISAM / *BTAM / *UPAM
Specifies the access method for file processing.
Access methods are described in the “Introductory Guide to DMS” [13].

ACCESS-METHOD = *BY-DATA-ATTRIBUTES
The access method of the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, ACCESS-METHOD defaults to *BY-PROGRAM.

ACCESS-METHOD = *BY-PROGRAM
The access method specified in the program is used.

ACCESS-METHOD = *BY-CATALOG
The access method entered in the catalog is used (see SHOW-FILE-ATTRIBUTES command, *FILE-STRUCT* output field).

ACCESS-METHOD = *SAM
The file specified in the FILE-NAME operand is to be processed using the SAM access method. Both disk and tape files can be processed.

ACCESS-METHOD = *ISAM
The file specified in the FILE-NAME operand is to be processed using the ISAM access method. Only disk files can be processed.

ACCESS-METHOD = *BTAM
The file specified in the FILE-NAME operand is to be processed using the BTAM access method. Only tape files can be processed. BTAM processing is not supported by all programming languages. BTAM-specific operands: IO-CHAINING, OPEN-MODE=*SINOUT

ACCESS-METHOD = *UPAM
The file specified in the FILE-NAME operand is to be processed using the UPAM access method. Both disk and tape files can be processed.

OPEN-MODE = *BY-PROGRAM / *INPUT / *OUTPUT / *EXTEND / *REVERSE / *UPDATE / *OUTIN / *INOUT / *SINOUT
Specifies the OPEN mode for the file. This setting may be overridden by the OPEN statement in the program when the file is actually opened. The following table shows which OPEN modes are permissible for the various access methods (D, T, X) and which are not permissible (-).

OPEN-MODE=	Access method			
	ISAM	BTAM	SAM	UPAM
*INPUT	P	T	X	X
*EXTEND	P	-	X	-
*INOUT	P	T	-	X
*OUTIN	P	T	-	X
*OUTPUT	P	T	X	-
*REVERSE	-	T	X	-
*SINOUT	-	T	-	-
*UPDATE	-	-	P	-

Table 19: OPEN modes and access methods

The name sections have the following meanings:
P: Disk files (SUPPORT=*DISK)
B: Tape files (SUPPORT=*TAPE)
X: Disk and tape files
-: OPEN mode not supported

OPEN-MODE = *BY-PROGRAM
The OPEN mode specified in the program is used.

OPEN-MODE = *INPUT
The file specified under FILE-NAME is used as an input file (and must therefore already exist).

OPEN-MODE = *OUTPUT
The file is created or, if it already exists, overwritten from the file start. If it is a tape file, a label is created.

OPEN-MODE = *EXTEND
Extends an existing file, i.e. adds blocks to the file end or overwrites the file from a specific point onwards; only sequential writes are allowed. For tape files, labels are generated as appropriate to the LABEL-TYPE specification.

OPEN-MODE = *REVERSE
The file, which is opened as an input file for sequential reading, must already exist. It is processed in reverse order, i.e. from the file end to its start. With tape files, automatic tape swapping is not possible. On completion of OPEN processing, the tape is positioned at the end of the file section.

OPEN-MODE = *UPDATE
For SAM disk files only: the records in the file can be modified using the GET macro followed by the PUTX macro (possible only in move mode).

OPEN-MODE = *OUTIN
The file is created or, if it already exists, overwritten from the file start. Both (nonsequential) writes and reads are allowed. Labels are written in the case of tape files.

OPEN-MODE = *INOUT
Opens an existing file for nonsequential processing; both reads and writes are allowed. Tapes are positioned to start of tape on completion of OPEN processing; no labels are written.

OPEN-MODE = *SINOUT
For tape files only: the file must exist, and the tape must not be positioned at the tape start; data blocks can be read or written, and no label processing is performed. Unlike *INOUT, this mode does not position the tape.

CLOSE-MODE = *BY-PROGRAM / *REWIND / *REPOS / *UNLOAD / *LEAVE / *INVALIDATE / *KEEP-DATA-IN-CACHE
Specifies the CLOSE mode to be used to close the file. This setting may be overridden by a CLOSE macro when the file is actually closed.
See the CLOSE macro description in the “DMS Macros” manual [12].

CLOSE-MODE = *BY-PROGRAM
The CLOSE mode is defined by the CLOSE macro in the program.

CLOSE-MODE = *REWIND
For tape files only: regardless of the LABEL-TYPE specification, the tape is rewound to the start once the file has been closed.

CLOSE-MODE = *REPOS
For tape files only: the tape is repositioned to the start of the current file section once the file has been closed.

CLOSE-MODE = *UNLOAD
For tape files only: the tape is rewound, unloaded and released once the file has been closed.

CLOSE-MODE = *LEAVE
For tape files only: depending on the LABEL-TYPE specification, the tape is positioned to the logical file end once the file has been closed.

CLOSE-MODE = *INVALIDATE
Cached writes for the file are not written out to disk. All the data in the cache is marked as invalid.
This value is useful for files for which (cached) writes are no longer needed once they have been closed. This avoids wasting time writing unsaved cache data out to disk.
Once a file has been closed with CLOSE-MODE=*INVALIDATE, any writes for it are lost. Thereafter, the file must under no circumstances be opened with OPEN-MODE= *INPUT or *OUTPUT.

CLOSE-MODE = *KEEP-DATA-IN-CACHE
Cached writes for the file are not written out to disk. All the data in the cache is retained there.
This value is useful for follow-up processing on the file since no time is wasted writing the cache data out to disk when the file is closed. The cache data is not invalidated, and the next time the file is opened, read accesses can again be serviced immediately from the cache without the need to read the data back into it.

DATA-ATTRIBUTES = *STD / *FROM-FILE(...) / *BY-CATALOG
Specifies whether the *BY-DATA-ATTRIBUTES defaults of the following operands are to be the same as the corresponding file attributes of a cataloged file. The operands which support the importing of file attributes are ACCESS-METHOD, RECORD-FORMAT, RECORD-SIZE, BUFFER-LENGTH, BLOCK-CONTROL-INFO, KEY-POSITION, KEY-LENGTH, LOGICAL-FLAG-LENGTH, VALUE-FLAG-LENGTH, PROPAGATE-VALUE-FLAG, BLOCK-OFFSET, LABEL-TYPE, and CODE.

DATA-ATTRIBUTES = *STD
The *BY-DATA-ATTRIBUTES defaults are the same as the corresponding *BY-PROGRAM operand values.

DATA-ATTRIBUTES = *FROM-FILE(...)
Operands for which *BY-DATA-ATTRIBUTES is specified are assigned the operand value corresponding to the matching file attribute of the named file. If the operand value thus imported initiates a structure, the values of the lower-level operands are likewise set to match the equivalent file attributes. This affects the PRINT-CONTROL, SIZE and DIN-REVISION-NUMBER operands.

> **FILE-NAME = <filename 1..54>**
> Name of the file from which the corresponding file attributes are to be imported. The caller must have the authorization to read the file’s catalog entry with SHOW-FILE-ATTRIBUTES. The file must be cataloged on the same pubset as the file to which the ADD-FILE-LINK command refers.

DATA-ATTRIBUTES = *BY-CATALOG
The operand values are taken over as with DATA-ATTRIBUTES=*FROM-FILE(...), namely from the file to which the ADD-FILE-LINK command refers.

RECORD-FORMAT = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *VARIABLE(...) / *FIXED(...) / *UNDEFINED(...)
Specifies the record format of the file identified by FILE-NAME. The block-oriented access method UPAM ignores the RECORD-FORMAT argument. BTAM is also a block-oriented access method, but it does accept specifications in the RECORD-FORMAT operand. *UNDEFINED is treated as if it were *VARIABLE.
The SAM and ISAM access methods interpret the record format argument, except that *UNDEFINED is not allowed with ISAM.

Record formats are completely described in the “Introductory Guide to DMS” [13].

For the relationship between the RECORD-FORMAT and RECORD-SIZE arguments see the description of the RECORD-SIZE operand.

RECORD-FORMAT = *BY-DATA-ATTRIBUTES
The record format of the file specified in the DATA-ATTRIBUTES operand is used. The setting of the print control byte (PRINT-CONTROL) is also copied. If DATA-ATTRIBUTES is *STD, RECORD-FORMAT defaults to *BY-PROGRAM.

RECORD-FORMAT = *BY-PROGRAM
The record format selected in the program is used.

RECORD-FORMAT = *BY-CATALOG
The record format set in the catalog is used.

RECORD-FORMAT = *VARIABLE(...)
The file specified by FILE-NAME consists of variable-length records, which means that the user must bear in mind, when programming, that each record is preceded by a 4-byte field, where bytes 1-2 contain the record length in binary. The bytes 3-4 are used by the system. For input files, the record length field is specified by the system, for output files, this must be done by the user.

PRINT-CONTROL = *NONE / *ASA / *EBCDIC
Identifies the feed control character (see the PRINT-DOCUMENT command, operand DOCUMENT-FORMAT=*TEXT(LINE-SPACING=...)).

PRINT-CONTROL = *NONE
The file specified by FILE-NAME is not a print file; therefore, it does not contain any print control characters and when printed should not be subject to control character evaluation.

PRINT-CONTROL = *ASA
The first data byte in each record is to be interpreted as an ASA feed control character for the printer (print with LINE-SPACING=*BY-ASA-CONTROL in the PRINT-DOCUMENT command).

PRINT-CONTROL = *EBCDIC
The first data byte in each record is to be interpreted as an EBCDIC feed control character for the printer (print with LINE-SPACING=*BY-EBCDIC-CONTROL in the PRINT-DOCUMENT command). With ISAM files the ISAM index is taken into account.

RECORD-FORMAT = *FIXED(...)
The file specified by FILE-NAME consists of fixed-length records, which means that the user does not need to allow for record length and control fields. All the records in the file are of the same length, this length is defined in the RECORD-SIZE operand.

PRINT-CONTROL = *NONE / *ASA / *EBCDIC
Identifies the feed control character (see the PRINT-DOCUMENT command, operand DOCUMENT-FORMAT=*TEXT(LINE-SPACING=...)).

PRINT-CONTROL = *NONE
The file specified by FILE-NAME is not a print file; therefore, it does not contain any print control characters and when printed should not be subject to control character evaluation.

PRINT-CONTROL = *ASA
The first data byte in each record is to be interpreted as an ASA feed control character for the printer (print with LINE-SPACING=*BY-ASA-CONTROL in the PRINT-DOCUMENT command).

PRINT-CONTROL = *EBCDIC
The first data byte in each record is to be interpreted as an EBCDIC feed control character for the printer (print with LINE-SPACING=*BY-EBCDIC-CONTROL in the PRINT-DOCUMENT command). With ISAM files the ISAM index is taken into account.

RECORD-FORMAT = *UNDEFINED(...)
The file specified by FILE-NAME consists of records of “undefined” length; each data block contains a single record, the length of which is passed in a register; the value in this register is set by the system on input and by the user on output (see the RECORD-SIZE operand). RECORD-FORMAT=*UNDEFINED converts the specification LABEL-TYPE=*STD(DIN-REVISION-NUMBER=3) to LABEL-TYPE=*STD(DIN-REVISION-NUMBER=2).

PRINT-CONTROL = *NONE / *ASA / *EBCDIC
Identifies the feed control character (see the PRINT-DOCUMENT command, operand DOCUMENT-FORMAT=*TEXT(LINE-SPACING=...)).

PRINT-CONTROL = *NONE
The file specified by FILE-NAME is not a print file; therefore, it does not contain any print control characters and when printed should not be subject to control character evaluation.

PRINT-CONTROL = *ASA
The first data byte in each record is to be interpreted as an ASA feed control character for the printer (print with LINE-SPACING=*BY-ASA-CONTROL in the PRINT-DOCUMENT command).

PRINT-CONTROL = *EBCDIC
The first data byte in each record is to be interpreted as an EBCDIC feed control character for the printer (print with LINE-SPACING=*BY-EBCDIC-CONTROL in the PRINT-DOCUMENT command). With ISAM files the ISAM index is taken into account.

RECORD-SIZE = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / <integer 0..32768>
With RECORD-FORMAT=*FIXED, the RECORD-SIZE operand specifies the common length of all records in bytes. With RECORD-FORMAT=*VARIABLE, the value of RECORD-SIZE is ignored. This does not apply to ISAM file reads, where the value in RECORD-SIZE is interpreted as a maximum record length (in bytes); with RECORD-SIZE=0, the length of a logical block is used as the maximum record length. If the program reads a record which is longer than the maximum record length, only the maximum length as defined by RECORD-SIZE is transferred and error handling is initiated.
With RECORD-FORMAT=*UNDEFINED, the value of RECORD-SIZE is interpreted as the number of a general-purpose register (2 <= register <= 12) containing the current record length. On input, the system supplies the register with the record length; on output, the user must supply the value.
With tape files there is a significant interaction with the CODE and LABEL-PROCESSING operands: when used together with CODE=*EBCDIC or LABEL-PROCESSING= *PARAMETERS LABEL=*STD (DIN-REVISION-NUMBER > 1), the RECORD-SIZE operand must have a value <= 9999 (international standard).

RECORD-SIZE = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, RECORD-SIZE defaults to *BY-PROGRAM.

RECORD-SIZE = *BY-PROGRAM
The value specified in the program is set.

RECORD-SIZE = *BY-CATALOG
The record format set in the catalog is used.

RECORD-SIZE = <integer 0..32768>
Specifies the maximum record length in bytes. Note with NK-ISAM files that overflow blocks are generated if the maximum record length is utilized.

BUFFER-LENGTH = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / <integer 1..32768> / *STD(...)
Defines the logical block length. A logical block is the unit of information transmitted to and from the I/O devices as seen by the user calling the access methods.

In the case of disk files, there are interactions with space allocation (CREATE-FILE/MODIFY-FILE-ATTRIBUTES command, SPACE operand) and record length (ADD-FILE-LINK command, RECORD-SIZE operand). In the case of tape files, there is an interaction with the label attributes (ADD-FILE-LINK command, LABEL-TYPE operand).
See also table "Tape files: block length and record format" and table at LABEL-TYPE = *STD(...).
Disk files/tape files with standard blocks: data blocks may consist of a number of PAM pages. The system automatically links together the PAM pages which form a transmission unit.

BUFFER-LENGTH = *BY-DATA-ATTRIBUTES
The logical block length of the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, BUFFER-LENGTH defaults to *BY-PROGRAM. If the file consists of standard blocks (BUFFER-LENGTH=*STD), the number of PAM pages (SIZE operand) is also copied from the file.

BUFFER-LENGTH = *BY-PROGRAM
The value set in the program is used.

BUFFER-LENGTH = *BY-CATALOG
The value set in the catalog is used.

BUFFER-LENGTH = <integer 1..32768>
For tape files only: defines the block length in bytes and specifies that the file consists of nonstandard blocks (i.e. blocks which are not PAM blocks). Each nonstandard block is also a logical block.
With RECORD-FORMAT=*FIXED, all nonstandard blocks in the file are of the length specified here (buffer offset not included; see BLOCK-OFFSET operand).
With RECORD-FORMAT=*VARIABLE/*UNDEFINED, the nonstandard blocks may be of differing lengths, with the specified block length defining the upper limit (buffer offset included).

The ACCESS-METHOD and IO-CHAINING operand settings must also be taken into account.

BUFFER-LENGTH = *STD(...)
The file consists of standard PAM pages.

> **SIZE = 1 / <integer 1..16>**
> For K files: each logical block consists of the number of PAM blocks specified here. For NK files: each logical block consists of the number of 2048-byte data fields specified here. With NK4 volumes (NK4 files) this number must be even; in other words, the logical block length is a multiple of 4K.
> For tape files: if CODE is anything other than EBCDIC, or if BLOCK-CONTROL-INFO is set to *WITHIN-DATA-BLOCK or *NO, STD block specifications are converted to nonstandard block specifications.

RECORD-FORMAT operand	Effects
RECORD-FORMAT=*FIXED	BUFFER-LENGTH specifies the block length including the length of the buffer offset (see BLOCK-OFFSET operand); all blocks are of the same length
RECORD-FORMAT= *VARIABLE/*UNDEFINED	BUFFER-LENGTH specifies the maximum block length including the length of the buffer offset (see the BLOCK-OFFSET operand), so the block length (like the record length) is variable
	If RECORD-FORMAT=VARIABLE and CODE=*EBCDIC or LABEL=*STD(DIN-REV-NUM=n) (n> 1), BUFFER-LENGTH must be less than 10000 (internal conversion to record format D)

Table 20: Tape files: block length and record format

ACCESS-METHOD operand	Values allowed for BUFFER-LENGTH
SAM / BTAM	1 <= n <= 32768
UPAM	

Table 21: Tape files: block length and access method

BLOCK-CONTROL-INFO = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *NO / *WITHIN-DATA-BLOCK / *WITHIN-DATA-2K-BLOCK / *WITHIN-DATA-4K-BLOCK / *PAMKEY
Specifies the location of the block control field containing the block control information used for logical block management.
K files have the block format PAMKEY and can only be stored on K volumes.
NK files can have any of the following formats: NO, WITHIN-DATA-BLOCK, WITHIN-DATA-2K-BLOCK, and WITHIN-DATA-4K-BLOCK. They can be stored on N or NK volumes. NK files are subdivided into:

- NK2 files, which may have the following structural attributes in the catalog entry:
  - *FILE-STRUCT = ISAM* and *BLK-CONTR = DATA (2K)*
  - *FILE-STRUCT = SAM* and *BLK-CONTR = DATA* and *BUF-LEN = STD(n)*, where n is an odd number
  - *FILE-STRUCT = PAM* and *BLK-CONTR = DATA* or *NO* and *BUF-LEN = STD(n)*, where n is an odd number

  NK2 files **cannot** be stored on NK4 pubsets.
- NK4 files, which may have the following structural attributes in the catalog entry:
  - *FILE-STRUCT = ISAM* and *BLK-CONTR = DATA (4K)*
  - *FILE-STRUCT = SAM* and *BLK-CONTR = DATA* and *BUF-LEN = STD(n)*, where n is an even number
  - *FILE-STRUCT = PAM* and *BLK-CONTR = DATA* or *NO* and *BUF-LEN = STD(n)*, where n is an even number

> If the user does not specify a block format, the system parameter ISBLKCTL defines the block format for an ISAM file when the file is created. The default value is *NONKEY; i.e. by default, ISAM files are created as NK-ISAM on K volumes as well (equivalent to specifying BLOCK-CONTROL-INFO=*WITHIN-DATA-BLOCK). If *PAMKEY is specified in the system, a K-ISAM file is created (equivalent to BLOCK-CONTROL-INFO=*PAMKEY).

BLOCK-CONTROL-INFO = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, BLOCK-CONTROL-INFO defaults to *BY-PROGRAM.

BLOCK-CONTROL-INFO = *BY-PROGRAM
The value specified in the program is used.

BLOCK-CONTROL-INFO = *BY-CATALOG
The value set in the catalog is used.

BLOCK-CONTROL-INFO = *NO
The block format does not include a PAM key, i.e. the system does not store any block control information in PAM keys.

This block format is allowed for NK files only. It is available only for PAM files and SAM tape files. For SAM disk files and ISAM, *NO is treated in the same way as *WITHIN-DATA-BLOCK.
Functions which used to be linked to data in the PAM key are no longer supported (this typically applies to partial backups using ARCHIVE).

BLOCK-CONTROL-INFO = *WITHIN-DATA-BLOCK
The block format does not include a PAM key, i.e. the system does not store any block control information in PAM keys. This block format is allowed for NK files only. The block control information is within the first twelve bytes of each logical block, except in NK-ISAM files. Incompatibilities arise if the maximum record length (16 PAM blocks = 32K bytes) is used up, as there is no room left for the block control information.

Special features of NK-ISAM files

There are two block formats:

- 2K format: The block control information is stored at the start of each 2K block (one PAM page). The 2K format can be selected explicitly using BLOCK-CONTROL-INFO=*WITHIN-DATA-2K-BLOCK.
- 4K format: The block control information is stored at the start of each 4K block (two PAM pages). The 4K format can be selected explicitly using BLOCK-CONTROL-INFO=*WITHIN-DATA-4K-BLOCK.

The block format used to create an NK-ISAM file (OPEN=*OUTPUT/*OUTIN) is governed by the format of the volume on which the file is stored:

K pubset/private disk NK2(6K) pubset/private disk NK2(8K) pubset NK2(64K) pubset	| | | |	K format (NK2 ISAM file): catalog entry where BLK-CONTR=DATA (2K)
NK2(8K)-Pubset NK2(64K)-Pubset	| |	4K Format (NK4 ISAM file): catalog entry where BLK-CONTR=DATA (4K)

Note that it is not possible to create the NK-ISAM file in 4K format unless the logical block length is a multiple of 4K. If this is not the case, any attempt to open the file is rejected as an error.

An existing NK-ISAM can be opened regardless of the block format.

BLOCK-CONTROL-INFO = *WITHIN-DATA-2K-BLOCK

*This is a variant of *WITHIN-DATA-BLOCK designed for use with NK-ISAM files.* When an NK-ISAM file is created (OPEN=*OUTPUT/*OUTIN), 2K format is generated. Any attempt to open the file for an NK4 volume is rejected as an error. An existing NK-ISAM file can be opened only if it was created in 2K format.

BLOCK-CONTROL-INFO = *WITHIN-DATA-4K-BLOCK

*This is a variant of *WITHIN-DATA-BLOCK designed for use with NK-ISAM files.*
When an NK-ISAM file is created (OPEN=*OUTPUT/*OUTIN), 4K format is generated. The logical block length must be a multiple of 4K. If this is not the case, any attempt to open the file is rejected as an error.
An existing NK-ISAM file can be opened only if it was created in 4K format.

BLOCK-CONTROL-INFO = *PAMKEY

This value is possible for K files only.
A block format using PAM keys which is supported by all access methods. The block control information is stored in the PAM key.
A file may be created in PAMKEY format provided that the volume supports PAMKEY recording (K pubset or K private disk).

NUMBER-OF-PREMOUNTS = *STD / <integer 0..255>

Number of volumes to be requested for premounting.

NUMBER-OF-PREMOUNTS = *STD

Number of volumes to be requested depends on the volume type

- disk files: All disks are requested on which the extent of the file is existing.
- tape files: Exactly one tape is requested.

NUMBER-OF-PREMOUNTS = <integer 0..255>

Specifies the number of volumes to premount.

RETENTION-PERIOD = *BY-PROGRAM / <integer 0..32767 *days* >

This operand allows users to define a retention period for their files.
When the output file is closed, the date on which the retention period expires is calculated from the current data and the length of the retention period. This date is added to the catalog entry as the expiration date. No write access (updating, deletion) to this file is possible until the retention date has been reached.

RETENTION-PERIOD = *BY-PROGRAM

The value specified in the program is used.

RETENTION-PERIOD = <integer 0..32767 *days* >

The RETENTION-PERIOD operand is effective only if a TFT entry is created using the LINK-NAME operand, and file identified by the FILE-NAME operand is then opened.
The value of RETENTION-PERIOD defines the length of the retention period in days. Expiration of the retention period does not mean that the file will automatically be destroyed, merely that write access will then be granted again.
RETENTION-PERIOD=0 means that there is no retention period and the file can be updated or deleted at any time.
A retention period can also be set with the MODIFY-FILE-ATTRIBUTES command; a retention period specified with that command is added to the catalog entry immediately; but note that for tape files the retention period must be defined before the file is opened for the first time.

SUPPORT = *NONE / list-poss(2): *DISK(...) / *TAPE(...)

Type of volume on which the file is located.

SUPPORT = *NONE
No device specification.

SUPPORT = *DISK(...)
The file to be processed is a disk file.

SHARED-UPDATE = *BY-PROGRAM / *NO / *YES / *WEAK
For ISAM and UPAM disk files only: defines whether write access to the file is to be possible if other jobs open it at the same time (shared updating).

SHARED-UPDATE = *BY-PROGRAM
The value specified in the program is used.

SHARED-UPDATE = *NO
Once one job has opened the file in an OPEN mode other than INPUT, it is locked for all other jobs. Thus shared updating is not possible. The contents of the file remain constant for the duration of file processing. Concurrent access to the file by a number of jobs is not possible unless the file is opened as an input file, i.e. with OPEN INPUT, in all jobs. If the file has already been opened in INPUT mode, any attempt to open it in any other mode is rejected.

SHARED-UPDATE = *YES
For ISAM and PAM files only: the file can be edited concurrently by a number of jobs; but SHARED-UPDATE=*YES must be set in all jobs. With UPAM, users can protect data blocks they are processing against access by other jobs.
With ISAM, these locks are set automatically by the system as required. With NK-ISAM, files opened for shared updating must be processed in cross-task user ISAM pools. With ISAM files the WRITE-IMMEDIATE function is enabled concurrently (WRITE-IMMEDIATE operand set to *YES).

SHARED-UPDATE = *WEAK
For UPAM processing only: guarantees write but not read protection. Only one job can open the file for writing. Other jobs can use it concurrently as an input file, but allowance has to be made for the fact that the contents of the file may change.

LOCK-ENVIRONMENT = *BY-PROGRAM / *HOST-SYSTEM / *XCS
Specifies whether the file can be open for concurrent writing by jobs from different systems, depending on the open mode (OPEN-MODE) and the shared update mode setting (SHARED-UPDATE).

LOCK-ENVIRONMENT = *BY-PROGRAM
The setting specified in the program is used.

LOCK-ENVIRONMENT = *HOST-SYSTEM
The file cannot be open for concurrent writing with SHARED-UPDATE=*YES by jobs from different systems.

LOCK-ENVIRONMENT = *XCS
The file can be open for concurrent writing with SHARED-UPDATE=*YES by jobs from different systems in an XCS network.

EXCEED-32GB = *BY-PROGRAM / *FORBIDDEN / *ALLOWED
Specifies whether the file size may exceed 32 GB during processing.

EXCEED-32GB = *FORBIDDEN
The file may grow to a maximum of 32 GB.

EXCEED-32GB = *ALLOWED
The file may grow beyond 32 GB.

WRITE-CHECK = *BY-PROGRAM / *NO / *YES
Specifies whether records written out to disk are to be checked immediately (read-afterwrite check) so that recording errors are detected promptly. The WRITE-CHECK specification is not added to the catalog entry, so it must be repeated beforehand each time the file is processed or opened.
Read-after-write checking: checking for recording errors (-> error recovery actions). If the error is unrecoverable, control is passed to the EXLST exit ERRADR. Read-afterwrite checking slows down performance considerably on account of the extra disk rotations.

WRITE-CHECK = *BY-PROGRAM
The setting specified in the program is used.

WRITE-CHECK = *NO
No read-after-write checking is done.

WRITE-CHECK = *YES
Read-after-write checking is done.

IO-ATTRIBUTES = *BY-PROGRAM / *PARAMETERS(...)
Specifies the performance requirements demanded by the user for input/output operations. The highest permissible performance attribute is defined in the user entry. The cache medium defined for the associated pubset governs whether and to what extent performance requirements are implemented (see the output of the SHOW-MASTER-CATALOG-ENTRY command). Read and write access is performed through a fast cache. The number of disk accesses and the access times are reduced.

IO-ATTRIBUTES = *BY-PROGRAM
The value specified in the program is used (see the FCB macro description in the “DMS Macros” manual [12]).

IO-ATTRIBUTES = *PARAMETERS(...)
The overall performance requirement is derived from the values specified for the PERFORMANCE and USAGE operands.

PERFORMANCE = *BY-PROGRAM / *BY-CATALOG / *STD / *HIGH / *VERY-HIGH / *USER-MAXIMUM
Specifies the file’s performance attribute. It indicates the priority required for the I/O operations selected in the USAGE operand. The highest permissible performance attribute is defined in the user entry (see the output of the SHOW-USER-ATTRIBUTES command).

PERFORMANCE = *BY-PROGRAM
The value set in the program is used.

PERFORMANCE = *BY-CATALOG
The value specified in the catalog entry is used.

PERFORMANCE = *STD
There are no special performance attributes for the file, so a cache should not be used to process it.

PERFORMANCE = *HIGH
The file is to be processed through a cache (high performance priority). This specification is only possible for users who have the DMS tuning privilege CONCURRENT-USE or EXCLUSIVE-USE for the pubset (see the output field DMS-TUNING-RESOURCES in the output of the SHOW-USER-ATTRIBUTES command).

PERFORMANCE = *VERY-HIGH
The file is to be processed through a cache. The referenced data in the file is to be kept permanently in the cache (highest performance priority). The cache data is only evicted from the cache when the file is closed. The specification is only possible for users who have the DMS tuning privilege EXCLUSIVE-USE for the pubset (see the output for the SHOW-USER-ATTRIBUTES command, output field *DMS-TUNING-RESOURCES*).

Note

All cache segments used for this file are locked until the file is closed. If there are many files open with this attribute at the same time, the cache memory available for normally cached files may, as a result, be so greatly restricted that data accesses to such files can no longer be implemented with an adequate level of performance.

PERFORMANCE = *USER-MAXIMUM
The file is assigned the highest performance attribute contained in the user catalog for the user.

USAGE = *BY-PROGRAM / *BY-CATALOG / *READ-WRITE / *WRITE / *READ
Specifies the I/O operations for which enhanced performance (caching) is required. The default setting is *READ-WRITE, i.e. the requirements apply to read and write operations. If the file does not have a particular performance attribute (PERFORMANCE= *STD) and if the cache area for the pubset is not defined in such a way that all existing files are served (see the operand CACHED-FILES=*ALL for the MODIFY-PUBSET-CACHING-ATTRIBUTES command), then the USAGE operand has no effect on processing.

USAGE = *BY-PROGRAM
The value specified in the program is used (see the FCB macro description in the “DMS Macros” manual [12]).

USAGE = *BY-CATALOG
The value specified in the catalog entry is used.

USAGE = *READ-WRITE
The performance requirements apply both to read and to write operations.

USAGE = *WRITE
The performance requirements apply to write operations only.

USAGE = *READ
The performance requirements apply to read operations only.

Note

With USAGE=*READ-WRITE or *WRITE, write caching is performed only if the conditions for the DISK-WRITE file attributes are met (see CREATE-FILE or MODIFY-FILE-ATTRIBUTES). For write caching with DISK-WRITE= *IMMEDIATE, the cache medium being used must be failsafe (see the *CACHE-MEDIUM* output field of the SHOW-MASTER-CATALOG-ENTRY command with INFORMATION=*USER).

ISAM-ATTRIBUTES = *BY-PROGRAM / *PARAMETERS(...)
Parameters relating to ISAM processing.

ISAM-ATTRIBUTES = *BY-PROGRAM
Information relating to ISAM-specific features is taken from the program or from the file specified in the DATA-ATTRIBUTES operand.

ISAM-ATTRIBUTES = *PARAMETERS(...)
Information relating to ISAM-specific features is derived from the values specified for the operands which follow.

KEY-POSITION = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / <integer 1..32767>
Specifies the position of the ISAM key within the record. In variable-length records, allowance must be made for a 4-byte record length and control field. There is no fixed position for ISAM keys, but the key must always be in the same position throughout a file.

KEY-POSITION = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, KEY-POSITION defaults to *BY-PROGRAM.

KEY-POSITION = *BY-PROGRAM
The value specified in the program is used (see the FCB macro description in the “DMS Macros” manual [12]).

KEY-POSITION = *BY-CATALOG
The value set in the catalog is used.

KEY-POSITION = <integer 1..32767>
Specifies the position of the ISAM key within the record.

KEY-LENGTH = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / <integer 1..255>
Length of the ISAM key in bytes. Each record in the file must use the specified key length. The sum of the lengths specified in KEY-LENGTH, LOGICAL-FLAG-LENGTH, and VALUE-FLAG-LENGTH must not come to more than 255 during processing.

KEY-LENGTH = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, KEY-LENGTH defaults to *BY-PROGRAM.

KEY-LENGTH = *BY-PROGRAM
The value specified in the program is used.

KEY-LENGTH = *BY-CATALOG
The value set in the catalog is used.

KEY-LENGTH = <integer 1..255>
Specifies the length of the ISAM key in bytes.

VALUE-FLAG-LENGTH = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / <integer 0..255>
For K-ISAM files only: defines the length (in bytes) of the value flag in the ISAM index. This flag may form part of the ISAM record index together with the ISAM key and the logical flag. The sum of the lengths specified in KEY-LENGTH, LOGICAL-FLAG-LENGTH, and VALUE-FLAG-LENGTH must not come to more than 255 during processing.

VALUE-FLAG-LENGTH = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, VALUE-FLAG-LENGTH defaults to *BY-PROGRAM.

VALUE-FLAG-LENGTH = *BY-PROGRAM
The value set in the program is used.

VALUE-FLAG-LENGTH = *BY-CATALOG
The value set in the catalog is used.

VALUE-FLAG-LENGTH = <integer 0..255>
VALUE-FLAG-LENGTH = 0: the ISAM index does not include a value flag.

There is a difference in the treatment of value flags in NK-ISAM (BLOCK-CONTROL-INFO=*WITHIN-DATA-BLOCK) and K-ISAM (BLOCK-CONTROL-INFO=*PAMKEY).
In K-ISAM they are evaluated block by block and propagated to the next higher index entry, as specified in the PROPAGATE-VALUE-FLAG operand.
In NK-ISAM no flags are evaluated for the index entry.

Note

If the “secondary key” function is used, the ISAM key must not include a value flag.

PROPAGATE-VALUE-FLAG = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *MINIMUM / *MAXIMUM / *BY-CATALOG
For K-ISAM files only (BLOCK-CONTROL-INFO=PAMKEY): defines how the value flag is to be propagated to the index entries.
(NK-ISAM ignores PROPAGATE-VALUE-FLAG specifications)

PROPAGATE-VALUE-FLAG = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, PROPAGATE-VALUE-FLAG defaults to *BY-PROGRAM.

PROPAGATE-VALUE-FLAG = *BY-PROGRAM
The value specified in the program is used (see the FCB macro description in the “DMS Macros” manual [12]).

PROPAGATE-VALUE-FLAG = *MINIMUM
The lowest value for the value flag within a data or index block is propagated to the next higher level.

PROPAGATE-VALUE-FLAG = *MAXIMUM
The highest value of the flag in the data/index block is propagated.

PROPAGATE-VALUE-FLAG = *BY-CATALOG
The value specified in the catalog entry is used.

LOGICAL-FLAG-LENGTH = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / <integer 0..255>
For K-ISAM files only: defines the length in bytes of a logical flag in the ISAM index; the maximum length is governed by the length of the ISAM key, in that the sum of the lengths specified in KEY-LENGTH, LOGICAL-FLAG-LENGTH, and VALUE-FLAG-LENGTH must not come to more than 255 during processing.

LOGICAL-FLAG-LENGTH = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, LOGICAL-FLAG-LENGTH defaults to *BY-PROGRAM.

LOGICAL-FLAG-LENGTH = *BY-PROGRAM
The value specified in the program is used (see the FCB macro description in the “DMS Macros” manual [12]).

LOGICAL-FLAG-LENGTH = *BY-CATALOG
The value specified in the catalog entry is used.

LOGICAL-FLAG-LENGTH = <integer 0..255>
LOGICAL-FLAG-LENGTH=0: The ISAM index contains no logical flag. The ISAM key in the ISAM index may be followed by a logical flag in which selection criteria are defined bit by bit and encoded in binary. In K-ISAM files, all the logical flags of a block are evaluated and the result is propagated to the next higher index entry. There is no logical flag evaluation with NK-ISAM files.

Note

If the “secondary key” function is used, the ISAM key must not include a logical flag.

PADDING-FACTOR = *BY-PROGRAM / <integer 0..99>
Only for ISAM files created sequentially: the block padding factor specifies how much space to keep free in the data block for subsequent extension of the file (as a percentage of the block length defined in BUFFER-LENGTH). The PADDING-FACTOR specification thus affects the block splitting rate when a file is extended nonsequentially.
K-ISAM requests a new logical block for the current record if the free space would otherwise fall below the padding factor.
NK-ISAM does not request a new logical block until the free space has already fallen below the padding factor.

PADDING-FACTOR = *BY-PROGRAM
The value specified in the program is used.

PADDING-FACTOR = <integer 0..99>
A PADDING-FACTOR specification has different effects on NK-ISAM and K-ISAM. For NK-ISAM the block is filled *at least* up to the specified padding limit, for K-ISAM *at most* up to the padding limit.

POOL-LINK = *BY-PROGRAM / <name 1..8>
Only for ISAM files process in ISAM pools (NK-ISAM): specifies the pool link name to be recorded in the TFT.
The file blocks required for processing are transferred from disk to the ISAM pool and buffered there.

POOL-LINK = *BY-PROGRAM
The pool link name specified in the program is used.

POOL-LINK = <name 1..8>
At OPEN time the pool link name is passed to NK-ISAM. This name must have been allocated using the ADD-ISAM-POOL-LINK command to an ISAM pool created with the CREATE-ISAM-POOL command.

POOL-SIZE = *BY-PROGRAM / <integer 128..1048576 *2Kbyte* >
For NK-ISAM files:
Determines the size of the file-specific ISAM pool in units of 2048 bytes. The specification does not relate to the ISAM pool addressed with POOL-LINK.

WRITE-IMMEDIATE = *BY-PROGRAM / *NO / *YES
Controls how updated blocks are written out to disk.
WRITE-IMMEDIATE=*YES applies implicitly to shared updating and to cross-task ISAM pools, which means that updated blocks are always written out to disk immediately.

WRITE-IMMEDIATE = *BY-PROGRAM
The value specified in the program is used.

WRITE-IMMEDIATE = *NO
An updated block is not written out to disk until the contents of the associated buffer area need to be replaced or the file is closed.

WRITE-IMMEDIATE = *YES
Each updated block is written out to disk immediately, thus ensuring consistency at all times between the data on disk and in virtual memory. The downside is a higher I/O frequency.

READ-IN-ADVANCE = *BY-PROGRAM / *YES / *NO
Specifies whether I/Os should be overlapped.

READ-IN-ADVANCE = *BY-PROGRAM
The setting defined in the program is used.

READ-IN-ADVANCE = *YES
If a second I/O area is defined in the program, read operations can be overlapped. With NK-ISAM, “overlapped processing” means that adjacent blocks are also read into the ISAM pool. READ-IN-ADVANCED =*YES should be used only for reads which are primarily sequential.
With K-ISAM, “overlapped processing” means that if two I/O buffers are specified in the FCB a block can be read from one buffer to the other in the course of a read operation.

READ-IN-ADVANCE = *NO
Reads are not overlapped.

DUPLICATE-KEY = *BY-PROGRAM / *YES / *NO
Specifies whether the same ISAM key is allowed to occur more than once when records are being added using PUT or STORE macros.

DUPLICATE-KEY = *BY-PROGRAM
The value defined in the program is used.

DUPLICATE-KEY = *YES
If a number of records have the same ISAM key, they do not overwrite each other but are written one after the other in the order of their creation. With NK-ISAM, records with identical keys have an 8-byte timestamp added to them internally. This must be allowed for when defining the record length.
See the section on overflow blocks in the “Introductory Guide to DMS” [13].

DUPLICATE-KEY = *NO
If the record being added has an ISAM key which has already occurred, the PUT macro causes the program to branch to the EXLST “DUPEKY” exit, while the STORE macro causes the existing record to be overwritten.

SUPPORT = *TAPE(...)
The file to be processed is a tape file.

VOLUME-LIST = *CATALOG(...) / *TEMPORARY (...) / *TAPE-SET (...)
Specifies the volume serial numbers (VSNs) of the tapes which are to be processed. With work files (DEVICE-TYPE= *WORK), the ADD-CATALOG-VOLUME operand is ignored and the TAPE-SET-NAME operand is rejected.

VOLUME-LIST = *CATALOG(...)
The VSNs from the volume table in the catalog entry are transferred to the volume list.

ADD-CATALOG-VOLUME = *NONE / *ANY (...) / list-poss(255): <alphanum-name 1..6>
*This operand is ignored for work files (DEVICE-TYPE=*WORK).*
As well as the VSNs from the volume table in the catalog entry, other VSNs can be added to the volume list. These VSNs are then also added to the volume table in the catalog entry.

ADD-CATALOG-VOLUME = *NONE
No other VSNs are added to the volume list.

ADD-CATALOG-VOLUME = *ANY (...)
The selection of VSNs is made either by the operating personnel (in response to a console message) or, where available, by the MAREN utility.
This specification is ignored for the dummy file *DUMMY.

NUMBER-OF-DEVICES = 1 / <integer 1..9>
Number of extra VSNs to add to the volume list.

ADD-CATALOG-VOLUME = list-poss (255): <alphanum-name 1..6>
Extra VSNs to add to the volume list.

VOL-SEQUENCE-NUMBER = *NONE / *FROM-START-POSITION (...) /
list-poss (255): <integer 1..255>
Defines which VSNs from the volume list are to be added to the volume table in the TFT entry and which order to add them in. This order has a significant impact on the subsequent processing of the file.

VOL-SEQUENCE-NUMBER = *NONE
All the VSNs in the volume list are added to the volume table in the TFT entry.

VOL-SEQUENCE-NUMBER = *FROM-START-POSITION (...)
Indicates that VSNs from the volume table are to be added to the volume table in the TFT entry starting from a specified VSN.

START-POSITION = <integer 1..255>
All VSNs from the specified position onwards are added to the volume table in the TFT entry.

VOL-SEQUENCE-NUMBER = list-poss (255): <integer 1..255>
Selected VSNs in the volume list which are to be added to the volume table in the TFT entry. A number given here (such as 12) refers to the position of a VSN in the volume list (in this case the twelfth VSN). Thus the number entered here is the file section number.

VOLUME-LIST = *TEMPORARY(...)
The volume table of the existing catalog entry remains unchanged and is ignored while the file is being processed.

PROCESS-VOLUME = list-poss (255): <alphanum-name 1..6>
Defines a temporary list of VSNs for processing. This list forms the volume list and the volume table of the generated TFT entry.

VOLUME-LIST = *TAPE-SET(...)
*This operand is rejected for work files (DEVICE-TYPE=*WORK).*
Selects the tape file VSN set which was created or extended using CREATE- or EXTEND-TAPE-SET. The catalog entry must not yet have any VSNs in its volume table. The volume list is formed from the VSNs of a TST entry. All the VSNs in the volume list are added to the volume table of the catalog entry and to the volume table of the TFT entry.

TAPE-SET-NAME = <alphanum-name 1..4>
A maximum of 255 VSNs from the specified TST entry is added to the volume list, starting at the current VSN. The TFT entry which is generated is linked to the specified TST entry. If this TST entry does not exist, a TST entry is created with the specified name and an empty volume list. The final tape sequence for the (output) file is not fixed until OPEN processing is initiated. A reference to a tape set is allowed only for output files with standard labels.

FILE-SET-IDENTIFIER = *BY-TAPE-SET / <alphanum-name 1..6>
File set identifier of the TST entry. The VSN given here must match the file set identifier in the TST entry.

FILE-SET-IDENTIFIER = *BY-TAPE-SET
The file set identifier is defined by the TST entry.

FILE-SET-IDENTIFIER = <alphanum-name 1..6>
The VSN given here must match the file set identifier in the TST entry.

DEVICE-TYPE = *ANY / <device>
Device type for the required tapes. Only device types or volume types known within the system are accepted. In interactive mode, the possible device and volume types are displayed with DEVICE-TYPE=?.
If a volume type of WORK is specified, a work tape is made available when the file is opened.

LABEL-PROCESSING = *BY-PROGRAM / *PARAMETERS(...)
Label processing options.

LABEL-PROCESSING = *BY-PROGRAM
The settings specified in the program are used.

LABEL-PROCESSING = *PARAMETERS(...)
The values set in the operands which follow are used.

LABEL-TYPE = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *NO / *NON-STD / *STD(...)
File label type. For existing tape files, the label standard specified in the VOL1 label always applies. For output files (OPEN OUTIN/OUTPUT) the LABEL-TYPE operand is evaluated and the label standard in the VOL1 label is defined or modified accordingly.

LABEL-TYPE = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, LABEL-TYPE defaults to *BY-PROGRAM.

LABEL-TYPE = *BY-PROGRAM(...)
The values defined in the program are used.

LABEL-TYPE = *NO
No file labels are read or written (no file label processing). If the tape has standard labels, the system processes the tape labels and checks for access authorization.

LABEL-TYPE = *NON-STD
The tape file has/is given nonstandard labels; file label processing is done in the user program. If the volume has standard labels, the system performs tape label processing and checks for access authorization.

LABEL-TYPE = *STD(...)
Selects standard labels for the file. The volumes containing the file must also have standard labels.

DIN-REVISION-NUMBER = *BY-PROGRAM / <integer 0..3>
The file and the volume have/are given standard labels conforming to the designated interchange level of DIN standard 66029.

0:	only 2 HDR labels are generated (oldest standard label format; old BS2000 or BS1000 or IBM)
1:	DIN standard 66029 dated August 1972
2:	DIN standard 66029 dated June 1976
3:	DIN standard 66029 dated May 1979

If the tape already contains files or file sections, the value specified here must be compatible with the label standard in the VOL1 label.

	LABEL=*STD(DIN-REVISION-NUMBER=...)			
	0	**1**	**2**	**3**
DIN 66029 interchange level Edition	-	1 8/1972	2 6/1976	3 3/1978
Label standard in VOL1 label	'BLANK' (blank)	1	2	3
CODE=*ISO-7/ *OWN	not allowed	STD blocks converted to nonstandard blocks	STD blocks converted to nonstandard blocks	STD blocks converted to nonstandard blocks
		REC-FORM=V: conversion to record format D	REC-FORM=V: conversion to record format D	REC-FORM=V: conversion to record format D
		REC-SIZE> 9999 or BUF-LEN> 9999 OPEN error	REC-SIZE> 9999 or BUF-LEN> 9999 OPEN error	REC-SIZE> 9999 or BUF-LEN> 9999 OPEN error
CODE=*EBCDIC			STD blocks converted to nonstandard blocks	STD blocks converted to nonstandard blocks

Access method			SAM only	SAM only
RECORD-FORMAT = *UNDEFINED				not allowed for output files; converted to DIN-REV-NUM=2

Table 22: Effect of the LABEL=*STD(DIN-REV-NUM=...) operand

Restrictions

1. DIN-REVISION-NUMBER=1 is assumed for:
   - RECORD-FORMAT=*VARIABLE and CODE=*EBCDIC
   - BUFFER-LENGTH=*STD(...)
   - ACCESS-METHOD=*UPAM or ACCESS-METHOD=*BTAM
2. If DIN-REVISION-NUMBER is 0, CODE must be *EBCDIC.
3. If the number in the label standard indicator (VOL1 label) is lower than the number given in the DIN-REVISION-NUMBER operand, the label standard indicator number applies.
4. In all other cases: DIN-REVISION-NUMBER=3 applies (e.g. with CODE=*ISO7 and RECORD-FORMAT=*VARIABLE).

For a file opened in INPUT, INOUT, EXTEND or REVERSE mode, the system ignores the number specified here and refers to the number (label standard indicator) given in the volume label (VOL1).
For an output file, the significant number is the number given here or, if only *STD is specified, the most recent number; but note the following:
If the allocated volume already contains one or more files or file sections, the number must match the label standard indicator in the first volume label. Otherwise, the label standard indicator will be set according to the specified number.
This if a volume already contains one or more files or file sections and the label standard indicator in the first volume label is lower than the implicitly assumed standard version (number), the version number is taken from the volume label.

BYPASS-LABEL-CHECK = *BY-PROGRAM / *NO-POSITIONING / *ABSOLUTE-POSITIONING(...) / *FORWARD-POSITIONING(...) / *BACKWARD-POSITIONING(...)
Allows users with the appropriate authorization in their user entry (see the TPIGNORE output field of the SHOW-USER-ATTRIBUTES command) to bypass label checking so as to process tapes which were written on other operating systems or which have a structure and a label format that the system does not recognize. Code checking is also bypassed. If the tape is written in a code other than EBCDIC or ISO, the user must work with a dedicated code table (CODE= *OWN). A BYPASS-LABEL-CHECK specification applies only for the duration of file processing; it is not added to the catalog.

BYPASS-LABEL-CHECK = *BY-PROGRAM
The setting which applies in the program is used.

BYPASS-LABEL-CHECK = *NO-POSITIONING
Label handling is bypassed; header labels are not read or check; the tape position is not changed.

BYPASS-LABEL-CHECK = *ABSOLUTE-POSITIONING(...)
Absolute positioning. The tape is transported to the tape mark indicated in the next parameter. Counting from the tape start.

TAPE-MARK-NUMBER = <integer 0..32767>
Number of the tape mark to transport the tape to. TAPE-MARK-NUMBER = 0: position at the tape start.

BYPASS-LABEL-CHECK = *FORWARD-POSITIONING(...)
Forward positioning. The tape is wound forward by the number of tape marks indicated in the next parameter. Counting relative to the current tape position. No label checking is done.

NUMBER-OF-TAPE-MARKS = <integer 0..127>
Number of tape marks by which the tape is to be forwarded when the file is opened. NUMBER-OF-TAPE-MARKS = 0: the tape is not repositioned.

BYPASS-LABEL-CHECK = *BACKWARD-POSITIONING(...)
Backward Positioning. The tape is wound back by the number of tape marks indicated in the next parameter. Counting relative to the current tape position. No label checking is done.

NUMBER-OF-TAPE-MARKS = <integer 0..127>
Number of tape marks by which the tape is to be reversed when the file is opened. NUMBER-OF-TAPE-MARKS=0: the tape is not repositioned.

PROTECTION-LEVEL = *BY-PROGRAM / *LOW(...) / *HIGH(...)
Protection level (level of security) that label checking is to provide. Affects file processing in batch mode only. This operand is allowed only for tape or files with standard labels.

PROTECTION-LEVEL = *BY-PROGRAM
The setting selected in the program is used.

PROTECTION-LEVEL = *LOW(...)
If file processing is running in batch mode under the ID of the system administrator or the tape or file owner and appropriate authorization is allocated in the user entry (see the TPIGNORE output field of the SHOW-USER-ATTRIBUTES command), certain label processing error messages are suppressed.

OVERWRITE-PROTECTION = *NO / *YES
Indicates whether any other label checks are to be performed in addition to write protection.

OVERWRITE-PROTECTION = *NO
No other label checks are to be performed in addition to write protection.

OVERWRITE-PROTECTION = *YES
The system performs additional checks:

- If a new tape file is placed after an existing file on the tape, the labels of the preceding file are checked.
- the expiration date of the new file must not be later than that of the preceding file.
- ACCESS=READ must not be declared for the new file if ACCESS=WRITE has been declared for the preceding file.

PROTECTION-LEVEL = *HIGH(...)
Error messages are displayed on the console in batch mode. If the job is running under a user ID with TPIGNORE=YES authorization in the user catalog, operating personnel may ignore the error messages.

OVERWRITE-PROTECTION = *NO / *YES
See the PROTECTION-LEVEL=*LOW operand.

TAPE-MARK-WRITE = *BY-PROGRAM / *YES
Only for tape files without standard labels: specifies whether tape marks are written, i.e. the TAPE-MARK-WRITE operand is evaluated only when a tape file with LABEL set to *NO or *NON-STD is opened. Tape files with LABEL set to *STD (DIN-REV-NUM=n) are by default given tape marks after the labels.

TAPE-MARK-WRITE = *BY-PROGRAM
The value set in the program is used.

TAPE-MARK-WRITE = *YES
There is a tape mark after the label. Tape files without labels: the tape mark is placed at the start of the tape.

CODE = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *EBCDIC / *ISO7 / *ISO7D / *OWN
For SAM or BTAM tape files: code in which the data and labels of the file are processed. Code translation is possible only for files with nonstandard blocks and may modify the record length field on output in locate mode. The value of the EBCDIC-TRANSLATION operand must be taken into account.

CODE = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, CODE defaults to *BY-PROGRAM.

CODE = *BY-PROGRAM
The setting which applies in the program is used.

CODE = *BY-CATALOG
The setting defined in the catalog entry is used.

CODE = *EBCDIC
No code translation is required during processing.

Note

The German and international character sets use the same coding. Differences in the presentation may be caused by different character set settings of the terminal emulation. The same applies to CODE=*ISO7.

CODE = *ISO7
The tape file is written in ISO 7-bit code, which means that EBCDIC code is converted to ISO 7-bit on output and ISO 7-bit code is converted to EBCDIC on input. Code conversion is based on the international ISO table.

Notes

- The block length must be given in the form BUFFER-LENGTH=<integer 1..32767>, as otherwise the output blocks will be preceded by a (hexadecimal) PAM key. The same applies to CODE=*OWN.
- For output in locate mode with variable record format (RECORD FORMAT= *VARIABLE), the contents of the record length field (i.e. the first four bytes) are modified. In move mode, the record length field is not modified. The same applies to CODE=*OWN.
- The German and international character sets use the same coding. Differences in the presentation may be caused by different character set settings of the terminal emulation. The same applies to CODE=*EBCDIC.

CODE = *ISO7D
Code conversion is as for CODE=*ISO7. It is, however, based on the German ISO table rather than the international version.

CODE = *OWN
All tape I/O is performed on the basis of user-defined code translation tables. The addresses of these tables must have been defined in the file control block (FCB) of the program (using the TRTADR and TRTADW parameters in the FCB macro call).

Notes

- The block length must be given in the form BUFFER-LENGTH=<integer 1..32767>, as otherwise the output blocks will be preceded by a (hexadecimal) PAM key. The same applies to CODE=*ISO7.
- For output in locate mode with variable record format (RECORD FORMAT= *VARIABLE), the contents of the record length field (i.e. the first four bytes) are modified. In move mode, the record length field is not modified. The same applies to CODE=*ISO7.

EBCDIC-TRANSLATION = *BY-PROGRAM / *YES / *NO
Only for tape files used as input files and not created using CODE= *EBCDIC: defines how the code in the file is to be translated when the file is read.

EBCDIC-TRANSLATION = *BY-PROGRAM
The setting selected in the program is adopted.

EBCDIC-TRANSLATION = *YES
ISO 7-bit code or OWN code is translated to EBCDIC.

EBCDIC-TRANSLATION = *NO
No translation to EBCDIC. ISO 7-bit code is translated to an 8-bit format with a leading zero.

FILE-SEQUENCE = *BY-PROGRAM / *BY-CATALOG / *UNKNOWN / *NEW / <integer 0..9999>
Specifies the sequence number of a tape file within a file set. If there are several files of the same name on a tape, access is under FILE-SEQUENCE control. The same applies to MF/MV sets. If the VOLUME-LIST *TAPE-SET(...) operand is also set, only FILE-SEQUENCE=*NEW or FILE-SEQUENCE=1 is allowed.

FILE-SEQUENCE = *BY-PROGRAM
The value set in the program is used.

FILE-SEQUENCE = *BY-CATALOG
If there is a file sequence number in the catalog entry, it is transferred to the TFT entry. If not, no file sequence number is added to the catalog entry, and *BY-CATALOG is added to the TFT entry.

FILE-SEQUENCE = *UNKNOWN
If there is a file sequence number in the catalog entry, it is transferred to the TFT entry. If not, no file sequence number is added to the catalog entry, and *UNKNOWN is added to the TFT entry. The effect of this on a foreign tape file with standard labels is that, when an attempt is made to open the file, the tape is searched for the file and positioned accordingly.

FILE-SEQUENCE = *NEW
Allowed only for files which have been opened (OPEN OUTPUT) but not yet actually created. This operand adds a new file to an existing file set. The tape is transported to the end of the file set, and the new file is written after the last existing file in the set. The system reports an OPEN error if it fails to find the end of the file set. The sequence number of the new file is the sequence number of the old last file plus 1. If there is no file on the tape at the time the file is opened, the file is made the first in the file set and accordingly assigned a file sequence number of 1.

FILE-SEQUENCE = <integer 0..9999>
Specifies the sequence number of a file with a file set; FILE-SEQUENCE=0, like FILE-SEQUENCE=1, designates the first file in the set. If the file has already been cataloged with the creation date, the file sequence number that the user specifies must match the number which appears in the catalog entry.
If a new file is to be created, it is appended to the end of the file set, which means that the file sequence number must be 1 higher than the last existing file in the file set.

Note

If the sequence number of an existing file in the file set is specified, the existing file will be overwritten.

CHECKPOINT-WRITE = *BY-PROGRAM / *PARAMETERS(...)
Controls whether and when a checkpoint is automatically written at the volume end.

CHECKPOINT-WRITE = *BY-PROGRAM
The setting selected in the program is adopted.

CHECKPOINT-WRITE = *PARAMETERS(...)

CHKPT-AT-BLOCK-LIMIT = *BY-PROGRAM
The setting selected in the program is adopted.

CHKPT-AT-BLOCK-LIMIT = *YES
A checkpoint is written automatically when the maximum number of logical blocks per tape as defined in the BLOCK-LIMIT operand is reached.

CHKPT-AT-FORCED-EOV = *BY-PROGRAM
The setting selected in the program is adopted.

CHKPT-AT-FORCED-EOV = *YES
Checkpoint at forced end of the volume. A checkpoint is written automatically in response to each FEOV macro call in the Assembler program.

RESTART-USAGE = *BY-PROGRAM / *DUMMY
Indicates whether, in the event of a restart (RESTART-PROGRAM command), the file specified in the FILE-NAME operand is to continue being processed or is to be treated as a DUMMY file.

RESTART-USAGE = *BY-PROGRAM
The setting selected in the program is adopted.

RESTART-USAGE = *DUMMY
In the event of a restart, the file is treated as a DUMMY file.

BLOCK-LIMIT = *BY-PROGRAM / <integer 1..999999>
Only when creating SAM tape files with standard labels: maximum number of logical blocks of the file per tape.

BLOCK-LIMIT = *BY-PROGRAM
The setting selected in the program is adopted.

BLOCK-LIMIT = <integer 1..999999>
Specifies how many logical data blocks are allowed to be written on one tape. Once this limit is reached, tape swapping is initiated (EOV processing). The user is sent an error message if the end of the tape is reached before the number of blocks specified by BLOCK-LIMIT has been written.

BLOCK-OFFSET = *BY-DATA-ATTRIBUTES / *BY-PROGRAM / *BY-CATALOG / *BY-HDR2 / <integer 0..99 *byte* >
Only for SAM tape files with BLOCK-CONTROL-INFO=*WITHIN-DATA-BLOCK or SAM tape files with nonstandard blocks: defines the buffer offset, i.e. the length in bytes of a field inserted at the start of each logical data block. If present, this field contains the block control information/block length field.

BLOCK-OFFSET = *BY-DATA-ATTRIBUTES
The value defined for the file specified in the DATA-ATTRIBUTES operand is used. If DATA-ATTRIBUTES is *STD, BLOCK-OFFSET defaults to *BY-PROGRAM.

BLOCK-OFFSET = *BY-PROGRAM
The value set in the program is used.
If there is no value set in the program, the following defaults apply:

- tape file with BLOCK-CONTROL-INFO=*WITHIN-DATA-BLOCK:
  - BLOCK-OFFSET=16 applies with ACCESS-METHOD=*SAM
  - BLOCK-OFFSET=12 applies with ACCESS-METHOD=*UPAM
- tape file with BLOCK-CONTROL-INFO=*NO:
  - BLOCK-OFFSET=4 applies with RECORD-FORMAT=*VARIABLE
  - BLOCK-OFFSET=0 applies with RECORD-FORMAT=*FIXED/*UNDEFINED

BLOCK-OFFSET = *BY-CATALOG
The value set in the catalog is used.

BLOCK-OFFSET = *BY-HDR2
The BLOCK-OFFSET value is taken from the HDR2 label. If there is no HDR2 label, or if the “buffer offset” field in the HDR2 label contains blanks (X’4040’), the default is used (see *BY-PROGRAM).

BLOCK-OFFSET = <integer 0..99 *byte* >
Specifies the length of the buffer offset.
For variable-length records (RECORD-FORMAT=*VARIABLE) the buffer offset may have a length between 0 and 4 bytes. If BLOCK-OFFSET=4 is set, this field contains the current block length.

TAPE-WRITE = *BY-PROGRAM / *DEVICE-BUFFER / *IMMEDIATE
Only for files on tape cartridges (CREATE-FILE/MODIFY-FILE-ATTRIBUTES command, DEVICE-TYPE operand): defines whether the output is to be buffered.

TAPE-WRITE = *BY-PROGRAM
The value specified in the program is used.

TAPE-WRITE = *DEVICE-BUFFER
Output is buffered by the device controller, resulting in a high data transfer rate.

TAPE-WRITE = *IMMEDIATE
Output is not buffered.

DESTROY-OLD-CONTENTS = *BY-CATALOG / *NO / *YES
The user can specify whether other files on the tape are to be destroyed by overwriting after EOF/EOV processing. The operand has the same function as the DESTROY parameter in the catalog entry, but it takes precedence over the catalog entry created by the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command, DESTROY-BY-DELETE operand. Values specified for this operand are not transferred to the FCB or the catalog entry.

DESTROY-OLD-CONTENTS = *BY-CATALOG
When the file is processed, the value assigned to DESTROY-BY-DELETE in the catalog entry takes effect.

DESTROY-OLD-CONTENTS = *NO
The old contents are not destroyed.

DESTROY-OLD-CONTENTS = *YES
The data on the remainder of the tape is destroyed once the EOF/EOV labels have been written.

IO-CHAINING = *BY-PROGRAM / <integer 1..16>
Only for BTAM files and chained I/O: defines the number of logical blocks per transport unit (chaining factor specifying the of the I/O transport unit/transmission unit).

IO-CHAINING = *BY-PROGRAM
The value specified in the program is used.

IO-CHAINING = <integer 1..16>
Designates a number of logical blocks such that the length of the transport unit is computed as (IO-CHAINING BUFFER-LENGTH). Although specifications in the program (BTAM macro, LEN operand) take precedence over the product (IO-CHAINING BUFFER-LENGTH), IO-CHAINING must be specified in the ADD-FILE-LINK command if chained I/O is used.

FILE-CLOSE-MSG = *STD / *NO / *YES
For SAM files the user can specify whether the close message DMS0DE7 is to be written to SYSOUT on completion of CLOSE processing. If system parameter CONSDDE7=Y is set, the message is also output on the console.

FILE-CLOSE-MSG = *STD
The following default applies:

- for tape disk files: FILE-CLOSE-MSG = *NO
- for tape files: FILE-CLOSE-MSG = *YES

FILE-CLOSE-MSG = *NO
The file close message is suppressed.

FILE-CLOSE-MSG = *YES
The file close message is sent.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed successfully

	1	CMD0202	Syntax or semantic error
	1	DMS0576	Invalid operand combination
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Required authorization not available
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS0535	Specified file not shareable
	64	DMS0585	Error detected when processing catalog or multiprocessor system.
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS060D	Invalid reference file name
	64	DMS0616	Volume set in SM pubset cannot be accessed
	64	DMS0684	File does not exist Guaranteed message: DMS0684
	64	DMS0685	File not yet allocated storage space
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system.
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	CE limit reached

Examples

Example 1: Creating a TFT entry with values from the catalog entry

/show-file-attr savlst.hsmsmac,inf=(org=yes)

```
%0000000027 :2OSG:$USER1.SAVLST.HSMSMAC
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *K          S0-MIGR    = *ALLOWED
%:2OSG: PUBLIC:      1 FILE  RES=        27 FRE=         4 REL=         3 PAGES
```

/add-file-link link=edtsam,file-name=avlst.hsmsmac,
access-method=*by-cat,
rec-form=*by-cat,buffer-length=*by-cat,block-contr-info=*by-cat
/show-file-link link=edtsam,inf=*all

```
%-- LINK-NAME --------- FILE-NAME ---------------------------------------------
%   EDTSAM              :2OSG:$USER1.SAVLST.HSMSMAC
%  -------------------- STATUS ------------------------------------------------
%  STATE      = INACTIVE    ORIGIN     = FILE
%  -------------------- PROTECTION --------------------------------------------
%  RET-PER    = *BY-PROG    PROT-LEV   = *BY-PROG
%  BYPASS     = *BY-PROG    DESTROY    = *BY-CAT
%  -------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
%  ACC-METH   = *BY-CAT     OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-CAT
%  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-CAT     BLK-CONTR  = *BY-CAT
%  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
%  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
%  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
%  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
%  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
%  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
%  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
%  STREAM     = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
%  KEY-POS    = *BY-PROG    KEY-LEN    = *BY-PROG    POOL-LINK  = *BY-PROG
%  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
%  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
%  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
%  -------------------- VOLUME ------------------------------------------------
%  DEV-TYPE   = *NONE       T-SET-NAME = *NONE
%  VSN/DEV    = GVS2.2/D3435
```

All the file attributes for which *BY-CATALOG is specified in the ADD-FILE-LINK command are marked *BY-CAT in the TFT entry. When the file named *LST.HSMSRECALL* is accessed via its link name of *EDTSAM*, these attributes will be taken from the file's catalog entry.

Example 2: File attributes in the command

```
/create-file max.file.1
/show-file-attr max.file.1,org=*yes
```

```
%0000000003 :2OSG:$USER1.MAX.FILE.1
 %  ------------------------------ ORGANIZATION ------------------------------
 %  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
 %  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
 %  REC-FORM   = NONE        REC-SIZE   = 0
 %  AVAIL      = *STD
 %  WORK-FILE  = *NO         F-PREFORM  = *K          S0-MIGR    = *ALLOWED
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

```
/add-file-link link=output1,file-name=max.file.1,acc-method=*isam,
       support=*disk(isam-attr=*par(key-pos=5,key-length=10))
/show-file-link link=output1,inf=*par(file=*yes)
```

```
 %-- LINK-NAME --------- FILE-NAME ------------------------------------------
 %   OUTPUT1             :2OSG:$USER1.MAX.FILE.1
 %  -------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
 %  ACC-METH   = ISAM        OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-PROG
 %  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-PROG    BLK-CONTR  = *BY-PROG
 %  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
 %  -------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
 %  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
 %  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
 %  -------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
 %  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
 %  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
 %  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
 %  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
 %  STREAM     = *BY-PROG
 %  -------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
 %  KEY-POS    = 5           KEY-LEN    = 10          POOL-LINK  = *BY-PROG
 %  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
 %  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
 %  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
```

A new file, *MAX.FILE.1* , is created with the CREATE-FILE command. The attributes specified in the ADD-FILE-LINK command are transferred to the TFT entry. When the new file is processed by way of the link name *OUTPUT1,* these attributes are copied into the file control block.

Example 3: Importing file attributes from a reference file

```
/cre-file abk.neu
/show-file-attr abk.isam,inf=(org=*yes)
```

```
%0000000126 :2OSG:$USER1.ABK.ISAM
 %  ------------------------------ ORGANIZATION ------------------------------
 %  FILE-STRUC = ISAM        BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
 %  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
 %  REC-FORM   = (V,N)       REC-SIZE   = 0
 %  KEY-LEN    = 30          KEY-POS    = 8
 %  AVAIL      = *STD
 %  WORK-FILE  = *NO         F-PREFORM  = *K          S0-MIGR    = *ALLOWED
 %:2OSG: PUBLIC:      1 FILE  RES=       126 FRE=         5 REL=         3 PAGES
```

```
/add-file-link link=output2,file-name=abk.neu,
               data-attr=*from-file(abk.isam)
/show-file-link link=output2,inf=*all
```

```
 %-- LINK-NAME --------- FILE-NAME ---------------------------------------------
 %   OUTPUT2             :2OSG:$USER1.ABK.NEU
 %  -------------------- STATUS ------------------------------------------------
 %  STATE      = INACTIVE    ORIGIN     = FILE
 %  -------------------- PROTECTION --------------------------------------------
 %  RET-PER    = *BY-PROG    PROT-LEV   = *BY-PROG
 %  BYPASS     = *BY-PROG    DESTROY    = *BY-CAT
 %  -------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
 %  ACC-METH   = ISAM        OPEN-MODE  = *BY-PROG    REC-FORM   = VARIABLE
 %  REC-SIZE   = 0           BUF-LEN    = (STD,1)     BLK-CONTR  = PAMKEY
 %  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
 %  -------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
 %  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
 %  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
 %  -------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
 %  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
 %  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
 %  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
 %  REST-USAGE = *BY-PROG    BLOCK-OFF  = 0           TAPE-WRITE = *BY-PROG
 %  STREAM     = *BY-PROG
 %  -------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
 %  KEY-POS    = 8           KEY-LEN    = 30          POOL-LINK  = *BY-PROG
 %  LOGIC-FLAG = 0           VAL-FLAG   = 0           PROPA-VAL  = MINIMUM
 %  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
 %  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
 %  -------------------- VOLUME ------------------------------------------------
 %  DEV-TYPE   = *NONE       T-SET-NAME = *NONE
 %  VSN/DEV    = GVS2.3/D3435
```

A new file, *ABK.NEU*, is created with the CREATE-FILE command. For processing purposes, the new file is to have the same attributes as an existing file, *ABK.ISAM*. For this purpose *ABK.ISAM* is specified as the reference file in the ADD-FILE-LINK command (see DATA-ATTRIBUTES operand). The file attributes of the reference file specified in the ADD-FILE-LINK command are copied into the TFT entry. When the new file is processed by way of the link name *OUTPUT2*, these attributes are copied into the file control block.

2.13 ADD-IO-UNIT

Add input/output unit to configuration

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

Systems support can dynamically extend the input/output configuration with the ADD-IO-UNIT command. New input /output units (devices, controllers) can be defined. New input/output units have to be specified in the order channel -> controller -> device. Up to 256 devices can be added to the controller using the ADD-IO-UNIT command.

Dynamic I/O configuration change is supported for the following device classes:

- disk and tape devices
- LAN devices

The command is only accepted if the dynamic I/O configuration change was started successfully (see START-CONFIGURATION-UPDATE command).

Restrictions and peculiarities

The following procedures have to be completed before a new tape device that has been added using ADD-IO-UNIT can take up operation:

1. A depot has to be assigned to the device using the ADD-DEVICE-DEPOT command.
2. If MAREN is being used and the new device is to be subject to free tape allocation, the MARENUCP subsystem has to be stopped and restarted.
3. If the new device is being operated by a robot and if it is not contained in the ROBAR configuration file, the ROBAR-SV subsystem has to be stopped and restarted.

A new LAN device has to be configured in BCAM before or after being added.

The IOTRACE subsystem only considers new input/output units, if it is restarted after changes have been made to the configuration.

Format

ADD-IO-UNIT

UNIT = ***CHANNEL**(...) / ***CONTR**OLLER(...) / ***DEV**ICE(...)

***CHANNEL**(...)

| **TYPE** = ***IBF** (...)

| ***IBF**(...)

| | **MODE** = ***FCP**

| ,**CHANNEL-PATH-ID** = <x-text 2..3>

***CONTR**OLLER(...)

| **NAME** = <alphanum-name 2..2> / <x-text 4..4>

| ,**TYPE** = <alphanum-name 3..6>

| ,**LOGICAL-ADDRESS** = **0** / <integer 0..255>

| ,**PATH** = list-poss(8): ***CHANNEL**(...)

| ***CHANNEL**(...)

| | **CHANNEL-PATH-ID** = <x-text 2..3>

| | ,**CONTROLLER-ADDRESS** = **00** / <x-text 1..2>

| | ,**PATH-STATE** = ***INCLUDED** / ***REMOVED**

| | ,**PORT-ID** = ***NONE** / <x-text 2..16>

| ,**DEVICE-RANGE** = list-poss(8): ***DEVICE** (...)

| ***DEV**ICE(...)

| | **FIRST-ADDRESS** = **00** / <x-text 2..2>

| | ,**NUM**BER-**OF-DEV**ICES = **256** / <integer 1..256>

***DEV**ICE(...)

| **NAME** = <alphanum-name 2..2> / <x-text 4..4> / ***RANGE**(...)

| ***RANGE**(...)

| | **FIRST-NAME** = <alphanum-name 2..2> / <x-text 4..4>

| | ,**NUM**BER-**OF-DEV**ICES = <integer 2..256>

| ,**TYPE** = <x-text 2..4 without-odd>

| ,**DEV**ICE-**ADDR**ESS = <x-text 2..2>

```
        |   ,PATH = list-poss(8): *CHANNEL(...) / *CONTROLLER(...)
        |       *CHANNEL(...)
        |           |   CHANNEL-PATH-ID = <x-text 2..3>
        |           |   ,PATH-STATE = *INCLUDED / *REMOVED
        |       *CONTROLLER(...)
        |           |   NAME = <alphanum-name 2..2> / <x-text 4..4>
        |           |   ,PATH-STATE = *INCLUDED / *REMOVED
        |   ,PREFERRED-PATH = *NO / *YES(...)
        |       *YES(...)
        |           |   CHANNEL-PATH-ID = <x-text 2..3>
        |   ,PAV-ALIAS-DEVICE = *NO / *YES(...)
        |       *YES(...)
        |           |   DEVICE-ADDRESS = <x-text 2..2>
,STATE = *ATTACHED / *DETACHED
```

Operands

UNIT = *CHANNEL(...) / *CONTROLLER(...) / *DEVICE(...)
Specifies which input/output unit is to be added to the configuration.

UNIT = *CHANNEL(...)
Specifies the channel to be added to the configuration.

TYPE = *IBF(...)
A serial type FC channel is to be added.

MODE = *FCP
Specifies the mode in which the IBF channel is to operate:
The channel is operated in “fibre channel” mode (for connecting controllers with FC capability). This is the default value.

CHANNEL-PATH-ID = <x-text 2..3>
The number of the channel.

UNIT = *CONTROLLER(...)
The controller that is to be added to the configuration.

NAME = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code of the controller: either two alphanumeric characters (A...Z, 0...9) or four hexadecimal digits in the range 1000 through FFFF.

TYPE = <alphanum-name 3..6>
Controller type.

LOGICAL-ADDRESS = 0 / <integer 0..255>
Specifies a logical address:
0 to 255 for the controller on the type FC channel (MODE=*FCP).

The default is logical address 0.
For the controller on the fibre channel this specifies the more significant byte of the LUNs (Logical Unit Numbers) of the devices connected to this controller. The low order byte of the LUN is defined for the device by the DEVICE-ADDRESS operand.

PATH = list-poss(8): *CHANNEL(...)
As many as eight input/output paths via which the controller can be accessed can be entered in a list.

CHANNEL-PATH-ID = <x-text 2..3>
Specifies the number of the channel to which the controller is linked.

CONTROLLER-ADDRESS = 00 / <x-text 1..2>
Specifies the physical controller address.
The default is address 00.

PATH-STATE = *INCLUDED / *REMOVED
Specifies whether the link between the channel and the controller is available. The default is *INCLUDED, i.e. the connection is available.

PORT-ID = *NONE / <x-text 2..16>
Specifies whether the controller is connected to a Fibre Channel.
The default is *NONE, i.e. the controller is not connected to a Fibre Channel.

PORT-ID = <x-text 2..16>
When a controller is connected to a Fibre Channel the WWPN (World Wide Port Name) of the controller port (16 hexadecimal characters) must be specified. The /SHOW-DEVICE-CONFIGURATION INF=*INNER command for the controller can then be used to output the WWPN.

DEVICE-RANGE = list-poss(8): *DEVICE(...)
Lists up to eight address areas through which devices linked to the controller can be accessed. Each address area is specified by the first device address and the total number of device addresses that follow it. To determine a device address in the address area, 1 is added for each device, starting from the first address. The value of the final address must not exceed FFFF.

FIRST-ADDRESS = 00 / <x-text 2..2>
First device address.

NUMBER-OF-DEVICES = 256 / <integer 1..256>
Number of devices in the address area.

UNIT = *DEVICE(...)
A device that is to be added to the configuration.

NAME = <alphanum-name 2..2> / <x-text 4..4> / *RANGE(...)
Mnemonic device code of the device: either two alphanumeric characters (A...Z, 0...9) or four hexadecimal digits in the range 1000 through FFFF. A two-character alphanumeric mnemonic can always be selected for devices. A four-digit hexadecimal device mnemonic (1000 - FFFF) is permitted for all disk and tape devices and for devices of the type 6D (HNC).
A group of devices can be added with the aid of the *RANGE operand.

NAME = *RANGE(...)
A range of devices is added. Based on the mnemonics of the first device (FIRST-NAME operand), the mnemonics of the following devices are determined by adding 1 until the maximum number of devices defined in the NUMBER-OF-DEVICES operand is reached. The group can comprise as many as 256 devices. The maximum number has to be chosen so as not to exceed the value FFFF when the mnemonics are calculated.

FIRST-NAME = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code of the first device.

NUMBER-OF-DEVICES = <integer 2..256>
Number of devices to be added.

TYPE = <x-text 2..4 without-odd>
Device type code (see “System installation” [46]).

DEVICE-ADDRESS = <x-text 2..2>
Device address.
For a device on the Fibre Channel this specifies the low order byte of the LUN (Logical Unit Number). The more significant byte of the LUN is defined on the controller using the LOGICAL-ADDRESS operand.

PATH = list-poss(8): *CHANNEL(...) / *CONTROLLER(...)
Up to eight input/output paths can be specified in a list, via which a device or a group of devices can be reached. The entries can refer either on the channel or on the controller. A mixed entry of both is not possible.

PATH = list-poss(8): *CHANNEL(...)
As many as eight channels via which the device can be addressed can be specified in a list.
Channel-specific specifications are not currently supported on SU /390 and S servers. Devices can only be added via a controller (see PATH= *CONTROLLER).

CHANNEL-PATH-ID = <x-text 2..3>
Number of the channel to which the device is linked.

PATH-STATE = *INCLUDED / *REMOVED
Specifies whether the link between the channel and the device is available or not. The default is *INCLUDED, i.e. the connection is available.

PATH = list-poss(8): *CONTROLLER(...)
As many as eight controllers via which the device can be accessed can be specified in a list.

NAME = <alphanum-name 2..2> / <x-text 4..4>
The device code of the controller to which the device is linked.

PATH-STATE = *INCLUDED / *REMOVED
Specifies whether the link between the controller and the device is available or not. The default is *INCLUDED, i.e. the connection is available.

PREFERRED-PATH = *NO / *YES(...)
Specifies whether a path is to preferred on input/output if the device can be accessed via different paths. The default setting is *NO, i.e. there is no preferred path.

PREFERRED-PATH = *YES(...)
A specific input/output path is to be used with preference.

CHANNEL-PATH-ID = <x-text 2..3>
Designates the preferred path (Channel Path Identifier).

PAV-ALIAS-DEVICE = *NO / *YES(...)
Specifies whether the device is to be defined as an alias device of a PAV volume on the Fibre Channel. The default is *NO, i.e. no alias device is defined.

PAV-ALIAS-DEVICE = *YES(...)
The device is to be defined as an alias device of a PAV volume. The associated PAV base device must already be defined and it may not have a lower device number than the alias device (an assignment table with the mnemonic and device number is contained in the “System Installation” manual [46]).

DEVICE-ADDRESS = <x-text 2..2>
Alias address of the alias device. The address must be unique in the controller. For an alias device on the Fibre Channel the alias address must differ from the low order byte of the LUN.
Information on generating base and alias devices is provided in the “System Installation” manual [46].

STATE = *ATTACHED / *DETACHED
Specifies the status (available or not available) in which the input/output unit is added to the configuration. The default is *ATTACHED, i.e. the new input/output unit is available. This status can be changed using the ATTACH-DEVICE or DETACH-DEVICE commands.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	NKR0006	Syntax error
	64	CMD0216	Insufficient authorization
1	64	NKR0169	system error
2	64	NKR0169	Wrong parameter
3	64	NKR0169	Dynamic I/O configuration change was rejected
4	64	NKR0169	Dynamic I/O configuration change not supported
6	64	NKR0169	Internal input/output unit not defined
7	64	NKR0169	Input/output unit already defined
8	64	NKR0169	Input/output unit type not supported
10	64	NKR0169	No free table entry for input/output unit
12	64	NKR0169	Dynamic I/O configuration change was not started
14	64	NKR0169	Configuration changes not made in guest system
16	64	NKR0169	Another guest system currently being started
17	64	NKR0169	Another guest system currently being stopped
18	64	NKR0169	Dynamic I/O configuration change is not supported by one or several guest systems

Specification of controller type (UNIT=*CONTROLLER)

For disk and tape controllers on the Fibre Channel no distinction need be made between types. A disk controller is generated with DISK01, a tape controller with TAPE02 and controller for LAN devices with TD0001.

Example

The logical volumes with the LUNs 256 through 505 are configured on 2 ports of a disk controller with the port WWPNs 50060484360A4E8E and 50060484360A4E9A and connected to the two type FC channels with the channel numbers 38 and 3C (via an FC switch). The two controller ports are to be defined as a controller with the name 8800, the logical volumes as devices of the type D3435 with the names 8800 through 88F9. The logical volume with LUN 256 is to be operated as a PAV volume with 8800 as the base device and 88FF as the alias device.

Procedure

1. Start configuration update:

```
/START-CONFIGURATION-UPDATE
```

2. Add channels:

```
/ADD-IO-UNIT UNIT=*CHANNEL(TYPE=*IBF(MODE=*FCP),CHANNEL-PATH-ID=38)
/ADD-IO-UNIT UNIT=*CHANNEL(TYPE=*IBF(MODE=*FCP),CHANNEL-PATH-ID=3C)
```

3. Add controller:

```
/ADD-IO-UNIT UNIT=*CONTR(NAME=8800,TYPE=DISK01,LOGICAL-ADDR=1,
                         PATH=(*CHANNEL(38,00,,50060484360A4E8E),
                               *CHANNEL(3C,00,,50060484360A4E9A)),
                            DEV-RANGE=*DEV(00,256))
```

4. Add devices:

```
/ADD-IO-UNIT UNIT=*DEV(NAME=*RANGE(8800,250),TYPE=A5,
                       DEV-ADDR=00,PATH=*CONTR(8800)),
                STATE=*DETACHED
```

5. Add PAV alias device:

```
/ADD-IO-UNIT UNIT=*DEV(NAME=88FF,TYPE=A5,DEV-ADDR=00,
                       PATH=*CONTR(8800),PAV-ALIAS-DEV=*YES(DEV-ADDR=FF)),
                STATE=*DETACHED
```

6. Terminate configuration update:

   `/STOP-CONFIGURATION-UPDATE IORSF-UPDATE*YES(LEVEL=n)`

2.14 ADD-ISAM-POOL-LINK

Assign pool link name to ISAM pool

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

The ADD-ISAM-POOL-LINK command is used to assign a pool link name to an ISAM pool for a user job and to enter this name in the task-local pool table. The job must already be linked to the specified ISAM pool (see the CREATE-ISAM-POOL command). With this pool link name, a connection can then be established via the TFT to a file, using the ADD-FILE-LINK command (with the operands LINK-NAME and POOL-LINK). The link name must be unique within a task. The user can have entries of the task-local pool table displayed by using the SHOW-ISAM-POOL-LINK command. Pool link names can be deleted from the pool table with the REMOVE-ISAM-POOL-LINK command.

For a full description of the ISAM pool see the “Introductory Guide to DMS” [13] or the “DMS Macros” manual [12].

Format

ADD-ISAM-POOL-LINK

LINK-NAME = <name 1..8>

,**POOL-NAME** = <name 1..8>(...)

<name 1..8>(...)

| **CAT-ID** = ***DEF**AULT-**PUB**SET / <cat-id 1..4>

| ,**SCOPE** = ***TASK** / ***HOST-SYS**TEM / ***USER-ID** / ***USER-GROUP**

Operands

LINK-NAME = <name 1..8>
Link name by which the ISAM pool can be addressed (see the POOL-NAME operand). The link name must be unique within a task.

POOL-NAME = <name 1..8>(...)
Name of the ISAM pool to which the pool link name is to be assigned (see the LINK-NAME operand). The ISAM pool is uniquely identified by the specified name, the catalog ID (see the CAT-ID operand) and the scope (see the SCOPE operand). The job must already be linked to the ISAM pool (see the CREATE-ISAM-POOL or SHOW-ISAM-POOL-ATTRIBUTES command).

CAT-ID = *DEFAULT-PUBSET / <alphanum-name 1..4>
Catalog ID of the pubset to which the ISAM pool is assigned.
The specified catalog ID must match the specification in the corresponding CREATE-ISAM-POOL command.

CAT-ID = *DEFAULT-PUBSET
The ISAM pool is assigned to the catalog that was set with the `ISPLDEFC system parameter (ISAM-POOL-DEFAULT-CATID)`:

X'00':	default catalog ID from the user entry (see the SHOW-USER-ATTRIBUTES command, output field *DEFAULT-PUBSET*)
X'01':	catalog ID of the home pubset

CAT-ID = <alphanum-name 1..4>
Catalog ID of the pubset to which the ISAM pool is assigned.

SCOPE = *TASK / *HOST-SYSTEM / *USER-ID / *USER-GROUP
Specifies the scope of the ISAM pool.
The defined scope must match the specification in the corresponding CREATE-ISAM-POOL command.

SCOPE = *TASK
The pool link name is assigned to the task-local ISAM pool, i.e. the ISAM pool can only be used by its own task.

SCOPE = *HOST-SYSTEM
The pool link name is assigned to the cross-task ISAM pool (POOL-NAME operand), i.e. the ISAM pool can be used by all tasks.

SCOPE = *USER-ID / *USER-GROUP
These scopes are only supported for reasons of compatibility (see the CREATE-ISAM-POOL command).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	32	DMS0A17	Internal system error
	64	DMS0A0E	Syntax error in ISAM pool command
	64	DMS0A11	Specified catalog ID does not exist
	64	DMS0A13	Specified pool name is syntactically invalid
	64	DMS0A16	Pool link name already allocated
	64	DMS0A19	Specified ISAM pool does not exist
	64	DMS0A20	Parameters not permitted for remote BS2000 version
	64	DMS0A22	User group not present
	130	DMS0A12	Specified catalog ID not available

Examples

Use of an ISAM pool to process files

```
/show-isam-pool-attr pool=*all   ————————————————————————————————————  (1)
```

```
%
%  CATID    POOLNAME  SCOPE            WROUT   SIZE  EXTENTS  RESIDENT
%=========================================================================
%  1OSU     SDFPOOLN  TASK              NO      128   --/--      NO
%  1OSN     POOLAB01  HOST              YES      96   --/--      NO
%  1OSN     POOLAB01  TASK              NO       96   --/--      NO
%
```

```
/add-isam-pool-link link=pool1,pool-name=poolab01(scope=*host)  ————  (2)
/show-isam-pool-link pool-name=*all   ————————————————————————————  (3)
```

```
%
%     LINKNAME          CATID     POOLNAME       SCOPE
%=========================================================================
%     SDFPOOLN          1OSU      SDFPOOLN       TASK
%     POOL1             1OSN      POOLAB01       HOST
%
```

```
/show-file-attr abk.v100.isam,inf=(org=*yes)   ————————————————————  (4)
```

```
%0000000126 :1OSN:$USER1.ABK.V100.ISAM
%  ------------------------------ ORGANIZATION -------------------------------
%  FILE-STRUC = ISAM        BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%  KEY-LEN    = 30          KEY-POS    = 8
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *K          S0-MIGR    = *ALLOWED
%:1OSN: PUBLIC:      1 FILE  RES=       126 FRE=         5 REL=         3 PAGES
```

```
/add-file-link link=input1,file-name=abk.v100.isam,acc-method=*isam,
               isam-attr=(key-pos=*by-cat,key-len=*by-cat,pool-link=pool1),
               rec-form=*by-cat,buf-len=*by-cat,block-contr=*by-cat  ————  (5)
```

/show-file-link inf=(file-contr=*yes) —————————————————————————— (6)

```
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
%   INPUT1              :1OSN:$USERXY01.ABK.V100.ISAM
%  -------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
%  ACC-METH   = ISAM        OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-CAT
%  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-CAT     BLK-CONTR  = *BY-CAT
%  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
%  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
%  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
%  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
%  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
%  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
%  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
%  STREAM     = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
%  KEY-POS    = *BY-CAT     KEY-LEN    = *BY-CAT     POOL-LINK  = POOL1
%  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
%  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
%  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
```

/start-exe from=*lib-elem(lib=ass.plamlib,elem=neuwort3) ———————— (7)

```
%  BLS0517 MODULE 'NEUWORT3' LOADED
***  PRGLAUF OK! ***
```

/del-isam-pool pool=poolab01(scope=*task) —————————————————————— (8)
/del-isam-pool pool=poolab01(scope=*host) —————————————————————— (9)

```
%  DMS0A1A POOL LINKS TO SPECIFIED POOL STILL EXIST. COMMAND NOT PROCESSED
```

/show-isam-pool-attr pool=*all —————————————————————————————— (10)

```
%
%  CATID    POOLNAME  SCOPE            WROUT   SIZE  EXTENTS  RESIDENT
%=========================================================================
%  1OSU     SDFPOOLN  TASK              NO      128   --/--      NO
%  1OSN     POOLAB01  HOST              YES      96   2K/--      NO
%
```

/rem-isam-pool-link link=pool1 —————————————————————————————— (11)
/show-isam-pool-link pool-link=pool1 ———————————————————————————— (12)

```
%  DMS0A60 SPECIFIED ISAM-POOL-LINK-NAME DOES NOT EXIST. COMMAND REJECTED
```

/del-isam-pool pool=poolab01(scope=*host) —————————————————————— (13)

/show-isam-pool-attr pool=*all ——————————————————————————— (14)

```
%
%  CATID    POOLNAME  SCOPE            WROUT   SIZE  EXTENTS  RESIDENT
%=================================================================
%  1OSU     SDFPOOLN  TASK              NO      128   --/--      NO
%
```

(1) Returns information on all ISAM pools connected to the task. There is one ISAM pool named *SDFPOOLN*, and one host-specific and one task-local ISAM pool with the name *POOLAB01*. It is evident that no file has been processed via these ISAM pools as yet, since the output column *EXTENTS* does not contain any formatting information.

(2) Creates an entry in the task-local pool table. The pool link name POOL1 is assigned to the host-specific ISAM pool *POOLAB01*.

(3) Returns information on all pool link names.

(4) Catalog information on the organization of the NK-ISAM file *ABK.V100.ISAM*.

(5) Creates a TFT entry with the link name *INPUT1* for the file *ABK.V100.ISAM*. At the same time, it also links the file with the pool link name *POOL1* (in the POOL-LINK operand).

(6) Output of the TFT entry for the file *ABK.V100.ISAM* along with general information on file processing (FILE-CONTROL-BLOCK=*YES).

(7) The program *NEWWORD3* is started from the library *ASS.PLAMLIB*. This program processes individual records of an ISAM file via an ISAM pool. The name of the file to be processed is obtained from the TFT entry with the link name *INPUT1*. After running successfully, the program terminates and writes the message *** *PRGRUN OK!* *** to SYSOUT.

(8) The task-local ISAM pool POOLAB01 is deleted.

(9) The host-specific ISAM pool *POOLAB01* is to be deleted. The DELETE-ISAM-POOL command is rejected since there is still an entry in the task-local pool table for this pool (see step 10).

(10) Returns information on all ISAM pools connected to the task. It is now evident that at least one NK2-ISAM file (here *ABK.V100.ISAM*) has been processed via the host-specific ISAM pool *POOLAB01*, since the ISAM pool is now formatted with 2K (see the *EXTENTS* column and step 1).

(11) The entry with the pool link name *POOL1* is deleted.

(12) There is now no longer entry with the pool link name *POOL1*.

(13) A new attempt is made to delete the host-specific ISAM pool *POOLAB01*.

(14) The host-specific ISAM pool *POOLABO1* could be deleted. The task is now only connected to the task-local ISAM pool *SDFPOOLN*.

2.15 ADD-MASTER-CATALOG-ENTRY

Generate entry in MRSCAT of home pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS
Routing code:	$

Function

The command can be used to create MRSCAT entries both for single-feature pubsets (SF pubsets) and for system-managed pubsets (SM pubsets). The newly entered catalog is assigned the status “inaccessible”. An entry is not created if one already exists for the specified catalog ID. The catalog IDs must be unique throughout the entire network, i.e. the disks must be initialized accordingly using the VOLIN utility routine.

Unlike the IMPORT-PUBSET and EXPORT-PUBSET commands, this command does not affect the accessibility of the catalogs. With single-feature pubsets, default values are assigned for all cache attributes; with system-managed pubsets they are assigned for the cache attributes FORCE-IMPORT and SIZE-TOLERANCE only. (for administration of SM pubsets see “System-Managed Storage” [45]).

This command cannot be used to create a volume set entry. Volume set entries are generated automatically by the system when required.

Format

ADD-MASTER-**CAT**ALOG-**ENTRY**

ENTRY-NAME = <cat-id 1..4>

,**PUB**SET-**TYPE** = **<u>*SINGLE-FEATURE</u>** (...) / ***SYS**TEM-**MANAG**ED(...)

***SINGLE-FEATURE**(...)

| **START-SPEEDCAT** = **<u>*AUTOMATIC</u>** / ***NO** / ***SPEEDCAT-TASK** / ***OWN-TASK**

| ,**PHYS**ICAL-**ALLOC**ATION = **<u>*ADM**INISTRATOR-**ONLY</u>** / ***USER-ALLOW**ED

| ,**ALLOC**ATION = **<u>*STD</u>** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **SAT**URATION-**LEVEL4** = **<u>*STD</u>** / <integer 66..2147483647 *2Kbyte*>

| | ,**PRIM**ARY-**ALLOC**ATION = **<u>*STD</u>** / <integer 1..16777215 *2Kbyte*>

| | ,**SEC**ONDARY-**ALLOC**ATION = **<u>*STD</u>** / <integer 1..32767 *2Kbyte*>

| | ,**MAX**IMAL-**ALLOC**ATION = **<u>*STD</u>** / <integer 1..32767 *2Kbyte*>

***SYS**TEM**-MANAG**ED(...)

| **CONTR**OL**-VOL**UME**-SET** = ***NONE** / <cat-id 1..4>

,**PARTNER-NAME** = ***OWN** / <alphanum-name 1..8>

,**ACCESS-FAIL**URE = ***HOLD-JOBS** / ***CAN**CEL**-JOBS**

,**RESID**ENT**-BUFFERS** = ***SYS**TEM**-STD** / ***NO** / ***Y**ES

,**NUM**BER**-OF-BUFFERS** = ***SYS**TEM**-STD** / <integer 1..255>

,**BATCH-WAIT-TIME** = **28800** / <integer 0..2147483647 *seconds*>

,**DIALOG-WAIT-TIME** = **30** / <integer 0..2147483647 *seconds*>

,**SHARE**D**-PUB**SET = ***NO** / ***Y**ES

,**ACCESS-CONTR**OLLED = ***NO** / ***Y**ES(...)

***Y**ES(...)

| **USER-ID**ENTIFICATION = ***TSOS** / <alphanum-name 1..8>

,**EAM** = ***STD** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **MAX**IMAL**-SIZE** = ***STD** / <integer 12..193536 *2Kbyte*>

| ,**MIN**IMAL**-SIZE** = ***STD** / <integer 12..193536 *2Kbyte*>

| ,**SEC**ONDARY**-ALLOC**ATION = ***STD** / <integer 1..193536 *2Kbyte*>

| ,**VIRTUAL-MEMORY** = ***STD** / <integer 0..8192 *2Kbyte*>

,**REMOTE-IMPORT** = ***BY-CONNECTION** / ***BY-COMMAND-ONLY**

,**XCS-CONF**IGURATION = ***NO** / ***Y**ES

,**PUBRES-UNIT** = ***STD** / <alphanum-name 2..2> / <x-text 4..4>

Operands

ENTRY-NAME = <cat-id 1..4>
Catalog ID of the pubset for which a new entry is to be generated in the MRSCAT.

PUBSET-TYPE = *SINGLE-FEATURE(...) / *SYSTEM-MANAGED(...)
Indicates the type of pubset for which a new entry is to be generated in the MRSCAT.

PUBSET-TYPE = *SINGLE-FEATURE(...)
The pubset for which a new entry is to be generated in the MRSCAT is an SF pubset.

START-SPEEDCAT = *AUTOMATIC / *NO / *SPEEDCAT-TASK / *OWN-TASK
Governs whether SCA is to be available for this pubset.

START-SPEEDCAT = *AUTOMATIC
If the SPEEDCAT function is available, SCA is started automatically when the pubset is imported under a local task, the SPEEDCAT task.

START-SPEEDCAT = *NO
SCA is not to be available.

START-SPEEDCAT = *SPEEDCAT-TASK
SCA is to be available, and should run under a separate task, the SPEEDCAT task.

START-SPEEDCAT = *OWN-TASK
SCA should be available and run under the user's task.

PHYSICAL-ALLOCATION = *ADMINISTRATOR-ONLY / *USER-ALLOWED
Specifies whether users may directly allocate individual volumes of this pubset.

PHYSICAL-ALLOCATION = *ADMINISTRATOR-ONLY
Users may not directly allocate the volumes of this pubset. This right is reserved for the privileged caller under TSOS.

PHYSICAL-ALLOCATION = *USER-ALLOWED
On this pubset, nonprivileged users will also be permitted to allocate individual volumes.

ALLOCATION = *STD / *PARAMETERS(...)
Specifies whether particular allocation parameters should be set for data processing on the pubset.

ALLOCATION = *STD
The setting *STD, i.e. the value of the system parameter concerned (see the description of the *STD operand values for the various allocation parameters below), should be specified for all allocation parameters.

ALLOCATION = *PARAMETERS(...)
Specifies allocation parameters for the pubset, with the values which follow.

SATURATION-LEVEL4 = *STD / <integer 66..2147483647 *2Kbyte* >
The value specified in the system parameter L4SPDEF is to apply.

SATURATION-LEVEL4 = *STD
The standard value established at system generation (class 2 system parameter L4SPDEF) is to apply.

SATURATION-LEVEL4 = <integer 66..2147483647 *2Kbyte* >
Value of memory saturation level 4 which is to apply to this pubset.

PRIMARY-ALLOCATION = *STD / <integer 1..16777215 *2Kbyte* >
The allocation parameter for the primary allocation when a storage space request is made (file processing) is to be set.

PRIMARY-ALLOCATION = *STD
The value specified in the system parameter DMPRALL is to apply.

PRIMARY-ALLOCATION = <integer 1..16777215 *2Kbyte* >
The value to be applied for this pubset, for primary storage space allocations during file processing. This value will apply as the default value for any user who does not specify an initial allocation in a storage space request.

SECONDARY-ALLOCATION = *STD / <integer 1..32767 *2Kbyte* >
The allocation parameter for secondary allocations when a storage space request is made (file processing) is to be set.

SECONDARY-ALLOCATION = *STD
The value specified in the system parameter DMSCALL is to apply.

SECONDARY-ALLOCATION = <integer 1..32767 *2Kbyte* >
The value to be applied for this pubset, for secondary storage space allocations during file processing. This value will apply as the default value for any user who does not specify an initial allocation in a storage space request.

MAXIMAL-ALLOCATION = *STD / <integer 1..32767 *2Kbyte* >
The allocation parameter for doubling the secondary allocation when a storage space request is made (file processing) is to be set.

MAXIMAL-ALLOCATION = *STD
The value specified in the system parameter DMMAXSC is to apply.

MAXIMAL-ALLOCATION = <integer 1..32767 *2Kbyte* >
The value assigned to this pubset for doubling of the secondary storage space allocation during file processing. This value will be the maximum value for any user, for whom the space remains inadequate even after a secondary allocation has been made. The value for the secondary allocation will be repeatedly doubled until the specified maximum value is reached.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset for which a new entry is to be generated in the MRSCAT is an SM pubset.

CONTROL-VOLUME-SET = *NONE / <cat-id 1..4>
Governs whether a control volume set is used.

CONTROL-VOLUME-SET = *NONE
A control volume set is not to be used.

CONTROL-VOLUME-SET = <cat-id 1..4>
Specifies the catalog ID of the pubset that is to be used as the control volume set.

PARTNER-NAME = *OWN / <alphanum-name 1..8>
BCAM name of the partner processor for remote file access.

PARTNER-NAME = *OWN
No BCAM name is specified.

PARTNER-NAME = <alphanum-name 1..8>
BCAM name of the processor for remote file access (RFA). A processor can only be specified if no MSCF connection exists but RFA is nevertheless required.
If an MSCF connection exists and REMOTE-IMPORT=*BY-CONNECTION is specified, the system automatically enters the name of the master computer.

ACCESS-FAILURE = *HOLD-JOBS / *CANCEL-JOBS
Only for a shared pubset:
Defines the behavior if the MSCF connection to the master of an imported shared pubset is lost.

ACCESS-FAILURE = *HOLD JOBS
The pubset is set to the LOCAL-IMPORTED, QUIET state for the duration of the connection interruption.
Tasks that access the pubset enter a wait state, the duration of which is defined by the BATCH-WAIT-TIME or DIALOG-WAIT-TIME parameter (see below).

ACCESS-FAILURE = *CANCEL-JOBS
The pubset is set to the INACC state for the duration of the connection interruption. Attempts to access the pubset are immediately rejected - at program level with a corresponding return code, at command level by triggering a spin-off.

RESIDENT-BUFFERS = *SYSTEM-STD / *NO / *YES
Specifies whether resident or nonresident buffers are to be created.

RESIDENT-BUFFERS = *SYSTEM-STD
The value definition of *SYSTEM-STD depends on the specifications of the NUMBER-OF-BUFFERS operand (see there).

RESIDENT-BUFFERS = *NO
Nonresident buffers are used.

RESIDENT-BUFFERS = *YES
Resident buffers are used.

NUMBER-OF-BUFFERS = *SYSTEM-STD / <integer 1..255>
Defines the number of buffers.

If the value *SYSTEM-STD is specified for both RESIDENT-BUFFERS and NUMBER-OF-BUFFERS, in the MRSCAT is entered that the system parameters CATBUFR and BMTNUM should take effect.
If the value *SYSTEM-STD is specified for only one of the two operands, this corresponds to a standard value (RESIDENT-BUFFERS = * NO, NUMBER-OF-BUFFERS = 32).

The buffer specification is evaluated - according to the following hierarchy - only when the pubset is imported:

1. Explicit parameter specification in the IMPORT-PUBSET command.
2. Values entered in the MRSCAT.
3. Specification due to system parameters CATBUFR and BMTNUM.
4. If the value specified for NUMBER-OF-BUFFERS is less than 32, it is increased to 32.

BATCH-WAIT-TIME = 28800 / <integer 0..2147483647 *seconds* >
Only for a shared pubset:

Time in seconds that batch jobs are to wait for the availability of pubsets that cannot be accessed due to a connection failure. If the time specified is exceeded, command processing is aborted with an error code and the spin-off mechanism is triggered. The default value for this wait time is 28800 seconds (8 hours).

DIALOG-WAIT-TIME = 30 / <integer 0..2147483647 *seconds* >
Only for a shared pubset:
As with batch jobs, defines wait time for interactive jobs. If the time specified is exceeded, the interactive job receives a message and is resumed. The default value here is 30 seconds.

SHARED-PUBSET = *NO / *YES
Determines the shareability of the pubset for local processors.

ACCESS-CONTROLLED = *NO / *YES
Specifies whether access to the pubset is to be restricted to one user ID.

ACCESS-CONTROLLED = *NO
Access to the pubset is not subject to any restrictions.

ACCESS-CONTROLLED = *YES(...)
Access to the pubset is to be restricted to one user ID.

USER-IDENTIFICATION = *TSOS / <alphanum-name 1..8>
Specifies the user ID which is to have access to the pubset.

USER-IDENTIFICATION = *TSOS
Only the TSOS user ID has access to the pubset.

USER-IDENTIFICATION = <alphanum-name 1..8>
Specifies a user ID, in addition to the TSOS user ID, which is to be permitted access to the pubset.

EAM = *STD / *PARAMETERS(...)
Specifies the SYSEAM file parameters specific to this pubset.

EAM = *STD
The setting *STD, i.e. the value of the system parameter concerned (see the description of the *STD operand values for the various SYSEAM parameters below), should be specified for all SYSEAM parameters.

EAM = *PARAMETERS(...)
Specifies the SYSEAM parameters which follow for the pubset.

MAXIMAL-SIZE = *STD / <integer 12..193536 *2Kbyte* >
This operand is only supported for reasons of compatibility and is no longer evaluated.

MINIMAL-SIZE = *STD / <integer 12..193536 *2Kbyte* >
Specifies the minimum size (number of half pages) that the SYSEAM file may occupy in the specified pubset.

MINIMAL-SIZE = *STD
The value specified in the system parameter EAMMIN is to apply.

MINIMAL-SIZE = <integer 12..193536 *2Kbyte* >
Minimum size (number of half pages) that the SYSEAM file may occupy in the pubset.

SECONDARY-ALLOCATION = *STD / <integer 1..193536 *2Kbyte* >
Specifies the secondary allocation for the SYSEAM file, for this pubset.

SECONDARY-ALLOCATION = *STD
The value specified in the system parameter EAMSEC is to apply.

SECONDARY-ALLOCATION = <integer 1..193536 *2Kbyte* >
Value of the secondary allocation for the SYSEAM file (number of half pages). This value should be a multiple of 24.

VIRTUAL-MEMORY = *STD / <integer 0..8192 *2Kbyte* >
Specifies the number of half pages to be used in determining the size of the EAM cache area in class 4 memory. A cache area can only be created for the SYSEAM file of the home pubset. The parameter has no effect for any other pubsets.

VIRTUAL-MEMORY = *STD
The size of the EAM cache area will be determined from the value of the class 2 system parameter EAMMEM.

VIRTUAL-MEMORY = <integer 0..8192 *2Kbyte* >
The number of half pages specified here determines the size of the EAM cache area.

REMOTE-IMPORT = *BY-CONNECTION / *BY-COMMAND-ONLY
Defines how the remote import status can be changed.

REMOTE-IMPORT = *BY-CONNECTION
The change is made on connection setup.

REMOTE-IMPORT = *BY-COMMAND-ONLY
The remote import status can only be changed by a command.

XCS-CONFIGURATION = *NO / *YES
For shared pubset only:
Defines whether the pubset may be automatically imported as an XCS pubset when a new XCS network is established.

XCS-CONFIGURATION = *NO
The pubset must not be imported automatically as an XCS pubset. (The pubset may nonetheless be used as an XCS pubset using the SET-XCS-PUBSET command.)

XCS-CONFIGURATION = *YES
The pubset is to be imported automatically as an XCS pubset by the MSCF subsystem when a new XCS network is established.

PUBRES-UNIT = *STD / <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device name (MN) of the pubres of the SF pubset or of the volres of the SM pubset. VM2000 requires this entry when the pubset is specified by means of its catalog ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	CMS0002	Disk error
	1	CMS0011	Syntax error
	1	CMS0314	Syntax error in entry name or error in wildcard specification
	32	CMD0221	Internal system error
	32	CMS0001	SLOT manager error
	32	CMS031F	MRSCAT parameter error
	32	CMS0310	Error during privilege checking
	32	CMS0317	MRSCAT is locked
	32	CMS0318	Synchronization error due to task lock manager problem

	64	CMS0004	MRSCAT entry already exists
	64	CMS0005	Too many entries in the MRSCAT
	64	CMS0010	Command reserved for systems support

Examples

Example of creating entries in the local catalog and import pubsets (MPVS)

The pubset MAX is also to be imported locally on the system with the HOME pubset FOR, and a paging file already contained on the pubset PAG is to be used. Furthermore, the pubset LUX, which is imported on the remote system XY, should be accessible via RFA.

Assuming that the disks belonging to pubsets MAX and PAG are already available, the following commands must be entered:

```
/ADD-MASTER-CATALOG-ENTRY MAX
/ADD-MASTER-CATALOG-ENTRY PAG
/ADD-MASTER-CATALOG-ENTRY LUX, PARTNER-NAME=XY
/IMPORT-PUBSET MAX
/IMPORT-PUBSET PAG
/EXTEND-PAGING-AREA  PAG.00
/EXPORT-PUBSET PAG
```

The catalog directory MRSCAT in the home pubset has the following contents:

```
PUBSET FOR: LOCAL-HOME, PAGING
PUBSET LUX: INACC, HOST=XY
PUBSET MAX: LOCAL-IMPORTED
PUBSET PAG: INACC, PAGING
```

Example of creating catalog entries in a computer network (HIPLEX MSCF)

A computer network is to be set up for single-computer systems HOST1 and HOST2 with catalog IDs A and B. Each system has a MSCF configuration file containing an entry for the other system. The catalog directories contain the following information:

HOST1
A,HOST1,LOCAL

HOST2
A,INACC B,HOST1,LOCAL

HOST1

```
1) /START-SUBSYSTEM SUBSYS = MSCF
2) /ADD-MAS-CAT-ENTRY ENTRY=B
```

HOST2

```
3) /STA-SUBSYSTEM SUBSYS = MSCF
```

Thus, when the command START-SUBSYSTEM SUBSYS=MSCF is issued, a MSCF connection is set up between the two systems and the MRSCAT is updated.

If the commands are given in the order

1) - 2) - 3)

then pubset B is accessible to HOST1 since the ADD-MASTER-CATALOG-ENTRY command was issued before HOST1 and HOST2 were connected.

If the commands are given in the order

1) - 3) - 2)

the connection between HOST1 and HOST2 is established before the ADD-MASTER-CATALOG-ENTRY command is issued. In this case, the pubset B is not accessible to HOST1. Updating of this MRSCAT entry is not performed until the next time a connection is set up (recovery, STOP-/START-MSCF-CONNECTION, STOP-/START-SUBSYSTEM MSCF). If, however, this catalog is to be accessed immediately, the following command must be issued.

```
/IMPORT-PUBSET PUBSET=B, USE=*FROM-REMOTE(HOST-NAME=HOST2)
```

Note

If the two systems had no configuration files, the command /START-SUBSYSTEM SUBSYS=MSCF would not cause an MSCF connection to be set up and would not update the MRSCAT. MSCF would be loaded, but the systems would remain isolated.

2.16 ADD-NET-STORAGE-VOLUME

Create Net-Storage volume and assign it to a local pubset

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	STORAGE-MANAGEMENT
Privileges:	TSOS

Function

The ADD-NET-STORAGE-VOLUME command creates a directory with management files (catalog and FSL files) in the released file system of the net server and establishes the unambiguous assignment of the directory to precisely one local SF or SM pubset in the form of a Net-Storage volume. The pubset must already have been imported. No Net-Storage volume can be assigned to the home pubset.

As of BS2000 V21.0A, there is a second Net Storage volume type NETVOL in addition to the previous Net Storage volume type NETSTOR. A Net-Storage volume contains administration files, whereby a Net-Storage volume of the NETSTOR type has its own file catalog in addition to the FSL file, while only the FSL file is stored on a Net Storage volume of the NETVOL type. With a Net-Storage volume of the NETVOL type, the catalog entries of the individual files are only contained in the TSOSCAT of the pubset.

Up to BS2000 OSD/BC V11, only Net-Storage volumes of the NETSTOR type can be created. As of BS2000 V21.0A, only Net-Storage volumes of the NETVOL type can be created.

From the viewpoint of BS2000 a Net-Storage volume is a new disk which is assigned to the pubset but which is not (as in the case of a pubset expansion) added to the pubset. The VSN of the Net-Storage volume is the same as the directory name in the Net-Storage and by default is derived from the name of the pubset, see the “Introduction to System Administration” [14]. Only if the pubset has already been assigned a Net-Storage volume with a default name must a VSN which complies with the conventions for private volumes be specified.

The IMPORT operand enables a directory which already exists on the net server to be assigned to the specified pubset as a Net-Storage volume. Renaming (VSN or directory name) is also possible.

> ¡ After the Net-Storage volume of type NETVOL has been assigned, any files it may contain must be imported using the IMPORT-FILE command before they can be accessed.

Information on the Net-Storage available in BS2000 can be requested using the SHOW-NET-STORAGE command. Information on the Net-Storage available in the pubset can be requested using the SHOW-PUBSET-NET-STORAGE command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the "Introductory Guide to DMS" [13].

Format

ADD-NET-STORAGE**-VOL**UME

VOLUME = ***STD** / <vsn 6..6>

,**PUB**SET = <cat-id 1..4>

,**DIR**ECTORY = <composed-name 1..64 with-under> / <c-string 1..64 with-low>

,**SERVER** = <composed-name 1..256 with-under> / <c-string 1..256 with-low> / ***IP-ADDR**ESS(...)

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

,**IMP**ORT = ***NO** / ***Y**ES(...)

***Y**ES(...)

| **OLD-VOL**UME**-NAME** = ***SAME** / <vsn 6..6>

| ,**FORCE** = ***NO** / ***Y**ES

| **,CONVERT = *NO / *TO-NETVOL**

Operands

VOLUME =
Specifies the VSN of the Net-Storage volume.
On the Net-Storage the Net-Storage volume is implemented by a directory below the released directory with a name which corresponds to the VSN.

VOLUME = *STD
The VSN of the new Net-Storage volume is derived from the name of the pubset, see the “Introduction to System Administration” [14]. If the pubset has already been assigned a Net-Storage volume with a default name, this specification is not possible and the VSN must be specified explicitly.

VOLUME = <vsn 6..6>
Specifies the VSN of the Net-Storage volume explicitly. A default name cannot be specified. The VSN must consist of 6 characters and comply with the conventions for private volumes. Consequently, it may not begin with the string PUB and may not contain a period, see the “Introduction to System Administration” [14].

PUBSET = <cat-id 1..4>
Specifies the name of the pubset to which the Net-Storage volume will be assigned.

DIRECTORY = <composed-name 1..64 with-under> / <c-string 1..64 with-low>
Specifies the directory name of the Net-Storage released on the net server.
On the Net-Storage the Net-Storage volume is implemented by a directory below the released directory with a name which corresponds to the VSN.

SERVER =
Specifies the net server which makes the Net-Storage available. Either the host name, the fully qualified domain name or the IP address of the net server is specified.

SERVER = <composed-name 1..256 with-under> / <c-string 1..256 with-low>
Host name or fully qualified domain name of the net server.

SERVER = *IP-ADDRESS(...)
IP address of the net server.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address in IPv4 or IPv6 format.

IMPORT =
Specifies whether a new directory is to be created for the specified volume or whether the directory already exists on the Net-Storage.

IMPORT = *NO
Creates a new directory on the Net-Storage for the specified volume and assigns it to the specified pubset as a Net-Storage volume.

IMPORT = *YES(...)
A directory already exists on the Net-Storage for the specified volume. This is assigned to the specified pubset as a Net-Storage volume.

The following is valid for Net-Storage volumes of type NETSTOR:

The catalog on the Net-Storage is **not** imported here. As a result the files on the Net-Storage can be accessed only after they have been imported with IMPORT-FILE.

The following is valid for Net-Storage volumes of type NETVOL:

Only after a successful EXPORT (see REMOVE-NET-STORAGE-VOLUME ..., FILES-ON-VOLUME = * EXPORT) can a Net-Storage volume of the NETVOL type be imported.
All files are cataloged, i.e. an IMPORT-FILES or IMPORT-NODE-FILES is not necessary. The Net-Storage volume of type NETVOL can only be accessed when all files have been cataloged by ADD-NET-STORAGE-VOLUME ..., IMPORT = * YES.
If this is not possible (e.g. user IDs did not exist or files with the same name are already cataloged or exist on a different data volume), all files are removed from the catalog and the original status is restored on the PUBSET. After suitable measures have been taken (possibly creating a missing user ID, cleaning up TSOSCAT), the import process can be repeated.

OLD-VOLUME-NAME =
Specifies whether the VSN of the Net-Storage volumes is to be retained.

OLD-VOLUME-NAME = *SAME
The Net-Storage volume already has the VSN specified in the VOLUME operand. It does not have to be renamed.

OLD-VOLUME-NAME = <vsn 6..6>
The Net-Storage volume has so far had the VSN specified here and is to be renamed. In this case the directory which already exists on the Net-Storage and the Net-Storage volume are respectively assigned the name and the VSN which is specified in the VOLUME operand.

FORCE = *NO / *YES
Specifies whether the Net-Storage volume is to be assigned to the pubset even if inconsistencies still exist (e. g. not properly released).
The default *NO causes the command to be rejected in this case.

FORCE = *YES
In all cases the Net-Storage volume is assigned to the pubset. Any inconsistencies which still exist are ignored.

CONVERT =
Specifies whether an existing Net-Storage volume of the NETSTOR type should be converted into a Net-Storage volume of the NETVOL type.

CONVERT = *NO/
No conversion takes place.

CONVERT = *TO-NETVOL
An existing Net-Storage volume of the NETSTOR type is converted into a Net-Storage volume of the NETVOL type. Conversion back is not possible! The converted volume cannot be accessed by BS2000 systems <V21.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0221	system error
	32	DMS1CFF	System error (see SERSLOG entry)
	64	DMS1C04	Error when calling the ONETSTOR subsystem
	64	DMS1C05	Catalog ID does not exist
	64	DMS1C06	Pubset not imported
	64	DMS1C07	Error when calling the allocation function
	64	DMS1C08	Error when calling a CMS function for the TSOSCAT
	64	DMS1C09	Error when calling a CMS function on the Net-Storage volume
	64	DMS1C0A	Catalog entry of the Net-Storage volume already exists
	64	DMS1C0B	File system label already exists on the net server
	64	DMS1C0D	File system label on the net server does not match the pubset
	64	DMS1C0F	No new Net-Storage volume may be created on the slave system
	64	DMS1C11	The Net-Storage volume already exists
	64	DMS1C12	No Net-Storage volume can be created on the home pubset.
	64	DMS1C17	Net directory cannot be accessed
	64	DMS1C1A	Net-Storage volume already placed in service
	64	DMS1C20	Name of the Net-Storage volume is invalid
	64	DMS1C21	Incorrect syntax in the IP address
	64	DMS1C0F	Command not permitted on the slave

2.17 ADD-PASSWORD

Add password to password table for job

Component:	BS2000
Functional area:	File processing
Domain:	FILE FILE-GENERATION-GROUP JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The ADD-PASSWORD command supplies a job with the passwords needed to access password-protected files and job variables. A password table is created for the job, and the specified passwords are entered into it. When a protected file or job variable is to be accessed, the system searches the password table for the required password. If the appropriate password is found, access is granted. In commands which access files or job variables, the required password can be specified directly with the command in some cases (e.g. when deleting files or job variables, starting up programs, etc). Entering the correct password, however, will only enable single access during command execution. In programs the password can also be specified in the file control block (FCB). The password table is deleted when the job terminates. Individual entries or all entries in it can be optionally deleted from the table before the job ends by using the REMOVE-PASSWORD command.

Note

> Only one entry is created in the password table of the job for each password. In other words, if an ADD-PASSWORD command is issued for a password that already exists in the password table, no new entry will be created in the password table. Existing entries can be deleted with the REMOVE-PASSWORD command. Additional REMOVE-PASSWORD commands for deleted passwords are rejected.

In outputs such as job logs, the passwords are not shown in plain text. Where a password has been specified, it is represented by the letter ‘P’.

Protection by password can be extended by internal encoding of the passwords, carried out by the system. They then only appear in coded form in memory dumps, for example. Password encoding is set up by the system parameter ENCRYPT.

Password protection for files is dealt with in the “Introductory Guide to DMS” [13]; for details of password protection for job variables, see the “Job Variables” [20] manual.

REMOTE-FILE-ACCESS

The command ADD-PASSWORD is automatically passed on by the requesting job to all processes participating in RFA (see the “RFA” manual [31]).

Format

ADD-PASSWORD	Alias: **ADPW**
PASSWORD = ***SECRET** / list-poss(63): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>	

Operands

PASSWORD = *SECRET / list-poss(63): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
Passwords which are to be entered into the password table. A maximum of 63 passwords may be specified by one ADD-PASSWORD command.
The operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	DMS0691	Password table at maximum size
	64	DMS0692	Maximum number of passwords per task reached
	64	DMS06FF	BCAM connection severed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0594	Not enough virtual memory available

The following applies to the specification of passwords:

A file can be protected against read access, write access or execute access by three different passwords. Changes to the catalog entry and deletion of the file are classified as write accesses. This also applies to job variables, but only for read and write access, i.e. only a read password and write password are possible.

The table below shows the possible combinations of password protection, and which passwords are required for any particular type of access:

Password protection	Password specified	Permitted access type
EXEC-PASSWORD	None specified	No access
	Execution password	Execute Read Write
READ-PASSWORD	None specified	Execute *)
	Read password	Execute Read Write
WRITE-PASSWORD	None specified	Execute Read
	Write password	Execute Read Write
EXEC-PASSWORD READ-PASSWORD WRITE-PASSWORD	None specified	No access
	Execution password	Execute *)
	Read password	Execute Read
	Write password	Execute Read Write
EXEC-PASSWORD READ-PASSWORD	None specified	No access
	Execution password	Execute *)
	Read password	Execute Read Write
EXEC-PASSWORD WRITE-PASSWORD	None specified	No access
	Execution password	Execute Read
	Write password	Execute Read Write

READ-PASSWORD WRITE-PASSWORD	None specified	Execute *)
	Read password	Execute Read
	Write password	Execute Read Write

*) The program code is protected against dump access
Table 23: Password specifications for each type of access

Example

Accessing files with read, write, and execute passwords

```
/mod-file-attr proc.mini.1,prot=(read-pass='john',
                                 write-pass='paul',exec-pass='maxi') ———— (1)
/call-proc proc.mini.1,log=*yes ———————————————————————————————— (2)
```

```
%  SDP0094 CONTAINER NOT ACCESSIBLE
%  SDP0093 ERROR DURING ACCESS OF FILE/LIBRARY ':2OSG:$USERXY01.PROC.MINI.1',
 ERROR 'DMS0D91'. MORE INFORMATION: /HELP-MSG DMS0D91
%  SDP0094 CONTAINER NOT ACCESSIBLE
```

```
/add-pass 'maxi' ——————————————————————————————————————————— (3)
/call-proc proc.mini.1,log=*yes ———————————————————————————— (4)
```

```
%  SDP0224 LOGGING SUPPRESSED; CONTAINER ':2OSG:$USERXY01.PROC.MINI.1' IS
READ PROTECTED
** The time now is:  15:33:54 **
```

```
/print-doc proc.mini.1 ————————————————————————————————————— (5)
```

```
%  SCP0860 FILE ':2OSG:$USERXY01.PROC.MINI.1' PROTECTED BY A READ OR EXEC
PASSWORD. COMMAND REJECTED
```

```
/rem-pass 'maxi' ——————————————————————————————————————————— (6)
/add-pass 'johnjohn' ——————————————————————————————————————— (7)
/call-proc proc.mini.1,log=*yes ———————————————————————————— (8)
```

```
%          1  1 /WRITE-TEXT '** The time now is:  15:35:45 **'
** The time now is:  15:35:45 **
%             1 /EXIT-PROCEDURE ERROR=*NO
```

```
/mod-f-attr proc.mini.1,proc.mini.2 ———————————————————————— (9)
```

```
%  DMS0681 DMS ERROR '05CF' WHEN ACCESSING FILE':2OSG:$USERXY01.PROC.MINI.1'.
 FOR  FURTHER INFORMATION: /HELP-MSG DMS05CF
```

```
/help-msg dms05cf ──────────────────────────────────────────────────────── (10)
```

```
%  DMS05CF FILE PROTECTED BY (CRYPTO)PASSWORD. ADD REQUIRED (CRYPTO)PASSWORD
AND REENTER COMMAND
%  ? The user tried to modify the catalog entry of a file that is
%    protected by a (crypto)password, but the required (crypto)password
%    has not yet been added to the (crypto)password table of the task.
%  ! Add (crypto)password to the (crypto)password table
%    (command ADD-(CRYPTO-)PASSWORD) and reenter command.
```

```
/rem-pass 'john' ────────────────────────────────────────────────────────── (11)
/add-pass 'paul' ────────────────────────────────────────────────────────── (12)
/mod-f-attr proc.mini.1,proc.mini.2 ─────────────────────────────────────── (13)
/call-proc proc.mini.2,log=*yes ─────────────────────────────────────────── (14)
```

```
%          1  1 /WRITE-TEXT '** The time now is:  15:37:42 **
%             1 /EXIT-PROCEDURE ERROR=*NO
```

(1) The file *PROC.MINI.1* is protected by the read password *JOHN*, the write password *PAUL*, and the execute password *MAXI*. The file contains an S procedure which outputs the current time to SYSOUT.

(2) The procedure *PROC.MINI.1* is called. The CALL-PROCEDURE command is rejected, since the required execution password is not contained in the password table of the task.

(3) Entry of the execution password *MAXI* into the password table.

(4) The repeated call to the procedure succeeds, but the procedure is not logged on SYSOUT, since the password required for read access is not contained in the password table.

(5) The PRINT-DOCUMENT command is also rejected due to the missing read password.

(6) The execute password *MAXI* is deleted from the password table.

(7) Entry of the read password *JOHN* into the password table.

(8) The call to the procedure succeeds, and the processing sequence is logged on SYSOUT. The read password provides authorization for reading as well as execution.

(9) The file *PROC.MINI.1* is to be renamed. The MODIFY-FILE-ATTRIBUTES command is rejected.

(10) The HELP-MSG-INFORMATION command returns information on the cause of the error: the password required for write access (to change the catalog entry in this case) is not contained in the password table.

(11) The read password *JOHN* is deleted from the password table.

(12) Entry of the write password *PAUL* into the password table.

(13) The file *PROC.MINI.1* can now be renamed to *PROC.MINI.2* (write access).

(14) The call to the procedure under the new name *PROC.MINI.2* succeeds, and the processing sequence is logged on SYSOUT. The write password provides authorization for read, write, and execute access.

2.18 ADD-POSIX-USER

Define POSIX user attributes

Component:	POSIX-BC
Functional area:	User management POSIX administration and application
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS USER-ADMINISTRATION

This command can only be used if the chargeable subsystem SDF-P is loaded.

Function

The ADD-POSIX-USER command defines all the POSIX attributes of the BS2000 user ID for a new POSIX user. The necessary preparations are also made in POSIX for this user to permit POSIX access (creating the login directory for this user).

Note

This command replaces the S procedure POSADDUS.

The POSIX user attributes of a BS2000 user ID can be modified using the MODIFY-POSIX-USER-ATTRIBUTES command. Information on the current POSIX default attributes can be obtained with the SHOW-POSIX-USER-DEFAULTS command.

Format

ADD-POSIX-USER

USER-NAME = <name 1..8>

,**USER-NUM**BER = ***DEFAULT** / <integer 0..60002>

,**GR**OUP-**NUM**BER = ***DEFAULT** / <integer 0..60002>

,**PROG**RAM = ***DEFAULT** / <posix-pathname 1..1023 without-wild>

,**HOME-DIR**ECTORY = ***DEFAULT** / <posix-pathname 1..1023 without-wild>

,**RLOGIN-ACCOUNT** = ***NONE** / <alphanum-name 1..8>

Operands

USER-NAME = <name 1..8>
BS2000 user ID whose POSIX user attributes are to be defined.

USER-NUMBER =
User number which is to be defined for this BS2000 user ID.
The USER-NUMBER attribute is relevant to security as the user number indicates the privilege and determines the owner of a file.

USER-NUMBER = *DEFAULT
The user number is given the currently set default value (see the SHOW-POSIX-USER-DEFAULTS command).

USER-NUMBER = <integer 0..60002>
The user number is given the specified value.

GROUP-NUMBER =
Group number which is to be defined for the BS2000 user ID.
The GROUP-NUMBER attribute is relevant to security as POSIX does not check the permissibility of the combination of BS2000 user ID and group against the POSIX group catalog when you log on.

GROUP-NUMBER = *DEFAULT
The group number is given the currently set default value (see the SHOW-POSIX-USER-DEFAULTS command).

GROUP-NUMBER = <integer 0..60002>
The group number is assigned the specified value.

PROGRAM =
Program which is started after the *rlogin* command or after the START-POSIX-SHELL command is called.
This attribute is not relevant to security as only programs which the user is allowed to execute are started.

PROGRAM = *DEFAULT
The program to be started is determined on the basis of the currently set default value (see the SHOW-POSIX-USER-DEFAULTS command).

PROGRAM = <posix-pathname 1..1023 without-wild>
The specified program is started.

HOME-DIRECTORY =
Determines the absolute path name of the directory which the user is automatically directed to (login directory) after connecting with POSIX.
This attribute is not relevant to security as it only determines the content of the shell variable HOME and the initial value of the working directory. The protection attributes of files and directories cannot be bypassed in this way.

If the directory does not yet exist it is created and the owner is set to the user number and the group number of the POSIS user ID.
If the directory already exists its attributes remain unchanged and a respective message is output.

HOME-DIRECTORY = *DEFAULT
The directory determined on the basis of the currently set default value (see the SHOW-POSIX-USER-DEFAULTS command).

HOME-DIRECTORY = <posix-pathname 1..1023 without-wild>
Specifies the directory.

RLOGIN-ACCOUNT =
Determines the account number for POSIX access via remote login or NFS.

RLOGIN-ACCOUNT = *NONE
No account number is specified. The account number defined in the home pubset user entry thus remains unchanged for POSIX access.

RLOGIN-ACCOUNT = <alphanum-name 1..8>
The specified account number is entered in the home pubset user entry as the new account number for POSIX access (see the POSIX-RLOGIN-DEFAULT operand in the ADD-USER and MODIFY-USER-ATTRIBUTES commands).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	64	SDP0018	An error has occurred in the S procedure called by the command. Information on the precise cause is provided by one of the messages POS2900 through POS2905.
	65	CMD2241	The chargeable subsystem SDF-P is not available.

2.19 ADD-SUBSYSTEM

Extend dynamic subsystem catalog

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

Using this command, the system administration can extend the current subsystem configuration during a session (maximum number: 1000 subsystems and 16000 CALL entries). The catalog specified may either be a completely new one, which includes all the entries in the previous one, or it may contain only the new subsystems which are to be added into the current catalog.

In either case, the subsystem catalog specified must have been generated using SSCM. The ('old') subsystem catalog used during system initialization is not automatically updated. For the **next** session, the system administration can either

- use the catalog generated for ADD-SUBSYSTEM during system initialization, or
- generate a completely new and updated subsystem catalog and use this for system initialization. This new catalog need not build up quantitatively on an old predecessor catalog nor qualitatively support its references and attributes.

The ADD-SUBSYSTEM command is rejected if the class 5 memory reserved for the subsystem is insufficient (on system initialization, DSSM reserves class 5 memory for subsystems defined with MEMORY-CLASS=*LOCAL-PRIVILEGED, *LOCAL-UNPRIVILEGED or *BY-SLICE).

Format

ADD-SUBSYSTEM
CATALOG = <filename 1..54 without-gen-vers> ,**TYPE** = ***EXT**ENDED**-ACT**IVE**-CONF**IGURATION / ***NEW-SUBSYS**TEMS

Operands

CATALOG = <filename 1..54 without-gen-vers>
Name of the new subsystem catalog.

TYPE =
Specifies whether the current catalog is to be extended or replaced.

TYPE = *EXTENDED-ACTIVE-CONFIGURATION
A completely new catalog is to be activated, containing not only the entries from its predecessor, but also the new subsystems.

TYPE = *NEW-SUBSYSTEMS
The specified catalog contains only new subsystems, which are to be added to the old catalog. DSSM will check the catalog to ensure that the subsystems which it contains really are new. If any subsystem is found which is also listed in the catalog which is being extended, the command will be rejected.

Restrictions

- The subsystems specified for generation using SSCM with RELATED-SUBSYSTEM and REFERENCED-SUBSYSTEM must be cycle-free, i.e. free of mutual dependency.
- It is not permitted to define different versions of a subsystem with the start attributes AT-SUBSYSTEM-CALL, BEFORE-SYSTEM-READY, AFTER-SYSTEM-READY, BEFORE-DSSM-LOAD, AT-DSSM-LOAD and MANDATORY-AT-STARTUP (exception: AT-SUBSYSTEM-CALL is permitted if coexistence is defined for all versions involved).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	ESM0296	Abnormal termination (REQM error)
	32	ESM0350	Internal DSSM problem during processing
	64	ESM0260	File not found
	64	ESM0261	Storage space limit reached in DSSM catalog
	64	ESM0262	File is not a catalog
	64	ESM0322	Maximum number of relations exceeded
	64	ESM0325	Inconsistent with old catalog
	64	ESM0332	Incompatible version of catalog
	64	ESM0340	Reserved address-space exhausted for subsystems with MEMORY-CLASS=*BY-SLICE

Notes

There is a problem with relations which refer to subsystems that are not defined in the current catalog (put there using the SSCM statement SAVE-CATALOG FORCED=*YES). This problem can be circumvented during a session by using SSCM to define the relation in a new catalog and then using ADD-SUBSYSTEM to define this new catalog.

*Example for TYPE=*EXTENDED-ACTIVE-CONFIGURATION*

Old catalog		New catalog

`//START-CATALOG-CREATION old-cat`
`//SET-SUBSYSTEM-ATTRIBUTES`
`// SUBSYSTEM-NAME=ss1,`
`// RELATED-SUBSYSTEM=ss2`
`//SAVE-CATALOG FORCED=`
`// *FOR-ADD-SUBSYSTEM`
	`====>`	`//START-CATALOG-CREATION new-cat`
		`//SET-SUBSYSTEM-ATTRIBUTES -`
		`// SUBSYSTEM-NAME=ss1, -`
		`// RELATED-SUBSYSTEM=ss2`
		`//SET-SUBSYSTEM-ATTRIBUTES -`
		`// SUBSYSTEM-NAME=ss2`
		`//SAVE-CATALOG`

*Restrictions on the operand TYPE=*EXTENDED-ACTIVE-CONFIGURATION*

- Subsystems with the attribute MEMORY-CLASS=*LOCAL-PRIVILEGED, which are being added to the newly created catalog, must not exceed the size of the address space strip in user or system address space, nor may their location in the address space overlap with subsystems from the old catalog.
- The CREATION-TIME operand for any new subsystem must be chosen to be compatible with versions of the same subsystem which are already defined in the old catalog. In making this choice, the values BEFORE-SYSTEM-READY, AFTER-SYSTEM-READY, BEFORE-DSSM-LOAD, AT-DSSM-LOAD and MANDATORY-AT-STARTUP could be used, but would have no effect since the system startup time for a session which has started will already have been passed; i.e. the system administration will be given an appropriate warning, but the subsystem will not be loaded.
- In distributing subsystems to holder tasks (ASSIGN-HOLDER-TASK statement), the “stand alone” principle must be observed, i.e. subsystems from different catalogs may not be assigned to the same holder task.

  Example

Subsystems in the old catalog: Subsystems in the new catalog:	A, B, C A, B, C, D, E	
Then:		
`//ASSIGN-HOLDER-TASK *SHARE-HOLDER(BY-SUB=(A,B))` `//ASSIGN-HOLDER-TASK *SHARE-HOLDER(BY-SUB=(D,E))`		is permissible is permissible
but:		
`//ASSIGN-HOLDER-TASK *SHARE-HOLDER(BY-SUB=(A,D,C))`		not permissible

- The new catalog must be larger than its predecessor, because it not only contains the old subsystems with their attributes (relations, dependencies, loading instructions), but must also maintain details of the new subsystems.
- Linkage and dependence relations (REFERENCED-SUBSYSTEM / RELATED-SUBSYSTEM) must not go outside the bounds of the catalog: for a subsystem defined in catalog A there must be no relations in that catalog which refer to a subsystem defined in catalog B.

- Once REMOVE-SUBSYSTEM has been used to delete a subsystem from the catalog, TYPE=*EXTENDED-ACTIVE-CONFIGURATION can no longer be specified.

It is not permissible to define different

- subsystems with an identical combination of the attributes: SVC-NUMBER / FUNCTION-NUMBER / FUNCTION-VERSION.
- subsystems with an identical combination of the attributes: FUNCTION-NUMBER / FUNCTION-VERSION (if the value *ALLOWED is set for VERSION-COEXISTENCE or VERSION-EXCHANGE) for subsystems which are indirectly linked via System Procedure Linkage (ISL).
- versions of a subsystem with an identical combination of the attributes: SVC-NUMBER / FUNCTION-NUMBER / FUNCTION-VERSION if the value *ALLOWED is set for VERSION-COEXISTENCE or VERSION-EXCHANGE.
- versions of a subsystem with an identical combination of the attributes: FUNCTION-NUMBER / FUNCTION-VERSION / VERSION-COEXISTENCE or VERSION-EXCHANGE for subsystems which are indirectly linked via System Procedure Linkage (ISL).

Overlaps of subsystems must be avoided. To prevent this, DSSM compares the values of the SIZE and START-ADDRESS operands in the SET-SUBSYSTEM-ATTRIBUTES statements.

The assignment of a holder task (by an SSCM statement) for an “old” and a new subsystem has no effect on holder task distribution.

Table of incompatibilities for relations between subsystems in the old and new catalog:

x: this combination is not possible: neither link relations (REFERENCED-SUBSYSTEM) nor any other dependencies (RELATED-SUBSYSTEM) are permitted

r: link relations (REFERENCED-SUBSYSTEM) are not permitted

Subsystem in the new catalog	Subsystem in the old catalog												
	MAS	BSR	ASR	ACR 1)	ASC 1)	BDL	ADL	STY 1)	SAL 1)	SAH 1)	MCP 1)	MCU 1)	MCS
MAS: MANDATORY-AT-STARTUP		x	x	x	x								
BSR: BEFORE-SYSTEM-READY			x	x	x								
ASR: AFTER-SYSTEM-READY				x	x								
BDL: BEFORE-DSSM-LOAD	x	x	x	x	x		x						
ADL: AT-DSSM-LOAD	x	x	x	x	x								
STN: STOP-AT-SHUTDOWN=*NO								r					
SAS: SUBSYSTEM-ACCESS=*SYSTEM									x	x			x
MCG: MEMORY-CLASS=*SYSTEM-GLOBAL											x	x	
MCS: MEMORY-CLASS=*BY-SLICE											r	r	r

Table 24: Incompatibilities in relations between subsystems

1) ACR: AT-CREATION-REQUEST
ASC: AT-SUBSYSTEM-CALL
STY: STOP-AT-SHUTDOWN=*YES
SAL: SUBSYSTEM-ACCESS=*LOW
SAH: SUBSYSTEM-ACCESS=*HIGH
MCP: MEMORY-CLASS=*LOCAL-PRIVILEGED
MCU: MEMORY-CLASS=*LOCAL-UNPRIVILEGED

2.20 ADD-USER

Create entry in user catalog

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION
Routing code:	$

Function

The ADD-USER command enables systems support personnel to create an entry in the user catalog for a pubset, which means that a user catalog entry is set up for a user ID.
If an entry is created for the user catalog of the *home pubset*, the access rights to the system (e.g. user ID, accounting number, user ID password, etc.) and the assignment of a default pubset for the user must be defined. Only in the user catalog of the home pubset is a check made whether the user has observed the correct syntax in the specifications (LOGON validation).

The system support staff enters all the necessary pubset-specific information in the user catalog of the *default pubset*.
Systems support must define an upper limit for the user up to which the user may occupy storage space on this pubset. Additionally, provisions can be made for the possibility of exceeding this limit.

The name of a new user ID can be chosen freely - within the set of permissible characters. The prefix ‘SYS’, however, is reserved for system IDs and must not be used.

The LOCK-USER=*YES operand can be used to set an access lock for the new user ID until all the desired attributes have been assigned and group membership has been declared. The entry must be stored on the home pubset; for data pubsets, the lock is irrelevant.
The lock is retained until an UNLOCK-USER command is issued.

Restriction

The only nonprivileged users (STD-PROCESSING privilege) authorized to issue this command are those designated as group administrators. The actions a group administrator can take are defined by systems support. On setting up and managing user groups see the “SECOS” manual [35].

Format

ADD-USER

USER-IDENTIFICATION = <name 1..8>

,**GROUP-IDENTIFICATION** = ***OWN** / ***UNIVERSAL** / <name 1..8>

,**PROTECTION-ATTRIBUTE** = ***PARAMETERS** (...)

***PARAMETERS**(...)

| **LOGON-PASSWORD** = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET**

| ,**PASSWORD-ENCRYPTION** = ***YES** / ***NO**

| ,**PASSWORD-MANAGEMENT** = ***BY-USER** / ***BY-ADMINISTRATOR** / ***USER-CHANGE-ONLY**

| ,**TAPE-ACCESS** = ***STD** / ***PRIVILEGED** / ***READ** / ***BYPASS-LABEL** / ***ALL**

| ,**FILE-AUDIT** = ***NO** / ***ALLOWED**

,**MAILING-ADDRESS** = ***NONE** / <c-string 1..64 with-low> / <x-string 1..128>

,**EMAIL-ADDRESS** = ***NONE** / <composed-name 1..1800> / <c-string 1..1800 with-low> / <x-string 1..3600>

,**PUBLIC-SPACE-LIMIT** = ***STD** / ***MAXIMUM** / <integer 0..2147483647 *2Kbyte*>

,**PUBLIC-SPACE-EXCESS** = ***NO** / ***ALLOWED** / ***TEMPORARILY-ALLOWED**

,**ADDRESS-SPACE-LIMIT** = ***STD** / <integer 1..2147483647 *Mbyte*>

,**MAX-ACCOUNT-RECORDS** = **100** / ***NO-LIMIT** / <integer 0..32767>

,**PROFILE-ID** = ***NONE** / <structured-name 1..30>

,**PUBSET** = ***HOME** / <cat-id 1..4>

,**RESIDENT-PAGES** = ***STD** / ***MAXIMUM** / <integer 0..2147483647 *4Kbyte*>

,**CSTMP-MACRO-ALLOWED** = ***NO** / ***YES**

,**DEFAULT-PUBSET** = ***HOME** / <cat-id 1..4>

,**TEST-OPTIONS** = ***PARAMETERS** (...)

***PARAMETERS**(...)

| **READ-PRIVILEGE** = **1** / <integer 1..9>

| ,**WRITE-PRIVILEGE** = **1** / <integer 1..9>

| ,**MODIFICATION** = ***CONTROLLED** / ***UNCONTROLLED**

,**AUDIT** = ***PARAMETERS** (...)

***PARAMETERS**(...)

| **HARDWARE-AUDIT** = ***ALLOWED** / ***NOT-ALLOWED**

```
        |   ,LINKAGE-AUDIT = *ALLOWED / *NOT-ALLOWED
,DEFAULT-MSG-LANGUAGE = *STD / <name 1..1>
,FILE-NUMBER-LIMIT = *MAXIMUM / <integer 0..16777215>
,JV-NUMBER-LIMIT = *MAXIMUM / <integer 0..16777215>
,TEMP-SPACE-LIMIT = *MAXIMUM / <integer 0..2147483647 2Kbyte>
,DMS-TUNING-RESOURCES = *NONE / *CONCURRENT-USE / *EXCLUSIVE-USE
,CODED-CHARACTER-SET = *STD / <name 1..8>
,PHYSICAL-ALLOCATION = *NOT-ALLOWED / *ALLOWED
,CRYPTO-SESSION-LIMIT = *STD / *MAXIMUM / <integer 0..32767>
,NET-STORAGE-USAGE = *ALLOWED / *NOT-ALLOWED
,NET-CODED-CHAR-SET = *STD / *ISO / *NO-CONVERSION / <name 1..8>
,ACCOUNT-ATTRIBUTES =* PARAMETERS (...)
    *PARAMETERS(...)
        |   ACCOUNT = <alphanum-name 1..8>
        |   ,CPU-LIMIT = *STD / *MAXIMUM / <integer 0..2147483647 seconds>
        |   ,SPOOLOUT-CLASS = 0 / *STD / <integer 0..255>
        |   ,MAXIMUM-RUN-PRIORITY =* STD / <integer 30..255>
        |   ,MAX-ALLOWED-CATEGORY = *STD / *TP / *SYSTEM
        |   ,PRIVILEGE = *NO / *PARAMETERS(...) / list-poss(3): *NO-CPU-LIMIT /
        |                        *START-IMMEDIATE / *INHIBIT-DEACTIVATION
        |       *PARAMETERS(...)
        |           |   NO-CPU-LIMIT = *NO / *YES
        |           |   ,START-IMMEDIATE = *NO / *YES
        |           |   ,INHIBIT-DEACTIVATION = *NO / *YES
        |   ,POSIX-RLOGIN-DEFAULT = *NO / *YES
        |   ,LOGON-DEFAULT = *NO / *YES
,LOCK-USER = *NO / *YES
```

Operands

USER-IDENTIFICATION = <name 1..8>
Defines the user ID to be entered in the catalog of the pubset in question.

GROUP-IDENTIFICATION =
Identifier of the user group to which the new user ID is to be assigned. SECOS can be used to install a hierarchy of user groups to each of which a number of user IDs can be assigned. Without this software product, all of the user IDs are subordinate to the group *UNIVERSAL, which acts as a dummy group in the system.

GROUP-IDENTIFICATION = *OWN
The user ID is assigned to the user group of the command issuer.
If the command issuer does not belong to a user group or SECOS is not installed, *UNIVERSAL is assumed.

GROUP-IDENTIFICATION = *UNIVERSAL
The user ID is explicitly assigned to the group *UNIVERSAL.
If SECOS is used, this value permits a user ID to be created outside of group hierarchies.

GROUP-IDENTIFICATION = <name 1..8>
Existing user group to which the new user ID is assigned.
This value can be specified only if the SECOS product is installed.

PROTECTION-ATTRIBUTE = *PARAMETERS(...)
Defines protection attributes.

LOGON-PASSWORD = *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
Password protecting the user ID from unauthorized access (long password (<c-string 9..32>), see the MODIFY-USER-PROTECTION command).

PASSWORD-ENCRYPTION = *YES / *NO
The password of the user ID is encrypted after entry or is stored in its original form. Password encryption presupposes that the system parameter ENCRYPT=Y is set in the parameter file (see the “Introduction to System Administration” [14]).

ADD-USER	parameter file	
	ENCRYPT=Y	ENCRYPT=N
PASS-ENCRYPT =*YES	Encryption	No encryption
PASS-ENCRYPT =*NO	No encryption	No encryption

PASSWORD-MANAGEMENT =
Specifies the user’s rights with regard to modification of his password.

> **!** If SECOS is used, the value defined here will be ignored and the SECOS specific value *LOGON-DEFAULT will be assigned instead.
>
> The current meaning of this value (*BY-USER, *BY-ADMINISTRATOR or *USER-CHANGE-ONLY) can be determined with the SECOS command SHOW-LOGON-DEFAULTS (see the “SECOS, Volume 1” manual [35]).

PASSWORD-MANAGEMENT = *BY-USER
The user may define, modify or delete a password.

PASSWORD-MANAGEMENT = *BY-ADMINISTRATOR
Only systems support staff may define, modify or delete the password for the user ID.

PASSWORD-MANAGEMENT = *USER-CHANGE-ONLY
The user may define and modify a password. Deletion of the password, i.e. cancellation of access rights, is not permissible.

TAPE-ACCESS =
Defines whether error messages generated during label checking of tapes may be ignored by the operator for the user concerned.

TAPE-ACCESS = *STD
Error messages must not be ignored.

TAPE-ACCESS = *PRIVILEGED
The following error messages for input and output files may be ignored by the owner of the tape or by systems support staff:

- invalid VSN
- tape is write-protected
- incorrect file set identifier in the HDR1 label of the tape.

TAPE-ACCESS = *READ
The user may ignore error messages relating to input files; label checking is not deactivated. The following errors may result in messages during tape processing:

- invalid volume serial number (VSN)
- invalid file name
- invalid label on tape
- invalid access method
- invalid file sequence number on tape
- tape mark instead of end-of-volume label on tape
- double tape mark instead of end-of-volume label on tape.

TAPE-ACCESS = *BYPASS-LABEL
Label checking and thus any data protection for tape files is deactivated for tapes processed in INPUT or REVERSE mode. This privilege implies the TAPE-ACCESS=*READ function.

TAPE-ACCESS = *ALL
All error messages may be ignored. This privilege implies the TAPE-ACCESS=*PRIVILEGED and TAPE-ACCESS=*BYPASS-LABEL functions.

FILE-AUDIT = *NO / *ALLOWED
Defines whether the user is authorized to activate the AUDIT mode.
This mode serves to monitor DMS accesses to files or file generations by system exit routines or, if the SECOS software product is used, by the SAT component.

MAILING-ADDRESS = *NONE / <c-string 1..64 with-low> / <x-string 1..128>
Mailing address of the user for spoolout lists.

EMAIL-ADDRESS = *NONE / <composed-name 1..1800> / <c-string 1..1800 with-low> / <x-string 1..3600>
Specifies an email address or a list of email addresses for the users of this user ID. The addresses must be entered in the format '<local-part>@<domain>[,...]'. Optionally an address can also be prefixed by an address name in parentheses (see "Example"). A list consists of multiple addresses separated by a comma and can only be specified as a string (c or x string).
The address or address list entered is evaluated when a file is sent by email (see the MAIL-FILE command).

PUBLIC-SPACE-LIMIT = *STD / *MAXIMUM / <integer 0..2147483647 *2Kbyte* >
Assigns the maximum storage space the user may occupy for his files on public volumes on the pubset allocated with the PUBSET operand. The specified value must be <= 2,147,483,647.

PUBLIC-SPACE-LIMIT = *STD
By default the user is allocated 16,777,215 PAM pages.

PUBLIC-SPACE-LIMIT = *MAXIMUM
The user may use the full capacity of 2,147,483,647 PAM pages.

PUBLIC-SPACE-EXCESS =
Defines whether the user may exceed the limit defined by the PUBLIC-SPACE-LIMIT operand for the storage space on the allocated pubset.

PUBLIC-SPACE-EXCESS = *NO
The storage space limit must not be exceeded.

PUBLIC-SPACE-EXCESS = *TEMPORARILY-ALLOWED
In the case of storage space requests on the user's default pubset, the storage space limit may be exceeded, provided that it had not already been exceeded at logon time. For all other pubsets, PUBLIC-SPACE-EXCESS=*TEMPORARILY-ALLOWED has the same effect as PUBLIC-SPACE-EXCESS = *NO.

PUBLIC-SPACE-EXCESS = *ALLOWED
The storage space limit may be exceeded.

ADDRESS-SPACE-LIMIT = *STD / <integer 1..2147483647 *Mbyte* >
Defines how much user memory a task can request under this user ID. The user memory comprises both conventional class-6 memory (program space) and (data spaces). The maximum user memory depends on the size of the virtual memory and can be less than the value specified here.

ADDRESS-SPACE-LIMIT = *STD
The value of the system parameter SYSGJASL is assigned (the system parameter SYSGJASL has the default value 16 MB).

MAX-ACCOUNT-RECORDS =
Defines how many user-specific accounting records for each job or program are allowed to be written into the accounting file of the system.

MAX-ACCOUNT-RECORDS = 100
The user is authorized to write 100 user-specific accounting records to the accounting file for each job or program. He is not allowed to write accounting records of his own.

MAX-ACCOUNT-RECORDS = *NO-LIMIT
The user is authorized to write any number of user-specific accounting records and accounting records of his own in the accounting file.

MAX-ACCOUNT-RECORDS = <integer 0..32767>
Defines how many user-specific accounting records can be written in the system accounting file for each job or program. The user is not authorized to add accounting records of his own.

PROFILE-ID =
Determines whether the user ID is assigned an SDF-PROFILE-ID. This PROFILE-ID characterizes a (SDF) group of user IDs which use a common group syntax file. Systems support can effect direct assignment of a user ID to a group syntax file by means of a suitable entry in the SDF parameter file.

PROFILE-ID = *NONE
The user ID is not assigned a profile ID and thus indirectly no group syntax file.

PROFILE-ID = <structured-name 1..30>

Defines the name of a PROFILE-ID to which a group syntax file can be assigned in the SDF parameter file.

PUBSET =
Defines the pubset whose user catalog is to accept the entry.

PUBSET = *HOME
The entry is made in the user catalog of the home pubset.

PUBSET = <cat-id 1..4>
Catalog identifier of the pubset whose user catalog is to accept the entry.

RESIDENT-PAGES = *STD / *MAXIMUM / <integer 0..2147483647 *4Kbyte* >
Defines the maximum number of resident main memory pages available to the user ID.

RESIDENT-PAGES = *STD
The user may use 32,767 resident main memory pages.

RESIDENT-PAGES = *MAXIMUM
The user may use 2,147,483,647 resident main memory pages.

CSTMP-MACRO-ALLOWED = *NO / *YES
Determines whether the user may use the CSTMP macro in his programs. The user can use the CSTMP macro to write-protect a memory pool (in class 6 memory) that can be shared by multiple users or explicitly cancel this protection. This feature is described in detail in the “Executive Macros” manual [22].

DEFAULT-PUBSET =
Assigns the user ID a default pubset on which the user can store his files and request storage space. If a file belonging to the newly entered user ID is accessed under any arbitrary user ID, and if the catalog ID is not specified, the catalog ID in the path name will automatically be extended by “:catid:”. Systems support can change the DEFAULT-PUBSET operand in any user catalog of an imported pubset. However, the user default pubset is determined only with the aid of the user catalog of the home pubset. For the TSOS user ID, the value of DEFAULT-PUBSET must be identical to the value of PUBSET.

DEFAULT-PUBSET = *HOME
Defines the home pubset to be the user default pubset.

DEFAULT-PUBSET = <cat-id 1..4>
Defines a pubset to be a user default pubset by means of the catalog ID.

TEST-OPTIONS = *PARAMETERS(...)
Defines the maximum possible privilege for testing and diagnostic analysis of programs. The test privilege is interpreted by the software products AID and DAMP as well as the access method ANITA.
Even at privilege level 2 the user has access to task-specific, sensitive data (system tables and control blocks). Higher values should be allocated only on request and for a limit period to selected user IDs. The values possible here and explanations are described in section "Overview of test privileges".

READ-PRIVILEGE = 1 / <integer 1..9>
Defines the maximum read privilege level.

WRITE-PRIVILEGE = 1 / <integer 1..9>
Defines the maximum write privilege level.

MODIFICATION =
Specifies whether the user requires the operator's permission to modify his/her current test privilege.

MODIFICATION = *CONTROLLED
The user requires the operator's permission.

MODIFICATION = *UNCONTROLLED
The user does not require the operator's permission.

AUDIT = *PARAMETERS (...)
Defines user-specific audit authorization. Authorization may be assigned to users separately for hardware audit and linkage audit. System-wide availability of the audit function is defined via the AUDALLOW system parameter.

Note

Hardware audit is only supported on /390 architecture (SUs /390).

HARDWARE-AUDIT = *ALLOWED / *NOT-ALLOWED
Specifies whether a user is authorized to control the hardware audit mode. The audit mode can be controlled by means of the START-, STOP-, HOLD- and RESUME-HARDWARE-AUDIT commands and via the AUDIT macro for the function states
TU (task unprivileged) and TPR (task privileged). Modifications only affect the user ID's new tasks.

HARDWARE-AUDIT = *ALLOWED
The user is allowed to control the hardware audit mode, provided the audit function is available throughout the system.

HARDWARE-AUDIT = *NOT-ALLOWED
The user is not allowed to control the hardware audit mode.

LINKAGE-AUDIT = *ALLOWED / *NOT-ALLOWED
Specifies whether a user is authorized to control the linkage audit mode. The audit mode can be controlled by means of the START-, STOP-, HOLD- and RESUME-LINKAGE-AUDIT commands and via the AUDIT macro for the function states TU (task unprivileged), TPR (task privileged) and SIH (system interrupt handling). Modifications only affect the user ID's new tasks.

LINKAGE-AUDIT = *ALLOWED
The user is allowed to control the linkage audit mode, provided the audit function is available throughout the system.

LINKAGE-AUDIT = *NOT-ALLOWED
The user is not allowed to control the linkage audit mode.

DEFAULT-MSG-LANGUAGE = *STD / <name 1..1>
Specifies the language in which messages are output by default.

DEFAULT-MSG-LANGUAGE = *STD
The language defined using the MSGLPRI system parameter is used.

FILE-NUMBER-LIMIT =
Specifies the maximum number of files that may be created. This upper limit, or any lower value, may be assigned to subgroups or group members.

FILE-NUMBER-LIMIT = *MAXIMUM
The maximum number of files is 16777215.

FILE-NUMBER-LIMIT = <integer 0..16777215>
Specifies the maximum possible number of catalog entries as an exact number.

JV-NUMBER-LIMIT =
Specifies the maximum number of job variables that may be created. This upper limit, or any lower value, may be assigned to subgroups or group members.

JV-NUMBER-LIMIT = *MAXIMUM
The maximum number of job variables is 16777215.

JV-NUMBER-LIMIT = <integer 0..16777215>
Specifies the maximum possible number of job variables as an exact number.

TEMP-SPACE-LIMIT =
Specifies the maximum amount of temporary storage space which may be occupied on the shared volumes specified in the PUBSET operand.

TEMP-SPACE-LIMIT = *MAXIMUM
The maximum amount of storage space is 2147483647 PAM pages.

TEMP-SPACE-LIMIT = <integer 0..2147483647 *2Kbyte* >
Specifies exactly the amount of temporary storage space.

DMS-TUNING-RESOURCES =
Specifies which performance measures may be utilized, and the form in which they may be used.

DMS-TUNING-RESOURCES = *NONE
No tuning measures my be utilized.

DMS-TUNING-RESOURCES = *CONCURRENT-USE
The user may reserve preferred resources, but in doing so competes with all other users who have the same authorization.

DMS-TUNING-RESOURCES = *EXCLUSIVE-USE
The user may make exclusive reservations of preferred resources.

Permitted performance measures for the home and data pubsets

PUBSET = *HOME				
DMS-TUNING RESOURCES=	Resident ISAM pools	Resident FASTPAM environment	File attribute PERFORMANCE	
			|HIGH	=*VERY-HIGH
*NONE	no	no	no	-
*CONCURRENT-USE	yes	no	-	-
*EXCLUSIVE-USE	yes	yes	-	-
PUBSET = <Data pubset>				
DMS-TUNING-RESOURCES=	Resident ISAM pools	Resident FASTPAM environment	File attribute PERFORMANCE	
			| HIGH	=*VERY-HIGH
*NONE	-	-	no	no
*CONCURRENT-USE	-	-	yes	no
*EXCLUSIVE-USE	-	-	yes	yes

Table 25: Permitted performance measures (ADD-USER command)

CODED-CHARACTER-SET = *STD / <name 1..8>
Specifies which CODED-CHARACTER-SET (CCS) is to be used. A name should only be specified here if the one required differs from the one preset by the system (*STD). A CCS identifies a character set (specific to a country) which is, for example, to be activated when files are being created. The specified CCS should be an EBCDIC character set.

PHYSICAL-ALLOCATION = *NOT-ALLOWED / *ALLOWED
Governs whether the user is allowed to perform physical space allocation (direct allocation) for the pubset.

PHYSICAL-ALLOCATION = *NOT-ALLOWED
The user is no longer allowed to perform physical space allocation for the pubset.

PHYSICAL-ALLOCATION = *ALLOWED
The user is now allowed to perform physical space allocation for the pubset.

CRYPTO-SESSION-LIMIT = *STD / *MAXIMUM / <integer 0..32767>
Defines the maximum number of openCRYPT sessions within a BS2000 session. The number of openCRYPT sessions already used is set to 0 at the start of a BS2000.

CRYPTO-SESSION-LIMIT = *STD
Defines the maximum number of 128 openCRYPT sessions.

CRYPTO-SESSION-LIMIT = *MAXIMUM
Defines the maximum number of 32767 openCRYPT sessions.

NET-STORAGE-USAGE = *ALLOWED / *NOT-ALLOWED
Specifies whether the user may occupy space on Net-Storage volumes.

NET-STORAGE-USAGE = *ALLOWED
The user is permitted to use Net-Storage volumes. The space occupied on the Net-Storage volume is not counted toward the user's PUBLIC-SPACE-LIMIT.

NET-STORAGE-USAGE = *NOT-ALLOWED
The user is not permitted to use Net-Storage volumes.

NET-CODED-CHAR-SET = *STD / *ISO / *NO-CONVERSION / <name 1..8>
Defines which Net-Storage coded character set (NETCCSN) is to be used for node files on Net-Storage. A character set conversion is only performed for SAM node files.

NET-CODED-CHAR-SET = *STD
The setting is adopted from the NETCODE system parameter.

NET-CODED-CHAR-SET = *ISO
A suitable ISO character set is used. For details on character set conversion see the CREATE-FILE command or the “Introductory Guide to DMS” manual [13].

NET-CODED-CHAR-SET = *NO-CONVERSION
There is no code conversion for SAM node files.

NET-CODED-CHAR-SET = <name 1..8>
Name of the character set to be used. It should be an ASCII character set.

ACCOUNT-ATTRIBUTES = *PARAMETERS(...)
Specifications that are valid for only one account number of the user ID. The maximum number of account numbers per user ID is 60.

> **ACCOUNT = <alphanum-name 1..8>**
> Account number of the user ID, to which the following information refers.
>
> **CPU-LIMIT = *STD / *MAXIMUM / <integer 0..2147483647 *seconds* >**
> Total CPU time allocated to the user jobs under the specified account number.
>
> **CPU-LIMIT = *STD**
> The default value set in the SYSGJCPU system parameter (see the “Introduction to System Administration” [14]) is available.
>
> **CPU-LIMIT = *MAXIMUM**
> The time allotted the user is 2,147,483,647 CPU seconds.
>
> **SPOOLOUT-CLASS = 0 / <integer 0..255> / STD**
> Spoolout class for the first account number of the user ID
>
> **SPOOLOUT-CLASS = *STD**
> The default value set in the SYSGJCLA system parameter (see the “Introduction to System Administration” [14]) is available.
>
> **MAXIMUM-RUN-PRIORITY = *STD / <integer 30..255>**
> Specifies the highest priority that may be assigned jobs of the user ID (see note).

MAXIMUM-RUN-PRIORITY = *STD
The default value set in the SYSGJPRI system parameter (see the “Introduction to System Administration” [14]) is available.

MAX-ALLOWED-CATEGORY =
This operand defines which task attributes user jobs are allowed to attain.
If the user employs the TINF macro in his/her programs, a check is made in both the job class used by the job concerned and in the user catalog to see whether the right to use the task attribute TP was assigned to the user under the specified account number.

MAX-ALLOWED-CATEGORY = *STD
The tasks of the user can attain the task attributes BATCH and DIALOG.

MAX-ALLOWED-CATEGORY = *TP
The user jobs may attain the task attributes BATCH, DIALOG and TP.

MAX-ALLOWED-CATEGORY = *SYSTEM
All task attributes are permitted for the tasks of the user.

PRIVILEGE = *NO / *PARAMETERS(...) / list-poss(3): *NO-CPU-LIMIT / *START-IMMEDIATE / *INHIBIT-DEACTIVATION
Job management authorization declarations.

PRIVILEGE = *NO
The user ID is not given any job management privileges.

PRIVILEGE = *PARAMETERS(...)
A sequence of authorizations is to be agreed upon.

NO-CPU-LIMIT = *NO / *YES
Declares whether the user receives the authorization to run batch jobs without time restrictions.

NO-CPU-LIMIT = *YES
The user ID receives the authorization to run batch jobs without time restrictions under the specified account number.
This applies even if the job class assigned to the job does not permit this start attribute.
If the user specified the CPU-LIMIT=*NO operand in the SET-LOGON-PARAMETERS or ENTER-JOB command and this function is authorized neither in the user catalog nor in the job class assigned to the job, the batch job is rejected with an error message.
In the case of tasks without a time limit, the user’s CPU account is not debited.

START-IMMEDIATE = *NO / *YES
Defines whether the use is authorized to use the job express function.

START-IMMEDIATE = *YES
The user is authorized to use the job express function. With this authorization batch jobs are started immediately, even if the class limit of the job class in which the job concerned is to be started has been reached.
This applies even if the definition of the job class does not permit this start attribute. If the EXPRESS function is not permitted either in the user catalog or in the job class definition, the batch job is accepted, but it is not started as an EXPRESS job.

INHIBIT-DEACTIVATION = *NO / *YES
Defines whether the user is authorized to inhibit deactivation.

INHIBIT-DEACTIVATION = *YES
The user ID is authorized to inhibit deactivation.

The user's jobs are thus independent of the PRIOR function, by means of which jobs are placed in subordinate queues according to their system service requirements (macro time slice).

PRIVILEGE = *NO-CPU-LIMIT
The user is authorized to run batch jobs without time limitation under the specified account number.

PRIVILEGE = *START-IMMEDIATE
The user is authorized to use the job express function.

PRIVILEGE = *INHIBIT-DEACTIVATION
The user ID is authorized to inhibit deactivation.

POSIX-RLOGIN-DEFAULT = *NO / *YES
Defines whether the designated account number is to be used for POSIX remote login session accounting (the account number may likewise be used for BS2000 session accounting).
If the user entry does not include an account number for POSIX remote login session accounting, access to the system by remote login is not possible. Systems support personnel working under the TSOS user ID have access even without an account number.

LOGON-DEFAULT = *NO / *YES
Defines whether the designated account number is to be used as the default account number for BS2000 timesharing mode if no account number is specified in the case of dialog or batch access.

LOCK-USER =
Defines whether the user ID is to be locked after its creation.

LOCK-USER = *NO
The user ID is not locked.
The user has free access to the system after entering his ID.

LOCK-USER = *YES
The user ID is locked.
The system support staff is thus able to assign all desired attributes to the user ID and block premature access by the user.
If the product SECOS is used, the system support staff can achieve integration in the group structure and the protective mechanisms for the password in this way without thereby permitting SET-LOGON-PARAMETERS on the ID in question.
The access lock must be explicitly canceled (UNLOCK-USER command) by the system support staff.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	1	SRM6010	Syntax error
	32	SRM6020	System error during command processing

	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

Notes

- Task scheduling priorities

  The task scheduling priorities (30-255) for job control are defined:

  - in the user catalog (ADD-USER command, MAXIMUM-RUN-PRIORITY operand)
  - in the job class definition (JMU statement DEFINE-JOB-CLASS, RUN-PRIO operand; in addition to the default priority, a maximum priority can be defined)

  If the user specifies a task scheduling priority in the SET-LOGON-PARAMETERS or ENTER-JOB command, then this priority is checked both in the user catalog and in the job class assigned to the job. An example is given below:

Priority in the SET-LOGON-PARAMETERS or ENTER-JOB command	Priority in the job class		Priority in the user catalog	Priority with which the job is started
	DEFAULT	MAXIMUM		
200	190	150	180	200
150	190	150	180	150
130	190	150	180	190
-	190	150	180	190
130	190	150	130	130
130	190	150	200	200
200	190	NO	180	200
170	190	NO	180	190
130	190	NO	180	190
-	190	NO	180	190

  If the priority specified by the user in the SET-LOGON-PARAMETERS or ENTER-JOB command is **worse** than the best priority of the job class and in the user catalog (i.e. allowed either in the job class or in the user catalog), the job is started with the priority specified by the user. If the priority specified by the user in the SET-LOGON-PARAMETERS or ENTER-JOB command is **better** than the priorities of the job class and in the user catalog (i. e. not allowed either in the job class or in the user catalog), the job is given whichever is worse, the default priority of the job class or the priority in the user catalog.

  If the user does not specify any priority in the SET-LOGON-PARAMETERS or ENTER-JOB command, the job is started with the default priority.

- Threshold values for files, job variables, temporary memory and address space

  These threshold values are defined for the user ID using the FILE-NUMBER-LIMIT, JV-NUMBER-LIMIT, TEMP-SPACE-LIMIT and ADDRESS-SPACE-LIMIT operands. The user ID TSOS may exceed the defined limits. All other user IDs must always comply with the defined limits.

  When creating or modifying a user ID, a global user administrator may specify values which exceed the group potential of these limit values.

Example

```
/add-user user-id=cognibs3,prot-attr=(logon-pass='8743ryz9',
                            pass-manag=*user-cha-only,tape-access=*read),
          mail-addr=c'Abteilung Z8 Raum 55.105',
          email-addr=c'alfred.holli@incognito.de,joachim.vogi@incognito.de,
                    (jk)johannes.kuli@incognito.de,(mr)mathias.reh@incognito.de',
          pub-space-lim=20000,
          account-attr=(account=acc00015,cpu-limit=10000,privil=*start-immed)
/show-user-attr cognibs3
```

```
%SHOW-USER-ATTRIBUTES --- PUBSET TK82 - USER COGNIBS3 2017-01-29 15:09:50
%------------------------------------------------------------------------------
%USER-ID COGNIBS3 PUBLIC-SPACE-USED 0
%GROUP-ID *UNIVERSAL PUBLIC-SPACE-LIMIT 20000
%DEFAULT-PUBSET TK82 PUBLIC-SPACE-EXCESS *NO
%MAX-ACCOUNT-RECORDS 100 TEMP-SPACE-USED 0
%DEFAULT-MSG-LANGUAGE TEMP-SPACE-LIMIT 2147483647
% FILES 0
%PROTECTION-ATTRIBUTES... FILE-NUMBER-LIMIT 16777215
%LOGON-PASSWORD *YES JOB-VARIABLES 0
%PASSWORD-MGMT *USER-CHANGE-ONLY JV-NUMBER-LIMIT 16777215
%TAPE-ACCESS *READ RESIDENT-PAGES 32767
%FILE-AUDIT *NO ADDRESS-SPACE-LIMIT 16
% DMS-TUNING-RESOURCES *NONE
%TEST-OPTIONS... CSTMP-MACRO-ALLOWED *NO
%READ-PRIVILEGE 1 CODED-CHARACTER-SET EDF03IRV
%WRITE-PRIVILEGE 1 PHYSICAL-ALLOCATION *NO
%MODIFICATION *CONTROLLED USER-LOCKED *NO
% CRYPTO-SESSION-USED 0
%AUDIT... CRYPTO-SESSION-LIMIT 128
%HARDWARE-AUDIT *ALLOWED NET-STORAGE-USAGE *ALLOWED
%LINKAGE-AUDIT *ALLOWED NET-CODED-CHAR-SET *ISO
%
%PROFILE-ID *NONE
%MAIL-ADDRESS Abteilung Z8 Raum 55.105
%EMAIL-ADDRESS alfred.holli@incognito.de,
% joachim.vogi@incognito.de,
% (jk)johannes.kuli@incognito.de,
% (mr)mathias.reh@incognito.de
%
%+---------+-----------+---------+--------+------------+-------+------+------+
%!ACCOUNT-#! CPU-LIMIT !SPOOLOUT-!MAX-RUN-!MAX-ALLOWED-!NO-CPU-!START-!INHIB-!
%! ! ! CLASS !PRIORITY! CATEGORY ! LIMIT ! IMMED! DEACT!
%+---------+-----------+---------+--------+------------+-------+------+------+
%! ACC00015! 10000! 0 ! 255 ! STD ! NO ! YES ! NO !
%+---------+-----------+---------+--------+------------+-------+------+------+
%DEFAULT-ACCOUNT-# FOR LOGON: *NONE
%DEFAULT-ACCOUNT-# FOR REMOTE-LOGIN: *NONE
%
%DEFAULT-JOB-CLASS FOR BATCH-JOBS: JCB05000
%DEFAULT-JOB-CLASS FOR DIALOG-JOBS: JCDSTD
%DEFAULT-JOB-CLASS FOR POSIX-JOBS: JCPOSSTD
%LIST OF JOB-CLASSES ALLOWED:
%JCBNACHT JCBNAMCM JCBNAMCP JCBSHUT JCB00050 JCB00200 JCB02000 JCB05000
%JCB10000 JCB32000 JCDSTD
%------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES END OF DISPLAY FOR USER COGNIBS3 ON PUBSET TK82
/
```

2.21 AGOGO

Continue command file

Component:	BS2000
Functional area:	Editing command files
Domain:	not allocated
Privileges:	OPERATING
Routing code:	E

Function

The AGOGO command is used for processing a command file that has been placed in the wait state. Depending on the conditions for continuation, several AGOGO commands may be required, see the ASTOP command.

This command is intended for use in authorized user programs which need to be synchronized with the processing of a command file.

The operator should use this command only in the following situation:

If an authorized user program has been started from a command file and an error has occurred during its execution, the operator can use an AGOGO command (or several, if required) to shorten the wait time which would otherwise elapse before processing is continued. The wait time is 3 minutes, unless a different value has been set using the class 2 system parameter NBRUNWT.

The command must not be issued from a user task with the operating privilege.

The way this command works is described under “Command files for the operator” in the “Introduction to System Administration” [14].

Restrictions when using the “Operator LOGON” function

If the “Operator LOGON” function is used (incompatible mode; system parameter NBCONOPI=Y), the AGOGO command is not accepted after “SYSTEM READY” unless the originating task is running under TSOS or under the user ID which entered the RUN command. The AGOGO command is also allowed if the RUN or AGOGO command was issued by an authorized user program with generated authorization names or if the command issuer has been disconnected. In all other cases, the AGOGO command is rejected with message NBR1013.

This restriction does not apply to the CMDFILE running at “SYSTEM READY” time or to any command sequences started from it.

Format

AGOGO

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
1	0	EXC0916	No command file in ASTOP state
2	0	NBR1008	Command acknowledged. Another AGOGO command expected
	64	NBR1013	No authorization

2.22 ASR

Assign routing code

Component:	BS2000
Functional area:	Operator terminal control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	E

Function

The ASR command enables the operator to carry out the following functions:

- Assign routing codes to operator terminals (consoles) or authorized user programs with generated authorization names.

  Messages with these routing codes are sent to the appropriate operator terminals or authorized user programs. Commands with these routing codes may be issued from the appropriate operator terminals or authorized user programs.
- Assign routing codes to operator terminals (consoles) or authorized user programs with generated authorization names.
- Delete the assigned routing codes for operator terminals or authorized user programs with generated authorization names.
- Output information on the assignment of routing codes and filter levels to operator terminals or authorized user programs with generated authorization names.

> Authorized user programs with dynamic authorization names can use ASR only to query their own set of routing codes. Assignment and deletion are done with the CREATE-OPERATOR-ROLE and DELETE-OPERATOR-ROLE commands.

Restrictions

The command is available in ISP format only; in other words, there are no SDF functions (such as syntax analysis or help). The format has been subdivided into four subformats:

- Format 1: Output information
- Format 2: Assign routing codes
- Format 3: Cancel assignment
- Format 4: Reset assignment to time of system startup

The meaning of system parameters ASRSW1 and ASRSW2 depends on whether the “Operator LOGON” function is used (system parameter NBCONOPI=Y / N); see Note 7.

Format 1

Operation	Operanden
ASR	**H**ELP [,{ **C**ON**S**OLE={ bn / (bn1,...) / mn / (mn1,...) / ALL } / **C**O**D**E={ bs / (bs1,...) / ALL }]

Operands

HELP Gives information on the assignment of routing codes to operator terminals or authorized user programs.

without operand Gives information on the authorization name of the authorized user program or on the mnemonic name of the operator terminal from which the ASR command was issued.

CONSOLE

=up
=(up1,...) Outputs the following information for the user programs “up” (“up” is the 4-character authorization name of a user program):

- CODE=..., shows the routing codes assigned
- INOP, there is no connection with $CONSOLE
- PROCESSOR=..., the name of the processor from which the connection was set up
- STATION=..., the name of the station of the authorized user program from which the connection was set up

=mn
=(mn1,...) Outputs the following information for the operator terminals “mn” (“mn” is the mnemonic device name of an operator terminal):

- CODE=..., shows the routing codes assigned
- INOP, operator terminals “mn” not operable
- NOINF, receipt of information messages is suppressed
- SWITCHED OFF, an operator terminal has been switched over to the standby operator terminal; see the CONSOLE command

=ALL Information as above is output for all operator terminals and all authorized user programs. CONSOLE=ALL and CODE=ALL are mutually exclusive.

Note

Routing codes which are temporarily assigned to a standby operator terminal because of a main operator terminal failure are also output. If the “Operator LOGON” function is used (system parameter NBCONOPI=Y), the operator terminal “OFF” condition is no longer indicated. The “INACTIVE” condition is indicated for physical operator terminals at which no operator has logged on.

CODE

=rc
=(rc1,...) Lists the operator terminals and authorized user programs to which the routing codes “rc” are assigned.

=ALL Lists information on all routing codes defined in the system.
CONSOLE=ALL and CODE=ALL are mutually exclusive.

Note

The routing codes which are temporarily assigned to a standby operator terminal because of a main operator terminal failure are not output.

Format 2

Operation	Operanden
ASR	**A**DD { **COD**E={ bs / (bs1,...) / ALL } / **CON**SOLE={ bn / (bn1,...) / mn / (mn1,...) / ALL } [,**COD**E={ bs / (bs1,...) / ALL }] }

Operands

ADD Assigns a set of routing codes to operator terminals or authorized user programs with generated authorization names.

> This function must neither be entered by user programs with dynamic authorization names themselves nor used with reference to them. In the mode with operator LOGON (system parameter NBCONOPI=Y), it must also not be used on physical operator terminals (including Teleservice).

CODE

=rc
=(rc1,...) The routing codes “rc” are assigned to the operator terminal or authorized user program from which the ASR command was issued.

=ALL All routing codes defined in the system are assigned to the operator terminal or authorized user program from which the ASR command was issued.

CONSOLE

=up
=(up1,...) For main operator terminal only: The main operator terminal assigns itself all routing codes assigned to the user programs with the generated authorization name “up”.

=mn
=(mn1,...) The main operator terminal assigns itself all routing codes assigned to the operator terminals “mn”.

=ALL The main operator terminal assigns itself all routing codes assigned to other operator terminals or user programs with generated authorization names.

Note

The routing code assignment for the operator subterminals and user programs remains intact. The routing codes previously assigned to the main operator terminal are also retained. See also Note 4.

CONSOLE=...,CODE=...

For main operator terminal only: The main operator terminal assigns the routing codes “rc” (specified in the CODE operand) to the operator terminals “mn” or the user programs “up” (specified in the CONSOLE operand). See also Note 4.

Format 3

Operation	Operanden
ASR	**D**ELETE { **CO**D**E**={ bs / (bs1,...) / ALL } / **CO**N**S**OLE={ bn / (bn1,...) / mn / (mn1,...) / ALL } [,**CO**D**E**={ bs / (bs1,...) / ALL }] }

Operands

DELETE Cancels the assignment of routing codes to operator terminals or authorized user programs with generated authorization names.

> This function must neither be entered by user programs with dynamic authorization names themselves nor used with reference to them. In the mode with operator LOGON (system parameter NBCONOPI=Y), it must also not be used on physical operator terminals (including Teleservice).

CODE

=rc
=(rc1,...) The assignment of the routing codes “rc” to the operator terminal or authorized user program from which the ASR command was issued is canceled.

=ALL The assignment of all routing codes to the operator terminal or authorized user program from which the ASR command was issued is canceled.

CONSOLE=...,CODE=...

For main operator terminal only: The main operator terminal cancels the assignment of the routing codes specified in the CODE operand to the operator terminals or authorized user programs specified in the CONSOLE operand. See also Note 4.

Format 4

Operation	Operanden
ASR	**P**RIMARY [,{ **COD**E={ bs / (bs1,...) / ALL } / **CONS**OLE={ bn / (bn1,...) / mn / (mn1,...) / ALL }] }

Operands

PRIMARY Resets the assignment of routing codes to the state which existed at system startup.

> This function must neither be entered by user programs with dynamic authorization names themselves nor used with reference to them. In the mode with operator LOGON (system parameter NBCONOPI=Y), it may only be used in authorized user programs with generated authorization names and is also allowed only with reference to them. Other restrictions depend on system parameters ASRSW1 and ASRSW2 (see Note 7)

without operand — The assignment of all routing codes to the operator terminal or authorized user program which issued the command is reset to the state which existed at system startup.

CODE

=rc
=(rc1,...) — For the main operator terminal only: The main operator terminal resets the assignment of the routing codes “rc” to the state which existed at system startup.

=ALL — The main operator terminal resets the assignment of all routing codes defined in the system to the state which existed at system startup. See also Note 4.

CONSOLE

=up
=(up1,...) — For main operator terminal only: The main operator terminal resets the assignment of all routing codes to the user programs “up” to the state which existed at system startup.

=mn
=(mn1,...) — The main operator terminal resets the assignment of all routing codes to the operator terminals “mn” to the state which existed at system startup.

=ALL — The main operator terminal resets the assignment of all routing codes defined in the system to the state which existed at system startup. See also Note 4.

Return codes

The following functions of the ASR command, referred to in the “Meaning” column below, were replaced by new commands in BS2000/OSD-BC V2.0 and are not included in the present command description:

ASR function	Replaced by
ASR MAIN	/REQUEST-MAIN-CONSOLE-FUNCTIONS
ASR DESTINATION	/SHOW-SYSTEM-PARAMETERS
ASR SUPPRESS,<tsn>	/RESET-MSG-BUFFER

(SC2)	SC1	Maincode	Meaning
0	0	CMD0001	Command executed successfully
1	0	NBR0823	This is the main operator terminal. “ASR MAIN” and /REQUEST-MAIN-CONSOLE-FUNCTIONS ignored
2	0	NBR1031	Command only partially executed because it includes invalid actions relating to authorized user programs with dynamic authorization names
2	0	NBR1036	This operand combination can only be partially processed because NBCONOPI=Y is set
0	1	CMD0202	Syntax error
0	2	CMD0198	Shutdown
0	2	NBR0724	“ASR SUPPRESS” is not supported with NBCONOPI=Y. Use /RESET-MSG-BUFFER
0	2	NBR1033	“ASR MAIN” is not supported with NBCONOPI=Y. Use /REQUEST-MAIN-CONSOLE-FUNCTIONS
0	2	NBR1034	“ASR DESTINATION” is not supported with NBCONOPI=Y. Use /SHOW-SYSTEM-PARAMETERS
0	64	EXC0053	The entered operand combination is valid for the main operator terminal only
0	64	NBR0722	“ASR SUPPRESS” and /RESET-MSG-BUFFER allowed only on physical operator terminals
0	64	NBR0821	“ASR MAIN” and /REQUEST-MAIN-CONSOLE-FUNCTIONS rejected by main operator terminal
0	64	NBR0822	“ASR MAIN” and /REQUEST-MAIN-CONSOLE-FUNCTIONS allowed only on physical operator terminals

0	64	NBR0898	Command allowed only on operator terminals
0	64	NBR1030	Routing code assignments may not be modified with the ASR command either for or by authorized user programs with dynamic authorization names
0	64	NBR1032	Filters for authorized user programs with dynamic authorization names may only be modified by those programs
0 0	64 128	NBR1035 EXC0056	This operand combination is not allowed on this operator terminal because NBCONOPI=Y is set “ASR MAIN” and /REQUEST-MAIN-CONSOLE-FUNCTIONS in use. Try again later
0	130	EXC0054	Space request error
0	130	EXC0057	Task saturation

Notes

1. The following maximum values may be specified in the various operands of an ASR command:

in the operand CODE=(rc1,...)	12 routing codes,
in the operand CONSOLE=(mn1,...)	24 operator terminals,
in the operand CONSOLE=(up1,...)	38 authorized user programs.

2. If a keyword operand contains a mnemonic device name of an operator terminal or an authorization name of a user program which is not defined in the system, one of the following messages appears:

   ```
   CONSOLE 'bn' NOT FOUND
   ```

3. If the ASR command contains a number of entries which are not defined in the system, a separate message is output for each invalid entry.

   Example: CONSOLE=(K1,B3) are not defined in the system, CONSOLE=(XY,KL) are defined. The command is therefore given as follows:

   ```
   /ASR A,CD=(A,B,C,X,Y,Z),CS=(K1,B3,XY,KL)
   ```

   The following messages appear as a response:

   ```
   CONSOLE K1 NOT FOUND
   CONSOLE B3 NOT FOUND
   NBR0740  COMMAND COMPLETED 'ASR'; RESULT: SC2=0, SC1=0, MC=CMD0001)
   ```

   The command is still executed, but only the correct entries in the operands are taken into account. In other words, the command in the example is equivalent to

   ```
   /ASR A,CD=(A,B,C,X,Y,Z),CS=(XY,KL)
   ```

4. Whether input from operator subterminals is admissible is specified with the system parameter ASRSW1 (see the “Introduction to System Administration” [14]). If input from operator subterminals is permitted, the operands are executed in so far as they affect subterminal status.

5. It is possible to influence the admissibility of an input from an authorized user program with generated authorization name by means of the class 2 system parameters ASRSW1 and ASRSW2 (see the “Introduction to System Administration” [14]).
6. The ASR command can always be input from the main operator terminal in the mode without operator LOGON. If the “Operator LOGON” function is used (system parameter NBCONOPI=Y), the main operator terminal must have the required routing code.
7. The meaning of system parameters ASRSW1 and ASRSW2 depends on whether the “Operator LOGON” function is used (system parameter NBCONOPI=Y / N). The effects of the various combinations are shown in Tables "Effect of system parameters ASRSW1 and ASRSW2 (mode with operator LOGON)" and "Effect of system parameters ASRSW1 and ASRSW2 (mode with operator LOGON)". The following considerations (not included in the tables) are generally applicable:
   - Authorized user programs with dynamic authorization names are unaffected by the settings of the system parameters, because they have no influence on the distribution of routing codes and because their own routing codes cannot be modified from other operator terminals.
   - In the mode with operator LOGON (NBCONOPI=Y), regardless of the settings of the system parameters, the main operator terminal is allowed to modify the routing codes of authorized user programs with generated authorization names, provided that it has input authorization. In the mode without operator LOGON (NBCONOPI=N) it always has input authorization and is further allowed to modify the routing codes of all physical operator terminals.

Mode without operator LOGON: NBCONOPI = N		
ASRSW1	**ASRSW2**	**Effect**
0	0	Physical operator subterminals and authorized user programs with generated authorization names are allowed to modify their own routing codes
0	1	Physical operator subterminals are allowed to modify their own routing codes. Authorized user programs with generated authorization names are allowed to modify their own routing codes.
1	0	Only the main console is allowed to modify routing code assignments, but it may do so for all consoles
1	1	Only the main operator terminal and authorized user programs with generated authorization names are allowed to modify routing codes, but they may do so for all consoles

Table 26: Effect of system parameters ASRSW1 and ASRSW2 (mode without operator LOGON)

Mode with operator LOGON: NBCONOPI = Y		
ASRSW1	**ASRSW2**	**Effect**
0	0	Authorized user programs with generated authorization names are allowed to modify their own routing codes
0	1	Authorized user programs with generated authorization names are allowed to modify routing codes
1	0	Only the main console is allowed to modify routing codes, and it may do so only for authorized user programs with generated authorization names
1	1	Authorized user programs with generated authorization names are allowed to modify each other’s routing codes

Table 27: Effect of system parameters ASRSW1 and ASRSW2 (mode with operator LOGON)

2.23 ASSIGN-STREAM

Assign S variable stream

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING
	OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The ASSIGN-STREAM command assigns an S variable stream to a variable or a server (e.g. FHS). See also “S variable streams” in the “SDF-P” manual [34].

Restrictions

Assignment of an S variable stream to a variable using TO=*VARIABLE(...) is not possible unless the chargeable SDF-P subsystem is loaded.

Format

ASSIGN-STREAM

```
STREAM-NAME = SYSVAR / SYSMSG / SYSINF / <structured-name 1..20>

,TO = *STD / <structured-name 1..20> / *DUMMY / *SAME-AS-CALLING-PROC / *VARIABLE(...) /
          *SERVER(...)

  *VARIABLE(...)
      |       VARIABLE-NAME = *NONE / <composed-name 1..255>(...)
      |           <composed-name>(...)
      |               |       WRITE-MODE = *EXTEND / *PREFIX
      |       ,RETURN-VARIABLE-NAME = *NONE / <composed-name 1..255>(...)
      |           <composed-name 1..255>(...)
      |               |       WRITE-MODE = *EXTEND / *PREFIX
      |       ,CONTROL-VAR-NAME = *NONE / <composed-name 1..255>(...)
      |           <composed-name 1..255>(...)
      |               |       WRITE-MODE = *EXTEND / *PREFIX
      |       ,RET-CONTROL-VAR-NAME = *NONE / <composed-name 1..255>(...)
      |           <composed-name 1..255>(...)
      |               |       WRITE-MODE = *EXTEND / *PREFIX

  *SERVER(...)
      |       SERVER-NAME = <structured-name 1..30>
      |       ,SERVER-INFORMATION = *NONE / <c-string 1..1800>
```

Operands

STREAM-NAME = <structured-name 1..20> / SYSVAR / SYSMSG / SYSINF
Assigns an S variable stream. The operand values SYSINF, SYSMSG, and SYSVAR are reserved words. They must not be abbreviated.

- SYSINF: contains structured outputs from commands and programs
- SYSMSG: contains structured guaranteed messages
- SYSVAR: contains information from SYSINF and SYSVAR; however, it is still possible to process the different data items separately.

TO =
Specifies the server which is assigned to the current S variable stream.

TO = *STD
Default assignment. The following table indicates the default values used internally by TO for the various combinations featuring the STREAM-NAME operand.

STREAM-NAME=	TO=*STD	Information contained
SYSINF	SYSVAR	structured outputs from commands and programs
SYSMSG	SYSVAR	Structured guaranteed messages
SYSVAR	*DUMMY	structured outputs from commands and programs and structured guaranteed messages
<structured-name 1..20>	*DUMMY	User variable stream

TO = <structured-name 1..20>
Name of the user server.
Any loops in chains of S variable stream assignments will be rejected; e.g.

```
ASSIGN-STREAM S3,*DUMMY
ASSIGN-STREAM S2,S3
ASSIGN-STREAM S3,S2          -----> SDP0511
```

TO = *DUMMY
No assignment. Transmitted variables are lost. The client is informed of this by a warning.

TO = *SAME-AS-CALLING-PROC
Assigns the calling procedure's server. If there is no assignment in the calling procedure, the assignment is rejected and the S variable stream remains unaltered.

TO = *VARIABLE(...)
The server is SDF-P. The transmitted variables are written to the specified S variables, or read from it.
Specification is only possible if the chargeable SDF-P subsystem is loaded. The operands of the *VARIABLE(...) structure are completely described in the “SDF-P” manual [34].

TO = *SERVER(...)
Links the S variable stream with the specified server.

SERVER-NAME = <structured-name 1..30>
Name of the server.

SERVER-INFORMATION =
Information which must be sent to the server, e.g. the name of the format library for FHS.

SERVER-INFORMATION = *NONE
No information must be sent to the server.

SERVER-INFORMATION = <c-string 1..1800>
Text of the message, in the form of a string.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	SDP0531	Warning by the server; process being continued
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	User does not have the required privilege
	64	SDP0091	Semantic error
	64	SDP0532	Server error; command rejected
	64	SDP0534	Internal server error; command terminated. Server link terminated following unexpected event or due to shortage or absence of system resources
	130	SDP0099	No further address space available

Example

See the SHOW-STREAM-ASSIGNMENT and TRANSMIT-BY-STREAM commands in the “SDF-P” manual [34].

2.24 ASSIGN-SYSDTA

Assign SYSDTA to input source

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The ASSIGN-SYSDTA command assigns the system (input) file SYSDTA to an input source. The primary assignment and attributes of SYSDTA are described in section "System files".

Restrictions

Allocating a system file to a variable with TO=*VARIABLE(...) is only possible if the chargeable subsystem SDF-P is loaded.

Format

ASSIGN**-SYSDTA**

```
TO = <filename 1..54> / *VARIABLE(...) / *LIBRARY-ELEMENT(...) / *PRIMARY / *SYSCMD /
          *DISKETTE(...)

  *VARIABLE(...)

    |  VARIABLE-NAME = <composed-name 1..254>

  *LIBRARY-ELEMENT(...)

    |  LIBRARY = <filename 1..54 without-gen-vers>

    |  ,ELEMENT = <composed-name 1..64 with-under>(...)

    |      <composed-name 1..64 with-under>(...)

    |          |      VERSION = *HIGHEST-EXISTING / *STD / <composed-name 1..24>

    |  ,TYPE = S / <alphanum-name 1..8>

,DATA-ESCAPE-CHAR = *COMPATIBLE / '&&' / '#' / '*' / '@' / '$' / *STD
```

Operands

TO =
Input source to which SYSDTA is to be assigned.

TO = <filename 1..54>
Name of the file to which SYSDTA is to be assigned. The file must be cataloged with the following attributes:

- variable-length records
- SAM or ISAM access method
- start of ISAM key: byte 5
- length of ISAM key: 8 bytes

TO = *VARIABLE(...)
Name of a complex S variable of the “list” type (i.e. a series of elements of the same variable type which can only be accessed sequentially). Complex S variables can only be used if the chargeable subsystem SDF-P is loaded (see the “SDF-P” manual [34]). The command will be rejected if the specified list has not been declared or if the list elements are not of variable type STRING (or ANY).

VARIABLE-NAME = <composed-name 1..254>
Name of the S variable.

TO = *LIBRARY-ELEMENT(...)
The input source is a PLAM library element.

LIBRARY = <filename 1..54 without-gen-vers>
Name of a PLAM library.

ELEMENT = <composed-name 1..64 with-under>(...)
Name of an element in the specified library. Hyphens are also permitted. However, hyphens are not permitted as the last character.

VERSION = *HIGHEST-EXISTING / *STD / <composed-name 1..24>
Addition of the version to the element name. The default value is the latest version of the specified element.

TYPE = S / <alphanum-name 1..8>
Type of the element.

S Element type S (source program); default value.

D Element type D (text data)

M Element type M (macro)

TO = *PRIMARY
Resets SYSDTA to the primary assignment (see section "System files").

TO = *SYSCMD
Combines SYSDTA and SYSCMD, i.e. the system reads both commands and data via SYSCMD.

DATA-ESCAPE-CHAR =
This specifies whether variables are to be replaced in data records.

> This operand is allowed only in procedure mode. It is not available in interactive mode and guided dialog.

DATA-ESCAPE-CHAR = *COMPATIBLE
The replacement of variables and expressions in data records is to be performed in compatible fashion with the previous behavior:

- When the assignment SYSDTA not equal to SYSCMD is made, no replacement takes place in data records
- When SYSDTA=SYSCMD, replacement takes place in data records as defined in the SET-PROCEDURE-OPTIONS, MODIFY-PROCEDURE-OPTIONS or BEGIN-PROCECURE command.

DATA-ESCAPE-CHAR = '&&' / '#' / '*' / '@' / '$' / *STD
*This specification is possible only with the assignment SYSDTA not equal to SYSCMD. In the case of TO=*SYSCMD or TO=*PRIMARY, the specification is rejected.*
In data records, variables and expressions which begin with the specified character are to be replaced. Permissible characters are &, #, *, @ and $. Specifying & is equivalent to specifying *STD (as on command level). If the character & is to be specified explicitly, it *must* be entered twice.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	SSM3200	Command executed with warning
2	0	SSM3034	The system file is already assigned to *PRIMARY
	1	SSM2036	Operand invalid
	32	SSM1013	System error during command execution
	64	SSM1025	Floppy disk device not available
	64	SSM1026	Floppy disk device not available or the floppy disk could not be mounted
	64	SSM2061	Error on accessing PLAM library element
	64	SSM2064	System file cannot be assigned via RFA
	64	SSM3030	SYSDTA is already assigned to floppy disk
	64	SSM3031	Semantic error
	64	SSM3055	Invalid record or file format
	64	SSM3056	OPEN error on input (DMS error is contained as in the insertion into the SYSOUT message)
	64	SSM3100	S variable does not exist
	64	SSM3101	S variable not of list type
	64	SSM3102	SDF-P subsystem not available
	64	SSM3104	DATA-ESCAPE-CHAR not equal to *COMPATIBLE not permitted when SYSDTA=SYSCMD
	64	SSM3105	Specification of DATA-ESCAPE-CHAR not valid in the current software configuration
	64	SSM3200	Error on accessing PLAM library or element
	65	SSM2074	SPOOL subsystem not loaded; a floppy disk device cannot be accessed

Notes

- Only one file may be assigned with one ASSIGN-SYSDTA command. Users wishing to assign more files must enter a corresponding number of ASSIGN-SYSDTA commands.
- At the procedure level, the system file SYSDTA is no longer assigned when the end of the file has been reached. Any further reading results in the message “SYSDTA NOT ASSIGNED”. When processing returns to a lower procedure level, SYSDTA is assigned to the device that was defined at that lower level.
- The replacement of variables, which is defined in the DATA-ESCAPE-CHAR operand for SYSDTA not equal to SYSCMD is restricted to S procedures.
  The following applies for this setting:
  - When data in the context of a non-S procedure or ENTER file is read, the read operation is rejected with message SSM3106.
  - If an error occurs while variables are being replaced, the data record is rejected, and reading from the input source is terminated with EOF.
  - If the primary allocation is switched to while reading from the input source (file, library member or S variable), no variables are replaced (e.g. EDT switches to primary allocation after EOF occurs).

Examples

Example 1

/start-assembh ——————————————————————————————— (1)

```
%  BLS0523 ELEMENT 'ASSEMBH', VERSION '013', TYPE 'C' FROM LIBRARY ':1OSH:$TSOS.
SYSPRG.ASSEMBH.013' IN PROCESS
%  BLS0500 PROGRAM 'ASSEMBH', VERSION '01.3A02' OF '2012-04-04' LOADED
%  BLS0552 COPYRIGHT (C) FUJITSU TECHNOLOGY SOLUTIONS   2012. ALL RIGHTS RESERVED
%  ASS6010 V01.3A02 OF BS2000 ASSEMBH  READY
%
//compile source=*sysdta,...
  .
  .
  .
%  ASS6012 END OF ASSTRAN
```

/assign-sysdta to=src.testprog ——————————————————————————— (2)
/start-assembh

```
%  BLS0523 ELEMENT 'ASSEMBH', VERSION '013', TYPE 'C' FROM LIBRARY ':1OSH:$TSOS.
SYSPRG.ASSEMBH.013' IN PROCESS
%  BLS0500 PROGRAM 'ASSEMBH', VERSION '01.3A02' OF '2012-04-04' LOADED
%  BLS0552 COPYRIGHT (C) FUJITSU TECHNOLOGY SOLUTIONS   2012. ALL RIGHTS RESERVED
%  ASS6010 V01.3A02 OF BS2000 ASSEMBH  READY
%  ASS6011 ASSEMBLY TIME: 385 MSEC
%  ASS6018 0 FLAGS, 0 PRIVILEGED FLAGS, 0 MNOTES
%  ASS6019 HIGHEST ERROR-WEIGHT: WARNING
%  ASS6006 LISTING GENERATOR TIME: 121 MSEC
%  ASS6012 END OF ASSEMBH
```

/assign-sysdta to=*primary ——————————————————————————— (3)

(1) The system file SYSDTA has primary assignment. The assembler reads its input from the terminal.

(2) SYSDTA is assigned to the file *SRC.TESTPROG*. The assembler reads its input from this file (COMPILE statement and source program if SOURCE=*SYSDTA is declared in the COMPILE statement).

(3) The primary assignment is returned to SYSDTA.

Example 2

/assign-sysdta to=*lib-elem(lib=biblio,elem=testprog)
/start-assembh

```
%  BLS0523 ELEMENT 'ASSEMBH', VERSION '013', TYPE 'C' FROM LIBRARY ':1OSH:$TSOS.
SYSPRG.ASSEMBH.013' IN PROCESS
%  BLS0500 PROGRAM 'ASSEMBH', VERSION '01.3A10' OF '2012-10-11' LOADED
%  BLS0552 COPYRIGHT (C) FUJITSU TECHNOLOGY SOLUTIONS   2012. ALL RIGHTS RESERVED
%  ASS6010 V01.3A10 OF BS2000 ASSEMBH  READY
%  ASS6011 ASSEMBLY TIME: 429 MSEC
%  ASS6018 0 FLAGS, 0 PRIVILEGED FLAGS, 0 MNOTES
%  ASS6019 HIGHEST ERROR-WEIGHT: WARNING
%  ASS6006 LISTING GENERATOR TIME: 154 MSEC
%  ASS6012 END OF ASSEMBH
```

/assign-sysdta to=*primary

The assembler reads its input from the element *TESTPROG* from the library file *BIBLIO*. After the compiler run has been completed, SYSDTA once more obtains the primary assignment.

Example 3

```
/BEG-PROC LOG=*ALL, PAR=*YES(PROC-PAR=(&INFILE1,&OUTFILE,&INFILE2,&SFID))
/ASS-SYSDTA TO=*SYSCMD
/START-SDF-I
OPEN INPUT-FILE=&INFILE1, OUTPUT-FILE=&OUTFILE
MERGE FILE=&INFILE2, REMOVE-ID=&SFID
END
/END-PROC
```

Because of the ASSIGN-SYSDTA command, when the non-S procedure executes SYSDTA, like SYSCMD, is contained in the file in which the procedure is stored. This then also enables the SDF-I utility to read the statements from this procedure file.

2.25 ASSIGN-SYSEVENT

Assign event stream to user task

Component:	BS2000
Functional area:	Job processing Operator terminal control
Domain:	CONSOLE-MANAGEMENT JOB
Privileges:	STD-PROCESSING OPERATING

Function

This command causes an event stream to be assigned to the user task from which it was issued. It has essentially three main functions:

1. Assigning an event stream to the user’s own task. This registers the user task with the event stream service (ESS) and causes an event stream task to start event stream logging in an event stream file (ESF). The components of the event stream are all asynchronous events addressed to the user task and the synchronous events defined when the command is issued. A nonprivileged user is allowed to assign a user event stream (TO=*USER-LOG). The user task is connected to a private user event stream, and events are logged in a private user event stream file (UESF). A user with the OPERATING privilege is able to assign a system event stream (TO=*SYSTEM-LOG), which involves the logging of all asynchronous system messages distributed via routing codes. In such cases the user task is connected to the central system event stream, and events are logged in the central system event stream file (SESF).

   A user task can only ever be assigned one event stream (user or system event stream). If a user task with an event stream already assigned to it is assigned a new event stream, the assignment is changed to match the new specifications in the command. The assignment which applied before is canceled (implied TO=*DUMMY).
2. Canceling the assignment of an event stream to the user’s own task (ASSIGN-SYSEVENT TO=*DUMMY). The user task is deregistered from the ESS, and the events from the event stream are no longer logged in the ESF.
3. Modifying the assigned event stream. This primarily lets you redefine the set of synchronous messages being logged within an existing assignment (i.e. for your own active event stream).

Format

ASSIGN**-SYSEVENT**

TO = ***USER-LOG** (...) / ***DUMMY** / ***CURR**ENT / ***SYS**TEM**-LOG**(...)

***USER-LOG**(...)

| LOG-ID = ***OWN-TSN** / <alphanum-name 1..4>

| ,OPEN-MODE = ***CREATE** / ***OUTPUT** / ***EXTEND**

***SYS**TEM**-LOG**(...)

| LOG-ID = ***OWN-TSN** / <alphanum-name 1..4>

| ,OPEN-MODE = ***CREATE** / ***OUTPUT** / ***EXTEND**

,ADD-SYNCH-EVENTS = ***UNCHA**NGED**-OR-STD** / ***NONE** / ***ALL** / list-poss(3): ***SYSOUT-MSG** / ***CMD** / ***STMT**

,CLOSE-MODE = ***UNCHA**NGED**-OR-STD** / ***DEL**ETE**-EVENTS** / ***KEEP-EVENTS**

Operands

TO = *USER-LOG(...) / *DUMMY / *CURRENT / *SYSTEM-LOG(...)
Specifies the logical medium to which the assignment is to relate, thereby defining the function of the command (start, stop or modify an event stream).

TO = *USER-LOG(...)
Assigns a user event stream to the user task. The associated events are logged in a UESF.

LOG-ID = *OWN-TSN / <alphanum-name 1..4>
Defines the name that is assigned to the event stream. The default name is the TSN of your own task.

OPEN-MODE = *CREATE / *OUTPUT / *EXTEND
Defines the open mode for event stream assignment. You can either create a new event stream or continue with an existing one.

OPEN-MODE = *CREATE
Creates and starts a new event stream. The UESF is created. If an event stream of the same name and type already exists, the command is rejected.

OPEN-MODE = *OUTPUT
Reassigns and overwrites an existing, closed event stream. If the event stream does not yet exist, a new one is created. The UESF is overwritten, or a new one is created. The event stream record is updated accordingly.

OPEN-MODE = *EXTEND
Reassigns and extends an existing, closed event stream. If the event stream does not exist, the command is rejected.

TO = *DUMMY
Cancels the currently applicable assignments of the event stream. Logging of the associated events in the UESF or the central SESF is terminated. As you can only refer to your own active event stream, there is no need to indicate a LOG-ID.

TO = *CURRENT
Modifies the properties of the currently applicable event stream assignment. As you can only refer to your own active event stream, there is no need to indicate a LOG-ID.

TO = *SYSTEM-LOG(...)
Reserved for users with the OPERATING privilege.
Assigns a system event stream to the user task. The associated events are logged in the central SESF.

LOG-ID = *OWN-TSN / <alphanum-name 1..4>
Defines the name that is assigned to the event stream. The default name is the TSN of your own task.

OPEN-MODE = *CREATE / *OUTPUT / *EXTEND
Defines the open mode for event stream assignment. You can either create a new event stream or continue with an existing one.

OPEN-MODE = *CREATE
Creates and starts a new event stream. If an event stream of the same name and type already exists, the command is rejected.

OPEN-MODE = *OUTPUT
Reassigns and overwrites an existing, closed event stream. If the event stream does not yet exist, a new one is created. The event stream record is updated accordingly.

OPEN-MODE = *EXTEND
Reassigns and extends an existing, closed event stream. If the event stream does not exist, the command is rejected.

ADD-SYNCH-EVENTS = *UNCHANGED-OR-STD / *NONE / *ALL / list-poss(3): *SYSOUT-MSG / *CMD / *STMT
Defines the logical set of event stream components that is to be logged in addition to the asynchronous messages addressed to the user task.

ADD-SYNCH-EVENTS = *UNCHANGED-OR-STD
Additional logging is determined by the type of assignment:
If you are assigning an event stream using TO=*USER-LOG or *SYSTEM-LOG, then ADD-SYNCH-EVENTS=*NONE applies. If you are modifying the assigned event stream using TO=*CURRENT, the current setting is retained unmodified. The operand is ignored for an assignment using TO=*DUMMY.

ADD-SYNCH-EVENTS = *NONE
Only asynchronous events addressed to the user task are to be logged.

ADD-SYNCH-EVENTS = *ALL
All message types are to be logged.

ADD-SYNCH-EVENTS = *SYSOUT-MSG
Messages sent to SYSOUT by command servers and user programs are to be logged in addition to asynchronous messages. Logging also extends to:

- all system messages and unformatted WROUT output, but not to FHS masks or other formatted screen output (such as EDT masks)

- all WRTRD output of the message system (MIP) which requires a response. A message requiring a response (query message) is always logged together with the response because the query and the response are logically related.

ADD-SYNCH-EVENTS = *CMD
Commands input from the user task which are executed using SDF are to be logged in addition to the asynchronous messages.

ADD-SYNCH-EVENTS = *STMT
Statements input from within a user program in the user task which are executed using SDF are to be logged in addition to the asynchronous messages.

CLOSE-MODE = *UNCHANGED-OR-STD / *DELETE-EVENTS / *KEEP-EVENTS
Governs whether the event stream is simply to be closed or is also to be deleted when the assignment is canceled. If the assignment is switched from one event stream to another, this operand only ever applies to the second event stream. The event stream that is closed when the assignment is switched keeps the setting it had beforehand.

CLOSE-MODE = *UNCHANGED-OR-STD
If you are assigning the event stream using LOG-ID, this operand value defaults to CLOSE-MODE=*DELETE-EVENTS. If you are canceling the assignment using TO=*DUMMY or modifying the assigned event stream using TO=*CURRENT, the setting defaults to *UNCHANGED, which means that the previous setting is retained.

CLOSE-MODE = *DELETE-EVENTS
Specifies that the event stream record and the logged events are to be deleted when the assignment is canceled. If a user task has been assigned a user event stream (TO=*USER-LOG), the associated UESF is deleted as well.

CLOSE-MODE = *KEEP-EVENTS
Specifies that the event stream record and the logged events are not to be deleted when the assignment is canceled. The SHOW-SYSEVENT-LOG command can still be used to display the logged events. If a user task has been assigned a user event stream (TO=*USER-LOG), the associated UESF is saved.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
1	0	NBR3103	No need to execute command, no event stream assigned
	1	CMD0202	Syntax error
	32	NBR3199	Internal error on command server
	32	NBR3111	Error generating user event stream task (UEST)
	32	NBR3112	System event stream task (SEST) not available
	64	CMD0216	User does not have the necessary privilege
	64	NBR3012	Initialization error in user event stream task (UEST)
	64	NBR3014	Termination error in user event stream task (UEST)
	64	NBR3102	Name of event stream not unique
	64	NBR3106	Event stream already assigned, OPEN-MODE=*CREATE operand rejected
	64	NBR3107	Event stream file (ESF) locked
	64	NBR3108	Event stream not available
	64	NBR3113	Event stream not assigned owing to /SHUTDOWN

2.26 ASSIGN-SYSLST

Assign SYSLST to output destination

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The ASSIGN-SYSLST command assigns a SYSLST system file to an output destination. SYSLST system files are SYSLST, SYSLST01, SYSLST02, ...SYSLST99.
The primary assignment and attributes of SYSLST system files are described in section "System files".

Restrictions

Allocating a system file to a variable with TO=*VARIABLE(...) is only possible if the chargeable subsystem SDF-P is loaded.

Format

ASSIGN**-SYSLST**

TO = <filename 1..54> / ***VAR**IABLE(...) / ***LIB**RARY**-ELEM**ENT(...) / ***PRIM**ARY / ***DUMMY** /
*SYSLST-**NUM**BER(...)

***VAR**IABLE(...)
| **VAR**IABLE**-NAME** = <composed-name 1..254>

***LIB**RARY**-ELEM**ENT(...)
| **LIB**RARY = <filename 1..54 without-gen-vers>
| ,**ELEM**ENT = <composed-name 1..64 with-under>(...)
| <composed-name 1..64 with-under>(...)
| | **VERSION** = ***UP**PER**-LIM**IT / <composed-name 1..24>
| ,**TYPE** = **P** / ***STD** / <alphanum-name 1..8>

***SYSLST-NUM**BER(...)
| **SYSLST-NUM**BER = <integer 1..99>

,**OPEN-MODE** = ***OUTPUT** / ***EXTEND**

,**SYSLST-NUM**BER = ***STD** / <integer 1..99>

,**CODED-CHAR**ACTER**-SET** = ***TASK-TYPE-DEFAULT** / ***NONE** / <name 1..8>

Operands

TO =
Output destination to which the SYSLST file is to be assigned.

TO = <filename 1..54>
Name for the new file or name of an already existing file to which the SYSLST file is to be assigned. A new file is created with the following attributes:

- SAM access method
- Initial allocation of the size defined by the system parameter SSMAPRI (default: 24 PAM pages).
- Secondary allocation of the size defined by the system parameter SSMASEC (default: 24 PAM pages).

An existing file must have the following attributes:

- SAM access method
- it must not reside on a multifile tape.

For SYSLST (not SYSLST01 through SYSLST99):
If no further storage space is available during SYSLST output to a library element, the system behaves as described in the "Notes on the behavior of the system in case of insufficient storage space".

TO = *VARIABLE(...)
Name of a complex S variable of the “list” type (i.e. a series of elements of the same variable type which can only be accessed sequentially). Complex S variables can only be used if the chargeable subsystem SDF-P is loaded (see the “SDF-P” manual [34]). The command will be rejected if the specified list has not been declared or if the list elements are not of variable type STRING (or ANY).

VARIABLE-NAME = <composed-name 1..254>
Name of the S variable.

TO = *LIBRARY-ELEMENT(...)
Output to a PLAM library element.

LIBRARY = <filename 1..54 without-gen-vers>
Name of a PLAM library.

ELEMENT = <composed-name 1..64 with-under>(...)
Name of an element in the specified library.

VERSION = *UPPER-LIMIT / <composed-name 1..24>
Addition of the version to the element name. The default value is the highest possible version of the specified element.

TYPE = P / *STD / <alphanum-name 1..8>
Type of the element. The *STD operand value corresponds to element type P .

P Element type P (print-edited data); default value

S Element type S (source program)

D Element type D (text data)

M Element type M (macro)

TO = *PRIMARY
Resets the SYSLST file to its primary assignment (see section "System files").

TO = *DUMMY
Assigns the SYSLST file to a dummy file, which means that output to a volume is suppressed. For further information on using dummy files, see the FILE-NAME=*DUMMY operand in the ADD-FILE-LINK command description.

TO = *SYSLST-NUMBER(...)
Designates as output destination a SYSLST file from the series SYSLST01 through SYSLST99, to which a SYSLST file from the series SYSLST01 through SYSLST99 is to be assigned. This operand value is not permitted when SYSLST-NUMBER = STD (the default) applies, i.e. the system file SYSLST must not be assigned to a system file in the series SYSLST01 to SYSLST99.

SYSLST-NUMBER = <integer 1..99>
Number of the SYSLST file. It must not be the same as that specified in the (subsequent) operand SYSLST-NUMBER.

OPEN-MODE = *OUTPUT / *EXTEND
Specifies whether an already cataloged SAM file is to be replaced or extended.
If a complex S variable is assigned:
If OPEN-MODE=*OUTPUT is specified, output resumes with the first list element. Previous list items can no longer be accessed. If OPEN-MODE=*EXTEND is specified, the list of variables is extended (dynamic extension must have been permitted).

SYSLST-NUMBER =
Designates the SYSLST file to which the specified output destination is to be assigned.

SYSLST-NUMBER = *STD
The system file SYSLST is assumed. This operand value must not be specified together with TO = *SYSLST-NUMBER.

SYSLST-NUMBER = <integer 1..99>
The system file from the series SYSLST01 through SYSLST99 whose number is specified here is used. If the operand TO = *SYSLST-NUMBER is specified, the number given here must not correspond to the number specified there.

CODED-CHARACTER-SET = *TASK-TYPE-DEFAULT / *NONE / <name 1..8>
Determines the code of the SYSLST file. This defines how the characters of a national character set are to be stored in binary form. The defined character set affects, for example, the screen display of the characters, the sort sequence (see the “XHCS” User Guide [51]).

CODED-CHARACTER-SET = *TASK-TYPE-DEFAULT
The code defined for the SYSLST file depends on the task mode:

- No code table is used within a batch task (corresponds to CODED-CHARACTER-SET=*NONE).
- The code table currently set for the task is used within a interactive task (see also the function description of the MODIFY-TERMINAL-OPTIONS command).

CODED-CHARACTER-SET = *NONE
No code is defined for the SYSLST file.

CODED-CHARACTER-SET = <name 1..8>
The specified code is defined for the SYSLST file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	SSM2039	Command executed but error occurred on closing the previously assigned SYSLST file (DMS error is contained as an insert in the SYSOUT message)
2	0	SSM3200	Command executed with a warning
2	0	SSM3034	The system file is already assigned to *PRIMARY
	1	SSM2036	Operand invalid
	1	SSM2038	The specified code table (CCS) is not permitted
	32	SSM1013	System error during command execution
	64	SSM0001	Loop during SYSLSTnn assignment
	64	SSM2012	OPEN error on output (DMS error is contained as an insert in the SYSOUT message)
	64	SSM2048	XHCS does not support the specified code table (CCS)
	64	SSM2061	Error on accessing PLAM library element
	64	SSM2064	System file cannot be assigned via RFA
	64	SSM3031	Semantic error
	64	SSM3055	Invalid record or file format
	64	SSM3100	S variable does not exist
	64	SSM3101	S variable not of list type
	64	SSM3102	SDF-P subsystem not available
	64	SSM3200	Error on accessing PLAM library or element

Note

No loops may arise in the assignment of SYSLST files to one another. For example, the following combination is rejected with an error message:

```
/ASS-SYSLST...SYSLSTxx -> SYSLSTyy
/ASS-SYSLST...SYSLSTyy -> SYSLSTxx
```

Notes on the behavior of the system in case of insufficient storage space

If there is insufficient storage space during the output to the system file SYSLST (not SYSLST01 to SYSLST99) or SYSOUT, the system behaves as follows:

- In case of assignment to the temporary S.LST or S.OUT file (*PRIMARY):

  If the system parameter is SSMPNOQ=YES (default setting), the logging is terminated (implicit assignment of the system file on *DUMMY). The task issues the console message SSM2076 and continues to run normally.

  If SSMPNOQ=NO, the temporary file is treated like a permanent file (see below).

- In case of assignment to a permanent disk file or a library element in an interactive task:

  In interactive mode, the system asks the user (message SSM2035 or SSM2078) how to proceed further. The user has the following response options:

  N Closes the assigned file or the library element and changes the system file assignment to the dummy file *DUMMY (thereby losing further outputs!).

  P Closes the assigned file or the library element and changes the system file assignment to the primary assignment *PRIMARY.

  T Requests a tape (volume type TAPE) to continue the output. From there on, the process is the same as in a batch task (see below).

  M Has the same effect as T, but the requested volume type is taken from the SSMSDEVD system parameter (default setting: TAPE-C4).

- In case of assignment to a permanent disk file or a library element in a batch task:

  If the system parameter is SSMSDEVB=*DUMMY, the system file assignment is changed to *DUMMY and the previously used file or library element is closed. The task issues the console message SSM2076 and continues to run normally.

  If not, the system requests a tape with the volume type from the SSMSDEVB system parameter (default setting: TAPE). If it receives this tape, e.g. via an automatic assignment by MAREN, the disk file or library element is copied to it and subsequently deleted. The output is then continued in the tape file.

  The Name of the file on tape or MTC is the name of the disk file.
  The name of the library element on tape or MTC is `S.LST.PLAM-TO-TAPE.<tsn>.<date>.<time>.`

`<tsn>`	=	The task's TSN
`<date>`	=	Creation date in the format yyyy-mm-dd, with yyyy=year, mm=month and dd=day
`<time>`	=	Creation time in the format hhmmss, with hh=hours, mm=minutes and ss=seconds

  If, however, MAREN reports that there are no free volumes of the requested type, the system file assignment is changed to *PRIMARY (or to *DUMMY, if it already was *PRIMARY). The task issues the console message SSM2076 and continues to run normally.

  Without MAREN the tape request will lead to the console query DMS0591. The task waits until the operator manually assigns a tape or rejects the assignment. In case of a rejection, the operator receives the question SSM3060, which has the same possible answers as the dialog question SSM2035 (see above).

Examples

Example 1

```
/ass-syslst to=*dummy ──────────────────────────────────────────── (1)
/show-sys-file system-file=*syslst
```

```
%PROCEDURE LEVEL NUMBER 0
%SYSLST  : *DUMMY
```

```
/start-exe from-file=cob.prog
.
.
.
/ass-syslst to=mj.cob.dat,open-mode=*ext ──────────────────────── (2)
/show-sys-file system-file=*syslst
```

```
%PROCEDURE LEVEL NUMBER 0
%SYSLST  : :P:$USER.MJ.COB.DAT
```

```
/start-exe from-file=cob.prog
.
.
.
/ass-syslst to=*primary ────────────────────────────────────────── (3)
```

(1) A user program prints data on the printer. The user does not require any listings for trial operation, assigning SYSLST to a dummy file instead.

(2) In productive use, the data is not to be output on the printer either, but is instead to be appended to the existing file *MJ.COB.DAT*.

(3) SYSLST again receives its primary assignment.

Example 2 (assigning SYSLST-NUMBER)

```
/ass-syslst to=lst.syssdf.globals,syslst-number=1 ——————————————— (1)
/ass-syslst to=lst.syssdf.implementation,syslst-number=2 ——————— (2)
/ass-syslst to=lst.syssdf.cmd-list,syslst-number=3 ————————————— (3)
/show-sys-file ——————————————————————————————————————————————— (4)
```

```
%PROCEDURE LEVEL NUMBER 0
%SYSCMD  : (PRIMARY)
%SYSDTA  : (PRIMARY)
%SYSIPT  : NOT ASSIGNED
%SYSOUT  : (PRIMARY)
%SYSLST  : (PRIMARY)
%SYSLST01: :1OSN:$USERXY01.LST.SYSSDF.GLOBALS
%SYSLST02: :1OSN:$USERXY01.LST.SYSSDF.IMPLEMENTATION
%SYSLST03: :1OSN:$USERXY01.LST.SYSSDF.CMD-LIST
%SYSOPT  : (PRIMARY)
%TASKLIB : (PRIMARY)
```

```
/start-sdf-a ————————————————————————————————————————————————— (5)
```

```
%  BLS0517 MODULE 'SDAMAIN' LOADED
%  SDA0001 'SDF-A' VERSION '04.1G10' STARTED
%//open SYSSDF.NDCSFSYS,type=*system
%//show object=*global-info,output=*syslst(syslst-number=1)
%//show object=*cmd(name=*all),impl-info=*yes,output=*syslst(2)
%//show object=*cmd(name=*all),attach-info=*no,output=*syslst(3)
%//end
```

```
/ass-syslst to=*primary,syslst-number=1 ——————————————————————— (6)
/ass-syslst to=*primary,syslst-number=2
/ass-syslst to=*primary,syslst-number=3
/show-sys-file
```

```
%PROCEDURE LEVEL NUMBER 0
%SYSCMD  : (PRIMARY)
%SYSDTA  : (PRIMARY)
%SYSIPT  : NOT ASSIGNED
%SYSOUT  : (PRIMARY)
%SYSLST  : (PRIMARY)
%SYSOPT  : (PRIMARY)
%TASKLIB : (PRIMARY
```

(1) System file SYSLST01 is assigned to *LST.SYSSDF.GLOBALS*.

(2) System file SYSLST02 is assigned to *LST.SYSSDF.IMPLEMENTATION*.

(3) System file SYSLST03 is assigned to *LST.SYSSDF.CMD-LIST*.

(4) The SHOW-SYSTEM-FILE-ASSIGNMENT command shows the assignments of the system files.

(5) Call to the SDF-A utility routine (syntax file processing). Various items of information are to be output to files from a syntax file (global information, implementation statements, and a command list). The SDF-A SHOW statement only supports output to SYSOUT, SYSLST or SYSLST-NUMBER. To avoid having to keep changing the SYSLST assignment while the program is running, a number of SYSLST-NUMBER files were assigned to files before the program was called. Now a specific SYSLST-NUMBER file can be selected in the SHOW statements and the output sent to the file assigned to it.

(6) Once the program has executed, the assignment is canceled (see the output of the SHOW-SYSTEM-FILE-ASSIGNMENT command).

2.27 ASSIGN-SYSOUT

Assign SYSOUT to output destination

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The ASSIGN-SYSOUT command assigns the system output file SYSOUT to an output destination. In interactive mode, SYSOUT is assigned primarily to the terminal. If it is reassigned to a different output destination, *all* outputs are redirected. In addition, output may be displayed on the terminal (TERMINAL-DISPLAY operand set to *YES). If this option is not taken (TERMINAL-DISPLAY=*NO), the user’s outputs are not restored to the terminal until SYSOUT is given the assignment *PRIMARY.

The primary allocation and properties of SYSLST are described in section "System files".

Restrictions

Allocating a system file to a variable with TO=*VARIABLE(...) is only possible if the chargeable subsystem SDF-P is loaded.

Format

ASSIGN-**SYSOUT**

TO = <filename 1..54> / ***VAR**IABLE(...) / ***LIB**RARY-**ELEM**ENT(...) / ***PRIM**ARY / ***DUMMY**

***VAR**IABLE(...)

| **VAR**IABLE-**NAME** = <composed-name 1..254>

***LIB**RARY-**ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-gen-vers>

| ,**ELEM**ENT = <composed-name 1..64 with-under>(...)

| <composed-name 1..64 with-under>(...)

| | **VERSION** = ***UP**PER-**LIM**IT / <composed-name 1..24>

| ,**TYPE** = **P** / ***STD** / <alphanum-name 1..8>

,**OPEN-MODE** = ***OUTPUT** / ***EXTEND**

,**TERMINAL-DISPLAY** = ***NO** / ***Y**ES

,**CODED-CHAR**ACTER-**SET** = ***TASK-TYPE-DEFAULT** / ***NONE** / <name 1..8>

Operands

TO =
Output destination to which SYSOUT is to be assigned.

TO = <filename 1..54>
Name for the new file or name of an existing file to which SYSOUT is to be assigned. A new file is created with the following attributes:

- SAM access method
- Initial allocation of the size defined by the system parameter SSMAPRI (default: 24 PAM pages).
- Secondary allocation of the size defined by the system parameter SSMASEC (default: 24 PAM pages).

If an existing file is to be used, it must be a SAM file.
If no further storage space is available during SYSOUT output to a disk file, the system behaves as described in the "Notes on the behavior of the system in case of insufficient storage space".

TO = *VARIABLE(...)
Name of a complex S variable of the “list” type (i.e. a series of elements of the same variable type which can only be accessed sequentially). Complex S variables can only be used if the chargeable subsystem SDF-P is loaded (see the “SDF-P” manual [34]). The command will be rejected if the specified list has not been declared or if the list elements are not of variable type STRING (or ANY).

VARIABLE-NAME = <composed-name 1..254>
Name of the S variable.

TO = *LIBRARY-ELEMENT(...)
Output to a PLAM library element.

If no further storage space is available during SYSOUT output to a disk file, the system behaves as described in the "Notes on the behavior of the system in case of insufficient storage space".

LIBRARY = <filename 1..54 without-gen-vers>
Name of a PLAM library.

ELEMENT = <composed-name 1..64 with-under>(...)
Name of an element in the specified library.

VERSION = *UPPER-LIMIT / <composed-name 1..24>
Addition of the version to the element name. The default value is the highest possible version of the specified element.

TYPE = P / *STD / <alphanum-name 1..8>
Type of the element. The *STD operand value corresponds to element type P.

P Element type P (print-edited data); default value

S Element type S (source program)

D Element type D (text data)

M Element type M (macro)

TO = *PRIMARY
Resets SYSOUT to its primary assignment (see section "System files").

TO = *DUMMY
Assigns SYSOUT to a dummy file, which means that output to a volume is suppressed. For further information on using dummy files see the FILE-NAME=*DUMMY operand in the ADD-FILE-LINK command description.

OPEN-MODE = *OUTPUT / *EXTEND
Specifies whether an already cataloged SAM file is to be replaced or extended. If a complex S variable is assigned: If OPEN-MODE=*OUTPUT is specified, output resumes with the first list element. Previous list items can no longer be accessed. If OPEN-MODE=*EXTEND is specified, the list of variables is extended (dynamic extension must have been permitted).

TERMINAL-DISPLAY = *NO / *YES
Specifies whether output to SYSOUT should also be displayed on the terminal. This operand is allowed only in interactive mode. If SYSOUT has its primary assignment, the operand is ignored.

CODED-CHARACTER-SET = *TASK-TYPE-DEFAULT / *NONE / <name 1..8>
Determines the code of the SYSOUT file. This defines how the characters of a national character set are to be stored in binary form. The defined character set affects, for example, the screen display of the characters, the sort sequence (see the “XHCS” User Guide [51]).

CODED-CHARACTER-SET = *TASK-TYPE-DEFAULT
The code defined for the SYSOUT file depends on the task mode:

- No code table is used within a batch task (corresponds to CODED-CHARACTER-SET=*NONE).

- The code table currently set for the task is used within an interactive task (see also the function description of the MODIFY-TERMINAL-OPTIONS command).

CODED-CHARACTER-SET = *NONE
No code is defined for the SYSOUT file.

CODED-CHARACTER-SET = <name 1..8>
The specified code is defined for the SYSOUT file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	SSM2039	Command executed but error occurred on closing the previously assigned SYSLST file (DMS error is contained as an insert in the SYSOUT message)
2	0	SSM3200	Command executed with a warning
2	0	SSM3034	The system file is already assigned to *PRIMARY
	1	SSM2036	Operand invalid
	1	SSM2038	The specified code table (CCS) is not permitted
	32	SSM1013	System error during command execution
	64	SSM2012	OPEN error on output (DMS error is contained as an insert in the SYSOUT message)
	64	SSM2048	XHCS does not support the specified code table (CCS)
	64	SSM2061	Error on accessing PLAM library element
	64	SSM2064	System file cannot be assigned via RFA
	64	SSM3031	Semantic error
	64	SSM3055	Invalid record or file format
	64	SSM3100	S variable does not exist
	64	SSM3101	S variable not of list type
	64	SSM3102	SDF-P subsystem not available
	64	SSM3200	Error on accessing PLAM library or element

Notes on the behavior of the system in case of insufficient storage space

If there is insufficient storage space during the output to the system file SYSLST (not SYSLST01 to SYSLST99) or SYSOUT, the system behaves as follows:

- In case of assignment to the temporary S.LST or S.OUT file (*PRIMARY):

  If the system parameter is SSMPNOQ=YES (default setting), the logging is terminated (implicit assignment of the system file on *DUMMY). The task issues the console message SSM2076 and continues to run normally.

  If SSMPNOQ=NO, the temporary file is treated as a permanent file (see below).

- In case of assignment to a permanent disk file or a library element in an interactive task:

  In interactive mode the system asks the user (message SSM2035 or SSM2078) how to proceed further. The user has the following response options:

  N Closes the assigned file or the library element and changes the system file assignment to the dummy file *DUMMY (thereby losing further outputs!).

  P Closes the assigned file or the library element and changes the system file assignment to the primary assignment *PRIMARY.

  T Requests a tape (volume type TAPE) to continue the output. From there on, the process is the same as in a batch task (see below).

  M Has the same effect as T, but the requested volume type is taken from the SSMSDEVD system parameter (default setting: TAPE-C4).

- In case of assignment to a permanent disk file or a library element in a batch task:

  If the system parameter is SSMSDEVB=*DUMMY, the system file assignment is changed to *DUMMY and the previously used file or library element is closed. The task issues the console message SSM2076 and continues to run normally.

  If not, the system requests a tape with the volume type from the SSMSDEVB system parameter (default setting: TAPE). If it receives this tape, e.g. via an automatic assignment by MAREN, the disk file or library element is copied to it and subsequently deleted. The output is then continued in the tape file.

  The Name of the file on tape or MTC is the name of the disk file.
  The name of the library element on tape or MTC is `S.OUT.PLAM-TO-TAPE.<tsn>.<date>.<time>.`

`<tsn>`	=	The task's TSN
`<date>`	=	Creation date in the format yyyy-mm-dd, with yyyy=year, mm=month and dd=day
`<time>`	=	Creation time in the format hhmmss, with hh=hours, mm=minutes and ss=seconds

  If, however, MAREN reports that there are no free volumes of the requested type, the system file assignment is changed to *PRIMARY (or to *DUMMY, if it already was *PRIMARY). The task issues the console message SSM2076 and continues to run normally.

  Without MAREN the tape request will lead to the console query DMS0591. The task waits until the operator manually assigns a tape or rejects the assignment. In case of a rejection, the operator receives the question SSM3060, which has the same possible answers as the dialog question SSM2035 (see above).

Example

The ENTER file E.ENTER contains the following records:

```
/SET-LOGON-PAR
/ASS-SYSOUT TO=L.PROT
/SHOW-SYS-FILE SYSTEM-FILE=*SYSOUT
/ASS-SYSOUT TO=*PRIMARY
/SHOW-SYS-STAT
/EXIT-JOB
```

Calling the ENTER file:

`/enter-job from-file=e.enter,cpu-limit=19`

```
% JMS0066 JOB '(NONE)' ACCEPTED ON 04-12-16 AT 14:55, TSN = 6VCN
```

During ENTER file execution the following records of the SYSOUT log are output

- on the printer:

```
/SET-LOGON-PAR
%....
/ASS-SYSOUT TO=L.PROT
/SHOW-SYS-STAT
%  SCP1095 DPRINTSV WARNING : SOME DPRINT PRINT-JOBS CANNOT BE DISPLAYED
%   T1    T2    T3  T4PR  T4FD  T4TP  T5AC  T5KP    T6    T7    T8
%    0     1     1     6     0     0     0     0     0     0     0
/EXIT-JOB
%....
```

- to the file L.PROT:

```
/SHOW-SYS-FILE SYSTEM-FILE=SYSOUT
PROCEDURE LEVEL NUMBER 0
SYSOUT  : :2OSG:$USER1.L.PROT
/ASS-SYSOUT TO=*PRIMARY
```

2.28 ASTOP

Suspend command file

Component:	BS2000
Functional area:	Editing command files
Domain:	not allocated
Privileges:	OPERATING
Routing code:	@

Function

The ASTOP command suspends the processing of a command file. Processing of the command file is always resumed once the wait time set using the NBRUNWT system parameter has elapsed, even if an insufficient number of AGOGO commands has been specified.

For a description of how the command operates see “Command files for the operator” in the “Introduction to System Administration” [14].

The ASTOP command is allowed in RUN command files only. It is available in ISP format only; in other words, there are no SDF functions (such as syntax analysis or help).

Format

ASTOP
1 / <integer 1..255>

Operands

1 / <integer 1..255>
Number of AGOGO commands that must be received before command file processing is continued. Default value: 1 AGOGO command must be received.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors

2.29 ATTACH-DEVICE

Attach hardware units

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

This command enables the operator to make available one or more hardware units, i.e. to allow the operating system to use these units for I/O operations. The hardware units are attached via SVP.

Effect of the ATTACH-DEVICE command

1. If the specified hardware units were in the “detached explicitly” state, they are placed in the “attached” state and can be used again.
2. If the specified hardware units were in the “detached implicitly” state, an ATTACH is rejected. The “detached explicitly” state, if applicable, is canceled.
3. If the outward connections associated with the unit were in the “removed implicitly” state, they are placed in the “included” state. The connections can be used again.
4. All outward hardware units in the “detached implicitly” state which have at least one connection to the relevant unit in the “included” state are placed in the “attached” state. These units can be used again.
5. If there are hardware attach actions (SVP actions) for the units to be attached, these actions are initiated. The hardware units addressed explicitly in the command are not placed in the “attached” state unless the hardware reactions resulting from SVP processing receive a positive acknowledgment, otherwise ATTACH is rejected.
6. In the case of disks and tape devices for which it is possible to set up path groups, such path groups are set up for all the available paths.
7. When a PAV (**P**arallel **A**ccess **V**olumes device is attached (see the “Introductory Guide to Systems Support” [14])), the following applies:

   In the case of a base device, the associated alias devices are searched for and implicitly attached. Alias devices can only be explicitly attached using the ATTACH-DEVICE command when the associated base device is already attached.
8. If a FastDPAV basis device is attached, the associated FastDPAV alias devices are not attached implicitly (FastDPAV see the manual “Introduction to System Administration” [14]). The FastDPAV alias devices have to be explicitly ENABLED for input/output.
9. For a FastDPAV alias device in the state DISABLED, the ENABLED state is set by means of the ATTACH-DEVICE command:
   - In native operating mode
   - In VM2000 operating mode, if the implicit device assignment to VM is permitted (ASSIGN-BY-GUEST=*YES) or the alias device is explicitly assigned to VM

Format

ATTACH-DEVICE

UNIT = ***CPU**(...) / ***EXTRA-CPU**(...) / ***CHANNEL**(...) / ***CONTR**OLLER(...) /
***CHANNEL-RANGE**(...) / ***DEV**ICE**-RANGE**(...) / ***PUB**SET**-DEV**ICES(...) /
list-poss(255): <alphanum-name 2..2> / <x-text 4..4>

***CPU**(...)

| **CPU-ID**ENTIFIER = list-poss(16): <x-text 2..2>

***EXTRA-CPU**(...)

| **CPU-ID**ENTIFIER = ***ALL** / ***ANY** / <x-text 2..2>

***CHANNEL**(...)

| **CHANNEL-PATH-ID** = list-poss(16): <x-text 2..2>

| ,**SCOPE** = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

***CONTR**OLLER(...)

| **CONTR**OLLER**-UNIT** = list-poss(16): <alphanum-name 2..2> / <x-text 4..4>

| ,**SCOPE** = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

***CHANNEL-RANGE**(...)

| **FROM** = <x-text 2..2>

| ,**TO** = <x-text 2..2>

| ,**SCOPE** = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

***DEV**ICE**-RANGE**(...)

| **FROM** = <alphanum-name 2..2> / <x-text 4..4>

| ,**TO** = <alphanum-name 2..2> / <x-text 4..4>

***PUB**SET**-DEV**ICES(...)

| **PUB**SET = list-poss(255): <cat-id 1..4> / ***BY-PUBRES-DEV**ICE(...)

| *BY-PUBRES-DEVICE(...)

| | **UNIT** = list-poss(255): <alphanum-name 2..2> / <x-text 4..4>

Operands

UNIT =
Specifies the hardware units to be attached to the system.

UNIT = *CPU(...)
Specifies the CPU to be attached.

CPU-IDENTIFIER = list-poss(16): <x-text 2..2>
Specifies the CPU identifier.

UNIT = *EXTRA-CPU(...)
Specifies the extra CPU that is to be attached.

CPU-IDENTIFIER = *ALL / *ANY / <x-text 2..2>
Specifies the identifier of the extra CPU. *ANY attaches one available extra CPU. *ALL attaches all available extra CPUs.

UNIT = *CHANNEL(...)
Specifies the channel to be attached.

CHANNEL-PATH-ID = list-poss(16): <x-text 2..2>
Specifies the channel path ID of the channel. In the case of channels, the device name (MN) is the same as the channel path ID in hexadecimal representation.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the Monitor System (SU /390), the command is executed in all guest systems. If entered in another guest system or in the Monitor System (SU x86), the command is rejected with the message NKR0178.

UNIT = *CONTROLLER(...)
Specifies the controller to be attached.

CONTROLLER-UNIT = list-poss(16): <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) of the controller to be attached.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered on the Monitor System (SU /390), the command is executed on all guest systems. If entered at another guest system or at the Monitor System (SU x86), the command is rejected with the message NKR0178.

UNIT = *CHANNEL-RANGE(...)
Specifies a set of channels to be attached.

FROM = <x-text 2..2>
Specifies the channel path ID of the first channel in the set of channels to be attached.

In the case of channels, the device name (MN) is the same as the channel path ID in hexadecimal representation.

TO = <x-text 2..2>
Specifies the channel path ID of the last channel in the set of channels to be attached. The following rules apply: *chn* $_1$ *-id* < *chn* $_2$ *-id*, and *chn* $_2$ *-id* - *chn* $_1$ *-id* < *64*, i.e. a maximum of 64 channels can be attached at a time.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the Monitor System (SU /390), the command is executed in all guest systems. If entered in another guest system or in the Monitor System (SU x86), the command is rejected with the message NKR0178.

UNIT = *DEVICE-RANGE(...)
Defines the maximum of 256 devices, that can be attached. The mnemonic codes defined do not have to be contiguous. If no device is generated for one of the codes, processing continues with the next device code.

FROM = <alphanum-name 2..2> / <x-text 4..4>
Defines the mnemonic device code (MN) of the first device in the set of devices to be attached.

TO = <alphanum-name 2..2> / <x-text 4..4>
Defines the mnemonic device code (MN) of the last device in the set of devices to be attached.

UNIT = *PUBSET-DEVICES(...)
Specifies that a pubset's disks are to be attached. Since the mnemonic device names (MNs) of the associated disks are administered in the SVL of the system disk, the latter must have been entered into the MRSCAT. The entry is made whenever the pubset is imported or exported and in the case of modifications to the composition of the pubset (see MODIFY-PUBSET-PROCESSING). Alternatively, you can enter the system disk manually with the ADD-MASTER-CATALOG-ENTRY and MODIFY-MASTER-CATALOG-ENTRY commands.

In all cases, as many disks as possible are attached. If pubset disks are mirrored then the following should be noted:

- In the case of mirroring in external disk storage systems (see the "SHC-OSD" User Guide [37]) only the standard disks are attached (source or normal unit). If the mirror disks are to be attached then the mirror disk (target or additional mirror unit) of the system disk (pubres) must be specified in the PUBSET operand.

PUBSET = list-poss(255): <cat-id 1..4> / *BY-PUBRES-DEVICE(...)
Identifies the pubset whose disks are to be attached. The pubset can be specified via its catalog ID or the device code of its system disk.

PUBSET = <cat-id 1..4>
Specifies the pubset's catalog ID. There must be a corresponding entry in the MRS catalog. If there is no entry then the disks can only be attached by specifying the system disk (see PUBSET=*BY-PUBRES-DEVICE).

PUBSET = *BY-PUBRES-DEVICE(...)
Specifies the pubset's system disk (pubres).

UNIT = list-poss(255): <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code (MN) of the pubres.

UNIT = list-poss(255): <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) if a device is to be attached.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	64	ETMRK..	Command execution faulty
2	64	ETMRK..	Command partially processed without error
4	64	NKR0...	Hardware unit was already attached
12	64	NKR0...	Internal check negative
16	64	NKR0...	Caller error
20	64	NKR0...	Software error

If there is an error in command termination, the maincode contains the message code of the message output during command processing. The command return codes with the ETMRK.. maincodes occur only if the hardware unit to be reconfigured is a CPU.

Examples

1. Attach the channels with the channel path IDs 10 through 1F

   ```
   /ATTACH UNIT=*CHANNEL-RANGE(FROM=10,TO=1F)
   ```
   or
   ```
   /ATT *CH-R(10,1F)
   ```

2. Attach devices D1, D2 and C1

   ```
   /ATTACH-DEVICE UNIT=(C1,D1,D2)
   ```
   or
   ```
   /ATT (C1,D1,D2)
   ```

3. Attach CPU 1

   ```
   /ATTACH-DEVICE UNIT=*CPU(CPU-IDENTIFIER=01)
   ```
   or
   ```
   /ATT *CPU(01)
   ```

4. Attaching the pubset’s disks with the catalog ID 2OSG

   ```
   /ATTACH-DEVICE UNIT=*PUBSET-DEVICES(PUBSET=2OSG)
   ```
   or
   ```
   /ATT *PUB-DEV(2OSG)
   ```

2.30 BEGIN-PARAMETER-DECLARATION

Initiate parameter declarations

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The BEGIN-PARAMETER-DECLARATION command is an SDF-P control flow command. It is part of the header of an S procedure, and it identifies the beginning of the declaration section in this header. The procedure parameters are declared in the declaration section. There may be a SET-PROCEDURE-OPTIONS command before the declaration section. The END-PARAMETER-DECLARATION command terminates both the declaration section and the procedure header. Within the declaration section, only DECLARE-PARAMETER commands are permitted. If only one DECLARE-PARAMETER command is used, the BEGIN-PARAMETER-DECLARATION and END-PARAMETER-DECLARATION commands can be omitted. The declaration section is redundant if no procedure parameters are declared. The BEGIN-PARAMETER-DECLARATION command is also required when one or more OPERAND-VARIABLE-CONTAINER commands need to be inserted in the procedure header to initialize procedure parameters with permanent variables. Procedure parameters are stored as S variables and can therefore be queried and modified using SDF-P facilities.

Format

BEGIN**-PAR**AMETER**-DECL**ARATION

Return codes

The BEGIN-PARAMETER-DECLARATION command can be used within the procedure header of an S procedure. SDF-P detects errors in the procedure head during pre-analysis and terminates the procedure call. The command return codes can only occur if the command is used outside the procedure header.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error
	1	SDP0118	Command in false context
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

2.31 BEGIN-PROCEDURE

Begin procedure file and define procedure parameters

Component :	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

This command can only be used for non-S procedures.

The BEGIN-PROCEDURE command is required as the first record in a non-S procedure. It defines symbolic parameters that are used in the subsequent commands in the procedure file. Symbolic parameters are variables which are given actual values while the procedure is executing. These values may be defined as follows:

- when the procedure is called: in the CALL-PROCEDURE command,
- when the procedure is created: in the BEGIN-PROCEDURE command (so-called predefinition: these values are used only if no values are specified in the CALL-PROCEDURE command),
- while the procedure is executing (prompting): The user is requested to enter a value during the dialog if no values were defined for the corresponding symbolic operands either in the CALL-PROCEDURE command or in the BEGIN-PROCEDURE command.

The BEGIN-PROCEDURE command may be used only in procedure files. In interactive mode it is rejected, and is therefore not offered as a menu option.

Format

BEGIN-**PROC**EDURE

```
LOGGING = *NO / *ALL / *DATA / *CMD

,PARAMETERS = *NO / *YES(...)

    *YES(...)

        |   PROCEDURE-PARAMETERS = <text 0..1800 with-low>

        |   ,ESCAPE-CHARACTER = *NONE / <c-string 1..1>

,INTERRUPTION-ALLOWED = *YES / *NO
```

Operands

LOGGING =
Type of logging used for the procedure run. SDF statements are treated like commands for the purpose of logging.

LOGGING = *NO
No log of the procedure run is written to SYSOUT.

LOGGING = *ALL
Commands and input data for the procedure file are logged on SYSOUT when the procedure is executed.

LOGGING = *DATA
The input data for the procedure file is logged on SYSOUT when the procedure is executed.

LOGGING = *CMD
Commands and SDF statements of the procedure file are logged on SYSOUT when the procedure is executed.

PARAMETERS = *NO / *YES(...)
Specifies whether the procedure contains symbolic parameters.

PARAMETERS = *YES(...)

PROCEDURE-PARAMETERS = <text 0..1800 with-low>
Names of the symbolic parameters to be used in the procedure file. They form the so called parameter list for the procedure.
Permissible characters for symbolic parameters:

first character:	&
second character:	letter
subsequent characters:	letters and digits
minimum length:	2 characters
maximum length:	255 characters

The individual symbolic parameters must be separated by commas; the entire expression must be enclosed in parentheses.

Symbolic parameters may be defined as positional parameters or as keyword parameters.
Positional parameters consist of only the name, e.g. &A.
Keyword parameters consist of the name followed by an equals sign, e.g. &A=. In addition, the name may be assigned a value, e.g. &A=VALUE. This value is used if the operand concerned is omitted when the procedure is called (CALL-PROCEDURE). The value must not exceed 254 characters in length.
Strings enclosed in apostrophes are also permitted as a value. The value must be enclosed in apostrophes if it contains blanks or special characters. Apostrophes within strings must be doubled. Lowercase letters within strings are retained.

If values are entered during procedure execution (prompting), lowercase letters will be converted into uppercase characters also within strings. The slash preceding a command cannot be replaced by parameters.
Keyword parameters and positional parameters may appear in any order in the parameter list. If a symbolic parameter is followed in the procedure file by a period or an alphanumeric character, the parameter must be separated from it by a period.

ESCAPE-CHARACTER = *NONE / <c-string 1..1>
Character (&, @, #, $ or *) identifying symbolic parameters in input data. If no character is specified (= presetting NONE) symbolic parameters in input data are not replaced. SDF statements are treated as commands, i.e. symbolic parameters must begin with & there and are always replaced. Symbolic parameters in input data must begin with the specified character. If the character is duplicated, it is replaced by a single character preventing parameter replacement.

INTERRUPTION-ALLOWED =
Defines whether the procedure can be interrupted with the K2 key for command input. Commands within the procedure which result in an interrupt are executed nonetheless.

INTERRUPTION-ALLOWED = *YES
Interrupting the procedure with the K2 key is possible.
The user may enter commands.
The specification is ignored if the procedure is called from a noninterruptible procedure.

INTERRUPTION-ALLOWED = *NO
Interruption of the procedure via the K2 key is not possible. Nested procedures for subsequent procedure levels are also noninterruptible (regardless of the setting in INTERRUPTION-ALLOWED). If a program in which the event class ESCPBRK has been defined is called in a procedure, this STXIT routine is always activated by means of the K2 key.

Return codes

The BEGIN-PROCEDURE command is not interpreted by SDF. It can only result in an error if used in an incorrect context. In such a case the following command return code is issued.

(SC2)	SC1	Maincode	Meaning
	64	SSM2057	Command not the first command of a non-S procedure

Notes

- The BEGIN-PROCEDURE command must always be the first record in a procedure file. This file must not contain any further BEGIN-PROCEDURE commands or LOGON or RESTART-PROGRAM commands.
- The description of the CALL-PROCEDURE command explains how a procedure file is called and how the symbolic parameters are replaced with current values.
- The description of the END-PROCEDURE command explains how a procedure file is terminated.

Examples

Example 1

The procedure file MJ.PROC begins with the following record:

```
/BEG-PROC LOG=*ALL,PAR=*YES(PROC-PAR=(&A,&B),ESC-CHAR=C'#')
```

By means of the procedure call:

```
/CALL-PROC FROM-FILE=MJ.PROC,PROC-PAR=(MODULE,LISTE)
```

the symbolic parameters are given values and the procedure is executed.

With the call:

```
/CALL-PROC FROM-FILE=MJ.PROC
```

the values are not defined until during the procedure run (prompting).

Example 2

The procedure file MJ.PROC contains the following records:

```
/BEG-PROC LOG=*ALL,PAR=*YES(PROC-PAR=(&A,&B),ESC-CHAR=C'#')
/MODIFY-JOB-SWITCHES ON=(1,4,5)
/ASS-SYSDTA TO=*SYSCMD
/START-EXE FROM-FILE=$LMS
LIB MJ.BIBLIO.#A,BOTH,NEW
ADDJ #B
END
/SHOW-FILE-ATTR F-NAME=MJ.BIBLIO.&A,INF=*ALL-ATTR
/MODIFY-JOB-SWITCHES OFF=(1,4,5)
/END-PROC
```

By means of the procedure call:

```
/CALL-PROC FROM-FILE=MJ.PROC,PROC-PAR=(MODULE,LISTE)
```

the following commands and LMS statements are executed:

```
...
/ASS-SYSDTA TO=*SYSCMD
/START-EXE FROM-FILE=$LMS
LIB MJ.BIBLIO.MODULE,BOTH,NEW
ADDJ LISTE
END
/SHOW-FILE-ATTR F-NAME=MJ.BIBLIO.MODULE,INF=*ALL-ATTR
...
```

Example 3

The procedure file MJ.PROC1 contains the following records:

```
/BEG-PROC LOG=*ALL,PAR=*YES(PROC-PAR=(&IN,&OUT=MJ.OUT),ESC-CHAR=C'&')
/ASS-SYSDTA TO=*SYSCMD
/MOD-JOB-SW ON=(4,5)
/START-EDT
@READ'&IN'
...
@WRITE'&OUT'
@HALT
/MOD-JOB-SW OFF=(4,5)
/END-PROC
```

When called with:

```
/CALL-PROC FROM-FILE=MJ.PROC1
```

the following output appears on the screen:

```
%/BEG-PROC LOG=*ALL,PAR=*YES(PROC-PAR=(&IN,&OUT=MJ.OUT),ESC-CHAR=C'&')
%/ASS-SYSDTA TO=*SYSCMD
%/MOD-JOB-SW ON=(4,5)
%/START-EDT
%@READ'&IN'
&IN=
mj.inputfile
%@READ'MJ.INPUTFILE'
...

%@WRITE'MJ.OUT'
%@HALT
%/MOD-JOB-SW OFF=(4,5)
%/END-PROC
```

Thus, the symbolic parameter &OUT is already preset by the procedure declaration; only &IN remains to be specified during the procedure run.

2.32 BROADCAST

Send message to all active user tasks

Component:	BS2000
Functional area:	not allocated
Domain:	not allocated
Privileges:	OPERATING TSOS
Routing code:	E

> The BROADCAST command is being replaced by the INFORM-ALL-JOBS command. BROADCAST continues to be supported to ensure backwards compatibility. For new applications INFORM-ALL-JOBS should be used. All that follows is a brief overview of the command's function, syntax and return codes.

Function

The BROADCAST command sends a message from the operator to all interactive users currently connected to the system. The system adds the date and time of day to the operator's message.

Format

BROADCAST	Alias: **BCST**
MSG = <text 1..72>	

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	NBR0725	Warning: The message could not be sent to all interactive tasks
2	32	NBR0727	Internal error: Error in $PSTMS call (incorrect UNIT, FUNCTION or VERSION)
	64	CMD0216	User does not have the required privilege
	130	EXC0061	Class 4 memory request failed; command processing aborted

2.33 CALL-PROCEDURE

Run command sequence from procedure file or list variable

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The CALL-PROCEDURE command starts a stored command sequence (procedure). During processing, symbolic parameters contained in the sequence are replaced by the values specified in the command call (PROCEDURE-PARAMETERS operand). A procedure may contain the following components:

- commands (starting with a slash)
- SDF statements, i.e. statements for a program which are defined in a syntax file (starting with a double slash)
- input data, i.e. data, parameters and statements read by a program

During invocation, the procedure is assigned to the system file SYSCMD as the input source for commands. If the procedure includes SDF statements and/or input data, the SYSDTA system file must be assigned to the SYSCMD system file (see ASSIGN-SYSDTA, or SET-PROCEDURE-OPTIONS for S procedures).

Procedures can be stored as:

- a cataloged SAM or ISAM file (even a temporary one) with records of variable length
- a type J or SYSJ element in a PLAM library
- an S variable of the “list” type

There are two types of procedure, which differ in formal structure and operational sequence:

- non-S procedure
- S procedure

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

A procedure cannot be started from an S variable by specifying FROM=*VARIABLE(...) unless the chargeable SDF-P subsystem is loaded.

Non-S procedure

The first data record in the non-S procedure must be the command BEGIN-PROCEDURE. The symbolic parameters, logging, and interruptibility of the procedure can be specified. Next come the commands, SDF statements and input data to be processed. Processing ends with the command END-, CANCEL- or EXIT-PROCEDURE or the last data record. If an error occurs, spin-off is activated. Error handling is described under the SET-JOB-STEP command.

S procedure

The first record in an S procedure must be a command. The commands BEGIN-PROCEDURE, or PROCEDURE (ISP command), and SET-LOGON-PARAMETERS, or LOGON (ISP command), are not allowed. Procedure attributes can be explicitly specified via SET-PROCEDURE-OPTIONS as the first command. If no explicit specification is made, the SDF-P presettings apply implicitly (see SET-PROCEDURE-OPTIONS). Once the procedure attributes have been defined, the DECLARE-PARAMETER command can be used to define symbolic parameters, which are replaced by the values of the like-named S variables during execution. S procedures can only execute if S variables are available, i.e. if at least the SDFPBASY subsystem (see section "SDF-P-BASYS" and the “SDF-P” manual [34]) is loaded.

Processing of commands, SDF statements and input data ends with the CANCEL- or EXIT-PROCEDURE command or with the final record. If an error occurs, SDF-P error recovery is activated. Error recovery is described under the command IF-BLOCK-ERROR.

Two different procedure formats are supported:

- text procedure. The S procedure is in its original text format. The full range of SDF-P functions is available only if the chargeable subsystem SDF-P is loaded when the procedure is called. In libraries, element type J should be used for text procedures.
- object procedure. An S procedure in text format has been translated to object format with the COMPILE-PROCEDURE command. The COMPILE-PROCEDURE command is part of the chargeable SDF-P subsystem. The object procedure can utilize the full functionality of SDF-P (apart from the COMPILE-PROCEDURE command) irrespective of whether the SDF-P subsystem is currently available or not. In libraries, element type SYSJ (the default for COMPILE-PROCEDURE) should be used for object procedures.

Automatic procedure start

LOGON procedure

After LOGON processing, SDF automatically starts the system LOGON procedure followed by the user LOGON procedure. A system LOGON procedure is started when system administration makes one available. A user LOGON procedure is started as a call procedure if it is cataloged in the relevant user identification under the name `SYS.SDF.LOGON.USERPROC` (if it is under `SYS.SDF.LOGON.USERINCL` it is called as an include procedure). LOGON procedures are ignored in the following cases and no warning is issued:

- The procedure file is simply cataloged but does not occupy any storage space.
- The task is an RFA task.
- The task does not possess any privileges apart from HARDWARE-MAINTENANCE, SECURITY-ADMINISTRATION, SAT-FILE-MANAGEMENT, and SAT-FILE-EVALUATION.

Input is not possible until the LOGON procedures have been executed.

LOGOFF procedure

During LOGOFF processing, SDF automatically starts the user LOGOFF procedure and then the system LOGOFF procedure. A user LOGOFF procedure is started as a call procedure if it is cataloged under the name `SYS.SDF.LOGOFF.USERPROC` in the associated user logon (under `SYS.SDF.LOGOFF.USERINCL` the call takes the form of a call procedure). A system LOGOFF procedure is started if one has been made available by systems support (entry in the SDF parameter file).
LOGOFF procedures are ignored in the following cases and no warning is issued:

- The procedure file is simply cataloged but does not occupy any storage space.
- The task was canceled with CANCEL-JOB or FORCE-JOB-CANCEL.
- The task is an RFA task.
- The task does not possess any privileges apart from HARDWARE-MAINTENANCE, SECURITY-ADMINISTRATION, SAT-FILE-MANAGEMENT, and SAT-FILE-EVALUATION.

Implemented procedure

If commands implemented as procedures occur in an active syntax file (see the “SDF-A” manual [33]), the specified procedure is started when such a command is called.

Nesting of procedures

Procedures may be nested to any depth: If the command sequence of a procedure file contains a CALL-PROCEDURE command, the sequence is interrupted and the next procedure is started, etc.

At the end of a procedure (END-PROCEDURE, EXIT-PROCEDURE or EOF condition), control branches back to the interrupt point of the procedure last exited. The figure below provides an illustration of procedure nesting with CALL-PROCEDURE for a *non-S procedure*.

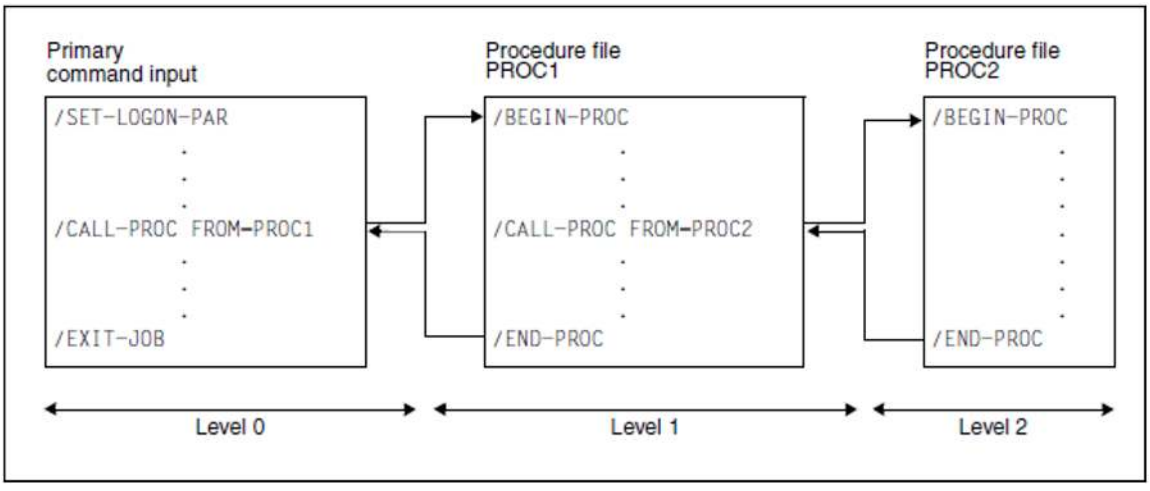


Figure 1: CALL-PROCEDURE procedure nesting

Format

CALL-PROCEDURE Alias: **CL/CLP**

FROM-FILE = <filename 1..54 without-gen> / ***LIB**RARY-**ELEM**ENT(...) / ***VAR**IABLE(...)

***LIB**RARY-**ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-gen>

| ,**ELEM**ENT = <composed-name 1..64>(...)

| <composed-name 1..64>(...)

| | **VERSION** = ***HIGH**EST-**EXIST** ING / <composed-name 1..24>

| ,**TYPE** = ***STD** / ***BY-LATEST-MODIFICATION** / <alphanum-name 1..8>

***VAR**IABLE(...)

| **VAR**IABLE-**NAME** = <composed-name 1..255>

,**PROC**EDURE-**PAR**AMETERS = ***NO** / <text 0..1800 with-low>

,**LOG**GING = ***PAR**AMETERS(...) / **Y**ES / ***NO** /

***PAR**AMETERS(...)

| **CMD** = ***BY-PROC-TEST-OPT**ION / ***Y**ES / ***NO**

| ,**DATA** = ***BY-PROC-TEST-OPT**ION / ***Y**ES / ***NO**

,**UNL**OAD-**ALLOW**ED = ***Y**ES / ***NO**

,**EXEC**UTION = ***Y**ES / ***NO**

Operands

FROM-FILE = <filename 1..54 without-gen> / *LIBRARY-ELEMENT(...) / *VARIABLE(...)
Name of the procedure file.

> If the file/library name is specified without a catalog/user ID and if it is not cataloged in the user ID, the system tries to access a file or library of the same name in the system default ID. (For information on this “secondary read” function see the “Introductory Guide to DMS” [13].)

FROM-FILE = *LIBRARY-ELEMENT(...)
The procedure is stored in a PLAM library element.

LIBRARY = <filename 1..54 without-gen>
Name of the PLAM library containing the procedure as an element (type J or SYSJ: see TYPE operand).

ELEMENT = <composed-name 1..64>(...)
Name of the element.

VERSION = *HIGHEST-EXISTING / <composed-name 1..24>
Version of the library element. The default value is HIGHEST-EXISTING, i.e. the procedure is taken from the element with the highest version.

TYPE = *STD / *BY-LATEST-MODIFICATION / <alphanum-name 1..8>
Designates the element type the procedure is stored under in the PLAM library.

TYPE = *STD
The procedure can be stored as an element of type SYSJ or J. The specified element is first searched for among the type SYSJ elements. If it is not found there, the search proceeds to the type J elements.

A non-S procedure can only be a type J element. An S procedure may be either a text procedure (original text format) or an object procedure (compiled object format). To simplify maintenance of the two formats in a library, text procedures should be stored as type J elements, object procedures as type SYSJ elements. The COMPILE-PROCEDURE command (part of the chargeable SDF-P subsystem) by default generates an object procedure of type SJ from a text procedure of type J. If this convention is followed, specifying TYPE=*STD (the default value) ensures that object procedures will be given precedence over text procedures.

TYPE = *BY-LATEST-MODIFICATION
The procedure can be stored as an element of type SYSJ or J. If the specified element exists both as type SYSJ and as type J, the element most recently modified will be called. If the time stamp is identical, the type SYSJ element will be called. Specifying TYPE=*BY-LATEST-MODIFICATION ensures that the most up-to-date element will be called, typically during the debugging phase when a procedure is being written or modified.

TYPE = <alphanum-name 1..8>
The procedure will be searched among elements of the specified type only.

FROM-FILE = *VARIABLE(...)
Only possible if the chargeable software product SDF-P is loaded. The procedure is stored in an S variable of the “list” type.

VARIABLE-NAME = <composed-name 1..255>
Name of the S variable.

PROCEDURE-PARAMETERS = *NO / <text 0..1800 with-low>
Parameter values to be used in place of the corresponding symbolic parameters in the procedure file. For “text”, the following format applies:

({ *sympar=* / *paramvalue* / *sympar=paramvalue* }[,...])

- *sympar* is the name of a symbolic keyword parameter declared either in the BEGIN-PROCEDURE command (without the initial “&”) in the non-S procedure file, or in the DECLARE-PARAMETER command of the S procedure file.
- *paramval* is the current value either of a keyword or positional parameter declared in the BEGIN-PROCEDURE command (maximum length 254 characters), or of a procedure parameter defined in the DECLARE-PARAMETER command. Character strings enclosed in apostrophes are also allowed as actual parameter values. The value must be enclosed in apostrophes if it contains blanks or special characters. Apostrophes within strings must be doubled. Lowercase letters within strings are retained.

The null string is interpreted as missing parameter value and, in interactive mode, leads to a request for a value during procedure execution. Values input during procedure execution (prompting) are converted to uppercase letters also within strings. If the current value of a parameter is requested during procedure execution and the user presses the K2 key, the system issues message SSM2060 asking if the user wants to terminate the procedure. If the procedure is continued, the value is queried again.

The current “paramval” parameter values from the CALL-PROCEDURE command replace the symbolic parameters as follows:

In the case of S procedures, parameters can be transferred as keyword or positional parameters since no specification in this regard is made in the DECLARE-PARAMETER command. However, a positional parameter must not follow a keyword parameter. Prompting is only possible if it has been defined (INITIAL-VALUE=*PROMPT).

In the case of non-S procedures, parameters can only be transferred as defined in the BEGIN-PROCEDURE command, i.e. positional parameters if defined as such and keyword parameters if defined as such.

- **Keyword parameters** receive their current values from the parameter list of the CALL-PROCEDURE command. If a value is not specified, the value defined in the procedure is used. If no value was defined there either, the value is requested, in interactive mode, when the procedure is executed. This is called “prompting”.

  The following table provides an overview of related parameter specifications in the BEGIN-PROCEDURE and CALL-PROCEDURE commands:

		Specification in BEGIN- PROCEDURE	
		&X=ABC	&X=
Specification in CALL-PROCEDURE	X=	Prompting	Prompting
	X=DEF	DEF	DEF
	without	ABC	Prompting

- **Positional parameters** are assigned, in sequence, those current parameter values from the CALL-PROCEDURE command that are specified without the keyword “sympar=”. If the current value of a positional parameter is not specified in the CALL-PROCEDURE command (a comma stands for the value), it will be requested in interactive mode (prompting) when the procedure is executed (if the value is required at all).

LOGGING = *PARAMETERS(...) / *YES / *NO
This controls logging of procedure execution.
The LOGGING operand is ignored when *non-S procedures* are called since in this case logging can only be declared in the procedure head (see the LOGGING operand in the BEGIN-PROCEDURE command). When an S procedure is logged, every procedure line that is processed is output with the line number and procedure level prefixed to it.

LOGGING = *PARAMETERS(...)
Logging can be set separately for command/statement lines and for data lines.

CMD = *BY-PROC-TEST-OPTION / *YES / *NO
This specifies whether commands are to be logged. The default value is BY-PROC-TEST-OPTION, i.e. no logging (equivalent to *NO) or the value selected as the default by the user with the MODIFY-PROC-TEST-OPTIONS command (component of the chargeable SDF-P subsystem).

DATA = *BY-PROC-TEST-OPTION / *YES / *NO

This specifies whether data lines are to be logged. The default value is BY-PROC-TEST-OPTION, i.e. no logging (equivalent to *NO) or the value selected as the default by the user with the MODIFY-PROC-TEST-OPTIONS command (component of the chargeable SDF-P subsystem).

UNLOAD-ALLOWED = *YES / *NO

This specifies whether a program that was loaded when the procedure was called may be unloaded. Protection against unloading is guaranteed *only* for unloading by means of the commands START-(EXECUTABLE-)PROGRAM, LOAD-(EXECUTABLE-)PROGRAM, and CANCEL-PROGRAM.
The specification YES is ignored if the procedure is called from a procedure for which UNLOAD-ALLOWED=*NO was declared.

EXECUTION = *YES / *NO

This specifies whether the procedure is merely to be analyzed for test purposes or whether it is also to be executed. Only EXECUTION=*YES may be specified for *non-S procedures*. Testing is possible via the MODE operand of the MODIFY-SDF-OPTIONS command.

Return codes

The following command return codes can only be returned if the called procedure does not supply any command return code itself (e.g. EXIT-PROCEDURE not executed). Command return codes whose maincode begins with “SSM” can only be returned when a non-S procedure is called. Command return codes whose maincode begins with “SDP” can only be returned when an S procedure is called.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SSM2058	Protocol type error
2	0	SSM2065	EOF on procedure file, /END-PROC simulated
	1	SSM2036	Incomplete operand
	1	SSM2054	Symbolic operand error
	1	SSM2055	Symbolic operand error in /BEGIN-PROC
	1	SDP0138	Error during pre-analysis of the text procedure or object procedure faulty
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SDP0093	Non-S procedure can only be type J element.
	64	SDP0144	Error during parameter transfer
	64	SSM2052	DMS error (OPEN error)
	64	SSM2053	Not a SAM/ISAM file or file does not begin with /BEGIN-PROC or /PROC
	64	SSM2056	Parameters of /CALL-PROC and /BEGIN-PROC incompatible
	64	SSM2061	Error on accessing library element
	64	SSM2064	Procedure file cannot be fetched from remote system
	130	SDP0099	No more address space available
xx	xx	xxxxxxx	Other return codes of the called procedure

Notes

- Symbolic operands may be used anywhere in any command in the procedure file. However, they cannot replace the initial slash preceding a command.
- When the procedure records processed are logged to SYSOUT, symbolic operands are replaced with the current operand values.
- Procedure files may be protected with passwords against reading, overwriting and execution, e.g. using the MODIFY-FILE-ATTRIBUTES command. The execute password or a higher-ranking password must be given in an ADD-PASSWORD command before a CALL-PROCEDURE command is issued.
- When a library element is used, a temporary SAM file named S.IN.library.element.tsn.hhmmss.nnnn is created (only for non-S procedures), which contains the element. where:

library	Library name (up to 20 characters are printed)
tsn	Task sequence number
hhmmss	Time in hours-minutes-seconds
nnnn	Sequence number

  This temporary file is automatically deleted when the following commands are encountered:

  - EXIT-JOB or LOGOFF in the ENTER file
  - END-PROCEDURE in the procedure
- If the CALL-PROCEDURE command is called via the CMD macro, the calling program is unloaded. Any ABEND-STXIT routine defined in the program is not activated. For details of the CMD macro, ABEND-STXIT routine, refer to the “Executive Macros” manual [22].
- If a non-S procedure file contains statement or data records in addition to command records, the following command record must be written in the procedure file prior to the statement or data records:

  ```
  /ASSIGN-SYSDTA TO=*SYSCMD
  ```

  This assignment need not be repeated in the event of nesting. In S procedures, this depends on the setting in the SET-PROCEDURE-OPTIONS command.

2.34 CANCEL-CCOPY-SESSION

Cancel CCOPY-Session

Component:	CCOPY
Functional area:	Pubset and MRSCAT management
Domain:	STORAGE-MANAGEMENT
Privileges:	TSOS HSMS-ADMINISTRATION

Function

The CANCEL-CCOPY-SESSION command cancels an active CCOPY session.

The user can have all CCOPY sessions displayed using the SHOW-CCOPY-SESSION command.

Format

CANCEL**-CCOPY-SESSION**
SESSION-ID = <alphanum-name 8..8>

Operands

SESSION-ID = <alphanum-name 8..8>
Identification (eight positions) of the CCOPY session that is to be canceled.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	DCH000A	Internal error
	32	DCH000B	Unexpected return code when a CCOPY session was canceled
	32	DCH000D	System error
	64	CMD0216	Privileges error
	64	DCH0007	Invalid session ID
	64	DCH0008	CCOPY session already terminated abnormally
	64	DCH0009	CCOPY session already terminated normally

2.35 CANCEL-JOB

Cancel user job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	P

Function

The CANCEL-JOB command cancels jobs running under the user's own ID. The command can also be used to cancel batch jobs generated by the user's own ID and running under a different user ID (extended access).

Resources occupied by the job are released (as for EXIT-JOB or LOGOFF). A job cannot use this command to terminate itself (only possible with EXIT-JOB or LOGOFF). If the job to be canceled has already been terminated, the CANCEL-JOB command is rejected and a message to this effect is displayed at the terminal. The CANCEL-JOB command cancels a job only when the job is in TU status or when processing of the next command is imminent. A job cannot be canceled in the following circumstances:

- The job is waiting for an operator response. The command takes effect as soon as there has been a response (see the FORCE-JOB-CANCEL command to find out how to cancel jobs without waiting for a response).
- The job terminates abnormally due to a system error
- A HOLD-TASK command was issued for the job (by systems support personnel)
- The job is already in job termination; e.g.: actions following EXIT-JOB or LOGOFF, or actions in the user program after ABEND has been signaled (for more on the ABEND-STXIT routine, see the "Executive Macros" manual [22].)
- The job is in "PENDED INDEFINITELY" state
- The job is a system task.

If a job is to be canceled in interactive mode with CANCEL-JOB, the system requests confirmation if the job to be canceled was started with the attribute
PROTECTION=*CANCEL (see ENTER-JOB, ENTER-PROCEDURE or SET-LOGON-PARAMETERS command).

Information on job termination

In the case of a job canceled with CANCEL-JOB, information about the originator of the CANCEL-JOB command is output to SYSOUT for that job. The output to SYSOUT contains an additional comment specified in the TEXT operand of the CANCEL-JOB command. If the job was terminated abnormally, i.e. the CANCEL-JOB command was issued with STEPS=*ALL (default), the status indicator of a monitoring job variable is set to the value '$A'. In addition, the information about the originator in abbreviated form and the comment from the TEXT operand are included in the system part (the first 128 bytes) of the monitoring job variable:

- The originator information starts at byte 37 and consists of the character string *CAN:'info'*, where *info* contains the first 27 bytes of the originator information supplied to SYSOUT.
- The comment starts at byte 70 and consists of the character string *TEXT:'text'*, where *text* contains the first 51 bytes of the comment specified in the operand.

For information on job monitoring, see the “Job Variables” manual [20].

Privileged functions

If the CANCEL-JOB command is issued at the operator terminal or under a user ID with TSOS or OPERATING privilege, it can be used to cancel a job issued under any user ID.

Format

CANCEL**-JOB** Alias: **CNJ**

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

| , **HOST** = ***STD** / <c-string 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

, **DUMP** = ***NO** / ***STD** / ***CAN**CEL**-RUN**NING**-DUMP**

, **SYS**TEM**-F**ILES = ***STDOUT** / ***PRINT** / ***MAIL** / ***DEL**ETE

, **STEPS** = ***ALL-STEPS** / ***CURR**ENT**-STEP** / ***ALL-CALENDAR-REPET**ITIONS

, **TEXT** = * **NO** / <c-string 1..72>

Operands

JOB-IDENTIFICATION =
Type of job identification.

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task serial number (TSN).

TSN = <alphanum-name 1..4>
TSN of the job to be canceled.
Leading zeros may be omitted

HOST = *STD / <c-string 1..8>
Host system on which the job is running. The default is *STD, which means that the job is running on the local host. The host name of a remote system can only be specified for systems which are on a computer network (see the “HIPLEX MSCF” manual [25]).

JOB-IDENTIFICATION = *MONJV(...)
The job is identified by means of the monitoring job variable. The command is rejected if the JV is not accessible (no read permission or nonexistent JV) or is not monitoring a job.

For a job running on a remote host to be accessible via the monitoring JV, the MRSCAT of each host must contain the catalog ID of the pubset of the other host.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV monitoring the job to be canceled.
The job to which this job variable is assigned is then canceled.

DUMP =
Defines whether a user dump is to be output for the job to be canceled or whether a user or area dump that is currently being processed is to be canceled.

DUMP = *NO
No memory dump.

DUMP = *STD
The definition currently made in the job that is to be canceled (see DUMP operand in the MODIFY-TEST-OPTIONS command) is interpreted as follows:

Specification for the job that is to be canceled	Effects
DUMP=*NO	No memory dump.
DUMP=*STD / *YES / *SYSTEM	A user dump is requested, for DUMP=*SYSTEM eventually a system dump is requested.

DUMP = *CANCEL-RUNNING-DUMP
If a user or area dump is currently being created for the job that is to be canceled then dump creation should be canceled immediately and the dump file deleted.

SYSTEM-FILES =
Specifies whether the system files are to be output to printer or sent by email. Output to printer is not possible if the value NO-SPOOL was set for the system parameter SSMLGOF1.

SYSTEM-FILES = *STDOUT
Depending on the setting of the system parameter SSMOUT, the system files are output to the printer (see *PRINT) or sent by email (see *MAIL). In the case of cross-system command processing, the system parameter of the target system is evaluated.

SYSTEM-FILES = *PRINT
The system files are output to printer.

SYSTEM-FILES = *MAIL
The system files are sent by email. The receiver address(es) is/are taken over from the user entry of the user ID of the aborted job. How the receiver address is selected from an address list in accordance with the job name is described under the MAIL-FILE command. If transfer by email is not possible (e.g. no email address in the user ID), the system files are output to printer.

SYSTEM-FILES = *DELETE
Output of the system files is suppressed.

STEPS =
Specifies how the job is to be canceled. Information about the originator of the CANCEL-JOB command is always output to SYSOUT for a job that is to be canceled. The information output is supplemented by the comment specified by the originator in the TEXT operand of the CANCEL-JOB command.

STEPS = *ALL-STEPS
The specified job is canceled in its entirety. The status indicator of a monitoring job variable is set to '$A'. The information about the originator of the CANCEL-JOB command is included in abbreviated form in the system part (the first 128 bytes) of the monitoring job variable. In addition, a text specified in the TEXT operand is included in the system part of the monitoring job variable.
The effect depends on the batch job type of the specified job:

Repeat job:	Only the cancellation of the Type 1 follow-up job of a repeat job will result in the termination of all future job repetitions.
Calendar job:	Cancellation of a calendar job affects only the current job which is still on the job queue or is executing. It does not affect subsequent repetitions of the calendar job. STEPS=*ALL-CALENDAR-REPETITIONS can be used to terminate the entire calendar job.

STEPS = *CURRENT-STEP

The effect depends on the situation:

- The job is being processed:
  In the specified job, only the current processing step is canceled: the spin-off mechanism or SDF-P error handling is triggered. No information is included in a monitoring job variable. The job can be terminated normally if no other reason for abnormal termination occurs. If a user program is currently loaded, it is first terminated abnormally. If an error handling facility is provided within the ENTER file (for method, see SET-JOB-STEP command), then the job is continued at the next processing step. If the next processing step is termination of the job (EXIT-JOB or LOGOFF command), the job ends normally and a monitoring job variable is then set to '$T' (normal end of job).

  Note

  On terminating a job with CANCEL-JOB and STEPS=*CURRENT-STEP, no abnormal end of job results.
- The job is waiting to be processed:
  The job is canceled in its entirety as with STEPS=*ALL-STEPS (see above).

STEPS = *ALL-CALENDAR-REPETITIONS
The specified job is canceled as with STEPS=*ALL-STEPS. If it is a calendar job, the entire calendar job (i.e. including any future repetitions) is removed from the job management system.

TEXT = *NO / <c-string 1..72>
Specifies whether and if so which text is to be output to SYSOUT as a comment in the specified job before abnormal termination. The text can be up to 72 characters long. If job monitoring is in use and the value *ALL-STEPS (default) or *ALL-CALENDAR-REPETITIONS was specified in the STEPS operand, the first 51 characters of the specified text are also included in the system part of the monitoring job variable.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	CMD0002	Command executed with a warning
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	MONJV error, illegal access or incorrect call time
	64	JMS0670	Error in a REMOTE job
	130	JMS0620	Memory saturation
	130	JMS0650	MSCF or target computer not available
	130	JMS0660	Retry command later

If the command is issued for a print job, command return codes are returned by SPOOL (see also CANCEL-PRINT-JOB).

Notes

- The CANCEL-JOB may be issued in batch or interactive mode or at the console.
- With spoolout tasks, more than one may have the same task sequence number (TSN), as a result of a PRINT-DOCUMENT command for several files, for example. In that case, the CANCEL-JOB command applies to all print jobs which have the TSN specified in the command. A message is issued for each job that is canceled. The SHOW-USER-STATUS command outputs a list of jobs that have not yet been canceled. The jobs in question may be undergoing processing or may still be waiting for processing.

Notes on job monitoring (see also the “Job Variables” manual [20]):

- If a job is monitored by a job variable (JV) is canceled, the JV job variable is set to “$A” provided that STEPS=*ALL-STEPS or *ALL-CALENDAR-REPETITIONS has been set. With a waiting job this also applies to STEP=*CURRENT-STEP. If a program executing within the job is being monitored by a job variable, the status indicator of the job variable monitoring the program is likewise set to “$A”.
- If the job variable is not accessible or is not being used to monitor a job, the command is rejected.
- If a calendar job is being monitored, the job variable doing the monitoring is assigned to the calendar job for as long as it exists. Monitoring ends only when the entire calendar job ends.

Example

*Job cancellation with STEPS=*CURRENT-STEP and STEPS=*ALL-STEPS*

```
/enter-proc proc.sort1,proc-par=(monjv-1='JV.JOB-A',
                                 output-file-1='OUT.WORK1',
                                 monjv-2='JV.JOB-B',
                                 output-file-2='OUT.WORK2'),
            monjv=jv.job-c,job-class=jcb00200,job-name=jobc,
            logging=*yes,list=*yes,
            ass-sys-file=*par( syslst=lst.jobc, sysout=out.jobc) ———— (1)
```

```
%  JMS0066 JOB 'JOBC' ACCEPTED ON 12-01-26 AT 15:17, TSN = 3182
```

```
/show-job-status monjv(jv.job-c) ————————————————————————————— (2)
```

```
%TSN:     9VH1       TYPE:    2 BATCH    NOW:     2012-01-26.151748
%JOBNAME: JOBC       PRI:     9 225      SPOOLIN: 2012-01-26.1517
%USERID:  USER1      JCLASS:  JCB00200   LOGON:   2012-01-26.1517
%ACCNB:   89001      CPU-MAX:    200     CPU-USED:000000.1831
%REPEAT:  NO         RERUN:   NO         FLUSH:   NO
%MRSCAT:             HOLD:    NO         START:   SOON
%TID:     003A0193   UNP/Q#:    17/012
%CMD:     WAIT
%ORIGFILE::2OSG:$USER1.PROC.SORT1
%CMD-FILE::2OSG:$USER1.S.E.9VC3.2012-01-26.15.17.37
%MONJV:   :2OSG:$USER1.JV.JOB-C
```

```
/show-job-status monjv(jv.job-a) ———————————————————————— ——— ——— –
 (3)
```

```
%  JVS04D1 MONITORING JOB VARIABLE ':2OSG:$USER1.JV.JOB-A' NOT ASSIGNED TO JOB
```

```
/cancel-job monjv(jv.job-c),steps=*current,
    text='Auftrag JOB-A wurde nicht gestartet; deshalb Abbruch von WORK-1' ——— (4)
```

```
%  CAN00OK CANCEL PROCESSING STARTED FOR TSN '3182' WITH USER ID 'USER1'
```

```
/show-job-status monjv(jv.job-c) ————————————————————————————————— (5)
```

```
%TSN:     9VH1       TYPE:    2 BATCH    NOW:     2012-01-26.151943
%JOBNAME: JOBC       PRI:     9 225      SPOOLIN: 2012-01-26.1517
%USERID:  USER1      JCLASS:  JCB00200   LOGON:   2012-01-26.1517
%ACCNB:   89001      CPU-MAX:    200     CPU-USED:000000.1942
%REPEAT:  NO         RERUN:   NO         FLUSH:   NO
%MRSCAT:             HOLD:    NO         START:   SOON
%TID:     003A0193   UNP/Q#:    17/012
%CMD:     WAIT
%ORIGFILE::2OSG:$USER1.PROC.SORT1
%CMD-FILE::2OSG:$USER1.S.E.9VC3.2012-01-26.15.17.37
%MONJV:   :2OSG:$USER1.JV.JOB-C
```

/show-jv jv=jv.job-c ——————————————————————————————————— (6)

```
%$R 09VH11OSH    J0312012-01-26141737
```

/show-job-status monjv(jv.job-b) ——————————————————————————— (7)

```
%  JVS04D1 MONITORING JOB VARIABLE ':2OSG:$USER1.JV.JOB-B' NOT ASSIGNED TO JOB
```

/cancel-job monjv(jv.job-c),steps=*all,text='Auch JOB-B nicht gestartet! Deshalb soll JOB-C abnormal beendet werden!' ——————————————— (8)

```
%  CAN00OK CANCEL PROCESSING STARTED FOR TSN '3182' WITH USER ID 'USER1'
```

/show-jv jv=jv.job-c ——————————————————————————————————— (9)

```
%$A 09VH11OSH    J0312012-01-26141737CAN:'DIAL 9VC3 USER1    ULF     ' TEXT:'AUC
H JOB-B NICHT GESTARTET! DESHALB SOLL JOB-C ABNO'
```

(1) The S procedure *PROC.SORT1* is started as a batch job via the ENTER-PROCEDURE command. The procedure comprises two work steps:

- WORK-1: Waiting for normal termination of a job monitored by the job variable identified by parameter *MONJV-1*. The name of the input file for a SORT run is passed in the user part of the job variable. The parameter *OUTPUT-FILE-1* determines the output file of the SORT run.
- WORK-2: Waiting for normal termination of a job monitored by the job variable identified by parameter *MONJV-2*. The name of the input file for a SORT run is passed in the user part of the job variable. The parameter *OUTPUT-FILE-2* determines the output file of the SORT run.

Both work steps can be performed independently. The batch job is monitored using the job variable *JV.JOB-C*.

(2) The started job *JOB-C* is waiting (WAIT-EVENT).

(3) The first monitoring job variable *JV.JOB-A* is not assigned to any job.

(4) So the section being processed is canceled with STEP=*CURRENT-STEP.

(5) *JOB-C* is waiting again (second WAIT-EVENT).

(6) The monitoring job variable of *JOB-C* has not been affected by CANCEL-JOB.

(7) The second monitoring job variable *JV.JOB-B* is not assigned to any job either.

(8) The entire *JOB-C* is not to be terminated normally since further processing does not make sense.

(9) The monitoring job variable indicates that the job has been abnormally terminated. It also contains the cause and the originator’s comment in abbreviated form.

SYSOUT log with execution of JOB-C

```
/CALL-PROC NAME=:2OSG:$USER1.S.PROC.9VC3.2012-01-26.15.17.37          ,
PROCEDURE-PARAMETERS=(MONJV-1='jv.job-a',OUTPUT-FILE-1='out.work1',
MONJV-2='jv.job-b',OUTPUT-FILE-2='out.work2'),LOGGING=*YES
          1  1 /BEG-PAR-DECL
          2  1 /DECL-PAR   MONJV-1       (INIT = *PROMPT)
          3  1 /DECL-PAR   OUTPUT-FILE-1 (INIT = *PROMPT)
          4  1 /DECL-PAR   MONJV-2       (INIT = *PROMPT)
          5  1 /DECL-PAR   OUTPUT-FILE-2 (INIT = *PROMPT)
          6  1 /END-PAR-DECL
%  SDP0116 PARENTHESIS MISSING
%  SDP0014 WARNING IN LINE:          30 IN PROCEDURE ':2OSG:$USER1.S.PROC.9VC3.2012-
0126.15.17.37'
          7  1 /WORK-1:
          8  1 /WAIT-EVENT  JV(COND = ( (jv.job-a,1,2) = '$T' ),
TIME-LIMIT = 3600 )
%  CJC0020 WAIT COMMAND: TASK ENTERED WAIT STATE AT 15:17:37
%  CAN00BY CANCELLED BY 'DIAL 9VC3 USER1    ULF      FIREBALL $$$06580'
%  CAN0TXT TEXT: 'AUFTRAG JOB-A WURDE NICHT GESTARTET; DESHALB ABBRUCH VON WORK-1'
%  SDP0004 ERROR DETECTED AT COMMAND LINE:           8 IN PROCEDURE
':2OSG:$USER1.S.PROC.9VC3.2012-01-26.15.17.37'
         18  1 /WORK-1-ERROR:
         18  1 /  IF-BLOCK-ERROR
         19  1 /WRITE-TEXT 'Fehler bei WORK-1 mit SC1 = 64'
Fehler bei WORK-1 mit SC1 = 64
         20  1 /HELP-MSG  CMD0205
%  CMD0205 ERROR IN PRECEDING COMMAND OR PROGRAM AND PROCEDURE STEP TERMINATION: COMMANDS
WILL BE IGNORED UNTIL /SET-JOB-STEP OR /LOGOFF OR /EXIT-JOB IS RECOGNIZED
%  ? The command issued is invalid or the program was terminated with the
%    macro TERM UNIT=STEP or TERMJ.
%    All commands following the invalid one will be ignored until a
%    /SET-JOB-STEP or a /LOGOFF or an /EXIT-JOB command is received.
%    In a procedure, the /END-PROCEDURE command will be accepted but the
%    other commands will still be ignored.
%  RESPONSE : NONE
         23  1 /END-IF
         24  1 /WORK-2:
         25  1 /WAIT-EVENT  JV(COND = ( (jv.job-b,1,2) = '$T' ),
TIME-LIMIT = 3600 )
%  CJC0020 WAIT COMMAND: TASK ENTERED WAIT STATE AT 15:19:28
%  CAN00BY CANCELLED BY 'DIAL 9VC3 USER1    ULF      FIREBALL $$$06580'
%  CAN0TXT TEXT: 'AUCH JOB-B NICHT GESTARTET! DESHALB SOLL JOB-C ABNORMAL BEENDET
WERDEN!'
%  NRTT201 TASK TERMINATION DUE TO /CANCEL(-JOB)  COMMAND
%  EXC0419 /LOGOFF AT 1521 ON 12-01-26 FOR TSN '9VH1'
%  EXC0421 CPU TIME USED: 0.1995
```

Contents of procedure file PROC.SORT1

```
/BEG-PAR-DECL
/    DECL-PAR   MONJV-1       (INIT = *PROMPT)
/    DECL-PAR   OUTPUT-FILE-1 (INIT = *PROMPT)
/    DECL-PAR   MONJV-2       (INIT = *PROMPT)
/    DECL-PAR   OUTPUT-FILE-2 (INIT = *PROMPT)
/END-PAR-DECL
/WORK-1:        "Sorting file 1"
/           WAIT-EVENT  JV(COND = ( (&(MONJV-1),1,2) = '$T' ),-
/                          TIME-LIMIT = 3600 )
/           CRE-JV      JV = #WORK1
/           MOD-JV      JV = #WORK1, -
/                       SET-VALUE = ( &(MONJV-1),129,54 )
/           ADD-FILE-LINK  LINK=SORTIN, -
/                          FILE-NAME= &(JV('#WORK1'))
/           ADD-FILE-LINK  LINK=SORTOUT, -
/                          FILE-NAME= &(OUTPUT-FILE-1)
/           SORT-FILE
/WORK-1-ERROR:  IF-BLOCK-ERROR
/                 WRITE-TEXT 'Error on WORK-1 with SC1 = &(SC1)'
/                 HELP-MSG  &(MC)
/               ELSE
/                 WRITE-TEXT 'WORK-1 terminated without error'
/               END-IF
/WORK-2:        "Sorting file 2"
/           WAIT-EVENT  JV(COND = ( (&(MONJV-2),1,2) = '$T' ),-
/                          TIME-LIMIT = 3600 )
/           CRE-JV      JV = #WORK2
/           MOD-JV      JV = #WORK2 , -
/                       SET-VALUE = ( &(MONJV-2),129,54 )
/           ADD-FILE-LINK  LINK=SORTIN, -
/                          FILE-NAME= &(JV(#WORK2'))
/           ADD-FILE-LINK  LINK=SORTOUT, -
/                          FILE-NAME= &(OUTPUT-FILE-2)
/           SORT-FILE
/WORK-2-ERROR:  IF-BLOCK-ERROR
/                 WRITE-TEXT 'Error on WORK-2 with SC1 = &(SC1)'
/                 HELP-MSG  &(MC)
/               ELSE
/                 WRITE-TEXT 'WORK-2 terminated without error'
/               END-IF
```

2.36 CANCEL-PRINT-JOB

Cancel print job

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-SERVICES SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The CANCEL-PRINT-JOB command cancels print jobs on any server in any cluster. Depending on the user group, print jobs can be canceled in local clusters or in both local and remote clusters.

Privileged functions

RSO device administrators and spool and cluster administrators can cancel any job scheduled for printing on any device that they manage. For more information on these user groups see also the manuals “RSO” [32], “SPOOL” [43] and “Distributed Print Service” [10].

9025/9026-RENO printers

After a PRINT-DOCUMENT command, the print job can be in one of three possible statuses. The CANCEL-PRINT-JOB command affects the print job in different ways, depending on the status of the print job:

Status of the print job	Effects of the CANCEL-PRINT-JOB command
Queued	Print job is deleted and nothing is printed
File transfer from BS2000 to 9025/9026-RENO memory started but not yet completed	Spoolin is interrupted: that part of the print file which has already been transferred or has passed through spoolin is printed; the print job is canceled
File transfer from BS2000 to 9025/9026-RENO memory completed, spoolout started or already completed	Command has no effect; no error message; the print job is executed in full

Format

CANCEL**-PRINT-JOB**

JOB-IDENTIFICATION = **<u>*TSN</u>** (...) / ***SERVER-TSN**(...) / ***MONJV**(...) / ***FOR**EIGN(...) / ***SYS**TEM**-FILE**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**CLUSTER-NAME** = **<u>*LOCAL-CLUSTER</u>** / <alphanum-name 1..8>

***SERVER-TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**SERVER-NAME** = <alphanum-name 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

***FOR**EIGN(...)

| **ID**ENTIFICATION = <c-string 1..255 with-low>

| ,**CLUSTER-NAME** = <alphanum-name 1..8>

***SYS**TEM**-FILE**(...)

| **NAME** = list-poss(16): ***SYSOUT** / ***SYSLST**(...)

| ***SYSLST**(...)

| | **SYSLST-NUM**BER = **<u>*STD</u>** / <integer 1..99>

Operands

JOB-IDENTIFICATION = *TSN(...) / *SERVER-TSN(...) / *MONJV(...) / *FOREIGN(...) / *SYSTEM-FILE(...)
Type of job identification.

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its local task sequence number (TSN).

TSN = <alphanum-name 1..4>
TSN of the job to be canceled.

CLUSTER-NAME = <u>*LOCAL-CLUSTER</u> / <alphanum-name 1..8>
Name of the cluster in which the print job is being processed. If a cluster name is specified, the specified TSN is the TSN on the gateway host in the specified remote cluster. Only a BS2000 cluster can be specified.

JOB-IDENTIFICATION = *SERVER-TSN(...)
The print job is identified by its TSN on the server. Only print jobs in the local cluster can be addressed in this way.

TSN = <alphanum-name 1..4>
TSN of the job to be canceled on the server.

SERVER-NAME = <alphanum-name 1..8>
Name of the server on which the print job can be addressed by means of its TSN.

JOB-IDENTIFICATION = *MONJV(...)
The print job is identified by its MONJV.

MONJV = <filename 1..54 without-gen-vers>
This operand can be used to address a print job by means of its MONJV, provided the specified MONJV is accessible on the host at which the command is issued. Only print jobs in the local cluster can be addressed in this way.

JOB-IDENTIFICATION = *FOREIGN(...)
The print job is identified by a non-BS2000 job name.

IDENTIFICATION = <c-string 1..255 with-lower-case>
This operand can be used to address print jobs being processed in a cluster of UNIX-based systems.

CLUSTER-NAME = <alphanum-name 1..8>
Name of the cluster in which the print job is being processed. See the “Distributed Print Service” manual [10].

JOB-IDENTIFICATION = *SYSTEM-FILE(...)
Identifies the system files *SYSOUT and *SYSLST. This operand resets an earlier PRINT-DOCUMENT ...,START-PROCESSING=*AT-FILE-CLOSING/integer command. The system file is then printed with the default attributes, not those specified for in the PRINT-DOCUMENT command.

NAME = list-poss(16): *SYSOUT / *SYSLST(...)
Specifies the system files *SYSOUT and/or *SYSLST.

NAME = *SYSLST(...)
Specifies the *SYSLST system file.

SYSLST-NUMBER = *STD / <integer 1..99>
The default SYSLST file or one or more numbers of the desired SYSLST files can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No errors Guaranteed messages: SCP0891, SCP1031, SCP1032
2	0	SCP1034	No response from operator
2	0	SPS0178	File lock cannot be canceled Guaranteed message: SPS0178
2	0	SPS0455	MONJV processing error Guaranteed message: SPS0455
2	0	SPS0464	JV subsystem not loaded
2	0	SPS0469	MONJV validity problem Guaranteed message: SPS0469
2	0	SCP0892	TSN not found or command processing not permitted
4	32	SCP0974	Memory error or system error. Command rejected
4	64	SCP0976	Invalid operand value
6	128	CMD2241	DPRINTCL subsystem not loaded
1	128	SPS0266	SPOOL subsystem not loaded/SPOOL task not available

Notes

- Users must use this command to cancel print jobs they have sent to a different cluster (since local copies are not kept of print jobs sent to a different cluster). For example, the command /CANCEL-PRINT-JOB (TSN=12AB, CLUSTER-NAME=C1) cancels job 12AB in cluster C1.
- For their own print jobs in their own cluster, users can also use the existing command CANCEL-JOB, since there will be at least one local copy of such print jobs.
- The cluster administrator can cancel any print job in his or her own cluster. For example, to cancel a print job with a TSN of 1234 on remote server S1 that was issued on a remote client (i.e. when there is no local copy on the host at which the cluster administrator issues the CANCEL-PRINT-JOB command), the cluster administrator issues the command CANCEL-PRINT-JOB *SERVER-TSN(1234,S1).
- A server need not be specified to cancel a print job in a remote cluster. In the remote cluster, copies of all the print jobs that come back from the local cluster are kept on a selected server that receives all print jobs from remote clusters.

2.37 CANCEL-PROCEDURE

Cancel procedure run

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The CANCEL-PROCEDURE command cancels a procedure run. SYSCMD is assigned to the primary command input. (See the EXIT-PROCEDURE command: SYSCMD is assigned to the procedure most recently left). All system files opened during procedure execution, including TASKLIB, are closed and again receive their primary assignments.

Format

CANCEL**-PROC**EDURE	Alias: **CNP**

The CANCEL-PROCEDURE command has no operands and is executed immediately.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	SSM1013	Command not executed due to system error
	64	SSM2039	Error on closing output system file; the SYSOUT message contains the DMS error codes as an insert

Notes

- Commands in procedure files: if an error in a non-S procedure triggers the spin-off mechanism, processing branches to the next of the following commands: CANCEL-PROCEDURE, LOGOFF, EXIT-JOB, SET-JOB-STEP, END-PROCEDURE or EXIT-PROCEDURE.
- A CANCEL-PROCEDURE command at procedure level 1 (i.e. no nesting) is identical to the EXIT-PROCEDURE command (see "Figure: CANCEL- and EXIT-PROCEDURE commands at procedure level 1)".

Examples

Example 1

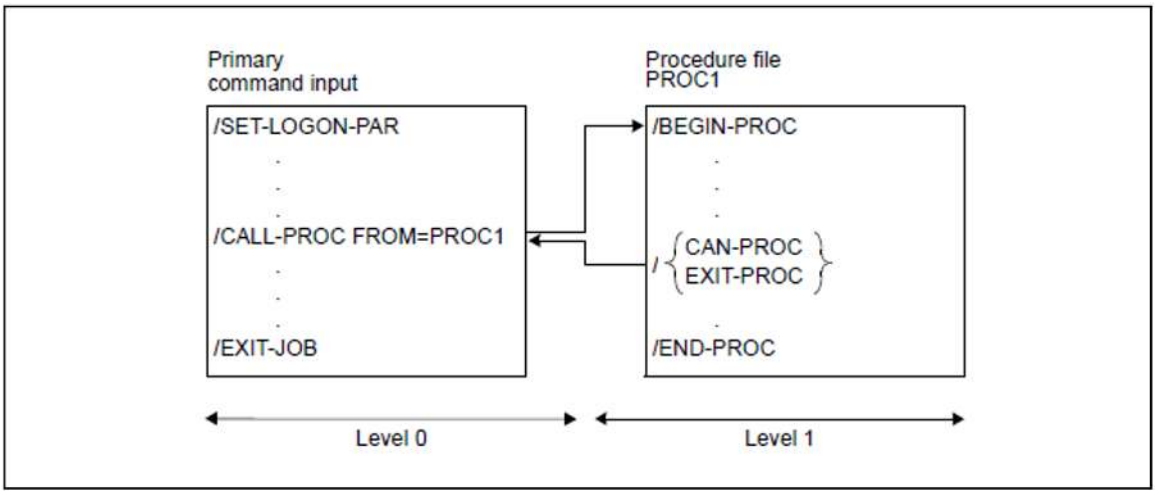


Figure 2: CANCEL- and EXIT-PROCEDURE commands at procedure level 1

The arrows indicate the sequence in which the commands are processed.

Example 2

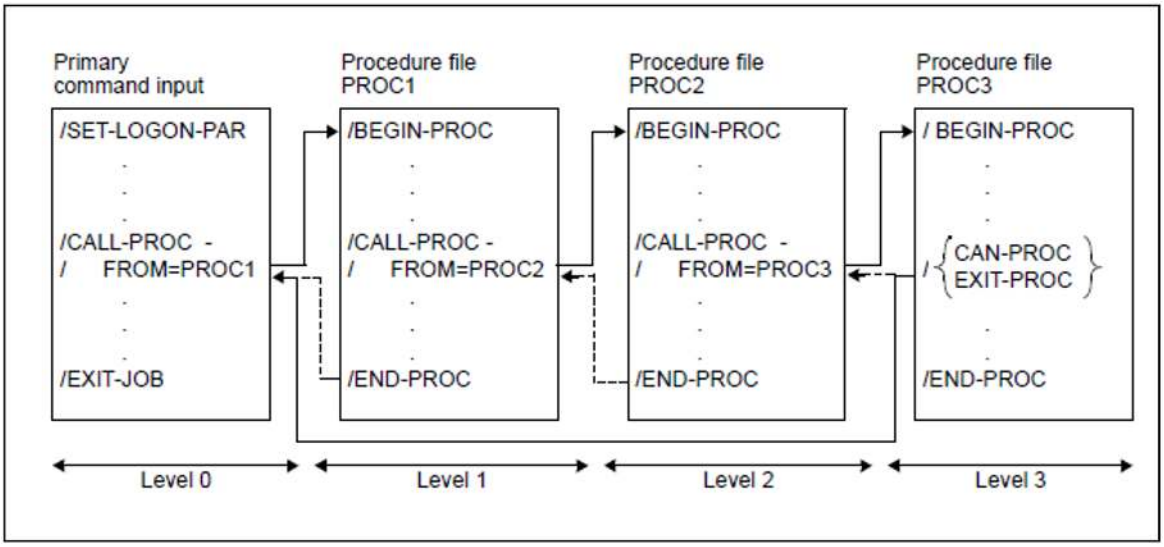


Figure 3: CANCEL- and EXIT-PROCEDURE commands at procedure level 3

The solid lines indicate the sequence in which the commands are processed in the case of CANCEL-PROCEDURE. By way of comparison, the broken lines indicate the process in the case of EXIT-PROCEDURE.

2.38 CANCEL-PROGRAM

Cancel program run

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The CANCEL-PROGRAM command cancels a program run and releases all the user memory reserved until that time by the dynamic binder loader DBL and the static loader ELDE.
If the program contains an STXIT routine for the ABEND event class, it is activated.
The status indicator of any program-monitoring job variable is set to ‘$A’.

Format

CANCEL**-PROG**RAM	Alias: **CNPG**

The CANCEL-PROGRAM command has no operands and is executed immediately.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0554	Warning: no program was loaded
	64	CMD0216	User has no authorization for the command
	64	BLS0553	The loaded program may not be unloaded

2.39 CANCEL-PUBSET-EXPORT

Cancel pubset export

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	R

Function

This command cancels the wait state of an active EXPORT job that is to control the export of a pubset. The job terminates with an error message and the pubset remains available.

Format

CANCEL**-PUB**SET**-EXP**ORT
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset to be exported.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	DMS0355	Same export already active
1	0	DMS0364	Pubset not available
1	0	DMS036C	No task for EXPORT-PUBSET
	1	CMD0202	Syntax error
	32	DMS0363	Error while accessing MRSCAT
	64	DMS0360	No authorization for command
	130	DMS0351	Other import/export task active

2.40 CANCEL-PUBSET-IMPORT

Cancel import of pubset

Component:	BS2000
Functional area :	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The CANCEL-PUBSET-IMPORT command causes an active import job to be canceled. In particular in a shared pubset network, this function can be used to cancel an import where the master is being changed so that the pubset becomes accessible again from at least one other system.

When this command is called, the import job loses its current disk accessing rights and it is prevented from building up new disk accessing rights.
However, the import job can only terminate if it encounters an error due to the loss of rights or if it finds the cancel request that is stored in the MRS catalog. If the import job does not terminate, it is not possible to import the pubset in the current session. The data consistency of the pubset is, however, ensured when it is imported on another system.

Format

CANCEL**-PUB**SET**-IMP**ORT
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset to be imported.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	DMS13D1	CANCEL-PUBSET-IMPORT was canceled because an error occurred when accessing the volume catalog.
	64	DMS13D1	Error during CANCEL-PUBSET-IMPORT; the insert describes the cause of the error, e.g.: • MRSCAT does not exist • no pubset import • a CANCEL-PUBSET-IMPORT is already being processed • the pubset has already been imported • the pubset import has already reached its final stage

2.41 CANCEL-RUN-PROCESS

Cancel processing of command file

Component:	BS2000
Functional area:	Editing command files
Domain:	not allocated
Privileges:	OPERATING
Routing code:	E

Function

The CANCEL-RUN-PROCESS command cancels processing of a command file that has already been started. In order to execute it, the operator must specify a RUN-ID. This is assigned to each command file started by means of the RUN command. Command files that are started from another RUN sequence are assigned the same RUN-ID as the generating command file. When a command file is canceled by means of CANCEL-RUN-PROCESS all the command files generated by it are canceled automatically.
This command must not necessarily be entered at the same console as the RUN command. However, it does require the routing code E.

The command must not be issued from a user task with the operating privilege.

Restrictions when using the “Operator LOGON” function

If the “Operator LOGON” function is used (system parameter NBCONOPI=Y), the command is not accepted after “SYSTEM READY” unless the originating task is running under TSOS or under the user ID which entered the RUN command. The command is also allowed if the RUN command was issued by an authorized user program with generated authorization names or if the RUN command issuer has been disconnected. In all other cases, If this condition is not met, the command is rejected with message NBR0002.

Format

CANCEL**-RUN-PROCESS**
RUN-ID = <alphanum-name 1..4>

Operands

RUN-ID = <alphanum-name 1..4>
ID of the command file to be canceled. A unique RUN-ID is assigned to each command file started by means of the RUN command. If no RUN-ID or an unknown RUN-ID is specified, the command is rejected.
For information on using command files, see the section on “Command files for the operator” in the “Introduction to System Administration” [14].

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	64	NBR0001	Specified RUN-ID not found
	64	NBR0002	No authorization

2.42 CHANGE-ACCOUNTING-FILE

Change system accounting file

Component:	BS2000
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS

Function

The current accounting file, in which all accounting-specific data is stored, is closed and a new file is opened. After the accounting file has been changed, the old accounting file can still be accessed during the session for evaluation purposes, e.g. with the product RAV.

The default value *UNCHANGED in the corresponding operand means that the current specification remains valid.

Format

CHANGE**-ACC**OUNTING**-F**ILE

```
NAME = *NEXT / *STD / <filename 1..54> / <partial-filename 2..53>

,SPACE = *UNCHANGED / *STD / *RELATIVE(...)

    *RELATIVE(...)

        |    PRIMARY-ALLOCATION = <integer 1..65535>

        |    ,SECONDARY-ALLOCATION = <integer 0..32767>

,BUFFER-LENGTH = *UNCHANGED / *BY-PROGRAM / *STD(...)

    *STD(...)

        |    SIZE = 1 / <integer 1..16>

,VOLUME = *UNCHANGED / *STD / <vsn 1..6>
```

Operands

NAME =
Defines the name of the accounting file to be opened.

NAME = *NEXT
The name of the continuation file is taken over for the new accounting file. The continuation file is determined:

- from the START-ACCOUNTING command if a list of alternative file names was defined in the ALTERNATE-FILES operand,
- by automatic generation of the file name by incrementing the current number by 1(prerequisite: the old accounting file name was formed automatically).

NAME = *STD
The new accounting file receives the standard file name $TSOS.SYS.ACCOUNT.<date>.xxx.nn.

This file name is made up of the following elements:

<date>	:	yyyy-mm-dd or yy.mm.dd	date (year number as four digits) date (year number as two digits)
xxx	:	session number	
nn	:	current number of the accounting file	

NAME = <filename 1..54>
Specifies a fully qualified name for the accounting file to be opened.

NAME = <partial-filename 2..53>
Specifies a partially qualified file name.
This specification results in automatic generation of the file name. The following points must be observed when specifying a partially qualified file name:

- the partial qualification must not exceed 26 characters in length (not including the user ID) because <date>.xxx.nn is added to the name;
  for catalog IDs that consist of more than one character, this value is reduced by the number of extra characters;
  if four-digit year numbers are being used (class 2 system parameter FMTYFNLG), only 24 characters may be used.
- the partial qualification may be terminated with the user ID; the file name automatically receives the suffix SYS.ACCOUNT.<date>.xxx.nn
- if no user ID is specified, the file is cataloged under TSOS.

SPACE =
Defines the storage space allocation for the file on the disk.

SPACE = *STD
The storage space for the file is 48 PAM blocks each for primary and secondary allocation.

SPACE = *RELATIVE(...)
Relative storage space allocation for the file.

> **PRIMARY-ALLOCATION = <integer 1..65535>**
> Number of PAM blocks for primary allocation.
>
> **SECONDARY-ALLOCATION = <integer 0..32767>**
> Number of PAM blocks for subsequent file extensions.

BUFFER-LENGTH = *UNCHANGED / *BY-PROGRAM / *STD(...)
Defines the block size for the input/output buffer of the accounting file.
Specification of this operand is meaningful only for new files and is otherwise ignored.

BUFFER-LENGTH = *BY-PROGRAM
Specifies a buffer of 2048 bytes (1 PAM block) for input/output of the file.

BUFFER-LENGTH = *STD(...)

SIZE = 1 / <integer 1..16>
The specified number of PAM blocks is to be used as the buffer size. If the accounting file is to be set up on an NK4 pubset, the value specified should be an even number. However, any odd number will automatically be converted to the next highest multiple of 2 when the command is processed. In such cases, a message will inform the user of this action.

VOLUME =
Specifies that the new accounting file is to be created on a certain volume.

VOLUME = *STD
The Data Management System of BS2000 decides on which volume the accounting file will be created.

VOLUME = <vsn 1..6>
The accounting file is to be created on the volume with the specified volume serial number. The VOLUME operand supports only volumes that do not require device-specific information.
If the accounting file is to be created on a **tape** or on a **private disk**, the system must be informed with a CREATE-FILE command before the accounting file is changed.
If in the case of a **public disk** this does not belong to the default pubset of the designated user ID, the catalog ID of the volume must be included in the file name. If the complete name is to be generated automatically, :catid:$TSOS. must be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NAM3001	Requested action has been performed, but was accompanied by a warning
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	NAM0012	No authorization for command
	64	NAM3003	Semantic error
	128	CMD2280	Temporarily unable to execute the command

2.43 CHANGE-CONSLOG-FILE

Close current logging file and open new file

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING SECURITY-ADMINISTRATION
Privileges:	OPERATING SAT-FILE-MANAGEMENT TSOS

Function

The CHANGE-CONSLOG-FILE command closes the current logging file and opens a new one (see also “Logging file” in the “Introduction to System Administration” [14]).
This enables the closed logging files to be evaluated during the current session. Read access to the logging file currently open is obtained with the SET-CONSLOG-READ-MARK command.
If a CHANGE-CONSLOG-FILE command is already being processed, all further CHANGE-CONSLOG-FILE commands are rejected. Depending on the NBKESNR system parameter, up to 99 files can be created per session or 999 per day. The NBKESNR system parameter also governs whether the CONSLOG file is created under the TSOS or SYSAUDIT user ID. The NBLOGENF system parameter (NBLOGENF=E(nforced)) can be used to prevent the last possible CONSLOG file from being changed.
When printing the closed logging file it is advisable to specify the LAST-CHARACTER=252 operand in the PRINT-DOCUMENT command.

Format

CHANGE**-CONSLOG**-FILE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	NBR0905	CONSLOG not active
2	0	NBR0906	CONSLOG being deactivated
	64	NBR0904	Last possible sequence number reached, command no longer possible
	130	EXC065A	CHANGE-CONSLOG already being processed

2.44 CHANGE-DISK-MOUNT

Lock private disk

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	D

Function

This command denies the user access to a private disk already in use.

Format

CHANGE**-DISK-MOUNT**

```
UNIT = *VOLUME(...) / *EXCHANGE-PAIR(...) /
          list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
    *VOLUME(...)
        |       VOLUME = list-poss(10): <vsn 1..6>
    *EXCHANGE-PAIR(...)
        |       EXCHANGE-PAIR = list-poss(10): *PARAMETER(...)
        |           *PARAMETER(...)
        |               |   DISMOUNT-VOLUME = <vsn 1..6>
        |               |   ,REMOUNT-VOLUME = <vsn 1..6>
,ACTION = *EXCHANGE / *MOVE / *CANCEL
```

Operands

UNIT =
Specifies one or more disks which are to be no longer available.

UNIT = *VOLUME(...)
Specifies the volume serial numbers (VSN, up to 6 characters) of one or more disks which are to be no longer available. A maximum of 10 disks may be specified.

VOLUME = list-poss(10): <vsn 1..6>
Specifies the volume serial number (VSN).

UNIT = *EXCHANGE-PAIR(...)

> This operand value is not relevant, as in this and subsequent versions on only hard disk devices are supported.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Lists up to 10 disks that are to be no longer available.

ACTION = *EXCHANGE / *MOVE / *CANCEL
Specifies the way in which the mount state is to be changed.

> The operand values *EXCHANGE and *MOVE are not relevant, as in this and subsequent versions only hard disk devices are supported.

ACTION = *CANCEL
The allocated private disk specified under UNIT in the *VOLUME operand is no longer to be available to the user. Every I/O request is rejected. Opened files are not closed; these files must be made available again using the REMOVE-FILE-ALLOCATION-LOCKS command before the next OPEN.
The disk parameters ASSIGN-TIME=*USER and USER-ALLOCATION=*NO are implicitly set. In this way all allocation requests are rejected until the disk is released by the occupying users. The disk can only be made available again (SET-DISK-VOL=...,USER=*ALL) after it has been released by all users. Until that time it is also defined as allocated in the SHOW commands (SH-DEV, SH-DISK).

> The CANCEL function is an “emergency command” and should thus be used only in urgent cases, such as with a permanent INOP for the disk.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVD002	Disk monitor not available

2.45 CHANGE-FILE-LINK

Change file link name

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The CHANGE-FILE-LINK command changes the file link name in an existing entry in the Task File Table (TFT), i.e. it assigns a new file link name to the file. All the other values in this TFT entry will remain unchanged.

The CHANGE-FILE-LINK command cannot be applied to the TFT entry of a file that is currently open. The ADD-FILE-LINK command can be used to create a new TFT entry; the SHOW-FILE-LINK command returns information on existing TFT entries.

Format

CHANGE**-FILE-LINK**	Alias: **CGFL**
LINK-NAME = ***FIRST-BLANK** / <filename 1..8 without-gen> ,**NEW-NAME** = <filename 1..8 without-gen>	

Operands

LINK-NAME = *FIRST-BLANK / <filename 1..8 without-gen>
Specifies the existing link name of the file.

LINK-NAME = *FIRST-BLANK
If *FIRST-BLANK is specified, the first TFT entry with a link name consisting of blanks is selected for change. Such an entry is created if neither the link name nor the file name is defined in the FCB macro call of a program and if no appropriate ADD-FILE-LINK command is issued before the program call. The file name in this entry is the symbolic name of the FCB macro call.

LINK-NAME = <filename 1..8 without-gen>
Specifies the existing link name of the file.

NEW-NAME = <filename 1..8 without-gen>
The new link name to be given to the file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	64	DMS05D5	Specified LINK name missing or invalid
	64	DMS05DD	New LINK name already exists
	64	DMS06FF	BCAM connection severed
	130	DMS0582	File is currently locked or being used and cannot be processed

Example

Changing a file link name

```
/show-file-attr max.file.2,inf=(org=*yes)   ————————————————————————        (1)
```

```
%0000000003 :2OSG:$USER1.MAX.FILE.2
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *K           S0-MIGR    = *ALLOWED
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

```
/add-file-link link=pcin,file-name=max.file.2    ————————————————————————   (2)
/add-file-link link=pcout,file-name=max.file.9,access-method=*isam,
        support=*disk(isam-attr=(key-pos=10,key-len=4)) ————————————————————— (3)
/start-percon   ———————————————————————————————————————————————————————————— (4)
```

```
%  BLS0523 ELEMENT 'PCROOT', VERSION '029', TYPE 'L' FROM LIBRARY ':1OSH:$TSOS.S
YSLNK.PERCON.029' IN PROCESS
%  BLS0524 LLM 'PCROOT', VERSION '02.9A' OF '2008-10-06 14:27:00' LOADED
%  BLS0551 COPYRIGHT (C) FUJITSU TECHNOLOGY SOLUTIONS 2009. ALL RIGHTS RESERVED
%  PER0000 PERCON STARTED, VERSION V02.9A10
```

```
%//assign-input-file file=*disk-file    ——————————————————————————————    (5)
%//assign-output-file file=*disk-file   ———————————————————————————————   (6)
%//start-conv ————————————————————————————————————————————————————————   (7)
```

```
%  PER0030 NUMBER OF PROCESSED RECORDS FOR LINK='PCIN' (FILE=:2OSG:$USER1.MAX
.FILE.2):          9
%  PER0030 NUMBER OF PROCESSED RECORDS FOR LINK='PCOUT' (FILE=:2OSG:$USER1.MA
X.FILE.9):          9
```

%//end ——— (8)

```
%  PER0031 PERCON TERMINATED NORMALLY
```

/show-file-link ——— (9)

```
%   PCIN               :2OSG:$USER1.MAX.FILE.2
%   PCOUT              :2OSG:$USER1.MAX.FILE.9
```

/show-file-link link=pcout,inf=(file-control-block=*yes) ———————————— (10)

```
%
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
%   PCOUT              :2OSG:$USER1.MAX.FILE.9
%  ------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
%  ACC-METH   = ISAM        OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-PROG
%  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-PROG    BLK-CONTR  = *BY-PROG
%  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
%  ------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
%  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
%  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
%  ------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
%  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
%  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
%  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
%  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
%  STREAM     = *BY-PROG
%  ------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
%  KEY-POS    = 10          KEY-LEN    = 4           POOL-LINK  = *BY-PROG
%  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
%  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
%  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
```

/show-file-attr max.file.9,inf=(org=*yes) ———————————————————— (11)

```
%00000003 :2OSG:$USER1.MAX.FILE.9
%  ------------------------------ ORGANIZATION -------------------------------
%  FILE-STRUC = ISAM        BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%  KEY-LEN    = 4           KEY-POS    = 10
%  AVAIL      = *STD
%:2OSG: PUBLIC:      1 FILE  RES=        3  FRE=         1  REL=        0 PAGES
```

/change-file-link link=pcout,new-name=edtisam ———————————————— (12)
/show-file-link ——— (13)

```
%
%-- LINK-NAME --------- FILE-NAME -----------------------------------------
%   EDTISAM             :2OSG:$USER1.MAX.FILE.9
%   PCIN                :2OSG:$USER1.MAX.FILE.2
```

/start-edt ——— (14)

```
.
.
. "Processing with the EDT utility routine"
.
.
```

/remove-file-link link=ed ——————————————————————————————————— (15)

(1) Output of the organization attributes of the SAM file *MAX.FILE.2*.

(2) Creates a TFT entry for the file *MAX.FILE.2* under the link name PCIN (default link name of the utility routine PERCON for the input file).

(3) Creates a TFT entry for the file MAX.FILE.9 under the link name *PCOUT* (default link name of the utility routine PERCON for the output file). The file *MAX.FILE.2* is to be converted with the PERCON utility to the ISAM file MAX.FILE.9 by constructing the ISAM key from the data bytes 6 to 9.

(4) Invocation of the PERCON utility routine.

(5) The file that is entered into the TFT with the default link name *PCIN* is to be used as the input file.

(6) The file that is entered into the TFT with the default link name *PCOUT* is to be used as the output file.

(7) The conversion begins.

(8) The PERCON utility routine is terminated.

(9) The output of the TFT entries indicates that the entries with link names *PCIN* and *PCOUT* still exist.

(10) Output of the TFT entry with the link name *PCOUT* showing the file organization attributes.

(11) Output of the file organization attributes from the catalog entry of the file *MAX.FILE.9*.

(12) In order to enable processing of the file *MAX.FILE.9* with the utility routine EDT, the link name *PCOUT* is changed to *EDTISAM* with the CHANGE-FILE-LINK command. This makes it possible to process the existing TFT entry for the file *MAX.FILE.9* with the utility routine EDT via the default link name *EDTISAM* (without the TFT entry, EDT only processes ISAM files with KEY-POS=5 and KEY-LENGTH=8). It is not necessary to create a new TFT entry with ADD-FILE-LINK.

(13) The output of the TFT entries indicates that the entries with the link names *PCIN* and *EDTISAM* exist.

(14) Invocation of the utility routine EDT.

(15) After processing in the EDT is complete, the TFT entry with the link name *EDTISAM* is deleted.

2.46 CHANGE-HEL-FILE

Change hardware error logging file

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE, TSOS

Function

The CHANGE-HEL-FILE closes the current HEL (Hardware Error Logging) file and opens a new logging file. Hardware error logging is initiated either automatically on system startup or explicitly with the START-HEL-LOGGING command. The CHANGE-HEL-FILE command is rejected if logging is not active (message HEL0010).

HEL logging files are created under the TSOS user ID with a default name formed on the pattern $TSOS.SYS.HEL.*yyyy-mm-dd.hhmmss*. The name components *yyyy-mm-dd* and *hhmmss* respectively identify the date and time when the logging file was initially opened. The file access rights are by default set to USER-ACCESS=*SPECIAL and ACCESS=*READ, which means that, in addition to TSOS, all user IDs including the maintenance IDs (HARDWARE-MAINTENANCE privilege) have read access to HEL logging files.
A HEL logging file is given the size specified in the SPACE operand. There is no provision for dynamic extension (SECONDARY-ALLOCATION=0). If the file grows to the size of the primary allocation, it is automatically closed and a new logging file is created and opened.

Format

CHANGE**-HEL-FILE**
SPACE = ***UNCHA**NGED / ***STD** / <integer 24..65536 *2Kbyte*>

Operands

SPACE = *UNCHANGED / *STD / <integer 24..65536>
Defines the size (primary allocation, plus rounding as required; see the PRIMARY-ALLOCATION operand of the CREATE-FILE command) of the logging file that is to be created.

SPACE = *UNCHANGED
The logging file is to be the same size as the old one.

SPACE = *STD
The logging file is given the default size of 400 PAM pages.

SPACE = <integer 24..65536 *2Kbyte* >
The logging file is given the specified number of PAM pages.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	HEL0100	Internal error
	32	HEL0105	Bourse problems
	32	HEL0106	DMS error
	32	HEL0107	DMS error
	64	HEL0010	Hardware error logging nor active
	64	HEL0110	Privilege error

Example

`/change-hel-file`

```
%  HEL0001 HW-ERROR-LOGGING FILE ':1SBZ:$TSOS.SYS.HEL.2017-01-29.141847'
OPENED WITH 'SPACE=  402'
```

The CHANGE-HEL-FILE command with no operands opens a new logging file of the default size (in this case rounded up to 402 PAM pages; see the SPACE operand).

2.47 CHANGE-RESLOG-FILE

Change RESLOG file

Component:	RESLOG
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS SW-MONITOR-ADMINISTRATION

Function

The RESLOG (RESource LOGging) subsystem always logs the use of extra CPUs in the RESLOG file $TSOS.SYS.RESLOG.<server-id>. You can use the CHANGE-RESLOG-FILE command to change the RESLOG file. Changing the logging file involves the following steps:

1. Close the current logging file $TSOS.SYS.RESLOG.<server-id>
2. Rename the file to $TSOS.SYS.RESLOG.<server-id>.<date> (the close time date is appended to the file name)
3. Create and open the new logging file $TSOS.SYS.RESLOG.<server-id>

Closed RESLOG files can be evaluated using the START-RESLOG-EVALUATION command.

RESLOG logging is only performed at systems with extra CPUs (e.g. systems of type S140 and S170). For more details on RESLOG logging and the use of extra CPUs see the “Introduction to System Administration” [14].

Format

CHANGE-RESLOG-FILE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error

> Command return codes that are returned in the event of an error (subcode 1 not equal to 0) cannot be guaranteed. Automatic error handling is nevertheless possible using the spin-off mechanism (corresponds to the default setting of the SET-PROCEDURE-OPTIONS command with ERROR-MECHANISM=*SPIN-OFF-COMPATIBLE).

2.48 CHANGE-SERSLOG-FILE

Change SERSLOG file

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS SW-MONITORING
Routing code:	A

Function

The CHANGE-SERSLOG-FILE command is executed only if software error logging is active.
The command closes the current SERSLOG file for logging relevant software errors ($TSOS.SYS.SERSLOG.yyyy-mm-dd.xxx.nn) and opens a new one (with nn+1). The switchable logging procedure SERSLOG, which up to the time of command input has entered a record in the old file for each relevant software error, from now on will enter the records in the new file. The records automatically include the time, caller and further identifiers.
The information collected in the closed file can still be evaluated during the system session.

If the new SERSLOG file cannot be opened due to a DMS error, a message to that effect is issued at the operator terminal. In this case the old SERSLOG file remains the current file. If another CHANGE-SERSLOG-FILE command is issued, an attempt is made to open the **next-but-one** SERSLOG file. If the attempt succeeds, the number nn in the file name (see above) is incremented by 2 in order to mark the error in the sequence of files.

Format

CHANGE-SERSLOG-FILE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NER0000	Internal error
	32	CMD0221	System error
	32	NER0000	Internal error
	64	NER1070	Task break during processing
	64	NER1000	No authorization for command
	64	NER1040	DMS error
	128	NER0010	A SERSLOG command is already being processed
	129	NER1020	SERSLOG function is not active

Example

/show-serslog

```
%  NER1060 SERSLOG ACTIVE. FILE : ':SBZ7:$TSOS.SYS.SERSLOG.2017-01-27.006.01'
```

/change-serslog-file
/show-serslog

```
%  NER1060 SERSLOG ACTIVE. FILE : ':SBZ7:$TSOS.SYS.SERSLOG.2017-01-27.006.02'
```

2.49 CHANGE-STORAGE-CLASS-CATALOG

Change storage class catalog

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Functions

The CHANGE-STORAGE-CLASS-CATALOG command allows systems support personnel to change the storage class catalog.
The command can also be used to dynamically load the storage class catalog if it was corrupt when the SM pubset was imported and so could not be loaded at that time (message DMS1483).

The file named :<sm-pubset-catid>:$TSOS.SYSCAT.STORCLS contains the current storage class catalog. If the catalog is to be changed using CHANGE-STORAGE-CLASS-CATALOG, the new catalog must be stored as SYSCAT.STORCLS.BAK (with the same user and catalog IDs). When the command is executed, the original catalog is saved as SYSCAT.STORCLS.<date>.<time>, where <date> is the date (in yyyy-mm-dd format) and <time> is the time (in hhmmss format) when the catalog was changed. The new catalog is renamed to SYSCAT.STORCLS and thus becomes the current storage class catalog.

The procedure for dynamically loading and changing the storage class catalog is as follows:

1. Create a file named SYSCAT.STORCLS.BAK in the control volume set. It is best to create the file in VOLRES, so that the control volume set can also be reduced in size later.
2. Using HSMS, transfer the contents of a backup copy of the storage class catalog to SYSCAT.STORCLS.BAK.
3. Run the CHANGE-STORAGE-CLASS-CATALOG command. The storage class catalog will then be dynamically loaded from SYSCAT.STORCLS.BAK.

Format

CHANGE**-STOR**AGE**-CLASS-CAT**ALOG
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which the storage class catalog is to be changed or dynamically loaded.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization for command
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS1490	Storage class management not available for this pubset
	64	DMS1483	Storage class catalog invalid
	64	DMS1481	Error accessing storage class catalog
	64	DMS1499	Catalog SYSCAT.STORCLS.BAK not in control volume set
	64	DMS1495	Catalog SYSCAT.STORCLS.BAK invalid
	64	DMS1496	Catalog SYSCAT.STORCLS.BAK does not exist
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on HIPLEX MSCF connection to master
	129	DMS148F	GCF subsystem not ready

2.50 CHANGE-TAPE-MOUNT

Change mount state of tape

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	T

Function

This command changes the mount state of a tape (initiates the remounting of a tape).

Format

CHANGE**-TAPE-MOUNT**

```
UNIT = *VOLUME(...) / *EXCHANGE-PAIR(...) /
          list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
    *VOLUME(...)
        |       VOLUME = list-poss(10): <vsn 1..6>
    *EXCHANGE-PAIR(...)
        |       EXCHANGE-PAIR = list-poss(10): *PARAMETER(...)
        |           *PARAMETER(...)
        |               |   DISMOUNT-VOLUME = <vsn 1..6>
        |               |   ,REMOUNT-VOLUME = <vsn 1..6>
,ACTION = *EXCHANGE / *MOVE / *CANCEL / *POSITION
```

Operands

UNIT =
Specifies one or more tapes to be remounted.

UNIT = *VOLUME(...)
Specifies the volume serial numbers (VSN, up to 6 characters) of one or more tapes whose mount state is to be changed. A maximum of 10 tapes may be specified.

VOLUME = list-poss(10): <vsn 1..6>
Specifies the VSN.

UNIT = *EXCHANGE-PAIR(...)
A used tape for which no device is available is to be exchanged for a used tape which is allocated a device. A maximum of 10 pairs may be specified.

EXCHANGE-PAIR = list-poss(10): *PARAMETER(...)
Specifies up to 10 pairs of used tapes. In each pair, one tape is to be exchanged for the other.

DISMOUNT-VOLUME = <vsn 1..6>
This used tape, which is allocated a device (PHASE IN-USE, ACTION neither NO DEVICE nor CANCELLED), is to be dismounted. Processing of this tape is interrupted but not terminated.

REMOUNT-VOLUME = <vsn 1..6>
This used tape, for which no device is available (PHASE='IN-USE' and ACTION not equal 'NO DEVICE' or ACTION not equal 'CANCELLED'), is to be mounted instead of the tape to which a device is allocated. Interruption processing of this tape is terminated. All input/output requests for this tape are processed again.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Lists up to 10 tapes to be remounted.

ACTION =
Specifies the way in which the mount state is to be changed.

ACTION = *EXCHANGE
In each of the tape pairs specified under UNIT in the *EXCHANGE-PAIR operand, one tape is to be exchanged for the other.

ACTION = *MOVE
The tape specified under UNIT in the *VOLUME operand or the tape on the device specified by means of its mnemonic name is to be remounted on another device. The system proposes a free device. For remounting the following requirements apply:

- there must exist one free device which supports the recording density used;
- the tape is in the PHASE='IN-USE' status and ACTION not equal 'NO DEVICE' or ACTION not equal ' CANCELLED',
- the user must not have specified NO MOVE at reservation time

ACTION = *CANCEL
The allocated tape specified under UNIT in the *VOLUME operand is no longer to be available to the user. All further input/output requests are automatically rejected until the tape has been released by the user.

ACTION = *POSITION
The allocated tape specified under UNIT in the *VOLUME operand is to be repositioned. In this way the operator can correct any inadvertent intervention on the device.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVT002	Tape monitor not available

Notes

- Remounting (MOVE function) for a tape should always be announced with a command because if repositioning takes place without a command there is no guarantee that the tape on the backup device will remain repositionable.
- The state PHASE=’IN-USE’ and ACTION=’NO DEVICE’ can only occur for a tape if the device on which the tape is mounted is immediately detached and no backup device is available (detachment by the operator with / `DETACH-DEVICE UNIT=mn,FORCE=YES` or automatic detachment by the system).
- In the case of tapes without an STD label whose device is inoperable and for which no backup device is available, processing is stopped immediately. The display ACTION=’NO DEVICE’ is not possible for these tapes.

2.51 CHANGE-TASK-CPU-LIMIT

Change maximum CPU time for task

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	OPERATING TSOS
Routing code:	P

Function

The CHANGE-TASK-CPU-LIMIT command allows systems support to increase a task's maximum CPU time (task time limit, see also section "Time limits in BS2000"). This is a way of preventing important batch jobs being terminated prematurely because they have exceeded their CPU time limit.

Systems support can use the SHOW-JOB-STATUS command to check up on the elapsed time and the CPU time limit of a batch job which must not be terminated prematurely and can then run CHANGE-TASK-CPU-LIMIT to raise its CPU limit in good time.
When a batch job reaches its CPU time limit, message EXC0070 is displayed on the operator terminal. Systems support now has a maximum of 20 minutes in which to raise the job's CPU time limit using the CHANGE-TASK-CPU-LIMIT command. If the limit is not raised within this period, the batch job terminates.
If the CPU time limit is passed while a program is running, any STXIT routine defined for the program will not be processed unless the CPU limit is raised within 20 minutes.

Format

CHANGE**-TASK-CPU-LIMIT**

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**ADD** = ***SECONDS**(...) / ***PERCENT**(...)

***SECONDS**(...)

| **SECONDS** = <integer 1..32767 *seconds*>

***PERCENT**(...)

| **PERCENT** = <integer 1..100>

Operands

JOB-IDENTIFICATION =
Type of job identification.
Jobs may be identified by task sequence number (TSN) or by monitoring JV (MONJV).

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task sequence number (TSN).

TSN = <alphanum-name 1..4>
TSN of the job whose CPU time limit is to be raised.

JOB-IDENTIFICATION = *MONJV(...)
The job is identified by its monitoring JV.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV monitoring the job whose CPU time limit is to be raised. The job must run on the local system.

ADD = *SECONDS(...) / *PERCENT(...)
Specifies the amount by which the CPU time limit is to be raised. The increase can be given in seconds or as a percentage.

ADD = *SECONDS(...)
The increase is given in seconds.

SECONDS = <integer 1..32767 *seconds* >
Number of seconds by which the CPU time limit is to be raised.

ADD = *PERCENT(...)
The increase is given as a percentage of the current CPU time limit.

PERCENT = <integer 1..100>
Percentage by which the CPU time limit is to be raised.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	CMD0001	Maximum CPU limit reached
	32	CMD0221	Internal error
	64	CMD0216	No authorization
	64	NTIC001	Parameter error; TSN or. MONJV unknown

2.52 CHANGE-TASK-PRIORITY

Change run priority of active job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	P

Function

The CHANGE-JOB-PRIORITY command changes the run priority of a job running under the user's own ID. The command can also be used to process jobs generated by the user's own ID and running under a different user ID (extended access).

The maximum permissible priority is the numeric minimum of the maximum values (i.e. the more favorable of the values) in the user catalog and the job class definition. If no maximum value is defined for the job class, then the standard run priority is used.

Information on the entry in the user catalog can be requested using the SHOW-USER-ATTRIBUTES command (output field `MAX-RUN-PRIORITY`), using the job class definition with the SHOW-JOB-CLASS (output field `RUN PRIORITY`) command.

The priority of jobs that have not yet been started can be changed using the MODIFY-JOB command.

Privileged function

If the CHANGE-TASK-PRIORITY command is issued at the operator terminal or under the TSOS user ID, it can be used to change the run priority of a job issued under any user ID. In this case the maximum permissible priority as defined for that user ID in the user catalog is irrelevant.

Format

CHANGE**-TASK-PRIO**RITY

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**HOST** = ***STD** / <c-string 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**RUN-PRIOR**ITY = <integer 30..255>

Operands

JOB-IDENTIFICATION =
Type of job identification.
Jobs may be identified by task sequence number (TSN) or by monitoring JV (MONJV).

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task sequence number (TSN) and where appropriate by the host on which it is running.

TSN = <alphanum-name 1..4>
TSN of the job whose priority is to be changed.

HOST = *STD / <c-string 1..8>
Host system on which the job is running.
The default is *STD, which means that the job is running on the local host.
The host name of a remote system can only be specified for systems which are on a computer network (see the “HIPLEX MSCF” manual [25]).

JOB-IDENTIFICATION = *MONJV(...)
The job is identified by its monitoring JV.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV monitoring the job whose priority is to be changed.

RUN-PRIORITY = <integer 30..255>
Specifies the run priority to be assigned to the job. A low value indicates a high priority. The maximum permissible priority is the numeric minimum of the maximum values (i.e. the more favorable of the values) in the user catalog and the job class definition. If no maximum value is defined for the job class, the standard run priority is used. The values can be queried using the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	32	JMS0024	System error
	64	JMS0630	Semantic error (see SYSOUT message)
	64	JMS0640	MONJV error, illegal access or invalid time of call
	64	JMS0670	Error in a remote job
	130	JMS0620	Memory saturation
	130	JMS0650	MSCF or destination processor not available

2.53 CHANGE-VOLUME-SET-LIST-CATALOG

Change volume set list catalog

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The CHANGE-VOLUME-SET-LIST-CATALOG command allows systems support to change the volume set list catalog.
The command can also be used to dynamically load the volume set list catalog if it was corrupt when the SM pubset was imported and so could not be loaded at that time (message DMS1484).

The file named :<sm-pubset-catid>:$TSOS.SYSCAT.VSETLST contains the current volume set list catalog. If the catalog is to be changed using CHANGE-VOLUME-SET-LIST-CATALOG, the new catalog must be stored as SYSCAT.VSETLST.BAK (with the same user and catalog IDs). When the command is executed, the original catalog is saved as SYSCAT.VSETLST.<date>.<time>, where <date> is the date (in yyyy-mm-dd format) and <time> is the time (in hhmmss format) when the catalog was changed. The new catalog is renamed to SYSCAT.VSETLST and thus becomes the current volume set list catalog.

The procedure for dynamically loading and changing the volume set list catalog is as follows:

1. Create a file named SYSCAT.VSETLST.BAK in the control volume set. It is best to create the file in VOLRES, so that the control volume set can also be reduced in size later.
2. Using HSMS, transfer the contents of a backup copy of the volume set list catalog to SYSCAT.VSETLST.BAK.
3. Run the CHANGE-VOLUME-SET-LIST-CATALOG command. The volume set list catalog will then be dynamically loaded from SYSCAT.VSETLST.BAK.

Format

CHANGE**-VOL**UME**-SET-LIST-CAT**ALOG
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Designates the pubset for which the volume set list catalog is to be changed or dynamically loaded.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization for command
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS1490	Storage class management not available for this pubset
	64	DMS1484	Volume set list catalog invalid
	64	DMS1482	Error accessing volume set list catalog
	64	DMS1499	Catalog SYSCAT.VSETLST.BAK not in control volume set
	64	DMS1495	Catalog SYSCAT.VSETLST.BAK invalid
	64	DMS1496	Catalog SYSCAT.VSETLST.BAK does not exist
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on HIPLEX MSCF connection to master
	129	DMS148F	GCF subsystem not ready

2.54 CHECK-DISK-MOUNT

Check mount state of a disk

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	D

Function

This command checks the mount state of disk devices. The disk monitor (DM) is called to update the online state of the specified devices if the mounting or dismounting of a disk is not recognized by the system because of a missing activation interrupt.

Format

CHECK-DISK-MOUNT
UNIT = ***ALL** / list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
,**ACTION** = ***UPD**ATE / ***REPORT**

Operands

UNIT =
Defines the devices whose mount state is to be checked and updated.

UNIT = *ALL
All disk drives having the following attributes are checked:

- ATTACHED or DETACH-PENDING
- ACTION-STATE = NO_ACTION
- PHASE not equal MOUNT and PHASE not equal IN-USE.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Specifies the mnemonic device names (2 or 4 alphanumeric characters) of the devices whose mount state is to be checked and updated. A maximum of 10 devices may be specified.

ACTION =
Defines the logging of the online state.

ACTION = *UPDATE
An updated online state is to be logged by the following messages (default):

```
NKVD010   DISK vsn IS MOUNTED ON mn
NKVD011   DISK vsn IS DISMOUNTED FROM mn
```

No message is issued for devices whose online state has not changed.

ACTION = *REPORT
Like UPDATE; in addition the device error state is logged via message EXC0857 if no volume is recognized as online.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVD002	Disk monitor not available

Note

The SHC-OSD subsystem requires the assignment of mnemonics to volume numbers for the supported disks. BS2000 determines the volume numbers during system power-up and during attachment of devices (/ATTACH-DEVICE) and enters them into the BS2000 device table.

If the configuration is changed in the storage system, the assignment of mnemonics to volume numbers can change as well. In these cases, the mnemonic <mn> can be used to update the volume number for the disk:

```
/CHECK-DISK-MOUNT UNIT=<mn>,ACTION=*UPDATE
```

If BS2000 recognizes a change, the volume numbers are updated for all other disks in the storage system automatically.

2.55 CHECK-FILE-CONSISTENCY

Check NK-ISAM file for consistency

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

The command CHECK-FILE-CONSISTENCY checks an ISAM file that is of type BLOCK-CONTROL-INFO = *WITHIN-DATA-BLOCK and has not been correctly closed to ensure that it is consistent. This command is only meaningful for NK-ISAM files which are processed with WRITE-IMMEDIATE=*YES.

Only files identified as open (see the STATUS=*PAR(REPAIR-NEEDED=*YES) option in the SHOW-FILE-ATTRIBUTES command) are selected. The file lock is removed.
Concurrent copy locks remain in place if the concurrent copy session has not yet ended. If a file is identified as open, the LLP (last logical page) is set to the last PAM page used.

If the file contains secondary keys, the secondary index is checked to ensure that it was created or deleted completely (since processing may have aborted at the time of creating or deleting the secondary index).

Multiblocks (an ISAM data block consisting of several PAM pages) are checked for consistency, i.e. to determine whether processing was aborted when writing a multiblock. For information on “multiblocks” see the “Introductory Guide to DMS” [13].

An existing file lock can also be removed by using the command REMOVE-FILE-ALLOCATION-LOCKS. But inconsistencies are not detected in the process. Inconsistencies in a file can be eliminated with the REPAIR-DISK-FILES command.

Format

CHECK-**FILE-CONSIST**ENCY
FILE-**NAME** = <filename 1..54> / <partial-filename 2..53> ,**SEL**ECT = ***ANY-DISK** / ***PRIV**ATE-**DISK** / ***PUB**LIC-**DISK** / ***NET-STOR**AGE

Operands

FILE-NAME = <filename 1..54> / <partial-filename 2..53>
Names of the files to be checked. Write access authorization is required for files which are not under the user’s own user ID.

SELECT = *ANY-DISK / *PRIVATE-DISK / *PUBLIC-DISK
Restricts the files which are to be checked to the specified volume type. This operand is of use only if a partially qualified name, or the name of a file generation group, is specified for FILE-NAME.

SELECT = *ANY-DISK
Any files can be checked, irrespective of their volume types.

SELECT = *PRIVATE-DISK
Checks files which are stored on private disks.

SELECT = *PUBLIC-DISK
Checks files which are stored on public disks.

SELECT = *NET-STORAGE
Checks files which are stored on a Net-Storage volume.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
	0	CMD0001	No action required
	0	DMS06E6	File specified in command is empty
	0	DMS06E9	No valid record found during reconstruction of ISAM file
	0	DMS06ED	Error on writing unrecoverable blocks to scratch file
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0533	Requested file not cataloged in pubset
	64	DMS0535	Specified file not shareable
	64	DMS055C	Requested file not cataloged in pubset
	64	DMS0583	An error occurred when reconstructing the file
	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS05F8	It was not possible to allocate disk space Guaranteed message: DMS05F8
	64	DMS05FC	Specified user ID not in HOME pubset

	64	DMS0609	No access to system file
	64	DMS0609	No file corresponds to specified selection criterion
	64	DMS06CC	No file corresponding to specified operands
	64	DMS06E4	Reconstruction for this file type not possible with specified command
	64	DMS06FF	BCAM connection severed
	64	DMS06FF	File created with WROUT=NO. Consistency check is not practical
	130	DMS0524	System address space full
	130	DMS053C	Insufficient space in pubset catalog file
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0588	It was not possible to allocate disk space
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

2.56 CHECK-IMPORT-DISK-FILE

Check file import procedure

Component:	BS2000
Functional area:	File processing
Domain:	FILE FILE-GENERATION-GROUP
Privileges:	TSOS STD-PROCESSING

Function

Simulates the effect of executing the IMPORT-FILE command (operand SUPPORT=DISK), but does not actually import the file, i.e the user receives a SYSOUT/SYSLST log which shows how the IMPORT-FILE command would have been processed.
The log provides a list of the files on the volume identified in the VOLUME operand, and the informative data /messages which would have been returned by actually executing the IMPORT-FILE command.

For files on the private disk or the Net-Storage volume, DMS will not check at this point whether there are file locks or protection attributes which might prevent importation. When the importation is actually performed, the user must ensure that the files are not locked, and that write access is permitted.

Privileged functions

As with the IMPORT-FILE command, systems support (TSOS privilege) can use the NEW-USER option to control which user ID the files are cataloged under.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can therefore create files under all user logons). When SECOS is used, this co-ownership can be restricted for permanent files.

Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners. Co-owners of a user ID are then also allowed to import files under that ID.

Format

CHECK-**IMP**ORT-**DISK-FILE**

VOLUME = <alphanum-name 1..6>

,**DEV**ICE-**TYPE** = <device>

,**F**ILE-**NAME** = ***ALL** / <partial-filename 2..50 without-cat> / <filename 1..51 without-cat>

,**TYPE-OF-F**ILE = [***ANY**](...)

[***ANY**](...)

| **GEN**ERATIONS = ***YE**S / ***NO**

,**OUTPUT** = ***SYSLST** / ***SYSOUT** / ***ALL**

,**NEW-USER** = ***NONE** / <name 1..8>

,**PUBSET** = ***STD** / <cat-id 1..4>

Operands

VOLUME = <alphanum-name 1..6>
Specifies the VSN (volume serial number) of the volume which records the files whose importation is to be checked.

DEVICE-TYPE = <device>
Identifies the type of device on which the private disk is to be mounted.
Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types.
The volume type NETSTOR must be specified for Net-Storage volumes.
Every specification of a disk device type known in the system is handled like the STDDISK specification.

FILE-NAME = *ALL / <partial-filename 2..50 without-cat> / <filename 1..51 without-cat>
Identifies the files, file generation groups or file generations for which the importation (cataloging) is to be checked.
By default, DMS will check the cataloging of all files etc. which are stored on the volume specified in the VOLUME operand under the user ID for the job which is currently running.

TYPE-OF-FILE = *ANY(...)
For file generation groups: specifies how file generation groups are to be treated.

GENERATIONS = *YES / *NO
Specifies whether the only check that is required is on the cataloging of the group entry, or whether the cataloging of the file generations which are stored on the same private disk is also to be checked.

GENERATIONS = *YES
If the group entry is held on the private disk, DMS will catalog this entry and all those of its generations which begin on this disk. If there is no group entry on the disk or in the user catalog, no file generations will be cataloged.

GENERATIONS = *NO
DMS transfers just the group entry for the FGG to the catalog.

OUTPUT = *SYSLST / *SYSOUT / *ALL
Specifies how the processing of commands is to be logged (see the table "CHECK-IMPORT-DISK-FILE: Special return codes and messages").

OUTPUT = *SYSLST
The execution of commands will be logged on SYSLST; this log contains the special return codes and message texts (see table "CHECK-IMPORT-DISK-FILE: Special return codes and messages").

OUTPUT = *SYSOUT
The execution of commands will be logged on SYSOUT; only the special return codes and file names are output in this log (see table "CHECK-IMPORT-DISK-FILE: Special return codes and messages").

OUTPUT = *ALL
The processing of commands will be logged on SYSLST and SYSOUT (see OUTPUT= *SYSLST and OUTPUT=*SYSOUT).

NEW-USER = *NONE / <name 1..8>
User ID under which the file is to be cataloged (see also the IMPORT-FILE command).

PUBSET = *STD / <cat-id 1..4>
Specifies the pubset on which the files are to be cataloged. If a Net-Storage volume is specified in the VOLUME operand, the pubset to which the Net-Storage volume is allocated must be specified here.

PUBSET = *STD
If no specification is provided for the PUBSET, the catalog entries will be set up under the default catalog ID for the user ID (see the SHOW-USER-ATTRIBUTES command).

PUBSET = <cat-id 1..4>
Specifies the pubset on which the files are to be cataloged.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0533	Requested file not cataloged in pubset Guaranteed message: DMS0533
	64	DMS0535	Specified file not shareable
	64	DMS053E	File already cataloged on private volume
	64	DMS055C	Catalog entry not found on specified private disk
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS05FE	Requested file(s) not found
	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	130	DMS0524	System address space full
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0594	Not enough virtual memory available

Special return codes and messages

Code on SYSOUT	Message on SYSLST	Meaning
0	FILE DID NOT EXIST	There was no file with the same name and a new catalog entry would be created.
2	FILE EXISTS	A file of the same name already exists.
4	ERROR ON CATALOG ACCESS	System error during catalog access.
5	FILE ALREADY ON PRIVATE	The file is already cataloged and is stored on the private disk specified by VOLUME.
6	ERROR ON VTOC ACCESS	System error when accessing the F1 label of the private disk or the catalog of the Net-Storage volume.
7	GENERATION OUT OF RANGE	Invalid attempts to import a file generation: the absolute generation number of the generation to be imported conflicts with the limits defined in the group entry.
8	C.E. HAS BEEN REPLACED	A catalog entry already exists for the specified disk
A	INVALID FILENAME	The path name of the file to be imported (including catid and userid) is longer than 54 characters. Path name = :catid: .userid:filename It should be noted that the file name is made up from the details specified in two *different* operands in the command: the file name is specified in the FILE-NAME operand, the catalog ID in the PUBLIC-VOLUME-SET operand For a 1-character catalog ID, the file name must not be longer than 51 characters. For a 4-character catalog ID, the file name must not be longer than 48 characters.
B	ERROR ON NET-STORAGE ACCESS	
C	LARGE FILE NOT ALLOWED	
D	RENAME OF NODE-FILES NOT ALLOWED	

Table 28: CHECK-IMPORT-DISK-FILE: Special return codes and messages

Example

Check import for a private disk

```
/check-imp-disk-file vol=work01,dev-type=d3435,
                     file-name=*all,output=*sysout ———————————————— (1)
```

```
%  0 :2OSG:$USER1.MAX.FILE.1
%  0 :2OSG:$USER1.MAX.FILE.2
%  0 :2OSG:$USER1.MAX.FILE.3
%  0 :2OSG:$USER1.MAX.FILE.4
%  2 :2OSG:$USER1.MAX.LIB
```

```
/show-file-attr max.lib ——————————————————————————————————————— (2)
```

```
%         3 :2OSG:$USER1.MAX.LIB
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=        3 REL=        3 PAGES
```

```
/mod-file-attr max.lib,new-name=max.lib.old ——————————————————— (3)
/check-imp-disk-file vol=work01,dev-type=d3435,
       file-name=*all,output=*sysout ———————————————————————— (4)
```

```
%  0 :2OSG:$USER1.MAX.FILE.1
%  0 :2OSG:$USER1.MAX.FILE.2
%  0 :2OSG:$USER1.MAX.FILE.3
%  0 :2OSG:$USER1.MAX.FILE.4
%  0 :2OSG:$USER1.MAX.LIB
```

(1) The command checks whether all files of the user *USER1* on the private disk *WORK01* can be imported. The information returned by CHECK-IMPORT-DISK-FILE is to be output to SYSOUT.

(2) The code returned for the file *MAX.LIB* is *2*, i.e. there is already an existing catalog entry for the file. The command SHOW-FILE-ATTRIBUTES returns information on the existing catalog entry for the file *MAX.LIB*. The file is stored on public disk.

(3) The command MODIFY-FILE-ATTRIBUTES is used to rename the file *MAX.LIB* to *MAX.LIB.OLD*.

(4) A repeated CHECK-IMPORT-DISK-FILE command (see Point 1) indicates that all files of the private disk *WORK01* (including *MAX.LIB*) can be imported.

2.57 CHECK-PUBSET-MIRRORS

Check homogeneity of pubset mirroring

Component:	BS2000
Functional area:	File processing
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The CHECK-PUBSET-MIRRORS command checks whether mirroring of a pubset is homogeneous. The homogeneity check is performed in relation to SRDF and TimeFinder/Mirror mirroring. In the case of a pubset which is not mirrored a check is also made to see whether only individual disks are mirrored. Mirroring of the pubset is homogeneous if all volumes of the pubset have identical mirroring properties.

The homogeneity check is performed for the currently supported full replication types (for detailed information, please refer to the SHC-OSD manual [37]).

Format

CHECK-PUBSET-MIRRORS
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which homogeneity of pubset mirroring is to be checked.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed (mirroring is homogeneous)
5	32	DMS136E	Unexpected return code when SHC-OSD was called
	32	DMS136F	Unexpected return code when a system function was called
	64	CMD0216	No authorization
	64	DMS136D	Pubset mirroring is not homogeneous
1	64	DMS136E	Specified pubset does not exist
2	64	DMS136E	Specified pubset cannot be accessed
3	64	DMS136E	SHC-OSD subsystem not available
4	64	DMS136E	Specification of a volume set not allowed
	64	DMS13DB	Homogeneity check aborted because VSN not unique

2.58 CHECK-SNAPSET-CONFIGURATION

Check and update Snapset configuration

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	SNAPSET MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS HSMS-ADMINISTRATION

Function

This command checks the Snapset configuration of an imported pubset. If Snapsets are detected which could not be connected when the pubset was imported, an attempt is made to connect these Snapsets retroactively.

Format

CHECK-SNAPSET-CONFIGURATION
PUBSET = ***DEFAULT-PUBSET** / <cat-id 1..4> ,**SNAPSET** = ***ALL** / <name 1..1 with-low> / <integer -52..-1>

Operands

PUBSET = *DEFAULT-PUBSET / <cat-id 1..4>
Determines the pubset whose Snapset configuration is to be checked.
The default value is the catalog ID of the calling user’s default pubset.

SNAPSET =
Defines the snapset whose configuration is to be checked.

SNAPSET = *ALL
The configuration of all snapsets is to be checked.

SNAPSET = <name 1..1 with-low> / <integer -52..-1>
The configuration of the specified snapset is checked, whereby the snapset is specified by its snapset ID or its relative age (-1 corresponds to the most recent snapset). Maximal 52 snapsets of a pubset are distinguished by their snapset IDs which may contain 26 lowercase letters a..z and uppercase letters A..Z.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	32	CMD0216	No authorization to issue command
	64	DMS1351	Internal error
	64	DMS1386	Error in the memory request
	64	DMS1389	Error in MSCF communication
	64	DMS138C	Pubset not accessible
	64	DMS13D5	No Snapset available
1	64	DMS13D7	Internal error in Snapset management: Return code of GCF
6	64	DMS13D7	Internal error in Snapset management: Return code of SHC-OSD
7	64	DMS13D7	Internal error in Snapset management: Return code of CCOPY
	64	DMS13DF	SHC-OSD subsystem not available
	64	DMS13E5	No Snapset catalog available
	64	DMS13FA	Shared pubset and Snapsets are not supported on master computer
	64	DMS148F	GCF not loaded

2.59 CHECK-TAPE-MOUNT

Check mount state of tape and MTC devices

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	T

Function

This command checks the mount state of tape devices and magnetic tape cartridge devices. The tape monitor (TM) is called to update the online state for the specified devices. A typical application is where the mounting or dismounting of a tape or magnetic tape cartridge is not recognized by the system because of the absence of an activation interrupt.

Format

CHECK-TAPE-MOUNT
UNIT = ***ALL** / list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4> ,**ACTION** = ***UPD**ATE / ***REPORT**

Operands

UNIT =
Defines the devices whose mount state is to be checked.

UNIT = *ALL
All tape devices having the following attributes are checked:

- ATTACHED or DETACH-PENDING
- ACTION-STATE = NO ACTION
- PHASE not equal MOUNT and PHASE not equal IN-USE.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
The devices whose mount state is to be checked and updated are defined by means of their mnemonic name. A maximum of 10 devices may be specified.

ACTION =
Defines the logging of the online state.

ACTION = *UPDATE
An updated online state is to be logged by the following messages (default value):

```
NKVT010 TAPE vsn MOUNTED ON DEVICE mn
NKVT011 TAPE vsn DISMOUNTED FROM DEVICE mn
```

No message is issued for devices whose online state has not changed.

ACTION = *REPORT
Logging as for UPDATE; in addition the device error state is logged via message EXC0858 if no volume is recognized as online.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVT002	Tape monitor not available

2.60 CLOSE-VARIABLE-CONTAINER

Close variable container

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The CLOSE-VARIABLE-CONTAINER command closes the specified variable containers.

Note

If a variable container is closed before its scope ceases to exist, the variables remain declared but can no longer be accessed. All access attempts are rejected with error message SDP1030.

Format

CLOSE-VARIABLE-CONTAINER
CONTAINER-NAME = <composed-name 1..64 with-wild(80)> / list-poss(2000): <composed-name 1..64>

Operands

CONTAINER-NAME =
Name of the variable container.

CONTAINER-NAME = <composed-name 1..64 with-wild(80)>
Variable container whose name corresponds to the pattern string specified.

CONTAINER-NAME = list-poss(2000): <composed-name 1..64>
List of variable container names.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	User does not have required privilege
	64	SDP0091	Semantic error
	130	SDP0099	No more address space available

Example

See the SHOW-VARIABLE-CONTAINER-ATTR command in the “SDF-P” manual [34].

2.61 CLOSE-VIRTUAL-DEVICE-DIALOG

Close dialog with virtual printer

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION

Function

This command closes the dialog between the virtual device and the application procedure in which the call takes place. It is executed in batch mode only.

The command is part of a set of four commands which enable an application to be created in the form of an S procedure (for an example, see the OPEN-VIRTUAL-DEVICE-DIALOG command). These commands manage the dialog between a virtual device and the application which was started in batch mode as an S procedure:

- OPEN-VIRTUAL-DEVICE-DIALOG
- GET-JOB-FROM-VIRTUAL-DEVICE
- RETURN-JOB-TO-VIRTUAL-DEVICE
- CLOSE-VIRTUAL-DEVICE-DIALOG

Format

CLOSE-VIRTUAL-DEVICE-DIALOG

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error; command successfully processed
	32	SCP0974	Unexpected command
5	32	SCP0974	Memory request error

Notes

1. If the dialog cannot be established, the command is rejected and a return code is set.
2. If no initialization took place (OPEN-VIRTUAL-DEVICE-DIALOG command), the command is rejected and a return code is set.
3. This command can only be used in batch mode.
4. Spin-off processing is activated each time an error is detected.

2.62 COMPARE-DISK-FILES

Compare disk files

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT HARDWARE-MAINTENANCE

Function

The COMPARE-DISK-FILES command compares two disk files block by block (PAM) or record by record (SAM, ISAM) and informs the user of the result of the comparison.
The files can reside on public volumes, Net-Storage volumes or private disks. Permanent files, temporary files or work files can be compared.
Entire file generation groups cannot be compared, although individual file generations can.

SAM node files, like SAM files on public volumes, are compared record by record. When the data are read, the Net-Client converts them from the net coded character set to the coded character set. This means that the comparison is based on the coded character set. As a result, two SAM node files may be regarded as equal despite differences in the net coded character sets.

The files to be compared must be identical with respect to the following properties:

- Access method (FILE-STRUCTURE)
- Block format (BLOCK-CONTROL-INFO)
  The default BLOCK-CONTROL-INFO=*IGNORE-ATTRIBUTE also permits different block formats.
- Coded character set (CODED-CHARACTER-SET)
- LAST-BYTE-POINTER (LBP), except for PAM files with EOF-HANDLING=*DIFFERENT-LBP-ATTRIBUTES, to compare a PAM file with a valid LAST-BYTE-POINTER and a PAM file without LBP.
- For SAM files:
  - REC-SIZE when REC-FORM=F
- For ISAM files:
  - REC-SIZE when REC-FORM=F
  - Properties of the ISAM key (KEY-LEN, KEY-POS, LOG-FL-LEN, VAL-FL-LEN)
  - Properties of the secondary key (KEY-LEN, KEY-POS, DUPKEY) for NK-ISAM
- For PAM files:
  - Blocking factor (BUFFER-LENGTH)
  - Number of occupied PAM pages (HIGHEST-USED-PAGE)

The command will be rejected for files with one of the following properties:

- The file is empty.
- The file is open.
- The file is locked (e.g. SECURE lock)
- The REPAIR-NEEDED or NO-DMS-ACCESS label is set.

PLAM libraries are PAM files and are compared block by block. The utility routine "LMS" [21] permits a comparison at member level.

The TPCOMP2 utility routine is available to compare tape files, see the “Utility Routines” manual [9].

Format

COMPARE-DISK-FILES

FILE-NAME1 = <filename 1..54>

,**FILE-NAME2** = <filename 1..54>

,**BLOCK-CONTROL-INFO** = ***IGNORE-ATTRIBUTE** / ***INCLUDE-ATTRIBUTE**

,**PAMKEY-USER-INFO** = ***INCLUDE** / ***IGNORE**

,**EOF-HANDLING** = ***STD** / ***DIFFERENT-LBP-ATTRIBUTES(...)**

***DIFFERENT-LBP-ATTRIBUTES(...)**

| **CRTE-MARKER**= ***NO** / ***YES**

Operands

FILE-NAME1 = <filename 1..54>
Name of the first file which is to be compared.

FILE-NAME2 = <filename 1..54>
Name of the second file which is to be compared.

BLOCK-CONTROL-INFO = *IGNORE-ATTRIBUTE / *INCLUDE-ATTRIBUTE
The files' block format is included in the comparison (*INCLUDE-ATTRIBUTE) or ignored (*IGNORE-ATTRIBUTE).

PAMKEY-USER-INFO = *INCLUDE / *IGNORE
*Only relevant for PAM files with BLOCK-CONTROL-INFO=*PAMKEY:*
The user information in the PAM key is included in the comparison (*INCLUDE) or ignored (*IGNORE).

EOF-HANDLING = *STD / *DIFFERENT-LBP-ATTRIBUTES(...)
Only relevant for PAM files
Specifies which end-of-file criteria are taken into account for PAM files.

EOF-HANDLING = *STD
Specifies that only PAM files with the same LBP attributes are compared, i.e. only PAM files with a valid LAST-BYTE-POINTER or PAM files without a LAST-BYTE-POINTER are compared with each other.

EOF-HANDLING = *DIFFERENT-LBP-ATTRIBUTES(...)
Only PAM files with different LBP attributes are compared, i.e. a PAM file with LAST-BYTE-POINTER is only compared with a PAM file without LAST-BYTE-POINTER.

CRTE-MARKER = *NO / *YES

Specifies if the CRTE-MARKER is considered for the end of a PAM file without LAST-BYTE-POINTER.

CRTE-MARKER = *NO

The PAM file without a valid LAST-BYTE-POINTER is not additionally searched for an end-of-file indicator 'C-DATEIENDE'.

CRTE-MARKER = *YES

When the two PAM files are identical up to the LAST-BYTE-POINTER of the file with LBP, an additional end-of-file indicator 'C-DATEIENDE' is searched in the file without LBP from the position specified by the value of the LAST-BYTE-POINTER.

Output information about the file comparison

If the files are identical, message DMS0630 is issued.
If the files are not identical, message DMS0631 is issued. Depending on the file type, further information is output:

- For SAM files:
  Message DMS0632 displays the number of the record in which the first difference occurs. The block and record numbers within the data block are also displayed for this position.
- For ISAM files:
  Message DMS0633 displays the number of the record in which the first difference occurs.
- For PAM files:
  Message DMS0634 displays the number of the 2K data block and the byte number within this data block in which the first difference occurs.
  If PAMKEY-USER-INFO=*INCLUDE is used and the first difference in the user information is found in the PAM key, message DMS0635 displays the number of the associated 2K data block.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	DMS0630	Command executed without error. The files are identical.
	0	DMS0631	Command executed without errors. The files are not identical.
	1	CMD0202	Syntax or semantic error in file name
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Command privilege missing
	64	DMS0501	File catalog not available
	64	DMS0512	File catalog not found
	64	DMS051B	User ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	Specified file not shareable
	64	DMS0585	An error was detected during catalog processing or during multiprocessor processing
	64	DMS05FC	User ID not in home pubset
	64	DMS0636	File attributes do not permit a comparison
	64	DMS0637	One of the files contains a block gap
	64	DMS0638	Coded-Character-Sets of the files are different
	64	DMS0639	LBP attributes of the PAM files are the same
	64	DMS063A	PAM FILE without LBP has no CRTE marker
	64	DMS0684	File does not exist
	130	DMS0524	System address space full
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0594	Not enough virtual memory available

2.63 CONCATENATE-DISK-FILES

Join SAM files together

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS

Function

The CONCATENATE-DISK-FILES command joins two or more SAM files together, concatenating them to form a single file. This is, however, conditional on the files all having matching FILE-STRUCTURE, BUFFER-LENGTH, RECORD-FORMAT, BLOCK-CONTROL-INFORMATION and CODED-CHARACTER-SET structure attributes. Files with a fixed record length (RECORD-FORMAT=FIXED) must have matching record lengths (RECORD-SIZE). The target file is freely selectable, but by default the first of the files being concatenated is used as the target file. The command is rejected if the user does not have write permission for the target file.

Methodology

The files are copied record by record in the order specified in the FROM-FILES operand, with each appended file beginning in a separate data block. If an error (e.g. no read permission) occurs while copying is in progress, processing of the command aborts with an error code. If the target file (TO-FILE operand) has already been created, it will not be deleted.
A message provides information about the file which could not be processed.

Processing of encrypted files is possible only if the relevant crypto passwords are entered into the task's crypto password table (see the ADD-CRYPTO-PASSWORD command).

Format

CONCATENATE**-DISK-FILE**S
FROM-FILES = list-poss(255): <filename 1..54> ,**TO-F**ILE = ***FIRST-INPUT-FILE** / <filename 1..54>

Operands

FROM-FILES = list-poss(255): <filename 1..54>
Defines the list of files which are to be copied, in the given order, to the file specified in the TO-FILE operand.

TO-FILE = *FIRST-INPUT-FILE / <filename 1..54>
Specifies the file to which the files specified in the FROM-FILE operand are to be copied. The command is rejected if the user does not have write permission for the target file.

TO-FILE = *FIRST-INPUT-FILE
The files specified in the FROM-FILES operand are to be copied to the first file listed in the FROM-FILES operand. In other words, the files following the first file are to be appended to the first file in the order specified in the FROM-FILES operand.

TO-FILE = <filename 1..54>
Specifies the name of the file to which the files specified in the FROM-FILES operand are to be copied. If a file with this name already exists, it will be overwritten.
If the file is one of the set specified in the FROM-FILES operand, it must be the first file listed there.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	64	CMD0202	Syntactical/semantic error in file name
	64	DMS0681	DMS error during processing. For more detailed information the inserts can be queried using the chargeable product SDF-P

Example

```
/ass-syslst to=text.1,sys-num=1 ————————————————————————————————— (1)
/ass-syslst to=text.2,sys-num=2
/ass-syslst to=text.3,sys-num=3

/wr-text 'We begin with TEXT.1 ... ,output=*syslst(1) ———————————————— (2)
/wr-text  .... then comes TEXT.2 ... ,output=*syslst(2)
/wr-text  .... and last there is TEXT.3! ,output=*syslst(3)
/ass-syslst *primary,sys-num=1 ————————————————————————————————— (3)
/ass-syslst *primary,sys-num=2
/ass-syslst *primary,sys-num=3

/concat-disk-file from=(text.1,text.2,text.2,text.2,text.3),to=text.all ——— (4)

/sh-file text.all ————————————————————————————————————————————— (5)
```

```
 We begin with TEXT.1 ...
  .... then comes TEXT.2 ...
  .... then comes TEXT.2 ...
  .... then comes TEXT.2 ...
   .... and last there is TEXT.3!









%  SHO0301 WARNING: END OF FILE REACHED
                                                          S*SOF+     1(     1)
e
```

```
%  SHO0500  :1OSN:$USERXY01.TEXT.ALL  CLOSED
```

(1) The SYSLST system file (SYSLST01, SYSLST02 and SYSLST03) is assigned to files TEXT.1, TEXT.2 and TEXT.3.

(2) Using the WRITE-TEXT command, text is written to SYSLST01, SYSLST02 and SYSLST03 and hence to the assigned files TEXT.1, TEXT.2 and TEXT.3.

(3) The system file assignment is canceled. As a result TEXT.1, TEXT.2 and TEXT.3 are closed and made accessible.

(4) The CONCATENATE-DISK-FILES command is used to copy the contents of TEXT.1 once, TEXT.2 three times and TEXT.3 once to a file named TEXT.ALL.

(5) The SHOW-FILE command displays the contents of TEXT.ALL. Output ends with statement “e” (END).

2.64 CONNECT-CMD-SERVER

Create/modify entry in operator command table

Component:	BS2000
Functional area:	Operator function control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	K

Function

The CONNECT-CMD-SERVER creates or modifies an entry in the command table. This entry links the command specified by means of CMD-NAME with a $CONSOLE application, which then functions as the command server.

> The CONNECT-CMD-SERVER is only permitted for $CONSOLE applications.

Format

CONNECT-CMD-SERVER

CMD = ***PAR**AMETERS (...)

***PAR**AMETERS(...)

| **CMD-NAME** = <structured-name 1..30>

| ,**SAME-NAME** = ***NONE** / list-poss(8): <structured-name 1..30>

| ,**AUTHORIZATION-CODE** = ***STD** / <c-string 1..1>

| ,**PASS**WORD-**POSS**IBLE = ***NO** / ***Y**ES

,**SEL**ECT = ***EXTERNAL-SERVER** (...)

***EXTERNAL-SERVER**(...)

| **APPLI**CATION-NAME = ***OWN**

| ,**COMPL**ETION-**CONTR**OL = ***NO** / ***Y**ES(...)

| ***Y**ES(...)

| | **QUEST**ION-**POSS**IBLE = ***YES** / ***NO**

Operands

CMD = *PARAMETERS(...)
Defines a structure for the command for which an entry is to be created or modified.

CMD-NAME = <text 1..30>
Defines the full command name for which an entry in the command table is to be created or modified. The command name may be up to 30 characters long and must comply with the naming convention for command names.

SAME-NAME =
Defines aliases.
This operand is only relevant if a command is being defined. This operand is ignored when changing the attributes of commands that have already been entered.

SAME-NAME = *NONE
The command may only be entered using the command name specified using CMD-NAME.

SAME-NAME = list-poss(8): <text 1..30>
Defines the set of aliases that may be used in place of the command name defined using CMD-NAME. An alias may be up to 30 characters long and must comply with the naming convention for command names.

AUTHORIZATION-CODE =
Defines the authorization code which a command issuer must have in order to use the command identified by CMD-NAME.
An authorization code can only be generated when a new entry in the command table is being created. This operand is ignored when an existing entry is being modified.

AUTHORIZATION-CODE = *STD
This operand causes the specified command to be protected by the authorization code (default = E) defined in the class 2 system parameter NBACODE.

AUTHORIZATION-CODE = <c-string 1..1>
Explicit specification of an authorization code (A..Z, 0-9 or *,#,@,$).

PASSWORD-POSSIBLE =
Specifies whether SDF is to be called and passwords deleted before the command is logged in the CONSLOG file.

PASSWORD-POSSIBLE = *NO
The command is not checked to see whether it contains a password before being entered to the CONSLOG file.

PASSWORD-POSSIBLE = *YES
Causes SDF to be called in order to delete any passwords from the command before it is logged in the CONSLOG file.

This operand value is only to be used in connection with SDF commands whose operands are all explicitly defined in the SDF syntax file (syntax of each operand can be analyzed).
Passwords in special commands that are not contained in the SDF syntax file or whose operands are not explicitly defined will be included in the system CONSLOG file.

SELECT = *EXTERNAL-SERVER(...)
The entry should refer to a special operator command. Special operator commands are commands which are executed in $CONSOLE applications (authorized user programs).

APPLICATION-NAME =
Defines the name of the $CONSOLE application.

APPLICATION-NAME = *OWN
The entry is to be made for a special operator command for which the command issuer should also function as the command processor.

COMPLETION-CONTROL =
Specifies whether commands to be executed in $CONSOLE applications can continue to be administered by the OPR subsystem once they have been passed to the application. This is always the case if the $CONSOLE application executing the command informs the OPR subsystem that command processing has terminated.

COMPLETION-CONTROL = *NO
The OPR subsystem considers the command involved to be terminated as soon as it has been passed to the executing application. Once the command has been passed on successfully, the OPR subsystem issues message `NBR0768` to indicate command termination.

COMPLETION-CONTROL = *YES(...)
The OPR subsystem does not consider the command involved to be terminated until it has received a command termination acknowledgment from the executing application. The OPR subsystem indicates command termination, as for normal operator commands, by issuing message `NBR0740`.

QUESTION-POSSIBLE =
Informs the system whether the application may ask questions regarding the command during command execution.

QUESTION-POSSIBLE = *YES
The application may ask questions regarding the command during command execution. In this case, the job ID must be unique within the set of commands being processed by this application. Otherwise, the command is rejected.

QUESTIONS-POSSIBLE = *NO
The application does not ask any questions regarding the command during command execution.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NBR1125	Parameters only evaluated at initial logon
2	0	NBR1118	Command executed, but at least one SAME name rejected
	1	CMD0202	Syntax error
	64	NBR1113	Maximum number of links already reached
1	64	NBR1115	Semantic operand error
	64	NBR1119	Command permitted only for $CONSOLE application
	64	NBR1124	Operand error connected with selected interface version

2.65 CONSOLE

Assign standby operator terminals

Component:	BS2000
Functional area:	Operator terminal control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	*

> If the “Operator LOGON” function is used (system parameter NBCONOPI=Y), the command is not available.
> In the mode without operator LOGON (NBCONOPI=N), the command is available.

Function

The CONSOLE command changes the assignment of standby operator terminals or switches over to standby operator terminals. It also serves to cancel assignments and switchover operations.

Restrictions

The CONSOLE command can be issued from the main operator terminal only. (Any modification of the routing code '*' for the command has no effect.)
The command is available in ISP format only; in other words, there are no SDF functions (such as syntax analysis or help).

Format

Operation	Operanden
CONSOLE	{**D**EFINE,{ **R**EPLACEMENT=(mn1,mn2[,mn1,mn2,...] / **O**RIGINAL[={ mn / (mn,mn,...) / ALL }] } / **S**WITCH,{ OFF=(mn / (mn,mn,...) / ON=(mn / (mn,mn,...)} / **H**ELP[,CS={ (mn / (mn,mn,...) / ALL }] }

Operands

DEFINE — Changes the assignment of standby operator terminals.

REPLACEMENT

=(mn_1,mn_2[,mn_1,mn_2,..])

Operator terminal “mn_1” is assigned standby operator terminal “mn_2”. If more than 2 operator terminals are specified, the assignments are effected in pairs and in sequence. “mn” is the mnemonic device name of an operator terminal.

Note

TELESERVICE buffers cannot be assigned as standby operator terminals.

ORIGINAL

=mn
=(mn,mn) — The operator terminals “mn” are assigned the standby operator terminals defined in the OPR parameter service.

=ALL — All operator terminals are assigned the standby operator terminals defined in the OPR parameter service.

If no operator terminal is specified, the main operator terminal is assigned the standby operator terminal defined in the OPR parameter service.

SWITCH — Switches operator terminals over to their standby operator terminals or resets this switchover.

OFF

=mn
=(mn,mn,...) — The operator terminals “mn” are switched over to their standby operator terminals. If only one operator terminal is available to the system, the command is rejected.

The main operator terminal is not permitted to switch itself off.

ON

=mn
=(mn,mn,...) — The operator terminals “mn” regain their functions. The standby operator terminals are stripped of the functions of the reactivated operator terminals.

If the former main operator terminal is reactivated, it regains only its previous routing codes; the “main operator terminal” function is retained by the standby operator terminal.

HELP — Provides information on the allocation of standby operator terminals defined in the OPR parameter service or by the CONSOLE command.

CS

=mn
=(mn, mn,...)
Outputs the standby operator terminal allocation for the operator terminals “mn”.

=ALL
Outputs the standby operator terminal allocation for all operator terminals.

If no operator terminal is specified, the standby operator terminal allocation of the main operator terminal is output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Incorrect operand
	1	EXC0646	Incompatible operands
	1	EXC0648	Console names not specified in pairs by DEFINE operand
	64	EXC0647	Console has invalid console name
	64	EXC0649	TELESERVICE consoles may not be assigned as standby consoles
	64	EXC0654	Command may only be issued from main console
	64	NBR0710	Deactivation of main console not permitted

2.66 CONVERT-FILE-TO-PDF

Convert a text file to a PDF file

Component:	CONV2PDF
Functional area:	File processing
Domain:	FILE, SPOOL-PRINT-SERVICES, UTILITIES
Privileges:	STD-PROCESSING

Function

The CONVERT-FILE-TO-PDF command converts text files (SAM or ISAM files and text-based library elements) to PDF files. These can then be easily read or printed out page by page using a PDF viewer (e.g. Adobe Reader) on a PC.

The user can also specify more than one text file in a command call. In addition, a list of files can also be read from a list file or CSV file. In this case, the files will be converted one after the other. The resulting messages contain the corresponding line number. All file names of a list are edited, even if an error occurs.
Output then takes place either to individual PDF files or to one combined PDF file. When a combined PDF file is used, bookmarks are automatically set for the start pages of the text files which have been converted. Further parameters enable the user to control the content and layout of the PDF file:

- processing records fully or only in part
- line spacing (existing print control characters are optionally interpreted)
- page size
- Character density
- margins
- font
- truncating or wrapping of long data lines
- background picture on the PDF pages

Alternatively, the user can also control the layout via spool parameters, as with the PRINT-DOCUMENT command.

It must be borne in mind that depending on the layout only a particular number of characters can be displayed in a line. Data lines which extend beyond the right-hand margin are truncated or optionally wrapped when a PDF file is created.

The data in the PDF file is compressed. File transfer must be performed in binary mode.

Format

CONVERT-FILE-TO-PDF

```
FROM-FILE = list-poss(16): <filename 1..54 with-wild(80)> / *FROM-FILE(...) /
                           *FROM-CSV-FILE(...) / *LIBRARY-ELEMENT(...)
    *FROM-FILE(...)
        | LIST-FILE-NAME = <filename 1..54 without-gen-vers>
    *FROM-CSV-FILE(...)
        | CSV-FILE-NAME = <filename 1..54 without-gen-vers>
    *LIBRARY-ELEMENT(...)
        | LIBRARY = <filename 1..54 without-vers>
        | ,ELEMENT = <composed-name 1..64 with-under with-wild(80)>(...)
        |     <composed-name 1..64 with-under with-wild(80)>(...)
        |         | VERSION = *HIGHEST-EXISTING / *UPPER-LIMIT /
        |         |           <composed-name 1..24 with-under with-wild(40)>
        |         | ,BASE = *STD / <composed-name 1..24 with-under with-wild(40)>
        | ,TYPE = <alphanum-name 1..8 with-wild(12)>
,TO-FILE = *BY-SOURCE / *CONCATENATE(...) /
           list-poss(16): <filename 1..54 without-gen-vers with-wild-constr(80)>(...)
    *CONCATENATE(...)
        | TO-FILE = <filename 1..54 without-gen-vers>
        | ,BOOKMARK = *BY-SOURCE / *NONE / list-poss(16): <filename 1..54 with-wild-constr(80)>
    <filename 1..54 without-gen-vers with-wild-constr(80)>(...)
        | WITH-VERSION = *STD / *YES / *NO
        | ,WITH-TYPE = *STD / *YES / *NO
,WRITE-MODE = *CREATE / *REPLACE-ONLY / *ANY
,FILE-FORMAT = *STD / *SAM / *PAM
,PRESENTATION = *DIRECT-PARAMETERS(...) / *SPOOL-PARAMETERS(...)
    *DIRECT-PARAMETERS(...)
        | RECORD-PART = *ALL / *PARAMETERS(...)
        |     *PARAMETERS(...)
```

| | | FIRST-CHARACTER = **1** / <integer 2..32767>
| | | ,LAST-CHARACTER = ***STD** / <integer 1..32767>
| ,LINE-SPACING = **1** / **2** / **3** / ***BY-EBCDIC-CONTR**OL(...) / ***BY-IBM-CONTR**OL(...) /
| ***BY-ASA-CONTR**OL(...)
| ***BY-EBCDIC-CONTR**OL(...)
| | | CONTROL-CHAR-POS = ***STD** / <integer 1..2040>
| ***BY-IBM-CONTR**OL(...)
| | | CONTROL-CHAR-POS = ***STD** / <integer 1..2040>
| ***BY-ASA-CONTR**OL(...)
| | | CONTROL-CHAR-POS = ***STD** / <integer 1..2040>
| ,PAGE-SIZE = ***A4** / ***A4-LANDSCAPE** / ***A3** / ***A3-LANDSCAPE** / ***A5** / ***A5-LANDSCAPE** /
| ***A6** / ***A6-LANDSCAPE** / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | | WIDTH = <integer 2..2040>
| | | ,HEIGHT = <integer 2..2040>
| ,MARGINS = ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | | LEFT = **20** / <integer 0..2040>
| | | ,RIGHT = **20** / <integer 0..2040>
| | | ,TOP = **20** / <integer 0..2040>
| | | ,BOTTOM = **20** / <integer 0..2040>
| ,DENSITY = ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | | LINES-PER-INCH = **6** / <integer 3..24>
| ,FONT = ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | | NAME = ***COURIER** / ***HELVETICA** / ***TIMES**
| | | ,CHARACTER-STYLE = ***NORMAL** / ***BOLD** / ***ITALIC** / ***BOLD-ITALIC**
| | | ,SIZE = **8** / <integer 1..72>
| ,LINE-TRUNCATION = ***YES** / ***NO**
| ,OVERLAY = ***NONE** / ***PAR**AMETERS(...)

| *PARAMETERS(...)
| | FROM-FILE = <filename 1..54 without-gen-vers>
| | ,FRAME = ***PAGE** / *TEXT / *CUSTOM(...)
| | *CUSTOM(...)
| | | LEFT = **0** / <integer 0..2040>
| | | ,RIGHT = **0** / <integer 0..2040>
| | | ,TOP = **0** / <integer 0..2040>
| | | ,BOTTOM = **0** / <integer 0..2040>
| | ,HORIZONTAL-ALIGNMENT = ***LEFT** / *RIGHT / *CENTER
| | ,VERTICAL-ALIGNMENT = ***TOP** / *BOTTOM / *CENTER
| | ,SCALE = ***UNCHANGED** / *FIT-HEIGHT / *FIT-WIDTH / *FIT-FRAME

*SPOOL-PARAMETERS(...)
| RECORD-PART = ***ALL** / *PARAMETERS(...)
| *PARAMETERS(...)
| | FIRST-CHARACTER = **1** / <integer 2..32767>
| | ,LAST-CHARACTER = ***STD** / <integer 1..32767>
| ,LINE-PER-PAGE = ***STD** / <integer 1..32767>
| ,LINE-SPACING = **1** / **2** / **3** / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) /
| *BY-ASA-CONTROL(...)
| *BY-EBCDIC-CONTROL(...)
| | CONTROL-CHAR-POS = ***STD** / <integer 1..2040>
| *BY-IBM-CONTROL(...)
| | CONTROL-CHAR-POS = ***STD** / <integer 1..2040>
| *BY-ASA-CONTROL(...)
| | CONTROL-CHAR-POS = ***STD** / <integer 1..2040>
| ,FORM-NAME = ***STD** / <alphanum-name 1..6>
| ,LOOP-NAME = ***STD** / <alphanum-name 1..3>
| ,CHARACTER-SET = ***STD** / <alphanum-name 1..3>
| ,PRINTER-TYPE = ***HP90-PRINTER** / *HP-PRINTER / *LP-PRINTER
| ,LEFT-MARGIN = **20** / <integer 0..2040>
| ,ROTATION = ***NO** / *YES

Operands

FROM-FILE = list-poss(16): <filename 1..54 with-wild(80)> / *FROM-FILE(…) / *FROM-CSV-FILE(…) / *LIBRARY-ELEMENT(...)
Name of the text file to be converted which exists either as a file or a library element. Multiple files or library elements can be specified using wildcards or in a list. Only SAM or ISAM files are accepted (except for SAM files with REC-FORM=U). *FROM-FILE can also specify a list file containing the names of the text files to be converted. *FROM-CSV-FILE can be used to specify a CSV file containing the names of the text files to be converted and the target files.

FROM-FILE = *FROM-FILE(…)
The names of the files to be converted should be read from a list file. Each line of the list file contains exactly one (source) file name. It is not case-sensitive and spaces are ignored. Each file name is validated and, if there is no error, a PDF file is generated from this file. The PDF file has the same name as the source file with the extension .PDF.
If an error occurs, a message is output with the line number of the currently processed file name.

LIST-FILE-NAME = <filename 1..54 without-gen-vers>
Specifies the name of the list file.

FROM-FILE = *FROM-CSV-FILE(…)
The names of the files to be converted should be read from a CSV file. Each line of the CSV file contains exactly 2 file names - source and destination files, separated by a comma or semicolon. It is not case-sensitive and spaces are ignored. Each source file name is validated and, if there is no error, a PDF file is created with the name of the respective destination file.
If an error occurs, a message is output with the line number of the currently processed file name.

FROM-FILE = *LIBRARY-ELEMENT(...)
The specified element from a PLAM library is to be converted. An element is fully defined by its name, its type and its version.

The records of an element are assigned to particular record types. There are 255 record types. A distinction is drawn between user record types (1 through 159) and special record types (160 through 255). Only the user record types of an element can be converted to PDF.

LIBRARY = <filename 1..54 without-vers>
Name of the PLAM library from which an element is to be converted.

ELEMENT = <composed-name 1..64 with-under with-wild(80)>(...)
Name of the element to be converted. Multiple elements can be output using wildcards.

VERSION = *HIGHEST-EXISTING / *UPPER-LIMIT / <composed-name 1..24 with-under with-wild(40)>
The version of the element which is to be output. Default is *HIGHEST-EXISTING, i.e. the last element in alphabetical order. If the version is specified in wildcard format, and if there are library elements with the same names to which the wildcard specification applies, then all of these library elements are output.

BASE = *STD / <composed-name 1..24 with-under with-wild(40)>
Prefix for version selection. In conjunction with VERSION=*HIGHEST-EXISTING this enables the highest version to be addressed with a particular prefix. BASE=*STD has the same effect as BASE=*.
For detailed information on specifying the base, see the "LMS" manual [21].

TYPE = <alphanum-name 1..8 with-wild (12)>
The type of the library element to be output.
If specified in wildcard format, the name consists of a maximum of 12 alphanumeric characters.

Note

The records of LMS elements of type C, L or R belong to the special record types (160 through 255). That is the reason why no records of such elements can be converted.

TO-FILE =
Specifies the name of the PDF file to be created.

TO-FILE = *BY-SOURCE
The name of a created PDF file consists of the name of the corresponding text file (file or element name) and the suffix “PDF”. If an illegal file name results, the command is rejected.

TO-FILE = *CONCATENATE(...)
All the text files (files or elements) specified are to be combined in one PDF file. In this case each text file starts on a new page.

TO-FILE = <filename 1..54 without-gen>
Name of the PDF file.

BOOKMARK =
Controls the setting of bookmarks in the PDF file.

BOOKMARK = *BY-SOURCE
The start page of each of the text files is assigned a bookmark with the name of the text file (file or element name).

BOOKMARK = *NONE
Suppresses the setting of bookmarks.

BOOKMARK = list-poss(16): <filename 1..54 with-wild-constr(80)>
The start page of each of the text files is assigned a bookmark with a name which is specified explicitly. When a list is specified, the names are set as bookmarks in the specified order. When a constructor string is specified, the bookmarks are mapped in accordance with the wildcard sequence specified in the FROM-FILE or ELEMENT-NAME operand.

TO-FILE = list-poss(16): <filename 1..54 without-gen-vers with-wild-constr(80)>(...)
Specifies the name(s) of the PDF file(s) explicitly. If wildcards are specified in FROM-FILE or ELEMENT-NAME, a constructor string can be specified for the PDF files.
The default for library elements is that the specified name is also assigned a suffix containing the type and version of the element (format: <to-file>.<version>.<type>). The creation of this suffix can also be controlled using the following operands:

WITH-VERSION = *STD / *YES / *NO
Evaluated only for library elements:
Specifies whether the suffix should contain the element version. *STD specifies *YES as the default.

WITH-TYPE = *STD / *YES / *NO
Evaluated only for library elements:
Specifies whether the suffix should contain the element type. *STD specifies *YES as the default.

WRITE-MODE = *CREATE / *REPLACE-ONLY / *ANY
Determines the write mode for the PDF files which are to be created. The default value is *CREATE, i.e. a new file is created. The command is rejected for a file which already exists.

WRITE-MODE = *REPLACE-ONLY
The output file must already exist and is overwritten during conversion. If the file does not already exist, the command is rejected.

WRITE-MODE = *ANY
A new output file is created. If the file already exists, it is overwritten.

FILE-FORMAT = *STD / *SAM / *PAM
Determines the file format of the PDF file.

> ¡ An existing PDF file can be converted retroactively to the other file format using the SAM/PAM converter (which is called using the START-SAM-PAM-CONVERTER command, see the “BS2ZIP” manual [53]).

FILE-FORMAT = *STD
Uses the file format which is defined in the SYSPAR.CONV2PDF parameter file. The parameter file is searched for at the following storage locations (search takes place in the specified order):

1. Caller’s user ID
2. TSOS user ID

If no parameter file is found, FILE-FORMAT=*SAM applies.

> ¡ You will find the template of a parameter file with the name SYSPAR.CONV2PDF.<version> under the installation ID of CONV2PDF.

FILE-FORMAT = *SAM
The PDF file is created in SAM file format using REC-FORM=U.

FILE-FORMAT = *PAM
The PDF file is created in PAM file format and BLOCK-CONTROL=NO. In this file format the PDF file can also be created as a node file.

PRESENTATION = *DIRECT-PARAMETERS(...) / *SPOOL-PARAMETERS(...)
Defines the layout of the PDF file. Direct specification of the layout properties is preset. Alternatively the layout can be determined by specifying pool parameters (as with print output).

PRESENTATION = *DIRECT-PARAMETERS(...)
Specifies the layout of the PDF file directly.

RECORD-PART = *ALL / *PARAMETERS(...)
Defines whether the records of the text file are to be processed in full or if only a particular part of each record is to be processed.
When the default value *ALL is specified, the records are processed in full.

RECORD-PART = *PARAMETERS(...)
Specifies which part of the records is to be processed. Only the specified part is taken into account during conversion to PDF. This entry can be used, for example, to omit the ISAM key or control characters in the PDF file.

FIRST-CHARACTER = 1 / <integer 2..32767>
Allows a byte number (record column) to be specified indicating the point as of which the records of a file are to be output. The bytes of a record are numbered consecutively from left to right starting with 1; ISAM keys and control characters are components of a record.

LAST-CHARACTER = *STD / <integer 1..32767>
Specifies the byte indicating the point at which processing of each record is to stop.

LINE-SPACING = 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) / *BY-ASA-CONTROL(...)
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING= 1 / 2 / 3
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) / *BY-ASA-CONTROL(...)
The contents of the first byte of each record are to be interpreted as EBCDIC, IBM or ASA feed control characters (refer to PRINT-DOCUMENT command).

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte which is interpreted as the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

PAGE-SIZE = *A4 / *A4-LANDSCAPE / *A3 / *A3-LANDSCAPE / *A5 / *A5-LANDSCAPE / *PARAMETERS(...)
Determines the page size of the PDF file:

Operand value	DIN format	Width x Height (mm)
*A4	DIN-A4	210 x 297
*A4-LANDSCAPE	DIN-A4 landscape	297 x 210
*A3	DIN-A3	297 x 420
*A3-LANDSCAPE	DIN-A3 landscape	420 x 297
*A5	DIN-A5	148 x 210
*A5-LANDSCAPE	DIN-A5 landscape	210 x 148
*PARAMETERS(...)	User-specific	max. 2040 x 2040

PAGE-SIZE = *PARAMETERS(...)
Specifies the width and length of a PDF page explicitly.

WIDTH = <integer 2..2040>
Specifies the page width in mm.

HEIGHT = <integer 2..2040>
Specifies the page length in mm.

MARGINS = *PARAMETERS(...)
Defines the distances to the margins.

LEFT = 20 / <integer 0..2040>
Specifies the distance to the left-hand margin in mm.

RIGHT = 20 / <integer 0..2040>
Specifies the distance to the right-hand margin in mm. Data lines which extend beyond the right-hand margin are truncated or wrapped according to the specification in the LINE-TRUNCATION operand.

TOP = 20 / <integer 0..2040>
Specifies the distance to the top margin in mm.

BOTTOM = 20 / <integer 0..2040>
Specifies the distance to the bottom margin in mm.

DENSITY = *PARAMETERS(...)
Defines the line density.

LINES-PER-INCH = 6 / <integer 3..24>
Number of lines which are to be output per inch.

FONT = *PARAMETERS(...)
Determines the font which is to be used.

NAME = *COURIER / *HELVETICA / *TIMES
Specifies the name of the font.

CHARACTER-STYLE = *NORMAL / *BOLD / *ITALIC / *BOLD-ITALIC
Specifies the character style (normal, bold, italics, or bold and italics).

SIZE = 8 / <integer 1..72>
Specifies the font size in points (pt).

LINE-TRUNCATION = *YES / *NO
Specifies whether data lines which extend beyond the right-hand margin are truncated (see also definition of the right-hand margin in the MARGINS operand).
The default is *YES, i.e. longer data lines are truncated. When data lines are truncated, a message to this effect is issued after conversion.

LINE-TRUNCATION = *NO
Longer data lines are wrapped. The line break takes place at the word which extends beyond the margin. Thereby a word is a string which is limited by blanks, punctuation marks or the margin.

OVERLAY = *NONE / *PARAMETERS(...)
Specifies whether a background picture is to be used.

OVERLAY = *PARAMETERS(...)
The PDF pages are to contain a background picture.

FROM-FILE = <filename 1..54 without-gen-vers>
File which contains the background picture.

> ¡ Only pictures in JPG format are supported. Transfer of the pictures from the PC to BS2000 must take place in binary format.

FRAME = *PAGE / *TEXT / *CUSTOM(...)
Determines the frame in which the background picture is positioned.

FRAME = *PAGE
The background picture is positioned within the physical page (determined by the specifications in the PAGE-SIZE operand).

FRAME = *TEXT
The background picture is positioned within the text frame (determined by the specifications in the MARGINS operand).

FRAME = *CUSTOM(...)
Defines a frame by means of the distances to the margins. This frame is independent of the text frame. However, the preset values are the same as the defaults in the PAGE-SIZE and MARGINS operands.

LEFT = 0 / <integer 0..2040>
Specifies the distance to the left-hand margin in mm.

RIGHT = 0 / <integer 0..2040>
Specifies the distance to the right-hand margin in mm.

TOP = 0 / <integer 0..2040>
Specifies the distance to the top margin in mm.

BOTTOM = 0 / <integer 0..2040>
Specifies the distance to the bottom margin in mm.

HORIZONTAL-ALIGNMENT = *LEFT / *RIGHT / *CENTER
Determines the horizontal alignment of the picture within the frame.

HORIZONTAL-ALIGNMENT = *LEFT
The picture is aligned with the left-hand margin of the frame.

HORIZONTAL-ALIGNMENT = *RIGHT
The picture is aligned with the right-hand margin of the frame.

HORIZONTAL-ALIGNMENT = *CENTER
The picture is centered horizontally in the frame.

VERTICAL-ALIGNMENT = *TOP / *BOTTOM / *CENTER
Determines the vertical alignment of the picture within the frame.

VERTICAL-ALIGNMENT = *TOP
The picture is aligned with the top.

VERTICAL-ALIGNMENT = *BOTTOM
The picture is aligned with the bottom.

VERTICAL-ALIGNMENT = *CENTER
The picture is centered vertically in the frame.

SCALE = *UNCHANGED
Determines the size of the picture.
The default is *UNCHANGED, i.e. the picture size is not changed.

SCALE = *FIT-HEIGHT
The picture is fitted to the height of the frame.

SCALE = *FIT-WIDTH
The picture is fitted to the width of the frame.

SCALE = *FIT-FRAME
The picture is fitted to the height and width of the frame. If the relationships of scale of the frame and picture differ, the picture may be distorted.

PRESENTATION = *SPOOL-PARAMETERS(...)
Specifies spool parameters which control the layout of the PDF file (analogously to print output with the PRINT-DOCUMENT command).

RECORD-PART = *ALL / *PARAMETERS(...)
Defines whether the records of the text file are to be processed in full or if only a particular part of each record is to be processed.
When the default value *ALL is specified, the records are processed in full.

RECORD-PART = *PARAMETERS(...)
Specifies which part of the records is to be processed. Only the specified part is taken into account during conversion to PDF. This entry can be used, for example, to omit the ISAM key or control characters in the PDF file.

FIRST-CHARACTER = 1 / <integer 2..32767>
Allows a byte number (record column) to be specified indicating the point as of which the records of a file are to be output. The bytes of a record are numbered consecutively from left to right starting with 1; ISAM keys and control characters are components of a record.

LAST-CHARACTER = *STD / <integer 1..32767>
Specifies the byte indicating the point at which processing of each record is to stop.

LINE-PER-PAGE = *STD / <integer 1..32767>
Specifies how many lines (including blank lines) are to be output on a page.

LINE-PER-PAGE = *STD
If the operand is omitted, the number of lines per page is calculated using the following formula:
Number of lines = P * L - N - 6

The name sections have the following meanings:
P = paper size in inches
L = line density
N = number of line before the first channel 1

If the value specified for the LINE-PER-PAGE operand is greater than the specified number of lines in the loop, the value in the loop is used.

LINE-SPACING = 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) / *BY-ASA-CONTROL(...)
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING= 1 / 2 / 3
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) / *BY-ASA-CONTROL(...)
The contents of the first byte of each record are to be interpreted as EBCDIC, IBM or ASA feed control characters (refer to PRINT-DOCUMENT command).

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte which is interpreted as the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

FORM-NAME = *STD / <alphanum-name 1..6>
Determines the page format of the PDF file by specifying the form. The spool parameter file must contain a standard form for the printer type HP-90.
The default setting *STD causes the standard form STD to be used for the printer type specified in the PRINTER-TYPE operand.

FORM-NAME = <alphanum-name 1..6>
Name of the form. Depending on the ROTATION operand, either the normal loop or the loop for page rotation from the form definition is used.

A loop is named implicitly in the form specification. The assigned loop must be contained in the printer control file $SYSSPOOL.PRFILE.

The loop named implicitly via the FORM-NAME operand is ignored if the LOOP-NAME operand is specified at the same time.

When FORM-NAME=*STD and LOOP-NAME=*STD, the standard form entered for the specified printer is used.

Forms are created with the SPSERVE utility routine. The SHOW-SPOOL-FORMS command displays information on forms.

LOOP-NAME = *STD / <alphanum-name 1..3>
Name of the loop to be loaded into the feed information buffer (VFB/FCB).
The loop name must not include the characters '$', '&' or '@'.
The default setting *STD causes the form's default loop to be used for the specified printer type.
Loops are stored in the PRFILE printer control file. They are created and managed using the PRM utility routine.

LOOP-NAME = <alphanum-name 1..3>
Name of the loop which is to control line feed. The length of the specified loop must match the length of the default loop of the form used.

A loop for LP- HP printers is selected from the PRFILE in accordance with the specification in the PRINTER-TYPE operand.

CHARACTER-SET = *STD / <alphanum-name 1..3>
Name of the font which is to be used for conversion.
Courier is the font which is always used. Only the font properties WEIGHT and CHARACTER-STYLE are evaluated for PDF conversion.
The table below shows the character style resulting from this (see the CHARACTER-STYLE operand in the direct parameters):

Font property WEIGTH=	Font property CHARACTER-STYLE=	
	*ITALICS	Other value
***BOLD**	*BOLD-ITALICS	*BOLD
Other value	*ITALICS	*NORMAL

The default setting *STD causes the standard font to be used for the specified printer type. It can be displayed by means of SHOW-SPOOL-FORMS.

Fonts are created with the SPSERVE utility routine. The SHOW-SPOOL-CHARACTER-SETS displays information on the fonts.

PRINTER-TYPE = *HP90-PRINTER / *HP-PRINTER / *LP-PRINTER
Determines which form is to be used for PDF conversion via the printer type.

PRINTER-TYPE = *HP90-PRINTER
The form for HP90 printers is used.

PRINTER-TYPE = *HP-PRINTER
The form for HP printers is used.

PRINTER-TYPE = *LP-PRINTER
The form for LP printers is used.

LEFT-MARGIN = 20 / <integer 0..2040>
The output text is to be indented from the left margin by the specified number of millimeters. An indent of 20 millimeters is preset.

ROTATION = *NO / *YES
Specifies whether page rotation is to be executed.

ROTATION = *NO
Page rotation is not performed. Any control characters for page rotation in the file are not interpreted. The loop for conversion is determined as follows:

- When a loop is specified explicitly in the LOOP-NAME operand, the specified loop is used.
- If no loop was specified (corresponds to LOOP=*STD), the form definition is evaluated:
  - If a form was specified in the FORM operand, the loop defined for VERTICAL-CONTROL is used.
  - If no form was specified (corresponds to FORM=*STD), the standard form for the corresponding printer type (see the PRINTER-TYPE operand) is evaluated and the loop defined for VERTICAL-CONTROL is used.

ROTATION = *YES
Page rotation is executed. Any control characters for page rotation contained in the file are evaluated. The loop for conversion is determined as follows:

- When a loop is specified explicitly in the LOOP-NAME operand, the specified loop is used.
- If no loop was specified (corresponds to LOOP=*STD), the form definition is evaluated:
  - If a form was specified in the FORM operand, the loop defined for ROTATION-CONTROL is used.
  - If no form was specified (corresponds to FORM=*STD), the standard form for the corresponding printer type (see the PRINTER-TYPE operand) is evaluated and the loop defined for VERTICAL-CONTROL is used.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	1	CMD0202	Syntax or semantic error in command

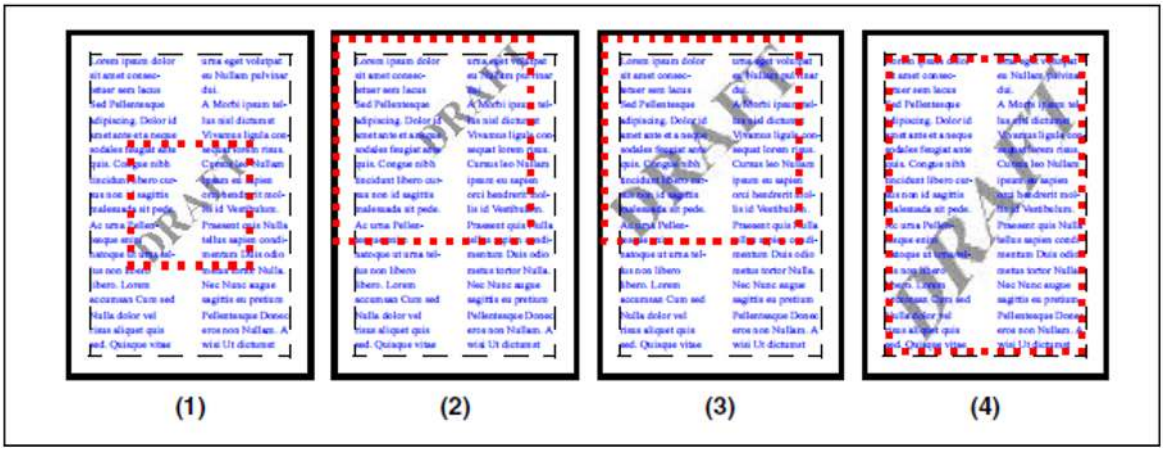
Note

The CCS of the specified file is used for conversion. If no file-specific CCS is defined, the CCS defined for the user ID is used. If there is no user-specific CCS, the defined system-global CCS is used.

Only those characters from the CCS are displayed which are also contained in the Windows Code Page WCP1252P (see the “XHCS” manual [51]).

Examples of how the OVERLAY operand is used

The figure below shows four examples of PDF pages on which the background picture draft.jpg is used:



(1) Positions the background picture draft.jpg in its original size (70 x 70 mm) in the center of the page. Specification in the OVERLAY operand:

```
overlay=*par(from-file=draft.jpg, frame=*page,
  horizontal-alignment=*center, vertical-alignment=*center)
```

(2) Positions the background picture draft.jpg in its original size at the top right in a user-specific frame. The frame is square (130 x 130 mm) and begins at the top left of the DIN A4 page. Specification in the OVERLAY operand:

```
overlay=*par(from-file=draft.jpg,
  frame=*custom(left=0,right=80,top=0,bottom=167),
  horizontal-alignment=*right, vertical-alignment=*top)
```

(3) Positions the background picture draft.jpg in the same user-specific frame as in example 2. Here the picture is fitted to the frame size. As the scale of the frame matches that of the picture, no distortion occurs. Specification in the OVERLAY operand:

```
overlay=*par(from-file=draft.jpg,
  frame=*custom(left=0,right=80,top=0,bottom=167), SCALE=*FIT-FRAME)
```

(4) Positions the background picture draft.jpg in the text frame and fits the picture to the frame size. In the case of a DIN A4 page with 20 mm spacing, the text frame is 170 mm wide and 257 mm high. As this scale does not match that of the picture, distortion occurs here. Specification in the OVERLAY operand:

```
overlay=*par(from-file=draft.jpg, frame=*text, SCALE=*FIT-FRAME)
```

2.67 COPY-FILE

Copy files

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	TSOS SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION STD-PROCESSING HARDWARE-MAINTENANCE
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The COPY-FILE command copies files, file generations or file generation groups one block at a time, without changing them. The command can therefore not be used to modify file attributes. For example, a SAM file cannot be converted to an ISAM file, nor can fixed-length records be changed to variable-length ones.
It is, however, possible to change the BLOCK-CONTROL-INFO file attribute (see the BLOCK-CONTROL-INFO operand).

Tape files with BLOCK-CONTROL-INFO=*PAMKEY must, therefore, have the default block format so that they can be processed using COPY-FILE.

If the target file (copy) is not yet cataloged, it is automatically created on a public volume when the COPY-FILE command is executed (as with a CREATE-FILE command with default values for the specified target file).

If the target file is to be stored on a different volume (Net-Storage volume, private disk or tape), it must be created using the CREATE-FILE command (DEVICE-TYPE, VOLUME operands) before the COPY-FILE command is issued.
If the target file is a SAM node file, the net coded character set can be assigned in the CREATE-FILE command. This is the character set used to store the data of the node file on Net-Storage. When the SAM file is then copied from public space to Net-Storage, the net coded character set of the target file is retained.
If a SAM node file is copied into a SAM node file, the net coded character set of the source file is adopted for the target file as well. If a SAM node file is copied to public space, the net coded character set is not adopted for the SAM file on public space.

The COPY-FILE command uses the internal file link names DMCOPY11 (FROM-FILE) and DMCOPY22 (TO-FILE). Both of these two link names are released again after processing, even if the user explicitly specified them.

Thus, if wildcards are used in the file name, any existing TFT entry is applicable only during copying of the first file to be processed.

If the target file is a disk file which has not yet been cataloged, the primary and secondary allocations are taken from the original disk file (see also the CREATE-FILE command, PRIMARY-ALLOCATION operand). If the original file is on tape, the target disk file will be given a default allocation.

The COPY-FILE command will be rejected if the target file is a read-only file (ACCESS=READ or no write authorization when access is controlled using BASIC-ACL or GUARDS), if a password has been specified to protect it against unauthorized write access, if a retention period (*EXPIR-DATE* > today's date) has been specified for it, or if the secondary allocation for the output file has a null value and the primary allocation is insufficient.

The user may specify whether the protection attributes of the original file are to be transferred to the target file (PROTECTION operand).

Privileged functions

A user working with the TSOS privilege can select the IGNORE-PROTECTION operand to explicitly circumvent any file protection on the source and target files which would prevent copying of the file.

Verifying command execution

The user can verify command execution. Use of the verification mechanisms is particularly helpful when a set of files is specified (using a partially qualified file name or wildcards).

The REPLACE-OLD-FILES operand governs whether a verification check is carried out before an existing target file is overwritten.

The DIALOG-CONTROL operand governs whether a verification dialog is to be conducted with the user. The OUTPUT operand lets the user specify whether each file name that is processed is to be logged in a guaranteed message to SYSOUT. The processed file names can be viewed in the message stream (see the ASSIGN-STREAM command, STREAM-NAME=SYSMSG operand, or the EXECUTE-CMD command, MSG-STRUCTURE-OUTPUT operand, in the "SDF-P" manual [34]).

File generation groups

A file generation group can be copied into another file generation group only if one of the following conditions is fulfilled:

1. The group entries for the two file generation groups match each other (i.e. the values for *MAXIMUM*, *FIRST-GEN*, *LAST-GEN* and *BASE-NUM* in the catalog entry are the same). In the file generation group into which DMS is to write the copy, the generations from *FIRST-GEN* to *LAST-GEN* must already be cataloged.
2. The value for *MAXIMUM* is the same for both file generation groups, and the file generation group into which DMS is to write the copy contains no generations (i.e. the fields *FIRST-GEN*, *LAST-GEN* and *BASE-NUM* in the catalog entry have the value zero).

A file generation group which is to be copied may not contain any generations on tape.

A file generation group can only be copied into a single file or a file generation if it consists of SAM file generations which have the same attributes (e.g. same record and block lengths, same record format, same BLK-CONTR value). Furthermore, the target file generation must not be part of the file generation group which is to be copied.

Files held on private disks

If a file on a private disk has an entry in the system catalog, but no entry in the F1 label, the catalog entry is deleted when the file is copied. If this file is the input file, the command is rejected. If it is the target file, a new file is created in public space. Any COPY-FILE command for an ISAM file held on private disk with separate index and data areas will be rejected.

Tape files

- K tape files. Tape files for which *BLK-CONTR=PAMKEY* must have the standard block format (catalog entry *BUF-LEN=STD(n)* if the COPY-FILE command is to be used on them).
- NK tape files. Tape files for which *BLK-CONTR=DATA/NO* and for which the BUF-LEN value is a multiple of 2048 bytes can be copied.
- External files on tape When NK files are copied to tape, the BLK-CONTR information is removed if the catalog entry is deleted. If a tape file is to be copied which is not cataloged, it must first be cataloged by an IMPORT-FILE command. If the file is an NK file (*BLK-CONTR=DATA/NO*), the user must supply the correct BLOCK-CONTROL-INFO operand in the ADD-FILE-LINK command, i.e. he must specify BLOCK-CONTROL-INFO=*NO /*WITHIN-DATA-BLOCK to correspond to the actual file format, and must specify LINK-NAME = DMCOPY11 and the ACCESS-METHOD operand.

If a K file (*BLK-CONTR=PAMKEY*) is inadvertently copied as an NK file (*BLK-CONTR= DATA*), the resulting disk file will be unreadable; this is because the first 16 bytes on each PAM page, which for *BLK-CONTR=PAMKEY* would hold data, will have been overwritten with
management information.

Internally, the COPY-FILE command uses the access method UPAM, which does not support the processing of continuation tapes. It is thus possible to copy several files to one tape. It is not possible, however, to copy files which extend across multiple tapes.

PLAM libraries

PLAM libraries can only be copied if the library does not contain any specially protected data (see the “LMS” manual [21]).

A PLAM library protected by BASIC-ACL or GUARDS in a remote system cannot be copied.

Remote file access (see the “RFA” manual [31])

Copying from one remote system to another, with the input and output on different systems, is supported by a higher-level execution routine. The local system acts, in this case, only as an intermediate station for data transfer.

A SET-RFA-CONNECTION command must be issued for both of the remote systems before copying is started.

When a remote file is copied to a local one with the operand PROTECTION=*SAME, the passwords will not be transferred.

If different versions of BS2000, the following basic rules apply:

- The COPY-FILE should be issued on the system with the highest version.
- The file should be converted appropriately, either before or afterwards, using the PAMCONV utility.
- The specified operands must be supported by the operating system version of the remote system.
- If a file is to be copied from one remote system to another and I/O on two different systems is involved, the operation is supported by the higher-ranking execution routine. The local system serves as an intermediate system for data transfer.
- The SET-RFA-CONNECTION command must be issued for both remote systems before copying starts.

File encryption

Normally it is not necessary to enter the crypto password in the task's crypto password table in order to copy encrypted files as the file content is transferred without being decrypted.

Decryption during copying is required for the following copying operations:

- Encrypted files are copied to tape or private disk.
- Shared update processing was defined in the TFT entry of the internal file link name DMCOPY11 or DMCOPY22 (see the ADD-FILE-LINK command).

Format

COPY-FILE	Alias: **CPF**

FROM-FILE = <filename 1..54 with-wild(80)>

,**TO-FILE** = <filename 1..54 with-wild-constr(80)>

,**PROTECTION** = ***STD** / ***SAME**

,**CHANGE-DATE** = ***STD** / ***SAME**

,**REPLACE-OLD-FILES** = ***YES** / ***NO** / ***BY-DIALOG**

,**BLOCK-CONTROL-INFO** = ***KEEP-ATTRIBUTE** / ***IGNORE-ATTRIBUTE** / ***CHECK-REMOVAL**

,**IGNORE-PROTECTION** = ***NO** / list-poss(2): ***SOURCE-FILE** / ***TARGET-FILE**

,**DIALOG-CONTROL** = **STD** / ***NO** / ***ERROR** / ***FILE-CHANGE** / ***MORE-THAN-ONE-FILE** /
***USER-ID-CHANGE** / ***CATALOG-CHANGE**

,**OUTPUT** = ***NO** / ***SYSOUT**

Operands

FROM-FILE = <filename 1..54 with-wild(80)>
Name of the file, file generation or file generation group which is to be copied (the original file). If the file name includes wildcards, or if the specification is partially qualified, the command is executed for the associated set of files. Processing can be controlled and verified with the aid of the DIALOG-CONTROL and OUTPUT operands. Only systems support is allowed to use wildcards within the user ID. If the original file (FROM-FILE) is not cataloged under the user ID for the job, the relevant user ID must be specified in the command, and the user ID under which the command is called must be authorized to access this file/file generation/FGG (USER-ACCESS= ALL-USERS, or read access rights using BASIC-ACL or GUARDS, or co-owner).
If the original file is a file generation group, the target file (TO-FILE) must also be an FGG (with the sole exception of an FGG (FROM-FILE) which consists of SAM file generations which all have the same attributes for record format, record and block length, and the block control information). In this case only, it is possible to copy into a single file or file generation. The target file generation may not be a constituent of the file generation group which is being copied.

TO-FILE = <filename 1..54 with-wild-constr(80)>
Name of the file, file generation or file generation group into which the copy is to be made (the target file). If a set of files has been specified in the FROM-FILE operand, a constructor string can be used to specify how the names of the target files are to be formed. The constructor string should be designed to ensure that the names of the target files are unique. If, for example, a fully qualified file name is specified as the target file for a set of files, the first source file will be copied to this file. For the following source files, the target file will already exist. Depending on the setting of the REPLACE-OLD-FILES operand, either every subsequent source file will likewise be copied to the target file, or copying will be rejected. When processing of the command is complete, the target file will hold the contents either of the first source file or of the last source file.

If the target file has not yet been cataloged, then only the user's own ID (the one under which the SET-LOGON-PARAMETERS command was issued) or a user ID for which the user is co-owner may be specified. If a target file which has not yet been cataloged is to be stored on an SM pubset, the system attempts to locate it on a suitable volume set on the basis of the source file's attributes (performance, availability). If the target file is already cataloged under another user's ID, this user ID must be specified, and the user ID under which the command is called must be authorized to access this file (i.e. USER-ACCESS=ALL-USERS or the appropriate access rights using BASIC-ACL or GUARDS must have been assigned).
If the target file is a file generation group, then the original file must also be a file generation group.

If the file is to be copied to a private volume, then the target file must have been appropriately cataloged beforehand (CREATE-FILE).

The COPY-FILE command will be rejected in the following cases:

- if the target file may only be read; i.e. if ACCESS=READ is defined or if write access is prohibited using BASIC-ACL or GUARDS;
- if there is still a retention period applicable to the file (*EXPIR-DATE* > current date);
- if the target file is password-protected against unauthorized write access;
- if the primary allocation for a target file on disk is insufficient and the secondary allocation is defined as 0.

PROTECTION = *STD / *SAME
Specifies whether the same attributes for file protection and file security are to be set up for the target file as for the original one.
The coding table entered in the catalog (*COD-CH-SET*) is always entered in the catalog entry of the target file.
The performance attributes of the source file are **not** transferred (see output fields *IO(PERF), IO(USAGE), DISK-WRITE*, SHOW-FILE-ATTRIBUTES command).

PROTECTION = *STD
Specifies that the attributes of the original file for file protection and file security should *not* be applied to the target file. If the target file is to be newly created, it will be given the default attributes arising from the CREATE-FILE command. If the target file already exists, it will retain its previous protection attributes.

PROTECTION = *SAME
The target file is assigned the same file security and protection attributes as the source file (i.e. for *BACKUP-CLASS, SAVED-PAG, NUM-OF-BACKUP-VERS, EXPIR-DATE, EXPIR-TIME, DESTROY, FREE-FOR-DEL, MANAGE-CLASS, USER-ACC, ACCESS,* and the same passwords). The AUDIT value and the lock to prevent the release of memory space (*SP-REL-LOCK=YES*) are not transferred. For a BASIC-ACL and defined GUARDS, a distinction must be made between the following cases:

- Target file on public disk or Net-Storage volume:
  The file protection attributes set with BASIC-ACL or GUARDS are transferred.

- Target file on private disk:
  If access is controlled by a GUARDS, system default attributes are set (USER-ACCESS=OWNER-ONLY, ACCESS=WRITE). If the file is only protected by a BASIC-ACL, the BASIC-ACL is transferred.
- Target file on tape:
  Protection attributes are always set to system default values
  (USER-ACCESS=ALL-USERS, ACCESS=WRITE).

The operand value PROTECTION=*SAME will be ignored in the following cases:

- The target file is a temporary file.
- The target file is a file generation (for which the attributes for protection and security are defined in the group entry).
- A nonprivileged user specifies a target file with a foreign user ID.

As management classes are pubset-specific they can only be taken over if the source and target files reside on the same pubset. When copying to another pubset an existing target file retains its management class; a new target file is assigned `MANAGEMENT-CLASS=*NONE` (as with `PROTECTION=*STD`).

If a temporary file is copied into a permanent one and PROTECTION=*SAME is specified, the permanent file will be given the attribute BACKUP=E, i.e. the new file will be ignored when ARCHIVE backups are carried out. The value for BACKUP must be amended by a MODIFY-FILE-ATTRIBUTES command if the file is to be backed up automatically during ARCHIVE runs.

If a permanent file is copied into a temporary one and PROTECTION=*SAME is specified, the permanent file will be given the attribute NUM-OF-BACKUP-VERS=0, i.e. the new file will be ignored during next version backups.
If a temporary file is copied into a permanent one, it will be given the attribute NUM-OF-BACKUP-VERS=0, i.e. the new file will be ignored when version backups are carried out. If the file is to be included into version backup, the value > 0 must be specified by a MODIFY-FILE-ATTRIBUTES command.

The following applies for nonprivileged users when copying from a foreign user ID: If the original file is protected with BASIC-ACL or GUARDS (see the “SECOS” manual [35]), the target file’s protection attributes USER-ACCESS, ACCESS, BASIC-ACL, and GUARDS are set to system default values (see the CREATE-FILE command).

CHANGE-DATE = *STD / *SAME
Specifies whether the target file is to be given the same change date (CHANGE-DATE) as the source file.

CHANGE-DATE = *STD
The change date of the target file will be updated.

CHANGE-DATE = *SAME
The change date of the source file will be transferred to the target file. The specification will apply in the following cases:

- The target file resides under a foreign user ID.
- The target file is a file generation.

REPLACE-OLD-FILES = *YES / *NO / *BY-DIALOG
The user can specify here whether, if there is already a file cataloged under the name of the target file, it should be overwritten or whether the system should ask at execution time whether to overwrite any such file (REPLACE-OLD-FILES=*BY-DIALOG).
In *batch mode,* REPLACE-OLD-FILES=*NO always applies.
If the target file is a *tape file*, the operand REPLACE-OLD-FILES will be ignored. Any existing *tape file* with the same name will be overwritten with no message.
If the target file is *empty*, it will be overwritten without any message.

REPLACE-OLD-FILES = *YES
Specifies that any existing disk file should be overwritten without any message.

REPLACE-OLD-FILES = *NO
Any existing file will not be overwritten. The command is rejected. In procedures error handling is triggered (spin-off mechanism in non-S procedures or SDF-P error handling in S procedures).

REPLACE-OLD-FILES = *BY-DIALOG
The operand value *BY-DIALOG will only have any effect in interactive mode. It allows the user to decide in an interactive dialog with the system, whether to overwrite an existing target file or not. The query “OVERWRITE (Y /N?)” will be displayed. If the reply is “Y”, the target file will be overwritten without any further message.
If the reply is “N", the target file is not overwritten and a message to this effect is issued.

BLOCK-CONTROL-INFO = *KEEP-ATTRIBUTE / *IGNORE-ATTRIBUTE / *CHECK-REMOVAL
Specifies whether there may be any difference in the file attribute BLOCK-CONTROL-INFO (*BLK-CONTR*) for the original and target files (or in the TFT entry DMCOPY22).

During copying, data is transferred in blocks, i.e. without regard to the internal block structure of the file. For this reason, a file in K format (*BLK-CONTR=PAMKEY*) should not be copied into a file in NK format (*BLK-CONTR=DATA* or *NO*), or vice versa. Such transfers should be carried out using a utility routine which takes into account the internal block structure of the file (e.g. PERCON, PAMCONV).
*KEEP-ATTRIBUTE is the default setting, i.e. both files (or the TFT entry for DMCOPY22) must have the same BLOCK-CONTROL-INFO attribute.
However, for files whose internal block structure does not depend on the BLOCK-CONTROL-INFO attribute, copying can be permitted (e.g. PLAM libraries). By specifying the operand values IGNORE-ATTRIBUTE or CHECK-REMOVAL, differing BLOCK-CONTROL-INFO attributes can be accepted.
It is recommended that BLOCK-CONTROL-INFO=*CHECK-REMOVAL is specified if the operand BLOCK-CONTROL-INFO has earlier been defined by an /ADD-FILE-LINK LINK-NAME=DMCOPY22 command.

BLOCK-CONTROL-INFO = *KEEP-ATTRIBUTE
This attribute in the TFT entry for the target file, or in its catalog entry as appropriate, must match that for the original file. If this is not the case, the command is rejected.

BLOCK-CONTROL-INFO = *IGNORE-ATTRIBUTE
Allows any differences in the BLOCK-CONTROL-INFO attribute to be ignored in particular cases.
When a source file (*BLK-CONTR=PAMKEY*) is being copied to a file for which the BLOCK-CONTROL information is specified as *BLK-CONTR=NO* or *BLK-CONTR=DATA*, the PAM key will **not** be checked for possible user data. This user data in the PAM key will no longer be available in the target file. If *BLK-CONTR=DATA* is specified for the target file, the first twelve bytes of each logical block which is copied will be overwritten with the BLOCK-CONTROL information.

Copying is possible in the following cases:

BLOCK-CONTROL-INFO in the output field BLK-CONTR (SHOW-FILE-ATTRIBUTES)	
Original file	**Target file**
PAMKEY	DATA (disk file only
PAMKEY	NO
DATA (disk file only	PAMKEY
NO	PAMKEY

BLOCK-CONTROL-INFO = *CHECK-REMOVAL
Any differences in the BLOCK-CONTROL-INFO attribute will only be ignored if no user data would be lost from the PAM key during copying. When an original file for which the BLOCK-CONTROL-INFO attribute is *BLK-CONTR=PAMKEY* is being copied into a target file in NK format (*BLK-CONTR=DATA* or *NO*), the PAM keys will be checked for user data. If the user part of the PAM key does contain data, then the COPY-FILE command will be rejected. This ensures that no user data will be lost.

Copying is possible in the following cases (if no user data is lost):

BLOCK-CONTROL-INFO in the output field BLK-CONTR (SHOW-FILE-ATTRIBUTES)	
Original file	**Target file**
PAMKEY	DATA (disk file only
PAMKEY	NO

IGNORE-PROTECTION = *NO / *SOURCE-FILE / *TARGET-FILE
Specifies whether systems support wishes to circumvent the file protection, and if so for which file.

IGNORE-PROTECTION = *NO
The default option is that the existing file protection on the source and destination files will be observed.

IGNORE-PROTECTION = *SOURCE-FILE
The protection attributes of the source file, which the file's owner declared when creating the file, are to be ignored for privileged users (system administration). The protection may be by READ or EXEC-PASSWORD attributes, and by enhanced protection measures using BASIC-ACL or GUARDS.

IGNORE-PROTECTION = *TARGET-FILE
For privileged users (systems support), the protection attributes of the destination file are to be ignored when the source file is copied. The protection may be by ACCESS- or EXPIRATION-DATE, READ-/WRITE- or EXEC-PASSWORD attributes, and by enhanced protection measures using BASIC-ACL or GUARDS.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE / *USER-ID-CHANGE

Specifies whether and under what conditions a verification dialog is to be conducted with the user during command execution. The verification dialog allows you to monitor the progress of the command and to take action if necessary. A control dialog is only possible in interactive mode but, in this mode, may also be used in procedures. In batch mode, all operand values have the same effect as *NO.

If one of the events (apart from *ERROR) specified in the DIALOG-CONTROL operand occurs, a verification dialog is initiated. Message DMS0810 is issued, asking you whether you want the command to be executed for the shown file or file set. The SDF abbreviation rules apply to the entered response. To display the possible responses, enter a question mark.

Syntax of replies to message DMS0810 (verification dialog):

possible replies: ***Y**ES(...) / ***NO**(...) / ***TERM**INATE

***Y**ES(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

***NO**(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

Meaning of the operands

The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands. The operand value *UNCHANGED leaves the previous setting unchanged.

Reply *YES(...)
The set of files listed in the message is processed. If you specify a new value in the DIALOG-CONTROL operand which calls for a reduction in the size of the set of files listed in the message (e.g. changing *CATALOG-CHANGE to *FILE-CHANGE), the file set is first slimmed down to reflect the new value, and then a second verification dialog is conducted for the reduced set of files.
The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands.

Reply *NO(...)
The set of files listed in the message is not processed. If you change the DIALOG-CONTROL operand, the verification check is not repeated until the next time the associated event occurs. If there are other files to process before the event occurs, they will be processed without verification.

Reply *TERMINATE
The set of files listed in the message is not processed and processing of the command terminates. Within a procedure, error handling (spin-off or SDF-P error handling) is initiated.

If an error occurs while one of the selected files is being processed and DIALOG-CONTROL has a setting other than *NO, an error verification dialog is initiated. Guaranteed message DMS0812 shows you the names of the source and target files in question and the DMS error code. You are then asked by message DMS0813 whether and if so how command execution is to continue. The SDF abbreviation rules apply to the entered response. To display the possible responses, enter a question mark.

Syntax of replies to message DMS0813 (error verification dialog)

possible replies: ***Y**ES(...) / ***RETRY**(...) / ***NO** / ***SKIP-CAT**ALOG(...) / ***SKIP-USER**-ID(...)

***Y**ES(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

***RETRY**(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

***SKIP-CAT**ALOG(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

***SKIP-USER**-ID(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

Meaning of the operands

The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands. The operand value *UNCHANGED leaves the previous setting unchanged.

Reply *YES(...)
Processing is to continue with the next file name.

Reply *RETRY(...)
Processing is to be retried for the same file name.

Reply *SKIP-CATALOG(...)
Processing is to continue with the file names from the next selected catalog. This selection only makes sense if wildcards were used in the catalog ID.

Reply *SKIP-USER-ID(...)
Processing is to continue with the file names from the next selected user ID. If file names of a user ID on different pubsets have been selected, processing is to continue with the file names from the next selected catalog ID. This selection only makes sense if wildcards were used in the user or catalog ID.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
All the selected files are processed without an opportunity for the user to intervene.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
A verification dialog is initiated if more than one file has been selected.
The verification query is issued for each of the selected files. If the catalog and/or user ID contains wildcards, the query is issued for each catalog and/or user ID.
DIALOG-CONTROL=*ERROR also applies implicitly.

DIALOG-CONTROL = *ERROR
An error verification dialog is initiated if an error occurs while one of the selected file names is being processed.

DIALOG-CONTROL = *FILE-CHANGE
A verification dialog is initiated for each selected file name. DIALOG-CONTROL=*ERROR also applies implicitly.

DIALOG-CONTROL = *CATALOG-CHANGE
The verification query is issued for all the selected file names in a catalog. DIALOG-CONTROL=*ERROR also applies implicitly.

DIALOG-CONTROL = *USER-ID-CHANGE
The verification query is issued for all the selected file names of a user ID within a catalog. DIALOG-CONTROL=*ERROR also applies implicitly.

OUTPUT = *NO / *SYSOUT
Specifies whether the names of processed files are to be logged on SYSOUT.

OUTPUT = *NO
Only any errors that occur are logged on SYSOUT.

OUTPUT = *SYSOUT
The names of processed files and any errors that occur are logged on SYSOUT (guaranteed messages DMS0816 and DMS0812).

If files on an external system are accessed via RFA and the RFA transfer area is too small for the information to be transferred, message DMS0817 is output.

Syntax of replies to message DMS0817 (verification dialog):

possible replies: ***Y**ES(...) / ***NO**(...) / ***TERM**INATE

***Y**ES(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

***NO**(...)

| **DIALOG-CONTR**OL = ***UNCHA**NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA**NGED / ***NO** / ***SYSOUT**

Meaning of the operands

The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands. The operand value *UNCHANGED leaves the previous setting unchanged.

Reply *YES(...)
The set of files listed in the message is processed. If you specify a new value in the DIALOG-CONTROL operand which calls for a reduction in the size of the set of files listed in the message (e.g. changing *CATALOG-CHANGE to *FILE-CHANGE), the file set is first slimmed down to reflect the new value, and then a second verification dialog is conducted for the reduced set of files.
If the RFA transfer area is still too small for the volume of files to be transferred, this is indicated by the message DMS063B. The requested COPY-FILE statement is only partially executed.
The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands.

Reply *NO(...)
The set of files listed in the message is not processed and the message DMS0841 is output. If you change the DIALOG-CONTROL operand, the verification check is not repeated until the next time the associated event occurs. If there are other files to process before the event occurs, they will be processed without verification.

Reply *TERMINATE
The set of files listed in the message is not processed and processing of the command terminates. Within a procedure, error handling (spin-off or SDF-P error handling) is initiated.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
2	0	DMS05F5	Some blocks of the source file could not be copied.
2	0	DMS063B	RFA transfer area for required information too small
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing.
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS0585	Error detected when processing catalog or multiprocessor system. Guaranteed message: DMS053C
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privilege error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051A	File already exists Guaranteed message: DMS051A
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0533	Requested file not cataloged in pubset Guaranteed message: DMS0533
	64	DMS0535	Specified file not shareable
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS0586	It is not possible to access or reserve a volume at present

	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS0588	The disk storage assignment could not be executed
	64	DMS05F8	DMS error reported Guaranteed message: DMS05F8
	64	DMS05F9	File attributes in source and target file not compatible
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file
	64	DMS0610	Action with selection specification (wildcards): command execution failed for at least one of the selected files
	64	DMS0698	File generation groups do not have the same attributes
	64	DMS06B5	File already open or catalog entry not updated after system error
	64	DMS06B6	File attributes not compatible with file generation group
	64	DMS06C4	File generation group not yet cataloged
	64	DMS06D0	Specified file generation does not exist
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space exhausted
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system. Guaranteed message: DMS053C
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0588	The disk storage assignment could not be executed
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Examples

*Example 1: Copying with PROTECTION=*SAME*

/sh-f-at paul.file.2,inf=(sec=*yes) ——————————————————— **(1)**

```
 %0000000003 :2OSG:$USER1.PAUL.FILE.2
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-18
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

/copy-file from=paul.file.2,to=karl.p-2 ——————————————————— **(2)**

/show-file-attr karl.p-2,sec=*yes ——————————————————— **(3)**

```
 %0000000003 :2OSG:$USER1.KARL.P-2
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

/copy-file from=paul.file.2,to=karl.p-2,prot=*same ——————————————— **(4)**

/show-file-attr karl.p-2,sec=*yes ——————————————————— **(5)**

```
%0000000003 :2OSG:$USER1.KARL.P-2
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

/show-file-attr proc.mini.2,inf=(sec=*yes) ——————————————————— **(6)**

```
 %0000000003 :2OSG:$USER1.PROC.MINI.2
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = YES
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-18
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

```
/show-file-attr bsp.proc.1,inf=(sec=*yes)                    ———————————————————— (7)
```

```
%  ------------------------------ SECURITY     -------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = YES         EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-18
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

```
/copy-file from=proc.mini.2,to=bsp.proc.1,prot=*same   ———————————————————— (8)
```

```
%  DMS05F3 REQUIRED PASSWORD IS NOT IN PASSWORD TABLE. ENTER PASSWORD AND RETRY
 COMMAND LATER
```

```
/add-pass 'maxi'            ———————————————————————————————————————————   (9)
/copy-file from=proc.mini.2,to=bsp.proc.1,prot=*same     ——————————————————  (10)
```

```
%  DMS05F3 REQUIRED PASSWORD IS NOT IN PASSWORD TABLE. ENTER PASSWORD AND RETRY
 COMMAND LATER
```

```
/add-pass 'otto'            ———————————————————————————————————————————  (11)
/copy-file from=proc.mini.2,to=bsp.proc.1,prot=*same      ——————————————————  (12)
/show-file-attr bsp.proc.1,inf=(sec=*yes)                    ———————————————————— (13)
```

```
 %0000000003 :2OSG:$USER1.BSP.PROC.1
%  ------------------------------ SECURITY     -------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = YES
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

(1) Output of the protection attributes for the file *PAUL.FILE.2*. The file has a BASIC-ACL entry. Access control is implemented via an BASIC-ACL (highest activated access protection).

(2) Copies the file *PAUL.FILE.2* to the file *CARL.P-2*, thus creating its catalog entry with default attributes (see the CREATE-FILE command).

(3) Output of the protection attributes for the file *CARL.P-2*. The file is only protected via the standard access control list (ACCESS and USER-ACCESS).

(4) The file *PAUL.FILE.2* is copied to the file *CARL.P-2* again. In this case, PROTECTION=*SAME defines the transfer of protection attributes from the source file.

(5) Output of the protection attributes for the file *CARL.P-2*. The file has the same protection attributes as the source file *PAUL.FILE.2* (see step 1).

(6) Output of the protection attributes the file *PROC.MINI.2*. The file is protected by an execute password (*'MAXI'*).

(7) Output of the protection attributes the file *BSP.PROC.1*. The file is protected by a write password (*'JOHN'*).

(8) Attempts to copy the file *PROC.MINI.2* to the file *EXP.PROC.1*. The password for read access to *PROC.MINI.2* is not yet contained in the password table of the task. So the COPY-FILE command is rejected.

(9) Entry of the password *'MAXI'* into the password table of the task (see step 6).

(10) Attempts to copy the file *PROC.MINI.2* to the file *EXP.PROC.1*. The password for write access to *EXP.PROC.1* is not yet contained in the password table of the task. So the COPY-FILE command is rejected.

(11) Entry of the password *'JOHN'* into the password table of the task (see step 7).

(12) Attempts to copy the file *PROC.MINI.2* to the file *EXP.PROC.1*.

(13) Output of the protection attributes the file *BSP.PROC.1*. Since PROTECTION= *SAME is specified, the file has the same protection attributes as the source file *PROC.MINI.2*, i.e. it is now protected by the execute password *'MAXI'*.

Example 2: Copying a file generation group to a file

```
/show-file-attr max.group.2,select=(gen=*yes)          ————————————————————    (1)
```

```
 %         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
 %         3 :2OS2:$USER1.MAX.GROUP.2(*0011)
 %         3 :2OS2:$USER1.MAX.GROUP.2(*0012)
 %         3 :2OS2:$USER1.MAX.GROUP.2(*0013)
 %:2OS2: PUBLIC:      4 FILES RES=         9 FRE=         6 REL=         0 PAGES
```

```
/show-file-attr max.group.2,inf=(org=*yes)          ————————————————————    (2)
```

```
%0000000000 :2OS2:$USER1.MAX.GROUP.2 (FGG)                                      (3)
 %  ------------------------------ GENERATION-INFO ----------------------------
 %  MAXIMUM    = 3           BASE-NUM   = 11          OVERFL-OPT = CYCL-REPL
 %  FIRST-GEN  = 11          LAST-GEN   = 13
 %:2OS2: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

```
/show-file-attr max.file.1,inf=(org=*yes)           ————————————————————    (4)
```

```
%0000000003 :2OS2:$USER1.MAX.FILE.1
%  ------------------------------ ORGANIZATION -------------------------------
 %  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
 %  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
 %  REC-FORM   = NONE        REC-SIZE   = 0
 %  AVAIL      = *STD
 %:2OS2: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
 /copy-file from=max.group.2,to=max.file.1
```

```
/copy-file from=max.group.2,to=max.file.1
/show-file-attr max.file.1,inf=(org=*yes)           ————————————————————    (5)
```

```
%0000000003 :2OS2:$USER1.MAX.FILE.1
%  ------------------------------ ORGANIZATION ------------------------------
 %  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
 %  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
 %  REC-FORM   = (V,N)       REC-SIZE   = 0
 %:2OS2: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

/show-file max.file.1 ——————————————————————————————————————— (6)

```
************************************************************
*******  Inhalt von  MAX.GROUP.2(*0011)                ******
************************************************************
.....................................................(Ende)...
************************************************************
*******  Inhalt von  MAX.GROUP.2(*0012)                ******
************************************************************
.....................................................(Ende)...
************************************************************
*******  Inhalt von  MAX.GROUP.2(*0013)                ******
************************************************************
.....................................................(Ende)...
%  SHO0301 WARNING: END OF FILE REACHED
e                                                     S*SOF+     1(     1)
```

(1) Output of the catalog entries for the file generation group *MAX.GROUP.2* with the associated generations. The existing generations are *0011, *0012, and *0013.

(2) Output of the group entry with the specific attributes of a file generation group.

(3) Output of the catalog entry for the file *MAX.FILE.1* with the file organization information. The file has not yet been opened for writing (as is evident from FILE-STRUC=NONE, for example).

(4) Copies the file generation group *MAX.GROUP.2* to the file *MAX.FILE.1*.

(5) Output of the catalog entry for the file *MAX.FILE.1* with the file organization information. The file was created as a SAM file and now occupies three PAM pages (see FRE=0).

(6) Output of the content of file *MAX.FILE.1* using the command SHOW-FILE. The output is terminated with *E* (END).

Example 3: Copying a file generation group to a file generation group

/show-file-attr max.group.2,inf=(org=*yes) ——————————————— (1)

```
 %0000000000 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ GENERATION-INFO ---------------------------
 %  MAXIMUM    = 3           BASE-NUM   = 11          OVERFL-OPT = CYCL-REPL
 %  FIRST-GEN  = 11          LAST-GEN   = 13
 %:2OS2: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/cre-file-group group=max.group.2.copy,gen-par=(max=3) ——————————— (2)

/show-file-attr max.group.2.copy,inf=(org=*yes) ——————————————— (3)

```
%0000000000 :2OS2:$USER1.MAX.GROUP.2.COPY (FGG)
%  ------------------------------ GENERATION-INFO ---------------------------
 %  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = CYCL-REPL
 %  FIRST-GEN  = 0           LAST-GEN   = 0
 %:2OS2: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/copy-file from=max.group.2,to=max.group.2.copy ——————————————— (4)

/show-file-attr max.group.2.copy,gen=*yes ——————————————— (5)

```
 %         0 :2OS2:$USER1.MAX.GROUP.2.COPY (FGG)
 %         3 :2OS2:$USER1.MAX.GROUP.2.COPY(*0001)
 %         3 :2OS2:$USER1.MAX.GROUP.2.COPY(*0002)
 %         3 :2OS2:$USER1.MAX.GROUP.2.COPY(*0003)
 %:2OS2: PUBLIC:      4 FILES RES=         9 FRE=         6 REL=         0 PAGES
```

/show-file max.group.2.copy(*1) ——————————————————————————— (6)

```
************************************************************
*******  Inhalt von  MAX.GROUP.2(*0011)               ******
************************************************************
.....................................................(Ende)...
%  SHO0301 WARNING: END OF FILE REACHED
e                                                    S*SOF+     1(     1)
```

/show-file max.group.2.copy(*2) ——————————————————————————— (7)

```
************************************************************
*******  Inhalt von  MAX.GROUP.2(*0012)               ******
************************************************************
.....................................................(Ende)...
%  SHO0301 WARNING: END OF FILE REACHED
e                                                    S*SOF+     1(     1)
```

```
/show-file max.group.2.copy(*3) ————————————————————————————————————————   (8)
```

```
************************************************************
*******  Inhalt von  MAX.GROUP.2(*0013)               ******
************************************************************
.....................................................(Ende)...
%  SHO0301 WARNING: END OF FILE REACHED
e                                                     S*SOF+     1(     1)
```

(1) Output of the group entry *MAX.GROUP.2* with the specific attributes of a file generation group. The three existing generations are *0011, *0012, and *0013 (see LAST-GEN=13 or example 2).

(2) Creates a group entry for the file generation group *MAX.GROUP.2.COPY*. The maximum number of generations is set to 3, as for *MAX.GROUP.2.*

(3) Output of the newly created group entry *MAX.GROUP.2.COPY* with the specific attributes of a file generation group.

(4) Copies the file generation group *MAX.GROUP.2* to the file generation group *MAX.GROUP.COPY*.

(5) Output of the catalog entries for the file generation group *MAX.GROUP.2.COPY* with the associated generations. Generations *0001, *0002 and *0003 have been created.

(6) Output of the file contents of the generation *MAX.GROUP.2.COPY(*0001)* with the SHOW-FILE command. The contents of the first generation of *MAX.GROUP.2*, i.e. the generation *0011, has been copied into the first generation. The output is terminated with *E* (END).

(7) Output of the file contents of the generation *MAX.GROUP.2.COPY(*0002)* with the SHOW-FILE command. The contents of the second generation of *MAX.GROUP.2*, i.e. generation *0012, has been copied into the second generation. The output is terminated with *E* (END).

(8) Output of the file contents of the generation *MAX.GROUP.2.COPY(*0003)* with the SHOW-FILE command. The contents of the third generation of *MAX.GROUP.2*, i.e. generation *0013, has been copied into the third generation. The output is terminated with *E* (END).

Example 4: Copying temporary files

```
/show-file-attr proc.mini.2,inf=(sec=*yes,backup=*yes)   ————————————————   (1)
```

```
 %0000000003 :2OSG:$USER1.PROC.MINI.2
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = YES
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %  ------------------------------ BACKUP       ------------------------------
 %  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
 %  MIGRATE    = ALLOWED
 %  #BACK-VERS = 0
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

```
/add-pass 'maxi'                                   ————————————————   (2)
/copy-file from=proc.mini.2,to=#temp.file.1,prot=*same  ————————————   (3)
/show-file-attr #temp.file.1,inf=(sec=*yes,backup=*yes)  ———————————   (4)
```

```
%0000000003 :2OSG:$USER1.S.163.34JG.TEMP.FILE.1
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %  ------------------------------ BACKUP       ------------------------------
 %  BACK-CLASS = E           SAVED-PAG  = COMPL-FILE  VERSION    = 1
 %  MIGRATE    = INHIBITED
 %  #BACK-VERS = 0
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

```
/copy-file from=#temp.file.1,to=max.file.2,prot=*same   ————————————   (5)
/show-file-attr max.file.2,inf=(sec=*yes,backup=*yes)   ————————————   (6)
```

```
%0000000003 :2OSG:$USER1.MAX.FILE.2
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %  ------------------------------ BACKUP       ------------------------------
 %  BACK-CLASS = E           SAVED-PAG  = COMPL-FILE  VERSION    = 1
 %  MIGRATE    = INHIBITED
 %  #BACK-VERS = 0
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

/show-file-attr max.file.3,inf=(sec=*yes,backup=*yes) ———————————— (7)

```
%0000000003 :2OSG:$USER1.MAX.FILE.3
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %  ------------------------------ BACKUP       ------------------------------
 %  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
 %  MIGRATE    = ALLOWED
 %  #BACK-VERS = 0
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

/copy-file from=#temp.file.1,to=max.file.3 ———————————— (8)
/show-file-attr max.file.3,inf=(sec=*yes,backup=*yes) ———————————— (9)

```
 %0000000003 :2OSG:$USER1.MAX.FILE.3
%  ------------------------------ SECURITY     ------------------------------
 %  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
 %  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
 %  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
 %  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
 %  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
 %  SP-REL-LOCK= NO          ENCRYPTION = *NONE
 %  ------------------------------ BACKUP       ------------------------------
 %  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
 %  MIGRATE    = ALLOWED
 %  #BACK-VERS = 0
 %:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         0 REL=         0 PAGES
```

(1) Output of the catalog entry for the file *PROC.MINI.2* with the attributes for file protection and file security. The file is accessible to all users (USER-ACCESS=ALL-USER) who also know the defined execute password *'MAXI'*.

(2) Entry of the password *'MAXI'* into the password table of the task.

(3) Copies the file *PROC.MINI.2* to the temporary file *TEMP.FILE.1* with PROTECTION=*SAME.

(4) Output of the catalog entry for the temporary file *TEMP.FILE.1* with the file protection and backup attributes for the file. Default attributes have been set for the temporary file, as it is not possible to transfer a password, BACKUP-CLASS=A, or USER-ACCESS=ALL-USERS, e.g. (see also the CREATE-FILE command).

(5) Copies the temporary file *TEMP.FILE.1* to the file *MAX.FILE.2* with PROTECTION= *SAME.

(6) The catalog entry indicates that the file protection and backup attributes of the temporary file have been copied.

(7) Output of the catalog entry for the file *MAX.FILE.3* with the file protection and backup attributes. The file is protected by means of a BASIC-ACL.

(8) Copies the temporary file *TEMP.FILE.1* to the file *MAX.FILE.3*.

(9) Output of the catalog entry for the file *MAX.FILE.3* with the file protection and backup attributes. These attributes have not been changed.

Example 5: Copying an existing file interactively

```
/copy-file from=max.file.1,to=max.file.10,replace-old=*by-dialog   ————   (1)
```

```
% DMS0518 FILE ':2OS2:$USER1.MAX.FILE.10' ALREADY EXISTS. OVERWRITE? REPLY (Y=YES; N=NO)?
```

```
n                                                                  ————   (2)
```

```
% DMS0519 COPY COMMAND WITHDRAWN BY CALLER
```

```
/copy-file from=max.file.1,to=max.file.11,replace-old=*by-dialog ————   (3)
```

(1) Specifies that the file *MAX.FILE.1* is to be copied to the file *MAX.FILE.10* and that a prompt is to be issued before overwriting any existing target file.

(2) The file *MAX.FILE.10* already exists. *N* is entered in response to the prompt. So the COPY-FILE command is not executed.

(3) Specifies that the file *MAX.FILE.1* is to be copied to the file *MAX.FILE.11* and that a prompt is to be issued before overwriting any existing target file. Since the target file does not exist in this case, the COPY-FILE command is executed without a prompt.

Example 6: Copying a file on private disk

```
/cre-file max.priv-file.1,sup=priv(vol=work01,dev-type=d3435)   ————————   (1)
/show-file-attr max.priv-file.1,inf=(org=*yes,alloc=*yes)       ————————   (2)
```

```
 %0000000003*:2OSG:$USER1.MAX.PRIV-FILE.1
%  ------------------------------ ORGANIZATION -------------------------------
 %  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
 %  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
 %  REC-FORM   = NONE        REC-SIZE   = 0
 %  AVAIL      = *STD
 %  ------------------------------ ALLOCATION   -------------------------------
 %  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
 %  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
 %      1       WORK01       D3435
 %  NUM-OF-EXT = 1
 %:2OSG: PRDISC:      1 FILE  RES=         3 FRE=         3 REL=         0 PAGES
```

```
/copy-file from=max.file.1,to=max.priv-file.1                   ————————————   (3)
/show-file-attr max.priv-file.1,inf=(org=*yes,alloc=*yes)       ————————   (4)
```

```
 %0000000003*:2OSG:$USER1.MAX.PRIV-FILE.1
%  ------------------------------ ORGANIZATION -------------------------------
 %  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
 %  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
 %  REC-FORM   = NONE        REC-SIZE   = 0
 %  AVAIL      = *STD
 %  ------------------------------ ALLOCATION   -------------------------------
 %  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
 %  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
 %      1       WORK01       D3435
 %  NUM-OF-EXT = 1
 %:2OSG: PRDISC:      1 FILE  RES=         3 FRE=         3 REL=         0 PAGES
```

(1) Creates a catalog entry for the file *MAX.PRIV-FILE.1*, which is to be stored on the private disk *WORK01*.

(2) Output of the newly created catalog entry showing information on the file organization and the volume allocation. Since the file has not yet been opened, information on the file structure is not yet available (e.g. FILE-STRUC=NONE).

(3) Copies the file *MAX.FILE.1* to the file *MAX.PRIV-FILE.1*.

(4) Output of the catalog entry for the file *MAX.PRIV-FILE.1* showing information on the file organization and volume allocation. The file attributes (e.g. FILE-STRUC=ISAM) were entered during on executing the COPY-FILE command.

Example 7: Copying a file to a tape file (tape cartridge)

/show-file-attr max.tape-file.1,inf=(org=*yes,alloc=*yes) ———————— (1)

```
%          :2OS2:$USER1.MAX.TAPE-FILE.1
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  CODE       = NONE        LABEL      = NONE        FILE-SEQ   = NONE
%  BLK-OFFSET = 0
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT                                 BLK-COUNT =  0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%  (           D2315K       TAPE-C4 )
%:2OS2: TAPE  :      1 FILE
```

/add-file-link link=dmcopy22,file-name=max.tape-file.1,
sup=*tape(vol=*catalog) ———————— (2)
/show-file-attr max.file.<4,5>,inf=(sec=*yes,org=y*es) ———————— (3)

```
%0000000018 :2OS2:$USER1.MAX.FILE.4
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%00000006 :2OS2:$USER1.MAX.FILE.5
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%:2OS2: PUBLIC:      2 FILES RES=        24 FRE=         5 REL=         3 PAGES
```

/show-file-link link=dmcopy22,inf=(file-contr=*yes) ——————— **(4)**

```
%
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
% T DMCOPY22            :2OS2:$USER1.MAX.TAPE-FILE.1
%  -------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
%  ACC-METH   = *BY-PROG    OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-PROG
%  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-PROG    BLK-CONTR  = *BY-PROG
%  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
%  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
%  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
%  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
%  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
%  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
%  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
%  STREAM     = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
%  KEY-POS    = *BY-PROG    KEY-LEN    = *BY-PROG    POOL-LINK  = *BY-PROG
%  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
%  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
%  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
```

/copy-file from=max.file.5,to=max.tape-file.1,prot=*same ——————— **(5)**

/show-file-attr max.tape-file.1,inf=(org=*yes,alloc=yes,sec=*yes) ——— **(6)**

```
%          :2OS2:$USER1.MAX.TAPE-FILE.1
%  ------------------------------ HISTORY      --------------------------------
%  CRE-DATE   = 2012-03-19  ACC-DATE   = 2012-03-19  CHANG-DATE = 2012-03-19
%  CRE-TIME   =   00:00:00  ACC-TIME   =   00:00:00  CHANG-TIME =   00:00:00
%  ACC-COUNT  = 1           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     --------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = ALL-USERS   ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  ------------------------------ BACKUP       --------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION --------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  REC-FORM   = (V,N)       REC-SIZE   = 2044
%  CODE       = EBCDIC      LABEL      = (STD,1)     FILE-SEQ   = 1
%  BLK-OFFSET = 4
%  ------------------------------ ALLOCATION   --------------------------------
%  SUPPORT    = PVT                                 BLK-COUNT =  5
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%              D2315K       TAPE-C4
%:2OS2: TAPE  :      1 FILE
```

/cre-file max.tape-file.2,sup=*tape(vol=d2315k,dev-type=tape-c4) ———— **(7)**

/add-file-link link=dmcopy22,file-name=max.tape-file.2, ——————— **(8)**
sup=tape(vol=*catalog,file-sequence=*new)

/show-file-link link=dmcopy22,inf=(file-contr=*yes) ———————— (9)

```
%
%-- LINK-NAME --------- FILE-NAME -----------------------------------------
% T DMCOPY22            :2OS2:$USER1.MAX.TAPE-FILE.2
%  -------------------- FILE-CONTROL-BLOCK GENERAL ATTRIBUTES -------------
%  ACC-METH   = *BY-PROG    OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-PROG
%  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-PROG    BLK-CONTR  = *BY-PROG
%  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK DISK FILE ATTRIBUTES -----------
%  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
%  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK TAPE FILE ATTRIBUTES -----------
%  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
%  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = NEW
%  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
%  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
%  STREAM     = *BY-PROG
%  -------------------- FILE-CONTROL-BLOCK ISAM FILE ATTRIBUTES -----------
%  KEY-POS    = *BY-PROG    KEY-LEN    = *BY-PROG    POOL-LINK  = *BY-PROG
%  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
%  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
%  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
```

/copy-file from=max.file.4,to=max.tape-file.2,prot=*same —————————— (10)

/show-file-attr max.tape-file.2,inf=(org=*yes,alloc=*yes,prot=*yes) ——— (11)

```
%         :2OS2:$USER1.MAX.TAPE-FILE.2
%  ------------------------------ HISTORY      --------------------------------
%  CRE-DATE   = 2012-03-19  ACC-DATE   = 2012-03-19  CHANG-DATE = 2012-03-19
%  CRE-TIME   =   00:00:00  ACC-TIME   =   00:00:00  CHANG-TIME =   00:00:00
%  ACC-COUNT  = 1           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     --------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = ALL-USERS   ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-19
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  ------------------------------ BACKUP       --------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ---------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  REC-FORM   = (V,N)       REC-SIZE   = 2044
%  CODE       = EBCDIC      LABEL      = (STD,1)     FILE-SEQ   = 2
%  BLK-OFFSET = 4
%  ------------------------------ ALLOCATION   ---------------------------------
%  SUPPORT    = PVT                                  BLK-COUNT = 14
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%              D2315K       TAPE-C4
%:2OS2: TAPE  :      1 FILE
```

(1) Output of the catalog entry for the file *MAX.TAPE-FILE.1* showing information on the file organization and volume allocation. Only the catalog entry exists at this stage. The file has not yet been opened (e.g. FILE-STRUC=NONE). The data contained in the file is to be stored on the magnetic tape cartridge *D2315K* of volume type *TAPE-C4*. Since no volume has been reserved as yet, the volume ID is shown in parentheses.

(2) Creates a TFT entry with the link name *DMCOPY22* for the file *MAX.TAPE-FILE.1*. The default link name of the COPY-FILE command is used for the target file.

(3) Output of the catalog entries for the files *MAX.FILE.4* and *MAX.FILE.5* showing the file protection information. Both files have a BASIC-ACL entry as the highest activated access control. The USER-ACCESS attribute is set to all users in each case.

(4) Output of the TFT entry with the link name *DMCOPY.22* indicating the file processing attributes.

(5) Copies the file *MAX.FILE.5* to the tape file *MAX.TAPE-FILE.1* with PROTECTION= *SAME.

(6) Output of the catalog entry for the file *MAX.TAPE-FILE.1* showing information on the file protection, file organization and volume allocation. The file attributes have been updated (e.g. FILE-STRUC=SAM). The file is located on volume *D2315K*. The BASIC-ACL could not be copied. The file is only protected by standard access control, with the USER-ACCESS attribute set to OWNER-ONLY.

(7) Creates a catalog entry for the tape file *MAX.TAPE-FILE.2*, which is also to be stored on the tape cartridge *D2315K*.

(8) Creates a TFT entry with the link name *DMCOPY22* for the file *MAX.TAPE-FILE.2*. The default link name of the COPY-FILE command is used for the target file. Since this is the second file to be stored on the tape cartridge, FILE-SEQUENCE=*NEW (or alternatively, FILE-SEQUENCE=2) must also be specified. Without this specification, the default value FILE-SEQUENCE=1 would be assumed when executing the copy operation, and the first file would be overwritten.

(9) Output of the TFT entry with the link name *DMCOPY22* showing the relevant file processing information (see also the *F-SEQ* output field).

(10) Copies the file *MAX.FILE.5* to the tape file *MAX.TAPE-FILE.2* with PROTECTION= *SAME.

(11) Output of the catalog entry for the file *MAX.TAPE-FILE.2* showing the protection attributes, organization, and volume allocation for the file. The file attributes have been updated (e.g. FILE-STRUC=SAM). The file is located as the second file on volume *D2315K*. The BASIC-ACL could not be copied. The file is only protected by standard access control, with the USER-ACCESS attribute set to *ALL-USERS.

Example 8: Changing the BLOCK-CONTROL-INFO when copying

```
/show-file-attr ah.lib,org=*yes                    ————————————————————————————    (1)
```

```
%0000000273 :2OSG:$USER1.ASS.PLAMLIB
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = PAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  TYPE       = PLAM-LIB
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *NONE       S0-MIGR    = *ALLOWED
%:2OSG: PUBLIC:      1 FILE  RES=       273 FRE=        47 REL=        45 PAGES
```

```
/add-file-link link=dmcopy22,file-name=max.file.12,
                              block-contr=*no                    ————————    (2)
/copy-file from=ah.lib,to=max.file.12,block-contr=*check-removal  ————————    (3)
/show-file-attr max.file.12,org=*yes               ————————————————————————————    (4)
```

```
%0000000273 :2OSG:$USER1.MAX.FILE.12
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = PAM         BUF-LEN    = STD(1)      BLK-CONTR  = NO
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  TYPE       = PLAM-LIB
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *NONE       S0-MIGR    = *ALLOWED
%:2OSG: PUBLIC:      1 FILE  RES=       273 FRE=        47 REL=        45 PAGES
```

(1) Output of the catalog entry for the file *ASS.PLAMLIB* showing the file organization. The file is a PLAM library that was created with BLOCK-CONTROL-INFO=*PAMKEY. The file is to be copied to an NK file with BLOCK-CONTROL-INFO=*NO. Since the internal block structure of the file does not depend on the PAMKEY, a different BLOCK-CONTROL-INFO is permitted when copying.

(2) Creates a TFT entry with the link name *DMCOPY22* for the target file *MAX.FILE.12* with BLOCK-CONTROL-INFO=*NO. The default link name of the COPY-FILE command is used for the target file.

(3) Copies the file *ASS.PLAMLIB* to the file *MAX.FILE.12* with BLOCK-CONTROL-INFO= *CHECK-REMOVAL (copy only if no user information from the PAMKEY is lost).

(4) Output of the catalog entry for the target file *MAX.FILE.12* showing the organization of the file. The file was created with BLOCK-CONTROL-INFO=*NO.

Example 9: Copying two or more files with a COPY-FILE command

```
/copy-file from=<proc>.<ptest>.*,to=<2>-backup.<1>edure.<3>,
           output=*sysout,dialog-contr=*file-change ————————————————   (1)
```

```
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROC.PTEST.EDT' (Y=YES; N=NO; T
=TERMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROC.PTEST.EDT' SUCCESSFULLY EXEC
UTED WITH FILE NAME ':2OSG:$USER1.PTEST-BACKUP.PROCEDURE.EDT'
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROC.PTEST.KOSTEN' (Y=YES; N=NO
; T=TERMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROC.PTEST.KOSTEN' SUCCESSFULLY E
XECUTED WITH FILE NAME ':2OSG:$USER1.PTEST-BACKUP.PROCEDURE.KOSTEN'
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROC.PTEST.KOSTEN1' (Y=YES; N=N
O; T=TERMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROC.PTEST.KOSTEN1' SUCCESSFULLY
EXECUTED WITH FILE NAME ':2OSG:$USER1.PTEST-BACKUP.PROCEDURE.KOSTEN1'
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROC.PTEST.KOSTEN2' (Y=YES; N=N
O; T=TERMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROC.PTEST.KOSTEN2' SUCCESSFULLY
EXECUTED WITH FILE NAME ':2OSG:$USER1.PTEST-BACKUP.PROCEDURE.KOSTEN2'
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROC.PTEST.REVERSE' (Y=YES; N=N
O; T=TERMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROC.PTEST.REVERSE' SUCCESSFULLY
EXECUTED WITH FILE NAME ':2OSG:$USER1.PTEST-BACKUP.PROCEDURE.REVERSE'
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROC.PTEST.STEUER' (Y=YES; N=NO
; T=TERMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROC.PTEST.STEUER' SUCCESSFULLY E
XECUTED WITH FILE NAME ':2OSG:$USER1.PTEST-BACKUP.PROCEDURE.STEUER'
```

```
/copy-file from=prot.*fehl/,to=fehlerprotokoll-/.*,output=*sysout————————   (2)
```

```
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.PROT.*FEHL/' (Y=YES; N=NO; T=TE
RMINATE; ?=HELP/FURTHER OPTIONS)?y
%  DMS0812 '05A9' DMS ERROR CODE OCCURRED DURING EXECUTION OF THE JOB FOR THE FI
LE NAME ':2OSG:$USER1.PROT.SDFFRAME.FEHL1' WITH THE FILE NAME ':2OSG:$USER1.FEHL
ERPROTOKOLL-1.SDFFRAME.'. FURTHER INFORMATION: /HELP-MSG DMS05A9
%  DMS0813 CONTINUE JOB AFTER ERROR (Y=YES; N=NO; R=RETRY; ?=HELP/FURTHER OPTIONS?
```

```
y  ————————————————————————————————————————————————————————————————————   (3)
```

```
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROT.VARFEHL1' SUCCESSFULLY EXECU
TED WITH FILE NAME ':2OSG:$USER1.FEHLERPROTOKOLL-1.VAR'
%  DMS0816 JOB FOR THE FILE NAME ':2OSG:$USER1.PROT.VARFEHL2' SUCCESSFULLY EXECU
TED WITH FILE NAME ':2OSG:$USER1.FEHLERPROTOKOLL-2.VAR'
```

(1) All files whose first subname is *PROC* and whose second subname is *PTEST* are to be copied. The newly formed names are to have *PTEST* (second search string in index notation) and *-BACKUP* as the first subname. The second subname is to be made up of *PROC* (first search string) and *EDURE*. The third name part of the search string is to remain unchanged. Copying is to be confirmed for each file (DIALOG-CONTROL) and the new name is to be output to SYSOUT (OUTPUT).

(2) All files which begin with the subname *PROT*, contain a freely selectable character string and end with the string *FEHL* and another character are to be copied. The new names are to begin with the subname made up of the string *FEHLERPROTOKOLL* (= error log) and the last character of the search string. This is to be followed by the string identified by * in the search string.

(3) An error occurred when editing the file *PROT.SDFFRAME.FEHL1*. The newly formed name of the target file would end with a period and is therefore not possible. Processing is continued by entering *YES*.

2.68 COPY-JV

Copy job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The COPY-JV command copies the content of a job variable (source JV) to another job variable (target JV). Optionally it is possible to copy not only the content but also the protection attributes of the source JV with the exception of any existing MONJV or CJC protection.
Both permanent and temporary job variables can be copied.
Read access must be permitted for the source JV and write access for the target JV. If a target JV does not exist it is created. When a permanent JV is created the maximum permitted number specified in the user entry may not be exceeded (see also the CREATE-JV command).

Privileged functions

Systems support (TSOS privilege) is by default co-owner of all job variables (and can therefore also create or copy job variables under any user ID). This co-ownership can be restricted for permanent job variables if SECOS is used.

Format

COPY-JV Alias: **CPJV**

FROM-JV = <filename 1..54 without-gen-vers> / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

,**TO-JV** = <filename 1..54 without-gen-vers> / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

,**PROTECTION** = ***STD** / ***SAME**

,**REPLACE-OLD-JV** = ***YES** / ***NO**

Operands

FROM-JV = <filename 1..54 without-gen-vers>
Name of the job variable which is to be copied (source JV).
Write access must be permitted (for a JV under a foreign user ID either USER-ACCESS=ALL-USERS or read permission via BASIC-ACL or GUARDS or co-ownership must exist).

FROM-JV = *LINK(...)
The source JV is named via a link name.

> **LINK-NAME = <alphanum-name 1..7>**
> Link name of the JV.

TO-JV = <filename 1..54 without-gen-vers>
Name of the job variable which is to be copied to (target JV).
If the target JV is not yet cataloged, it is created. In this case only the user's own user ID may be specified or a user ID for which the user is co-owner.
If the target JV is cataloged, write access must be permitted (in the case of a JV under a foreign user ID, either the standard access control must exist with USER-ACCESS= *ALL-USERS or write permission via BASIC-ACL or GUARDS or co-ownership). However, the target JV is overwritten only if REPLACE=*YES is specified (default).

TO-JV = *LINK(...)
The target JV is named via a link name.

> **LINK-NAME = <alphanum-name 1..7>**
> Link name of the JV.

PROTECTION = *STD / *SAME
Specifies whether the protection attributes of the source JV are also to apply for the target JV.
If MONJV or CJC protection exists for the source JV, this is **not** taken over.

PROTECTION = *STD
The protection attributes are *not* applied to the target JV. If the target JV is to be newly created, it will be assigned the system defaults as protection attributes (see also the defaults of the CREATE-JV command). The existing protection attributes are retained if the target JV already exists.

PROTECTION = *SAME
The target JV is assigned the same protection attributes as the source JV (i.e. for *ACCESS*, *USER-ACCESS*, *OWNER*, *GROUP*, *OTHERS*, *EXPIR-DATE*, *EXPIR-TIME*, *MAN-CLASS*, defined GUARDS, and the same passwords; see also the output fields of the SHOW-JV-ATTRIBUTES command). If MONJV or CJC protection exists it is not taken over.
The PROTECTION=*SAME specification is ignored in the following cases (i.e. *STD applies):

- The target JV is a temporary JV.
- CJC protection exists for the target JV.
- The target JV resides under a foreign user ID and the caller is not a co-owner.

As management classes are pubset-specific they can only be taken over if the source and target JVs reside on the same pubset. When copying to another pubset an existing target JV retains its management class; a new target JV is assigned `MANAGEMENT-CLASS=*NONE` (as with `PROTECTION=*STD`).
In the case of a source JV which resides under a foreign ID and is protected with BASIC-ACL or GUARDS, the protection attributes USER-ACCESS, BASIC-ACL and GUARDS are set to the system defaults (see the CREATE-JV command).

REPLACE-OLD-JV = *YES / *NO
Specifies whether an existing target JV is to be overwritten.

REPLACE-OLD-JV = *YES
An existing target JV is overwritten without any message being issued.

REPLACE-OLD-JV = *NO
An existing target JV is not overwritten. The command is rejected. In procedures error handling is triggered (spin-off mechanism in non-S procedures or SDF-P error handling in S procedures).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

2.69 COPY-POSIX-FILE

Copy file from or to POSIX

Component:	POSIX-BC
Functional area:	File processing POSIX administration and application
Domain:	FILE
Privileges:	all privileges

Function

The COPY-POSIX-FILE command offers the functionality of the POSIX command *bs2cp* in BS2000:

- Copying files from the POSIX file system to BS2000 files or elements of a PLAM library
- Copying BS2000 files or elements of a PLAM library to the POSIX file system (library elements are only copied to simple files)

Access to BS2000 files via RFA (Remote File Access) is not supported. For encrypted files, the crypto password must be entered into the crypto password table (see the ADD-CRYPTO-PASSWORD command).

Notes on command execution

The specifications in the COPY-POSIX-FILE command generate a *bs2cp* command with the corresponding parameters (if a list of file names is specified, a corresponding number of bs2cp commands) which is called in a POSIX shell (see the START-POSIX-SHELL command). The caller must, therefore, have a HOME directory in POSIX. The settings from the profile in the HOME directory (e.g changing the current directory and values of the environment variables *IO_CONVERSION* and *BS2CPTABS*) affect the copy process.

Before the bs2cp command is called, two other POSIX commands may be issued if required:

- The handling of text and binary files when copying (RECORD-CONVERSION operand) is controlled via an ftyp command.
- The file attributes of the target files are optionally controlled via a bs2file command (FILE-ATTRIBUTES operand).

The POSIX command *bs2cp* is described in the “POSIX Basics for Users and System Administrators” manual [28], the *bs2file* and *ft yp* commands in the “POSIX Commands” manual [29].

The mode of operation of the COPY-POSIX-FILE command is described in detail in the “POSIX Basics for Users and System Administrators” manual [28].

Format

COPY-POSIX-FILE Alias: **CPXF/BS2CP**

COPY-DIRECTION = ***FROM-POSIX** / ***TO-POSIX**

,POSIX-FILE = ***BY-SOURCE**(...) / list-poss(2000): <posix-pathname 1..1023>

***BY-SOURCE**(...)

| POSIX-DIRECTORY = **.** / <posix-pathname 1..1023 without-wild>

| ,PREFIX = ***NONE** / <c-string 0..80 with-low>

| ,SUFFIX = ***NONE** / <c-string 0..80 with-low>

,BS2000-FILE = ***BY-SOURCE**(...) / ***LIB**RARY-**ELEM**ENT(...) / list-poss(2000): <filename 1..54 with-wild(80)>

***BY-SOURCE**(...)

| PREFIX = ***NONE** / <c-string 0..53>

| ,SUFFIX = ***NONE** / <c-string 0..40>

***LIB**RARY-**ELEM**ENT(...)

| LIBRARY = <filename 1..54>

| ,ELEMENT = ***BY-SOURCE**(...) / list-poss(2000): <composed-name 1..64 with-under-wild>(...)

| ***BY-SOURCE**(...)

| | VERSION = ***HIGH**EST-**EXIST**ING / ***UPPER-LIMIT** / <composed-name 1..24 with-under>

| | ,PREFIX = ***NONE** / <c-string 0..63>

| | ,SUFFIX = ***NONE** / <c-string 0..63>

| <composed-name 1..64 with-under-wild>(...)

| | VERSION = ***HIGH**EST-**EXIST**ING / ***UPPER-LIMIT** / <composed-name 1..24 with-under>

| ,TYPE = ***S** / ***D** / ***J** / ***M** / ***P** / ***X** / ***L**

,WRITE-MODE = ***BY-DIA**LOG / ***REPLACE** / ***CREATE**

,CHARACTER-**CONV**ERSION = ***NO** / ***Y**ES(...)

***YES**(...)

| TABLE = ***STD** / <posix-pathname 1..1023 without-wild>

,OUTPUT = ***NONE** / ***SYSOUT**

,RECORD-**CONV**ERSION = ***TEXT** (...) / ***BINARY**

***TEXT** (...)

| **SUBST**ITUTE-**TAB**ULATOR = ***YES** / ***NO**

,**FILE-ATTR**IBUTES = ***STD** / ***PAR**AMETER(...)

***PAR**AMETER(...)

| **FILE-NAME** = ***ALL** / <filename 1..54>

| ,**ATTR**IBUTES = ***STD** / <c-string 0..1000>

Operands

COPY-DIRECTION =
Copy direction.

COPY-DIRECTION = *FROM-POSIX
POSIX files are copied to BS2000.

COPY-DIRECTION = *TO-POSIX
BS2000 files or PLAM elements are copied to POSIX.

POSIX-FILE = *BY-SOURCE / list-poss(2000): <posix-pathname 1..1023>
Specifies the POSIX files to be used during copying.

POSIX-FILE = *BY-SOURCE
*This specification is only possible when copying *TO-POSIX:*
The names of the POSIX files should be derived from the BS2000 names. If multiple BS2000 files are to be copied to POSIX, this operand value must be specified.

POSIX-DIRECTORY =
Specifies the directory to which the BS2000 files or the PLAM elements are to be copied.

POSIX-DIRECTORY = . .
The files are copied to the directory currently set.
As default, this is the home directory of the calling BS2000 user. Another current directory can be set by using the change directory command in the *.profile* file (with the POSIX command *cd*).

POSIX-DIRECTORY = <posix-pathname 1..1023 without-wild>
The files are copied to the explicitly specified directory.

PREFIX = *NONE / <c-string 0..80 with-low>
Prefix for the POSIX file name. *NONE is the default, i.e. no prefix is used.

SUFFIX = *NONE / <c-string 0..80 with-low>
Suffix for the POSIX file name. *NONE is the default, i.e. no suffix is use.

POSIX-FILE = list-poss(2000): <posix-pathname 1..1023>
The names of POSIX files are entered explicitly. The following must be taken into account:

- When copying **FROM-POSIX*:
  Enter one or more absolute or relative path names of the POSIX files. The POSIX wildcard syntax (shell special characters for file name replacement) is supported.

- When copying **TO-POSIX*:
  If only one BS2000 file is copied and the name of the target file is to be explicitly specified, the absolute or relative path name of a POSIX file must be specified. Wildcard syntax is not permitted.
- As default, relative path names refer to the home directory of the calling BS2000 user. Another directory can be set by using the change directory (*cd*) command in the *.profile* file.

BS2000-FILE = *BY-SOURCE(...) / *LIBRARY-ELEMENT(...) / list-poss(2000): <filename 1..54 with-wild(80)>
Specifies the BS2000 files or the PLAM elements to be used during copying.

BS2000-FILE = *BY-SOURCE(...)
*This specification is only possible when copying *FROM-POSIX:*
The names of the BS2000 files are derived from the names of the POSIX files. This is a mandatory entry when more than one POSIX file is to be copied to BS2000.

PREFIX = *NONE / <c-string 0..53 with-low>
Prefix for the BS2000 file name. *NONE is the default, i.e. no prefix is used.

SUFFIX = *NONE / <c-string 0..40 with-low>
Suffix for the BS2000 file name. *NONE is the default, i.e. no suffix is use.

BS2000-FILE = *LIBRARY-ELEMENT(...)
PLAM elements are used during copying.

LIBRARY = <filename 1..54>
Name of the PLAM library.

ELEMENT =
Specifies the PLAM elements to be used during copying.

ELEMENT = *BY-SOURCE(...)
*This specification is only possible when copying *FROM-POSIX:*
The element name is to be derived from the POSIX name. This is a mandatory entry if more than one POSIX file is to be copied to a PLAM library in BS2000.

VERSION =
Specifies which version of an element is to be used.

VERSION = *HIGHEST-EXISTING
The target element with the highest version is used. The following must be taken into account:

- If an element does not yet exist, it is assigned version *001*.
- If existing elements are copied, then the element is overwritten with the highest version.

VERSION = *UPPER-LIMIT
The target element should be assigned the highest possible version (X’FF’; this corresponds to the tilde character in the *bs2cp* command).

VERSION = <composed-name 1..24 with-under>
The version is explicitly entered.

PREFIX = *NONE / <c-string 0..63 with-low>
Prefix for the element file name. *NONE is the default, i.e. no prefix is used.

SUFFIX = *NONE / <c-string 0..63 with-low>
Suffix for the element file name. *NONE is the default, i.e. no suffix is used.

ELEMENT = list-poss(2000): <composed-name 1..64 with-under-wild>(...)
The names of the elements are entered explicitly. The following must be taken into account:

- When copying **TO-POSIX*:
  Enter one or more element names. The LMS wildcard syntax (“*”, “<“, “:”, “>”) is supported.
  In contrast to the POSIX command *bs2cp* a list of element names can also be specified here. In this case, the POSIX command *bs2cp* is called for each element name (with/without wildcard). The entries for the other operands then apply for all *bs2cp* calls.
- When copying **FROM-POSIX*:
  Explicit specification of an element name (wildcards are not allowed here) if only one POSIX file is copied and the name of the target element is to be defined explicitly.

VERSION =
Specifies the element version used.

VERSION = *HIGHEST-EXISTING
The element with the highest version is used.

VERSION = *UPPER-LIMIT
The copied element should be assigned the highest possible version (X’FF’).

VERSION = <composed-name 1..24 with-under>
The version is entered explicitly.

TYPE = *S / *D / *J / *M / *P / *X / *L
Specifies the type of PLAM elements handled. As default, the type S (Source) is used.

BS2000-FILE = list-poss(2000): <filename 1..54 with-wild(80)>
The names of the BS2000 files are entered explicitly. The following must be taken into account:

- When copying **TO-POSIX*:
  Enter one or more file names. The BS2000 wildcard syntax is supported with restrictions (only the wildcard “*”).
  In contrast to the POSIX command *bs2cp* a list of BS2000 file names can also be specified here. In this case, the POSIX command *bs2cp* is called for each file name (with/without wildcard). The entries for the other operands then apply for all *bs2cp* calls.
- When copying **FROM-POSIX*:
  Explicit specification of a file name (wildcards are not allowed here) if only one POSIX file is copied and the name of the target file is to be defined.

WRITE-MODE =
*This specification is only relevant when copying *FROM-POSIX.*
Specifies whether target files or elements that already exist in BS2000 are overwritten (this is similar to the *-f* option in the POSIX command *bs2cp*).

WRITE-MODE = *BY-DIALOG
In this case the dialog will display a prompt asking if an existing file should be overwritten.

```
bs2cp: overwrite A ? y (yes), n (no), a (all) or q (quit)
```

WRITE-MODE = *REPLACE
The dialog prompt is suppressed and existing files or elements are always overwritten.

WRITE-MODE = *CREATE
Target files or elements which do not yet exist are created. Existing target files or elements are not overwritten.

CHARACTER-CONVERSION =
Specifies if character conversion can be carried out during the copying process (this is similar to the *-k* and *-t* options in the POSIX *bs2cp* command).

CHARACTER-CONVERSION = *NO
Character conversion is not carried out.

CHARACTER-CONVERSION = *YES(...)
Character conversion is carried out.

TABLE =
Specifies the conversion table.

TABLE = *STD
Internal POSIX default tables are used (this is similar to the *-k* option in the POSIX command *bs2cp*).

TABLE = <posix-pathname 1..1023 without-wild>
The conversion table is entered explicitly (this is similar to the *-t* option in the POSIX command *bs2cp*).

Note

The shell variable *BS2CPTABS* (see *bs2cp*) is not supplied with values via this specification. If required the variable in the *.profile* can be set.

OUTPUT =
Specifies whether extended logging of the *bs2cp* command is to be output (this is similar to the *-l* option in the POSIX command *bs2cp*).

OUTPUT = *NONE
The extended logging is not output.

OUTPUT = *SYSOUT
The extended logging is output to SYSOUT.

RECORD-CONVERSION =
Entry specifying how the contents of BS2000 files are to be handled during copying.
This parameter generates the POSIX command *ftyp* with the corresponding parameters. If an operand value is not explicitly specified (corresponds to the preset value RECORD-CONVERSION=*TEXT(SUBSTITUTE-TABULATOR=*YES)), *ftyp text* is set as the default.

RECORD-CONVERSION = *TEXT(...)
SAM files or PLAM library elements are handled as text files. “newline” in the POSIX file becomes a change of record in the BS2000 file (or vice versa, depending on the copying direction).

SUBSTITUTE-TABULATOR =
Specifies how tabulator characters are to be handled.

SUBSTITUTE-TABULATOR = *YES
Tabulator characters are to be filled (*ftyp text*).

SUBSTITUTE-TABULATOR = *NO
Tabulator characters are retained (*ftyp textbin*).

RECORD-CONVERSION = *BINARY
SAM files or PLAM library elements are handled as binary files.

FILE-ATTRIBUTES =
*This specification is only relevant when copying *FROM-POSIX.*
When POSIX files are copied to BS2000 (not for PLAM elements) the file attributes of the target files in BS2000 can be entered in the same way as for the POSIX command *bs2file*. Depending on the parameter entry, a *bs2file* command is issued in the shell before the actual *bs2cp* command.

FILE-ATTRIBUTES = *STD
No *bs2file* command is issued:
Files which do not yet exist are assigned the standard file attributes (SAM access method, variable record format, and standard blocking). Existing files retain their attributes. If only the catalog entry exists for a file (no OPEN has taken place), the ISAM access method is used.

FILE-ATTRIBUTES = *PARAMETER(...)
A *bs2file* command is issued when copying. The file attributes are specified in the same way as for the POSIX command *bs2file*.

FILE-NAME =
Specifies the file for which the attributes are to be set.

FILE-NAME = *ALL
The attributes entered are valid for the first file to be copied with any name (corresponds to the “*” entry in the POSIX command *bs2file*).

FILE-NAME = <filename 1..54>
The attributes entered are valid for the first file which is to be copied which has this name.

ATTRIBUTES =
Specifies the file attributes.

ATTRIBUTES = *STD
The standard file attributes are used.

ATTRIBUTES = <c-string 1..1000>
Explicit specification of the file attributes.
The file attributes supported are described for the POSIX command *bs2cp* (see the “POSIX Basics for Users and System Administrators” manual [28]). The entry format for the file attributes (operands and possible values) is described under the FILE macro (see the “DMS Macros” manual [12]).

Example: `ATTRIBUTES='FCBTYPE=SAM,RECFORM=F,BLKSIZE=80'`

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	64	POS6010	Invalid combination of the specifications BS2000-FILE=*BY-SOURCE and COPY-DIRECTION=*TO-POSIX
	64	POS6011	Invalid combination of hte specifications BS2000-FILE=*LIBRARY-ELEMENT(..., ELEMENT=*BY-SOURCE,...) and COPY-DIRECTION=*TO-POSIX
	64	POS6012	Invalid combination of the specifications POSIX-FILE=*BY-SOURCE and COPY-DIRECTION=*FROM-POSIX
	64	POS6013	More than one BS2000 file specified as target.
	64	POS6014	More than one PLAM library element specified as target.
	64	POS6015	More than one POSIX file specified as target.
	64	POS6016	More than one BS2000 file or PLAM library element specified as source and one POSIX file specified as target; however, this is not a directory.
	64	POS6017	More than one POSIX file specified as source, but BS2000-FILE=*BY-SOURCE not specified.
	64	POS6018	The required version of SDF or SDF-P-BASYS is not installed.
	64	POS6019	Error when starting the POSIX shell.
	64	POS6020	Error when executing the POSIX command bs2cp.
	64	POS6021	Invalid specification of FILE-ATTRIBUTES.
	64	POS6022	Error when executing the POSIX command bs2file.
	64	POS6023	Invalid specification of wildcards.
	64	POS6024	Invalid specification in the ATTRIBUTES operand.

2.70 COPY-SYSTEM-FILE

Copy contents of logical system file

Component:	SYSFILE
Functional area:	File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The COPY-SYSTEM-FILE command copies the contents of the logical system file SYSLST, for which the primary assignment is in force, to a file. The user can thus have the contents stored in a cataloged file without having previously performed a corresponding assignment of SYSLST. The present contents of SYSLST are immediately accessible to the user in the specified file, i.e. there is no need to wait until a listing is available which is only produced at the end of the job or previously by means of PRINT-DOCUMENT. After the copy operation, output to the logical system file is continued.

The part of the logical system file SYSLST that was copied with the COPY-SYSTEM-FILE command **cannot** be deleted. With the DELETE-SYSTEM-FILE command, only the part of the logical system file SYSLST that has been created since the last COPY-SYSTEM-FILE command can be deleted.

Format

COPY-SYSTEM**-FILE**	Alias: **CPSF**
FILE**-NAME** = ***SYSLST**	
,**TO-F**ILE = <filename 1..54 without-gen-vers>	

Operands

FILE-NAME = *SYSLST
Name of the logical system file whose contents are to be copied. The default value is the logical system file SYSLST.

TO-FILE = <filename 1..54 without-gen-vers>
Name of the file to which the contents of the system files are to be copied. The specified file is opened with OPEN=OUTPUT, i.e. the contents of any existing file are lost. If insufficient storage space is available for the user ID, the command is rejected.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	SSM3284	DMS error during command execution
	64	SSM3282	System file has no primary assignment
	64	SSM3283	System file is empty

2.71 CREATE-ALTERNATE-INDEX

Create secondary index for NK-ISAM file

Component:	BS2000
Functional area:	File processingg
Domain:	FILE
Privileges:	STD-PROCESSING

Function

There is a key field for each record in an NK-ISAM file, which contains the record's primary key. The user can specify the position and length of this primary key in the ADD-FILE-LINK command (KEY-POSITION and KEY-LENGTH operands) when the file is created. These details are copied into the catalog entry (see the command SHOW-FILE-ATTRIBUTES). All primary keys are managed internally by means of a directory, called the primary index. NK-ISAM finds any required record in the file by looking up its primary key in the primary index.
The command CREATE-ALTERNATE-INDEX allows an additional, secondary, index to be set up for the file. It defines an additional key field for the records in the file. For records which already exist (which will be read in sequentially), NK-ISAM creates an internal directory, which is called the secondary index. This is made up of the secondary keys for each record, their corresponding primary keys, and the entries sorted into order of the secondary key values (see the SORT-WORK-FILE operand).
Secondary keys are supported in macro calls for the ISAM access method (see the "DMS Macros" manual [12]). When a particular secondary key value is used for a read or positioning operation within the file, NK-ISAM looks through the entries to find this key. The entry which it finds will contain the corresponding primary key value. Using the primary key determined in this way, the required record is looked up in the primary index.
Any particular secondary key value may be contained in more than one record (depending on the DUPLICATE-KEY operand). When secondary keys are being used, the primary key values must always be unique. The correspondence between the secondary and primary keys then allows the record(s) to be unambiguously identified.
The user may define up to 30 different secondary keys for a file. Each of the secondary keys which is defined, and the associated secondary index which is created for it, has a name which must be unique (see the KEY-NAME operand). Provided that the following requirements are met, the key fields may be in any required position:

- For variable-length records, allowance must be made for the 4-byte record length field at the start of the record.
- Any key field which is defined must lie within the record. In the case of variable-length records, the length of the shortest records will represent a limit.
- Key fields may not lie within any overflow blocks, which may arise when a K-ISAM file is converted to an NK-ISAM file if the maximum length of record was used.

Secondary keys cannot be managed separately from the primary key. When a file is extended, the secondary indices are automatically extended. For large files it is better (for performance reasons) to set up the required secondary index or indices after the file has been created.

The SHOW-INDEX-ATTRIBUTES command provides information on secondary keys which have been defined, or secondary indices which have been created, for a file.
Its execution involves read access to the file (OPEN=INPUT).
The user can delete secondary indices again using the DELETE-ALTERNATE-INDEX command.

Terminating index creation:

- If NK-ISAM detects an error during the creation of an index (e.g. a data record which is too short), any partly created index will be deleted.
- If the index creation is terminated due to a system crash, the file is locked and can be recreated using the REPAIR-DISK-FILES command. When this is done, the secondary index is deleted.
- An incompletely created index is retained, and is identified as INCOMPLETE if it is output using SHOW-INDEX-ATTRIBUTES. Attempts to open the file will be rejected with DMS0D84. The incomplete secondary index can only be deleted, and then recreated from the beginning.

Format

CREATE-**ALTER**NATE-**INDEX**

FILE-NAME = <filename 1..54>

,**ALTER**NATE-**INDEX** = **list-poss(30):** [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **KEY-NAME** = <name 1..8>

| ,**KEY-POS**ITION = <integer 1..32496>

| ,**KEY-LEN**GTH = <integer 1..127>

| ,**DUP**LICATE-**KEY** = ***Y**ES / ***NO**

,**SORT-WORK-FILE** = ***STD** / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <name 1..8>

Operands

FILE-NAME = <filename 1..54>
Name of the NK-ISAM file.
The file must fulfill the following requirements:

- It must be already cataloged.
- It must be an NK-ISAM file, i.e. the PAM keys are at the beginning of each PAM page (BLK-CONTR=DATA).
- The primary index must already exist, i.e. the file must have already been opened once in OUTPUT mode.
- The file must not contain any primary keys with the same value (duplicate keys).
- The primary keys must not contain any logical or value flags (see the LOGICAL-FLAG-LENGTH and VALUE-FLAG-LENGTH operands in the ADD-FILE-LINK command).

ALTERNATE-INDEX = list-poss(30): *PARAMETERS(...)
For the secondary index which is to be created, this operand specifies the index name, the position and length of the key in the record, and the permissibility of duplicate secondary key values in different records.
Up to 30 secondary indices can be defined in a list.

KEY-NAME = <name 1..8>
Defines the name of the secondary index.
The selected name must be unique. The SHOW-INDEX-ATTRIBUTES command can be used to establish which names have already been used.

KEY-POSITION = <integer 1..32496>
Defines the position of the first byte of the key field within each data record. Records of *variable* length begin with a 4-byte field, the record length field. The permitted positions depend on the length of the key field.

KEY-LENGTH = <integer 1..127>
Defines the length of the key field in bytes.
The key field may be up to 127 bytes long. The position of the key field within the record will depend on its position *and* its length. A key field may not lie within an “overflow” block. Overflow blocks are created if a file is converted from K-ISAM format to NK-ISAM format and the maximum record length is used in the K-ISAM format file.

DUPLICATE-KEY = *YES / *NO
Specifies whether the secondary keys in different records may have the same value. The default setting is YES, i.e. duplicate keys are permitted.
In this case, the secondary index may contain several entries for any particular secondary key value. These entries are sorted according to their date of creation (in time stamp order).

SORT-WORK-FILE = *STD / *LINK(...)
Specifies which disk is to be used for the sort run when the secondary index is being created, if main memory provides insufficient space.
When the sort run ends, the assigned file will be *deleted*.
The default setting is *STD, i.e. if it is required, the sort run will use a file named DISWORK.<tsn>.

SORT-WORK-FILE = *LINK(...)
By specifying its file link name, the user can select another file as the work file.

LINK-NAME = <name 1..8>
File link name under which the file to be used is entered into the TFT.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	DMS0A37	Internal system error
	32	DMS0A3A	Inconsistent control block
	32	DMS0A42	Internal error on opening the file
	32	DMS0A43	Internal error on closing the file
	32	DMS0A44	Error on reading the file
	32	DMS0A45	Error on writing to the file
	32	DMS0A47	DMS error in sort part of NK-ISAM
	32	DMS0A48	Internal error in sort part of NK-ISAM
	32	DMS0A4F	RDTFT error
	64	DMS0A3D	Incomplete secondary key found
	64	DMS0A3F	Secondary index already defined
	64	DMS0A30	Remote BS2000 system has a version < V10.0A
	64	DMS0A31	Specified catalog ID does not exist
	64	DMS0A33	File contains duplicate primary keys
	64	DMS0A34	Secondary index already exists
	64	DMS0A36	File contains ISAM flags
	64	DMS0A39	Invalid KEYPOS parameter
	64	DMS0A40	List includes duplicated names
	64	DMS0A46	Not an NK-ISAM file
	64	DMS0A4D	File contains duplicate secondary key
	64	DMS0A4E	SHARUPD = YES was specified
	128	DMS0A49	Command interrupted
	130	DMS0A32	Specified catalog ID not available
	130	DMS0A38	Insufficient virtual memory
	130	DMS0A3C	Maximum number of secondary keys

	130	DMS0A3E	ISAM pool is overloaded

Examples

Creation of multiple secondary indices

```
/show-file-attr max.file.4,inf=(org=*yes)     ————————————————————————————————    (1)
```

```
%0000000126 :2OSG:$USER1.MAX.FILE.4
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = ISAM        BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%  KEY-LEN    = 8           KEY-POS    = 5
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *K          S0-MIGR    = *ALLOWED
%:2OSG: PUBLIC:      1 FILE  RES=       126 FRE=         5 REL=         3 PAGES
```

```
/cre-alter-index file-name=max.file.4,
                alter-index=( (key-name=strasse,key-pos=30,key-len=20),  ——   (2)
                              (key-name=ort,key-pos=50,key-len=25) )     ——   (3)

/show-index-at max.file.4                    ————————————————————————————    (4)
```

```
%FILE-NAME: :2OSG:$USER1.MAX.FILE.4
%   KEY-NAME   KEY-POSITION   KEY-LENGTH   DUPKEY
%---------------------------------------------------------------
%   STRASSE          30            20      YES
%   ORT              50            25      YES
```

(1) Returns information on the organization of the NK-ISAM file *MAX.FILE.4*. The primary key begins at the 5th byte (after a record length field of 4 bytes) and is 8 bytes long. The file contains a customer list, where the 8-digit customer number serves as the primary key.

Two secondary indices are defined in a list in the CREATE-ALTERNATE-INDEX command (see points 2 and 3):

(2) In order to enable access in a program via the street name which is contained in each record, a secondary index with the name *STREET* is to be created for this data field. The data field begins at the 30th byte and is 20 bytes long. Since a street name may be contained in several records, DUPLICATE-KEY=*YES is permitted (default value).

(3) In order to enable access in a program via the city name which is contained in each record, a secondary index with the name *CITY* is to be created for this data field. The data field begins at the 50th byte and is 25 bytes long. Since a city name may be included in several records, DUPLICATE-KEY=*YES is permitted (default value).

(4) The SHOW-INDEX-ATTRUBUTES command returns information on all secondary indices that were created for the file *MAX.FILE.4*.

2.72 CREATE-DUMP

Generate user dump

Component:	BS2000
Functional area:	Program control
Domain:	PROGRAM
Privileges:	all privileges bar HARDWARE-MAINTENANCE OPERATING

Function

The CREATE-DUMP command allows users to initiate creation of a user dump. A dump is only generated if Y is entered in response to the following query:

```
IDA0N45 DUMP DESIRED? REPLY (Y=USER-/AREADUMP TO DISK;
        Y,<VOLUMETYPE>=USER-/AREADUMP TO TAPE; Y,SYSTEM=SYSTEMDUMP; N=NO)
```

Users can convert the user dump to a system dump by setting their read authorization so that the value m is greater than or equal to 3 in the command `MODIFY-TEST-OPTIONS PRIVILEGE=PARAMETERS(READ=m, WRITE=1)`. This option is only open to users who have the appropriate authorization in the user entry. The SHOW-USER-ATTRIBUTES command displays information about the user entry.

Whether the CREATE-DUMP command results in creation of a dump depends on the setting of the test option DUMP (see the MODIFY-TEST-OPTIONS command):

DUMP=*NO:	Dump creation is suppressed
DUMP=*STD:	Dump creation is suppressed in batch and procedure mode. In dialog mode, a dump is only created if you respond with “Y” to message IDA0N45.
DUMP=*YES:	Dump creation is initiated without prompting.
DUMP=*SYSTEM:	The user dump is converted into a system dump without prompting.

Format

CREATE**-DUMP**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	CMD0221	System error

2.73 CREATE-FILE

Define name and attributes for new file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The CREATE-FILE command creates a catalog entry for a file. The following attributes are defined for the file and stored in the catalog under the specified file name:

- name (FILE-NAME operand)
- type of volume and performance attributes (SUPPORT operand)
- protection attributes (PROTECTION operand)
- method and frequency with which the file is automatically backed up by ARCHIVE or HSMS (SAVE operand)
- user information (USER-INFORMATION and ADM-INFORMATION operands)
- lock against migration when public storage space is automatically managed by the software product HSMS (MIGRATE operand)
- character set (CODED-CHARACTER-SET operand)
- character set for SAM node files (NET-CODED-CHARACTER-SET operand)

Further attributes, see "Overview of functions".

Privileged functions

The following functions are available only if physical allocation of public space is allowed:

- explicit specification (values other than the default, *STD) of a volume or volume set in the VOLUME or VOLUME-SET operand in the structure SUPPORT=*PUBLIC-DISK (STORAGE-CLASS=*NONE(...)) when creating files on the pubset's disks
- absolute space reservation using SPACE=*ABSOLUTE(...) in the structure SUPPORT=*PUBLIC-DISK(...) (note that no permission is required when SUPPORT=*PRIVATE-DISK)
- intensified migration locking using MIGRATE=*FORBIDDEN

Exception: These functions are also available for work files when no authorization for physical allocation exists.

Physical allocation is allowed in the following cases:

- for tasks with TSOS privilege
- for files of a user ID which has PHYSICAL-ALLOCATION=*ALLOWED in its pubset-specific user entry (see the SHOW-USER-ATTRIBUTES command)
- for files in SF pubsets which have an MRSCAT entry that allows physical allocation for all users (see the SHOW-MASTER-CATALOG-ENTRY command, INFORMATION =*USER) operand.

Systems support (TSOS privilege) personnel can supplement the user information in the file catalog with one to eight bytes of information about the file (ADM-INFORMATION operand).

Systems support personnel (TSOS privilege) can have accesses to the file monitored (AUDIT operand). To configure the AUDIT function, nonprivileged users need appropriate authorization in the user entry of the pubset in which the file is to be created (see the *AUDIT* output field of the SHOW-USER-ATTRIBUTES command).

By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, create files under all user logons). When SECOS is used, this co-ownership can be restricted.
Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners. Co-owners are thus allowed to create permanent files under that ID.

Temporary files

Since temporary files are job-related, it is not possible to define file protection for them, i.e. the specified protection attributes (PROTECTION operand) cannot differ from the defaults (except for DESTROY-BY-DELETE, AUDIT, and SPACE-RELEASE-LOCK).

A nonprivileged user can only generate temporary files on the default pubset of his user ID.

Files in SM pubsets

The storage location for a file on an SM pubset can be selected on the basis of a storage class. This simplifies the automatic management of storage space (for details see the “Introduction to System Administration” [14] or the “System-Managed Storage” manual [45]).
Systems support personnel allocates to a storage class certain file attributes which are implicitly set for all files assigned to that storage class. If a storage class is specified, there is no need to explicitly specify values for the WORK-FILE, VOLUME-SET, VOLUME, DEVICE-TYPE, IO-ATTRIBUTES, DISK-WRITE, FILE-PREFORMAT and AVAILABILITY operands. The SHOW-STORAGE-CLASS command allows users to find out which storage classes of the SM pubset are available to them and which file attributes are set.

Physical allocation in SM pubsets

A user who is allowed to perform physical allocation of public storage space (see “Privileged functions”) can directly specify a volume or volume set (VOLUME or VOLUME-SET operand) in the STORAGE-CLASS=*NONE(...) structure in order to select a specific volume set of an SM pubset as the storage location for a file.
In addition, a lock on migration to another volume set of the SM pubset is placed on the file (S0-MIGRATION=*FORBIDDEN; see also the identically named operand in the command description). If the user has specified a volume set of the WORK usage mode, the WORK-FILE attribute is specified implicitly.

When S0-MIGRATION=*FORBIDDEN is set (in this case implicitly), the file's PERFORMANCE and AVAILABILITY attributes are matched to the identically named attributes of the volume set.
These attributes correspond to the levels of PERFORMANCE (STD, HIGH, VERY-HIGH) and AVAILABILITY (STD, HIGH) which are hierarchically arranged in the user catalog. To ensure that there are adequate levels of performance and availability, files with the S0-MIGRATION=*FORBIDDEN attribute are always assigned at least the PERFORMANCE and AVAILABILITY levels defined for the volume set (you can list the attributes of the volume set with the SHOW-PUBSET-DEFINITION-FILE command (and also with SHOW-PUBSET-CONFIGURATION)).
Any explicit specification of the PERFORMANCE and AVAILABILITY operands which selects a lower level in the hierarchy is ignored. The minimum value is recorded in the file's catalog entry, and the level in the user catalog is set accordingly. Note that a file's PERFORMANCE attribute may be higher than the maximum permissible value as set in the user entry (*DMS-TUNING-RESOURCES* output field). Then, regardless of the level that has been set, the file will at best be processed using the value which is in the user entry at the time of OPEN processing. The level settings and the value of the DMS-TUNING-RESOURCES attribute can be viewed in the output of the SHOW-USER-ATTRIBUTES command, INFORMATION =*PUBSET-ATTRIBUTES operand.

Example

In conjunction with physical allocation, the user specifies PERFORMANCE=*HIGH or *STD (or this applies implicitly since it is the default), but the attribute of the chosen volume set is PERFORMANCE=*VERY-HIGH. The file will then automatically be assigned the attribute PERFORMANCE=*VERY-HIGH. If the user entry includes DMS-TUNING-RESOURCES=*CONCURRENT-USE, the file will actually only be processed with a setting of PERFORMANCE=*HIGH.

Work files

The user can create a file as a work file in an SM pubset (operand setting WORK-FILE= *YES). The file is created as a permanent file in a volume set defined for that purpose. Systems support personnel can delete work files again at times which it defines.
By default, work files are not backed up.

Files on tapes and tape cartridges

When the catalog entries for tape files are being accessed or created, the special features associated with this storage medium must be taken into account.

For files with standard labels, details of the shareability (USER-ACCESS), access type (ACCESS) and passwords are transferred from the catalog entry to the file labels when the file is created (OPEN).

When a file is created, its file attributes are transferred to the file labels without being checked. Write protection (ACCESS=*READ) can thus be defined for a file which has still to be created. The file can then be opened as an output file, and created; the write protection will take effect after this.

If a file was cataloged using CREATE-FILE, by default it will be shareable unless USER-ACCESS=*OWNER-ONLY is specified in a CREATE-FILE command (or later by a MODIFY-FILE-ATTRIBUTES command before the file is opened for the first time).

Files on remote systems

If a file is created via an RFA connection on a remote system which has its FARMTSAV system parameter set to 1, the catalog entry is marked as modified (its internal version number is given a value of 1) and will if necessary be backed up in the next incremental backup.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Specify name of catalog entry	FILE-NAME =	
Specify the volume	SUPPORT =	
Volume: pubset and Net-Storage	= *PUBLIC-DISK	
• Specify storage type		STORAGE-TYPE =
○ File type (on Net-Storage)		FILE-TYPE =
• Define storage class		STORAGE-CLASS =
○ Define work file attribute		WORK-FILE =
○ Performance requirements ■ Performance attribute ■ type of I/O operations		IO-ATTRIBUTES =
○ Define time when data consistency is required after write operations		DISK-WRITE =
○ preferred file format		FILE-PREFORMAT =
○ Define availability requirements		AVAILABILITY =
○ Specify volume set		VOLUME-SET =
○ Specify the volume		VOLUME =
○ Specify device type		DEVICE-TYPE =

• Storage space allocation		SPACE =
• HSMS storage management class		MANAGEMENT-CLASS =
• user information		USER-INFORMATION =
• systems support information		ADM-INFORMATION =
Volume: private disk	SUPPORT = *PRIVATE-DISK (...)	
• Request volume(s)		VOLUME =
• Specify device type		DEVICE-TYPE =
• Storage space allocation		SPACE =
• Separate storage of data/index for ISAM files		DATA-SUPPORT = *PARAMETERS(...)
Volume: tape	SUPPORT = *TAPE(...)	
• Request volume(s)		VOLUME =
• Specify device type		DEVICE-TYPE =
• Request tape device		PREMOUNT-LIST =
Define protection attributes	PROTECTION =*PARAMETERS (...)	
• Import protection attributes from file		PROTECTION-ATTR =
• Access rights		ACCESS =

• Shareability		USER-ACCESS =
• Basic access control list		BASIC-ACL =
• Password protection		GUARDS =
• Define passwords		WRITE-PASSWORD=, READ-PASSWORD=, EXEC-PASSWORD=
• Physical deletion (overwrite with binary zeros)		DESTROY-BY-DELETE =
• Monitoring of DMS accesses via SAT /System Exit Routines		AUDIT =
• Lock to prevent release of reserved storage space (disk files only)		SPACE-RELEASE-LOCK =
• Date when file is freed for deletion		FREE-FOR-DELETION =
Only for files on disk and Net-Storage: Type and frequency of automatic data backup by ARCHIVE or HSMS	SAVE =	
• Backup frequency		BACKUP-CLASS =
• Maximum number of file versions in the version backup archive		NUM-OF-BACKUP-VERS=
• Scope of backup		SAVED-PAGES =
Only for files on disk and Net-Storage: Whether the file can be migrated if the software product HSMS is used (automatic management of public storage space)	MIGRATE =	

• Migration allowed	= *ALLOWED	
• Migration lock	= *INHIBITED	
• Intensified migration lock	= *FORBIDDEN	
Code table (XHCS)	CODED-CHARACTER-SET =	
Only for node files: character set with which the file is created on Net-Storage	NET-CODED-CHAR-SET =	
Error handling if the file already exists	SUPPRESS-ERRORS =	
• Normal error handling	= *NONE	
• Suppress error handling	= *FILE-EXISTING	

Table 29: Overview of CREATE-FILE command functions

Format

CREATE-**FILE** Alias: **CRF**

FILE-**NAME** = <filename 1..54 without-gen>

,**SUP**PORT = ***PUB**LIC-**DISK**(...) / ***PRIV**ATE-**DISK**(...) / ***TAPE**(...) / ***NONE**

***PUB**LIC-**DISK**(...)

| **STOR**AGE-**TYPE** = ***STD** / ***PUBLIC-SPACE** / ***NET-STORAGE**(...)

| ***NET-STORAGE**(...)

| | **FILE-TYPE** = ***STD** / ***BS2000** / ***NODE-FILE**

| ,**STOR**AGE-**CLASS** = ***STD** / <composed-name 1..8> / ***NONE**(...)

| ***NONE**(...)

| | **WORK-FILE** = ***STD** / ***NO** / ***Y**ES

| | ,**IO-ATTRIBUTES** = ***STD** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **PERFORMANCE** = ***STD** / ***HIGH** / ***VERY-HIGH** / ***USER-MAX**IMUM

| | | ,**USAGE** = ***READ-WRITE** / ***WR**ITE / ***READ**

| | ,**DISK-WRITE** = ***STD** / ***IMMED**IATE / ***BY-CLOSE**

| | ,**AVAIL**ABILITY = **_STD_** / ***HIGH**

| | ,**FILE-PREFORMAT** = **_BY-PUB_**SET-**_DEF_**AULT / ***K** / ***NK2** / ***NK4**

| | ,**VOL**UME-**SET** = **_STD_** / ***CONTR**OL-**VOL**UME-**SET** / <cat-id 1..4>

| | ,**VOL**UME = **_STD_** / list-poss(255): <vsn 1..6>

| | ,**DEV**ICE-**TYPE** = **_BY-VOL_**UME / <device>

| ,**SPACE** = **_STD_** / ***RELA**TIVE(...) / ***ABSO**LUTE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY-**ALLOC**ATION = <integer 1..2147483647>

| | ,**SEC**ONDARY-**ALLOC**ATION = **_STD_** / <integer 0..32767>

| ***ABSO**LUTE(...)

| | **FIRST-PAGE** = <integer 1..2147483647>

| | ,**SIZE** = <integer 1..2147483647>

| ,**MANAG**EMENT-**CLASS** = **_NONE_** / <composed-name 1..8>

| ,**USER-INF**ORMATION = **_NONE_** / <c-string 1..8 with-low>

| ,**ADM-INF**ORMATION = **_NONE_** / <c-string 1..8 with-low>

***PRIV**ATE-**DISK**(...)

| **VOL**UME = [**_ANY_**] (...) / list-poss(255): <alphanum-name 1..6>

| [**_ANY_**](...)

| | **NUM**BER-**OF-DEV**ICES = **_1_** / <integer 1..9>

| ,**DEV**ICE-**TYPE** = **_BY-VOL_**UME-**_CATALOG_** / <device>

| ,**SPACE** = **_STD_** / ***RELA**TIVE(...) / ***ABSO**LUTE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY-**ALLOC**ATION = <integer 1..2147483647>

| | ,**SEC**ONDARY-**ALLOC**ATION = **_STD_** / <integer 0..32767>

| ***ABSO**LUTE(...)

| | **FIRST-PAGE** = <integer 1..2147483647>

| | ,**SIZE** = <integer 1..2147483647>

| ,**DATA-SUPPORT** = **_SAME_** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **DATA-DEV**ICE **-TYPE** = <device>

| | ,**DATA-VOL**UME = list-poss(255): <alphanum-name 1..6>

| | ,**DATA-SPACE** = ***RELA**TIVE (...) / ***ABSO**LUTE(...)
| | ***RELA**TIVE(...)
| | | **PRIM**ARY-**ALLOC**ATION = <integer 1..2147483647>
| | | ,**SEC**ONDARY-**ALLOC**ATION = ***STD** / <integer 0..32767>
| | ***ABSO**LUTE(...)
| | | **FIRST-PAGE** = <integer 1..2147483647>
| | | ,**SIZE** = <integer 1..2147483647>
***TAPE**(...)
| **VOL**UME = ***NO** / [***ANY**](...) / list-poss(255): <alphanum-name 1..6>
| [***ANY**](...)
| | **NUM**BER-**OF-DEV**ICES = **1** / <integer 1..9>
| ,**DEV**ICE-**TYPE** = ***BY-VOL**UME-**CATALOG** / <device>
| ,**PREM**OUNT-**LIST** = ***NONE** / list-poss(255): <integer 0..255>
,**PROT**ECTION = ***STD** / [***PAR**AMETERS](...)
[***PAR**AMETERS](...)
| **PROT**ECTION-**ATTR** = ***BY-DEF-PROT-OR-STD** / ***STD** / ***FROM-FILE**(...)
| ***FROM-FILE**(...)
| | **F**ILE-**NAME** = <filename 1..54 without-gen>
| ,**ACCESS** = ***BY-PROT**ECTION-**ATTR** / ***WR**ITE / ***READ**
| ,**USER-ACCESS** = ***BY-PROT**ECTION-**ATTR** / ***OWNER-ONLY** / ***ALL-USERS** / ***SPECIAL**
| ,**BASIC-ACL** = ***BY-PROT**ECTION-**ATTR** / ***NONE** / ***STD /** [***PAR**AMETERS](...) / ***GR**OUP-**X** /
| ***GR**OUP-**RX** / ***GR**OUP-**WRX** / ***ALL-X** / ***ALL-RX** / ***ALL-WRX**
| [***PAR**AMETERS](...)
| | **OWNER** = ***NO-ACCESS** / [***PAR**AMETERS](...)
| | [***PAR**AMETERS](...)
| | | **READ** = ***NO** / ***Y**ES
| | | ,**WR**ITE = ***NO** / ***Y**ES
| | | ,**EXEC** = ***NO** / ***Y**ES
| | ,**GR**OUP = ***NO-ACCESS** / [***PAR**AMETERS](...)
| | [***PAR**AMETERS](...)
| | | **READ** = ***NO** / ***Y**ES

```
        |           |           |   ,WRITE = *NO / *YES
        |           |           |   ,EXEC= *NO / *YES
        |           |   ,OTHERS = *NO-ACCESS / [*PARAMETERS](...)
        |           |       [*PARAMETERS](...)
        |           |           |   READ = *NO / *YES
        |           |           |   ,WRITE = *NO / *YES
        |           |           |   ,EXEC= *NO / *YES
        |   ,GUARDS= *BY-PROTECTION-ATTR / *NONE / [*PARAMETERS](...)
        |       [*PARAMETERS](...)
        |           |   READ = *NONE / <filename 1..18 without-cat-gen-vers>
        |           |   ,WRITE = *NONE / <filename 1..18 without-cat-gen-vers>
        |           |   ,EXEC = *NONE / <filename 1..18 without-cat-gen-vers>
        |   ,WRITE-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / *SECRET / <c-string 1..4> /
        |           <x-string 1..8> / <integer -2147483648..2147483647>
        |   ,READ-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / *SECRET / <c-string 1..4> /
        |       <x-string 1..8> / <integer -2147483648..2147483647>
        |   ,EXEC-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / *SECRET / <c-string 1..4> /
        |       <x-string 1..8> / <integer -2147483648..2147483647>
        |   ,DESTROY-BY-DELETE = *BY-PROTECTION-ATTR / *NO / *YES
        |   ,AUDIT = *STD / *NONE / *SUCCESS / *FAILURE / *ALL
        |   ,SPACE-RELEASE-LOCK = *BY-PROTECTION -ATTR / *NO / *YES
        |   ,FREE-FOR-DELETION = *NONE / <date> / <integer 0..99999>
,SAVE = *STD / *NO / [*PARAMETERS](...)
    [*PARAMETERS](...)
        |   BACKUP-CLASS = *STD / *A / *B / *C / *D / *E
        |   ,SAVED-PAGES = *COMPLETE-FILE / *MODIFIED-PAGES
        |   ,NUM-OF-BACKUP-VERS = *STD / <integer 0..32>
,MIGRATE = *STD / *ALLOWED / *INHIBITED / *FORBIDDEN
,CODED-CHARACTER-SET = *USER-DEFAULT / *NONE / <name 1..8>
,NET-CODED-CHAR-SET = *USER-DEFAULT / *ISO / *NO-CONVERSION / <name 1..8>
,SUPPRESS-ERRORS = *NONE / *FILE-EXISTING
```

Operands

FILE-NAME = <filename 1..54 without-gen>
The name to be given to the new file.
You may specify only your own user logon or a user logon to which co-ownership has been assigned.
The maximum number of files specified for the user in the user catalog must not be exceeded. The permitted number of permanent and temporary files may also be limited. The applicable values can be determined from the output of the SHOW-USER-ATTRIBUTES command. A nonprivileged user can only generate temporary files on the default pubset of his user ID.

SUPPORT = *PUBLIC-DISK(...) / *PRIVATE-DISK(...) / *TAPE(...) / *NONE
Type of volume.

SUPPORT = *PUBLIC-DISK(...)
The file is to be created on public disk or Net-Storage. The pubset on which the file is to be created is uniquely identified by the (explicitly specified or default) catalog ID in the file name.

STORAGE-TYPE = *STD / *PUBLIC-SPACE / *NET-STORAGE(...)
Determines the storage type for the file's storage location.

STORAGE-TYPE = *STD
The file is created on the default storage type for storing files on this pubset.

STORAGE-TYPE = *PUBLIC-SPACE
The file is created on the disks of the pubset.
In addition to the entry in the file catalog, the file is also created physically with the smallest possible amount of storage space (see the "SPACE operand").

STORAGE-TYPE = *NET-STORAGE(...)
The file is created on a Net-Storage volume.
The authorization NET-STORAGE-USAGE=*ALLOWED (default) must be entered to the user entry. Catalog entries are generated both on the local pubset and in the relevant file system of the Net-Server. However, the file is not created physically.
If no volume is specified, the file is created on the default Net-Storage volume. If no default Net-Storage volume is assigned to the pubset but only one or more explicitly specified Net-Storage volumes, the system determines the Net-Storage volume on which the file is created.

> Files with a PAM key, file generation groups, work files and temporary files cannot be created on Net-Storage.

FILE-TYPE = *STD / *BS2000 / *NODE-FILE
Determines the file type of the file to be created.

FILE-TYPE = *STD
The file is created as a BS2000 file on a Net-Storage volume. When the volume of a private disk is specified under STORAGE-CLASS=*NONE(...), the file is created on the private disk.

FILE-TYPE = *BS2000
The file is created as a BS2000 file on a Net-Storage volume. When under STORAGE-CLASS=*NONE (...) specifications regarding the volume or device type are provided which do not permit this, the command is aborted with an error.

FILE-TYPE = *NODE-FILE
The file is created as a node file on a Net-Storage volume. When under STORAGE-CLASS=*NONE(...) specifications regarding the volume or device type are provided which do not permit this, the command is aborted with an error.

STORAGE-CLASS = *STD / <composed-name 1..8> / *NONE(...)
Governs the properties of the file's storage location.
Systems support staff can define storage classes to facilitate automatic management of storage space in SM pubsets. A storage class is allocated certain file attributes which are implicitly set for all files assigned to that storage class. If a storage class is specified, there is no need to explicitly specify values for the WORK-FILE, VOLUME-SET, VOLUME, DEVICE-TYPE, IO-ATTRIBUTES, DISK-WRITE, FILE-PREFORMAT and AVAILABILITY operands.
The SHOW-STORAGE-CLASS command allows users to find out which storage classes of an SM pubset are available to them and which file attributes are set. Assigning a storage class simplifies the automatic management of storage space in an SM pubset (for details see the "Introduction to System Administration" [14] or the "System-Managed Storage" manual [45]).

STORAGE-CLASS = *STD
A file in an SM pubset is assigned the default storage class from the user entry for that pubset. If the file is to be created in an SF pubset or if there is no default storage class defined, the file is given the same attributes as with STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = <composed-name 1..8>
A file in an SM pubset is assigned the specified storage class. The storage class must exist and be accessible to the user at the time when the assignment is made. This specification is ignored for a file in an SF pubset; the file is then given the same attributes as with STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = *NONE(...)
This value has the same effect as *STD if all the following conditions are met:

- The file is created on a volume set intended for permanent storage.
- A default storage class is assigned to the user ID at the SM pubset in question.
- Physical allocation is not permitted.

Only in this case are the operands WORK-FILE, PERFORMANCE, USAGE, DISK-WRITE, and AVAILABILITY ignored.

In all other cases, the properties of the file's storage location are determined on the basis of the following operands and no storage class is assigned to the file.

WORK-FILE = *STD / *NO / *YES
The operand is evaluated only for files in SM pubsets. Specifies whether the file is a work file which systems support is allowed to delete at a time which it defines.

WORK-FILE = *STD
The file is to be a work file only if it is stored in a volume set for work files as a result of the value of the VOLUME or VOLUME-SET operand.

WORK-FILE = *NO
The file is not to be a work file.

WORK-FILE = *YES
The file is to be a work file.

IO-ATTRIBUTES = *STD / *PARAMETERS(...)
Specifies the performance requirements demanded by the user for input/output operations. Whether such requirements are satisfied and the extent to which they are fulfilled depends on the cache medium that is defined for the associated pubset (see the output of the SHOW-MASTER-CATALOG-ENTRY command). If the file is created in an SM pubset, the performance requirements are taken into account when the volume set is selected.
Read and write access is performed through a fast cache. The number of disk accesses and the access times are reduced.
Performance attributes for file processing can also be defined in the TFT (see also the ADD-FILE-LINK command).

IO-ATTRIBUTES = *STD
The file has no special performance attributes and is therefore not processed via a cache.

IO-ATTRIBUTES = *PARAMETERS(...)
Performance attributes are determined by the values of the PERFORMANCE and USAGE operands.

PERFORMANCE = *STD / *HIGH / *VERY-HIGH / *USER-MAXIMUM
Specifies the file's performance attribute. It indicates the priority required for the I/O operations selected in the USAGE operand. The highest performance attribute allowed is defined in the user entry (see also the *DMS-TUNING- RESOURCES* output field in the output of the SHOW-USER-ATTRIBUTES command).

PERFORMANCE = *STD
The file has no special performance attribute and is therefore not processed via a cache.
The USAGE operand does not affect the processing of the file in this case.

PERFORMANCE = *HIGH
The file is to be processed through a cache (high performance priority). This specification is only possible for users who have the DMS tuning privilege CONCURRENT-USE or EXCLUSIVE-USE for the pubset (see the output field *DMS-TUNING-RESOURCES* in the output of the SHOW-USER-ATTRIBUTES command).

PERFORMANCE = *VERY-HIGH
The file is to be processed through a cache. The referenced data in the file is to be kept permanently in the cache (highest performance priority). The cache data is only evicted from the cache when the file is closed. Specification only possible for users who have the DMS tuning privilege EXCLUSIVE-USE for the pubset (see the output for the SHOW-USER-ATTRIBUTES command, output field *DMS-TUNING-RESOURCES*).

Note

All cache segments used for this file are locked until the file is closed. If there are many files open with this attribute at the same time, the cache memory available for normally cached files may, as a result, be so greatly restricted that data accesses to such files can no longer be implemented with an adequate level of performance.

PERFORMANCE = *USER-MAXIMUM
The file is assigned the highest performance attribute contained in the user catalog for the user.

USAGE = *READ-WRITE / *WRITE / *READ
Specifies the I/O operations for which enhanced performance (caching) is required. The default setting is *READ-WRITE, i.e. the requirements apply to read and write operations.
If the file does not have a particular performance attribute (PERFORMANCE= *STD) and if the cache area for the pubset is not defined in such a way that all existing files are served, then the USAGE operand has no effect on processing.

USAGE = *READ-WRITE
The performance requirements apply both to read and to write operations.

USAGE = *WRITE
The performance requirements apply to write operations only.

USAGE = *READ
The performance requirements apply to read operations only.

Note

With USAGE=*READ-WRITE or *WRITE, write caching is performed only if the conditions for the DISK-WRITE file attributes are met (see CREATE-FILE or MODIFY-FILE-ATTRIBUTES). For write caching with DISK-WRITE= *IMMEDIATE, the cache medium being used must be failsafe (see the *CACHE-MEDIUM* output field of the SHOW-MASTER-CATALOG-ENTRY command with INFORMATION=*USER). However, since nonvolatile cache media are no longer supported, DISK-WRITE=*IMMEDIATE should not be specified in the current BS2000 version.

DISK-WRITE = *STD / *IMMEDIATE / *BY-CLOSE
Specifies the time at which the data must be on a nonvolatile medium (disk or failsafe cache medium) after a write operation. If a volatile cache medium is used as the write cache, data in the file will not be in a consistent state until CLOSE processing has been completed because the write data is written out to disk during CLOSE processing. System errors during the processing phase may lead to inconsistencies. Write caching for files containing data which cannot easily be restored should be performed using only fail-safe cache media, i.e. data consistency after each write operation should be requested with DISK-WRITE=*IMMEDIATE.

DISK-WRITE = *STD
The default setting STD is equivalent to the value *IMMEDIATE for permanent files and the value *BY-CLOSE for temporary files.

DISK-WRITE = *IMMEDIATE
Data contained in the file must be on a nonvolatile medium immediately after a write operation.
Write caching is performed for files marked in this way only if a nonvolatile cache area is active for the pubset (see the *CACHE-MEDIUM=NONVOLATILE* output field of the SHOW-MASTER-CATALOG-ENTRY command with INFORMATION= *USER). If a volatile cache area is active for the pubset (*CACHE-MEDIUM=VOLATILE* output field), only read accesses are buffered for the file; write accesses are performed directly on the disks.

DISK-WRITE = *BY-CLOSE
Data contained in the file needs to be on a nonvolatile medium only after CLOSE processing.
Write caching for files marked in this way is performed regardless of whether the cache medium is fail-safe, i.e. even on volatile cache media.
Unsaved cached data is written out during CLOSE processing. The data in the file will not be on a nonvolatile medium (disk storage) until that point.
This attribute is suitable only for files containing data that can easily be restored (list files generated during compilation, for example), as a system error may cause inconsistencies in the files.

AVAILABILITY = *STD / *HIGH
Specifies availability requirements for the file. Files for which high availability is required must always be created by the system on suitable volumes. If no appropriate volume is available, the command is rejected.

AVAILABILITY = *STD
The file is not subject to special availability requirements.

AVAILABILITY = *HIGH
The file is to have high availability. If the volume is not capable of meeting the requirement, or if no suitable volume set is available within the SM pubset, the command is rejected.
The command is also rejected if applied to a work file or a temporary file.

FILE-PREFORMAT = *BY-PUBSET-DEFAULT / *K / *NK2 / *NK4
The operand is evaluated only for files in SM pubsets. Governs the preferred file format, which is taken into account in the choice of volume set. As long as the file has not yet been opened (no CREATION-DATE in the catalog entry), the chosen storage location is provisional and may still change in the course of OPEN processing.

FILE-PREFORMAT = *BY-PUBSET-DEFAULT
The preferred file format which applies is the format that systems support has defined as the pubset-specific default for the SM pubset using the MODIFY-PUBSET-SPACE-DEFAULTS command. The value set can be determined with the SHOW-PUBSET-SPACE-DEFAULTS command (and also with SHOW-PUBSET-CONFIGURATION).

FILE-PREFORMAT = *K
The file is to be created as a K file (BLOCK-CONTROL-INFO=*PAMKEY).

FILE-PREFORMAT = *NK2
The file is to be created as an NK file in 2K format (BLOCK-CONTROL-INFO= *WITHIN-DATA-2K-BLOCK or *WITHIN-DATA-BLOCK for a SAM file).

FILE-PREFORMAT = *NK4
The file is to be created as an NK file in 4K format (BLOCK-CONTROL-INFO= *WITHIN-DATA-4K-BLOCK or *WITHIN-DATA-BLOCK for a SAM file).

VOLUME-SET = *STD / *CONTROL-VOLUME-SET / <cat-id 1..4>
The specification is relevant only for a file on an SM pubset.
Determines the volume set on which the file is to be created.
Systems support can specify a volume set explicitly using *CONTROL-VOLUME-SET or <cat-id 1..4>.
Nonprivileged users cannot specify a volume set explicitly unless they have authorization to perform physical allocation of public storage space (see "Privileged functions").

VOLUME-SET = *STD
The file is stored in a suitable volume set of the SM pubset.

VOLUME-SET = *CONTROL-VOLUME-SET
Subject to restrictions (see general operand description).
The file is stored in a control volume set of the SM pubset. S0-MIGRATION= *FORBIDDEN is set implicitly.
If the volume set does not match the requested file attributes, the command is rejected.

VOLUME-SET = <cat-id 1..4>
Subject to restrictions (see general operand description).
The file is stored in the specified volume set of the SM pubset. S0-MIGRATION= *FORBIDDEN is set implicitly. If the volume set does not match the requested file attributes, the command is rejected.

VOLUME = *STD / list-poss(255): <vsn 1..6>
VSN of a public disk or of a Net-Storage volume on which the file is to be created.

VOLUME = *STD
The system selects appropriate VSNs.

VOLUME = list-poss(255): <vsn 1..6>
Systems support can specify volume serial numbers explicitly.
Nonprivileged users can specify a VSN for a Net-Storage volume explicitly. Nonprivileged users cannot specify a VSN explicitly for a public disk explicitly unless they have authorization to perform physical allocation of public storage space (see "Privileged functions").
VSNs can only be specified for public disks of the pubset whose pubset ID matches the catalog ID of the file name.
If the specified disk is part of a volume set in an SM pubset, S0-MIGRATION and MIGRATE=*FORBIDDEN are set implicitly.
When a file is to be created on Net-Storage, the Net-Storage volume specified must be allocated to the catalog ID of the file name.
When the file is to be stored on a specific Net-Storage volume without a default name, the VSN must be specified. Otherwise, the file is stored on the default Net-Storage volume or, if this does not exist, the system selects a Net-Storage volume.

DEVICE-TYPE = *BY-VOLUME / <device>
Type of device to which the required public disk or Net-Storage volume is assigned. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?.
The volume type NETSTOR must be specified for Net-Storage volumes.
If at least one volume ID is specified with VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.

DEVICE-TYPE = *BY-VOLUME
The disk device type belonging to the public disk is determined by the system.

DEVICE-TYPE = <device>
Systems support can specify device types explicitly.
When files are created on public volumes, nonprivileged users cannot specify a device type explicitly unless they have authorization to perform physical allocation (see "Privileged functions").

SPACE = *STD / *RELATIVE(...) / *ABSOLUTE(...)
Influences the storage space allocation for the file. The SPACE operand is always evaluated.

SPACE = *STD
For its primary and secondary allocations, the file is assigned the values defined by systems support.

SPACE = *RELATIVE(...)
With this operand, the user reserves storage space for the file (relative allocation). In doing so, he must take into account the following: the space ceiling defined in the user entry may be exceeded only if the user is authorized to do so (PUBLIC-SPACE-EXCESS=*YES, see the output of the SHOW-USER-ATTRIBUTES command).

In order to minimize system administration time, the following points should be noted when specifying primary and secondary allocations:

- the primary allocation should correspond to the expected size of the file to be created;
- for large files, the primary and secondary allocations should be selected as a multiple of the administration units packet or segment.

In relation to the allocation of storage space, the effect of the BUFFER-LENGTH operand in the ADD-FILE-LINK command must also be taken into account: when the primary and secondary allocations are being determined, the file's block length should be taken into account; for BUFFER-LENGTH=*STD(SIZE=n), where n>=2, the following applies:

File type	SPACE operand	
	Primary allocation	Secondary allocation
SAM	>= 2n	>= n
ISAM (K-ISAM and NK-ISAM)	> n	
PAM (chained I/O)	> 0	

Table 30: Minimum values for primary and secondary space allocations

PRIMARY-ALLOCATION = <integer 1..2147483647>
Number of PAM pages to be allocated initially.
The specified number of PAM pages will be reserved immediately. The number should correspond to the expected size of the file.
When storage space is actually allocated, the specified number of PAM pages is rounded up to a multiple of **k** if required. At this **k** is the number of PAM pages in the smallest allocation unit in each case.

Pubset/volume set format	Smallest allocation unit in Kbytes	Rounding factor k
K pubset/volume set	6	3
NK2(6K) pubset/volume set	6	3
NK2(8K) pubset/volume set	8	4
NK2(64K) pubset/volume set	64	32
NK4(8K) pubset/volume set	8	4

NK4(64K) pubset/volume set	64	32

Table 31: Smallest allocation unit based on pubset/volume set format

The pubset/volume set format and the smallest allocation unit can also be determined by the user from the output of the SHOW-MASTER-CATALOG-ENTRY command.

SECONDARY-ALLOCATION = *STD / <integer 0..32767>
The number of PAM pages by which the storage space should be extended, if this should become necessary. The default is STD, the default value for the system. In contrast to the primary allocation, the secondary allocation does not take effect as soon as the CREATE-FILE command is executed, but only if the reserved space proves insufficient when the file is being created or extended. The system will then automatically increase the storage space allocation for the file by the number of PAM pages specified in SECONDARY-ALLOCATION (field *S-ALLOC* in the output of the SHOW-FILE-ATTRIBUTES command). The value for secondary allocation is doubled after each successful extension. It is no longer doubled when the maximum value set in the system has been reached. When storage space is actually allocated, the specified number of PAM pages is rounded up to a multiple of **k** if required. The rounding factor **k** is dependent on the pubset/volume set format, i.e. on the formatting of the associated disks (see the PRIMARY-ALLOCATION operand).
A specification of SECONDARY-ALLOCATION=0 prevents dynamic expansion of the file.

SPACE = *ABSOLUTE(...)
This operand value is allowed only in combination with VOLUME operands.
Systems support staff can allocate storage space explicitly. In the case of files on Net-Storage, an absolute assignment of storage space is not permitted.
Nonprivileged users are allowed to allocate it only if they have authorization to perform physical allocation of public storage space (see "Privileged functions"). With this operand, the user reserves storage space for the file by an absolute allocation, i.e. he specifies the number of the PAM page on which the storage space allocation is to start. In doing so, he must take the following into account: An absolute allocation will only be made if it is possible to reserve the whole of the specified number of blocks (SIZE) on *one* single disk. If more than one disk was specified in the VOLUME operand, then only the first of the named disks will be used. If there isn't enough free storage space on the disk, the CREATE-FILE command will be rejected; there will be no partial allocation. Since an absolute allocation always refers to a single volume, a separate CREATE-FILE or MODIFY-FILE-ATTRIBUTES command must be issued for each volume. The secondary allocation for the file (see the SECONDARY-ALLOCATION operand) will have the value zero, i.e. if the number of pages specified in SIZE proves insufficient at a later point, there will be no automatic extension of the storage space.

FIRST-PAGE = <integer 1..2147483647>
Block number of the PAM page at which storage space reservation on the public disk is to start. Since storage space is only reserved in units of **k** PAM pages, where **k** is the number of PAM pages per smallest allocation unit, the value of FIRST-PAGE = k * n + 1 (n >= 0).

SIZE = <integer 3..2147483647>
Number of PAM pages to be reserved on the public disk. SIZE must be a multiple of **k**. The amount of storage space available on a disk depends on its type and its initialization; systems support should, therefore, be asked what maximum value SIZE may have.

MANAGEMENT-CLASS = *NONE / <composed-name 1..8>
Only for files in SM pubsets Specifies whether the HSMS backup, archiving and long-term archiving functions are controlled by a management class defined using HSMS. See the "HSMS" manual [18] for further details. Management class allocations are rejected for files in SF pubsets.

MANAGEMENT-CLASS = *NONE
The file attributes set with the SAVE and MIGRATE operands are evaluated for file backup and migration.

MANAGEMENT-CLASS = <composed-name 1..8>
Name of the management class defined using HSMS. The specified management class must exist, and the user ID of the file owner must have access authorization.

USER-INFORMATION = *NONE / <c-string 1..8 with-low>
Specifies whether user information is to be added to the catalog entry. This information is not evaluated by the system. Its content and meaning are defined solely by the user. The default is *NONE, i.e. no information is added.

ADM-INFORMATION = *NONE / <c-string 1..8 with-low>
This operand is available only to privileged users (TSOS privilege). Specifies whether a text is to be added to the catalog entry as information for systems support. This information is not evaluated by the system. Its content and meaning are defined solely by systems support. The default is *NONE, i.e. no information is added.

SUPPORT = *PRIVATE-DISK(...)
The file is to be set up on a private disk.

VOLUME = *ANY(...) / list-poss(255): <alphanum-name 1..6>
The VSN (volume serial number) of the disk on which the file is to be set up.

VOLUME = *ANY(...)
Indicates that any private disk should be mounted on the specified device type (no particular VSN is required).

The VSNs of the volumes which were requested are copied into the volume list in the catalog entry. If the user requests more than one volume to be mounted, the NUMBER-OF-DEVICES operand should be used to specify how many volumes are to be mounted at the same time.

NUMBER-OF-DEVICES = 1 / <integer 1..9>
Number of disks required.

VOLUME = list-poss(255): <alphanum-name 1..6>
A maximum of 255 different VSNs may be specified, i.e. for each CREATE-FILE command a maximum of 255 volumes may be requested. Each VSN may be specified only once. Starting with the volume on which the file starts, all the VSNs are copied into the volume list of the catalog entry.
For private disks, DMS attempts to reserve the whole of the storage space, requested by the SPACE operand, on the first of the private disks (see also the SPACE operand).

DEVICE-TYPE = *BY-VOLUME-CATALOG / <device>
The type of device to which the required disks are allocated. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?. If at least one volume ID is specified with VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.
The permissible specifications for DEVICE-TYPE can also be found in the device table in section "Device type table" (device type column). The devices available on the system can be listed with the SHOW-DEVICE-CONFIGURATION command.

DEVICE-TYPE = *BY-VOLUME-CATALOG
The device type is determined via the MAREN device substitution function if the MAREN subsystem is available.

SPACE = *STD / *RELATIVE(...) / *ABSOLUTE(...)
Influences the storage space allocation for the file. The SPACE operand is always evaluated.
Storage space allocation is described in the “Introductory Guide to DMS” [13].

SPACE = *STD
For its primary and secondary allocations, the file is assigned the values defined by the system parameters DMPRALL and DMSCALL.

SPACE = *RELATIVE(...)
With this operand, the user reserves storage space for the file (relative allocation).

In order to minimize system administration time, the following points should be noted when specifying primary and secondary allocations:

- the primary allocation should correspond to the expected size of the file to be created;
- for large files, the primary and secondary allocations should be selected as a multiple of the administration units packet or segment.

In relation to the allocation of storage space, the effect of the BUFFER-LENGTH operand in the ADD-FILE-LINK command must also be taken into account: when the primary and secondary allocations are being determined, the file’s block length should be taken into account; for BUFFER-LENGTH=*STD(SIZE=n), where n>=2, the following applies:

File type	SPACE operand	
	Primary allocation	Secondary allocation
SAM	>= 2n	>= n
ISAM (K-ISAM and NK-ISAM)	> n	
PAM (chained I/O)	> 0	

Table 32: Minimum values for primary and secondary space allocations

PRIMARY-ALLOCATION = <integer 1..2147483647>
Number of PAM pages to be allocated initially. The specified number of PAM pages will be reserved immediately. The number should correspond to the expected size of the file. The PRIMARY-ALLOCATION specification is rounded up to a multiple of 3, and the corresponding number of PAM pages are allocated on the private disk specified by the VOLUME operand. The system attempts to reserve the primary allocation on the first of the disks specified.
When large files are to be created, and when there are only a few segments free on each disk, specifying an appropriate primary allocation will initiate a disk swap. This then avoids excessive fragmentation of the file.

SECONDARY-ALLOCATION = *STD / <integer 0..32767>
The number of PAM pages by which the storage space should be extended, if this should become necessary. The default is STD, the default value for the system. In contrast to the primary allocation, the secondary allocation does not take effect as soon as the CREATE-FILE command is executed, but only if the reserved space proves insufficient when the file is being created or extended. The system will then automatically increase the storage space allocation for the file by the number of PAM pages specified in SECONDARY-ALLOCATION (field *S-ALLOC* in the output of the SHOW-FILE-ATTRIBUTES command). The value for secondary allocation is doubled after each successful extension. It is no longer doubled when the maximum value set in the system has been reached. If required, the defined number of PAM pages is rounded up to a multiple of 3 when allocating space.
A specification of SECONDARY-ALLOCATION=0 prevents dynamic expansion of the file.

SPACE = *ABSOLUTE(...)
Absolute allocation (only meaningful when a VSN is specified in the VOLUME operand).

With this operand, the user reserves storage space for the file by an absolute allocation, i.e. he specifies the number of the PAM page on which the storage space allocation is to start. In doing so, he must take the following into account: An absolute allocation will only be made if it is possible to reserve the whole of the specified number of blocks (SIZE) on *one* single disk. If more than one disk was specified in the VOLUME operand, then only the first of the named disks will be used. If there isn't enough free storage space on the disk, the CREATE-FILE command will be rejected; there will be no partial allocation. Since an absolute allocation always refers to a single volume, a separate CREATE-FILE or MODIFY-FILE-ATTRIBUTES command must be issued for each volume. The secondary allocation for the file (see the SECONDARY-ALLOCATION operand) will have the value zero, i.e. if the number of pages specified in SIZE proves insufficient at a later point, there will be no automatic extension of the storage space.

FIRST-PAGE = <integer 1..2147483647>
The block number of the PAM page on which the storage space reservation on the private disk is to start. Since storage space is only reserved in units of three PAM pages, FIRST-PAGE is limited by: FIRST-PAGE = 3n + 1 (n >= 0). The PAM page on which storage space reservations can start on any disk will depend on how the disk is initialized.

SIZE = <integer 1..2147483647>
Specifies how many PAM pages are to be reserved on the disk; SIZE must be a multiple of three. The amount of storage space available on a disk depends on its type and its initialization; systems support should, therefore, be asked what maximum value SIZE may have.

DATA-SUPPORT = *SAME / *PARAMETERS(...)
Only for ISAM files: where the data section is stored. This operand is used if the data and index blocks for an ISAM file are to be stored on separate disks.

DATA-SUPPORT = *SAME
The data and index blocks of the ISAM file are not to be stored on separate disks.

DATA-SUPPORT = *PARAMETERS(...)
The data and index blocks of the ISAM file are to be stored on separate disks. The values specified in the operands VOLUME, DEVICE-TYPE, and SPACE are only applicable to the index section of the file.

> **i** Only K-ISAM files can be separated into index and blocks. The values specified for the operands DATA-VOLUME, DATA-DEVICE-TYPE, and DATA-SPACE are ignored for NK-ISAM files.

DATA-DEVICE-TYPE = <device>
For K-ISAM files with separate index and data sections: The device type to which the required disks are assigned. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?. If at least one volume ID is specified with DATA-VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.
The disk type for the data section is named with DATA-DEVICE-TYPE (for the index section with DEVICE-TYPE). The permissible specifications for DEVICE-TYPE can also be found in the device table in section "Device type table" (device type column). DATA-DEVICE-TYPE must be specified if no storage has yet been reserved for the file. Although NK-ISAM does not support separation of index and data sections, it is possible to specify DATA-DEVICE-TYPE (for compatibility with K-ISAM).

DATA-VOLUME = list-poss(255): <alphanum-name 1..6>
In conjunction with DATA-DEVICE-TYPE for ISAM files with separate index and data sections.
The VSN of the private disk on which the data section of the ISAM file is to be set up. A maximum of 255 VSNs may be specified, but each VSN may be specified only once.
Although NK-ISAM does not support separation of index and data sections, it is possible to specify DATA-VOLUME (for compatibility with K-ISAM). DATA-VOLUME specifies the VSN of the volume on which the data section of the ISAM file is to be stored; the VOLUME operand must be specified for the index section. The further details are analogous to those for DATA-DEVICE-TYPE.

DATA-SPACE = *RELATIVE(...) / *ABSOLUTE(...)
In conjunction with DATA-DEVICE-TYPE/DATA-VOLUME for the data section of ISAM files with separation of index and data sections Defines the storage space allocations for the data section of an ISAM file. In contrast to the SPACE operand, the user must explicitly specify the storage space allocation, since the system does not provide a default allocation (minimal specification: the primary allocation under SPACE=*RELATIVE).
The rules for specifying primary, secondary, and absolute allocations correspond to those for the SPACE operand, but relate to the volumes listed in DATA-VOLUME instead (see also the operands DATA-DEVICE, DATA-VOLUME). Although NK-ISAM does not support separation of index and data sections, it is possible to specify DATA-SPACE (for compatibility with K-ISAM).

DATA-SPACE = *RELATIVE(...)
With this operand, the user can reserve storage space for the data section of an ISAM file in the form of a relative allocation.

PRIMARY-ALLOCATION = <integer 1..2147483647>
Number of PAM pages to be allocated initially. The specified number of PAM pages will be reserved immediately. The number should correspond to the expected size of the file. The system will attempt to make the initial allocation on the fist disk specified.

SECONDARY-ALLOCATION = *STD / <integer 0..32767>
The number of PAM pages for later file extensions.

The default value is STD, the system default value.

The number of PAM pages specified here is not immediately reserved. Only when the number of pages initially reserved is no longer sufficient will the system automatically increase the storage space allocated to the data section of the ISAM file by the number of PAM pages specified in the SECONDARY-ALLOCATION. This allocation is made dynamically, i.e. each time that additional storage space is required. If it is not already a multiple of 3, the extra space requested will be rounded to one. The value of the secondary allocation is copied into the catalog entry.

DATA-SPACE = *ABSOLUTE(...)
With this operand, the user reserves storage space for the data section of the file by an absolute allocation, i.e. he specifies the number of the physical block on the disk at which the storage space allocation is to start. In doing so, the following must be taken into account: An absolute allocation will only be made if it is possible to reserve the whole of the specified number of PAM pages (SIZE) on **one** single disk. If more than one disk was specified in the DATA-VOLUME operand, then only the first of the named disks will be used.

FIRST-PAGE = <integer 1..2147483647>
PAM page number at which the absolute assignment begins. (The number specified must be a multiple of 3, plus 1; e.g. 1 / 4 / 7 / 10 etc.).

SIZE = <integer 1..2147483647>
The number of PAM pages to be reserved (this must be a multiple of 3).

SUPPORT = *TAPE(...)
The file is to be created on tape. The required tape need not be mounted immediately by the operator.

VOLUME = *NO / *ANY(...) / list-poss(255): <alphanum-name 1..6>
Volume serial numbers of the tapes on which the file is to be created. A maximum of 255 volume serial numbers may be specified.

VOLUME = *NO
No VSNs are to be entered into the catalog yet.

VOLUME = *ANY(...)
The operator may mount any suitable tapes on the specified device type (no particular VSNs are required).

The VSNs of the volumes which were requested are copied into the volume list in the catalog entry. If the user requests more than one volume to be mounted, the NUMBER-OF-DEVICES operand should be used to specify how many volumes are to be mounted at the same time.

NUMBER-OF-DEVICES = 1 / <integer 1..9>
The number of tapes which is required.

VOLUME = list-poss(255): <alphanum-name 1..6>
A maximum of 255 different VSNs may be specified, i.e. for each CREATE-FILE command a maximum of 255 volumes may be requested. Each VSN may be specified only once.

DEVICE-TYPE = *BY-VOLUME-CATALOG / <device>
Device type to which the required tapes are assigned. The value to be specified is the device type or volume type of the tapes, from which the Device Management System determines the device type which is to be made available for tape processing. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?.

If TAPE is specified as the device type, magnetic tape devices that support a recording density of 1600 or 6250 bpi (bytes per inch) are assigned. Other permissible specifications can be found in section "Device types for DMS tape processing".

DEVICE-TYPE=WORK requests a work tape. Work tapes are identified by having no tape owner entry in the VOL1 label (contents of “Owner identifier” field: X’40’). Work tapes should be requested if they are required only for the duration of the processing, and are not to be archived. If DEVICE-TYPE=WORK is specified, the operands VOLUME and PREMOUNT-LIST will be ignored.

DEVICE-TYPE=WORK should not be specified for file sets, because the work tape which is allocated is always that which is immediately available.

Tape cartridges cannot be requested as work tapes.

DEVICE-TYPE = *BY-VOLUME-CATALOG
The device type is determined via the MAREN device substitution function if the MAREN subsystem is available.

PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
The tape sequence number of the tape to be mounted. Issues a MOUNT message on the console requesting the mounting of tapes or suppresses the request.

PREMOUNT-LIST = *NONE
The first volume specified in the VOLUME operand will be requested.

PREMOUNT-LIST = list-poss(255): <integer 0..255>
Issues a MOUNT message on the console requesting the mounting of tapes or suppresses the request. The tape sequence numbers specified here relate to the VSNs listed in the VOLUME operand. The volumes specified in this way are to be mounted by the operator (MOUNT request on the console). Multiple tape sequence numbers must be listed in ascending order (n,n+1,...).

Specifying PREMOUNT-LIST=0 has the effect that no tapes will be requested. Otherwise, it is only on opening the file that the first volume is requested.

SUPPORT = *NONE
A catalog entry will be created, but no storage space will be reserved yet for the file.

PROTECTION = *STD / *PARAMETERS(...)
The protection attributes for the file.

PROTECTION = *STD
The values supplied by default protection are employed for the protection attributes. The AUDIT and FREE-FOR-DELETION protection attributes are always set to *NONE.
If default protection is not active, the system default values for the operands of the *PARAMETERS structure are set.

Protection attribute	PROTECTION-ATTR=			
	*FROM-FILE	*STD[1)]	*BY-DEF-PROT-OR-STD	
			Default protection not active[1)]	Default protection active
ACCESS	value from reference file	WRITE	WRITE	values from default protection
USER-ACCESS		OWNER-ONLY	OWNER-ONLY	
BASIC-ACL		NONE	NONE	
DESTROY-BY-DELETE		NO	NO	

GUARDS		NONE	NONE	
SPACE-RELEASE-LOCK		NO	NO	
READ-PASSWORD	NONE	NONE	NONE	
WRITE-PASSWORD	NONE	NONE	NONE	
EXEC-PASSWORD	NONE	NONE	NONE	
FREE-FOR-DELETION	NONE	NONE	NONE	NONE
AUDIT	NONE	NONE	NONE	NONE

[1] The system default values are entered.
Table 33: Effects of PROTECTION-ATTR on protection attributes in the case of CREATE-FILE

PROTECTION = *PARAMETERS(...)
This operand allows the following protection attributes to be specified for the file. If the default value *NONE or *NO is specified for an attribute, the corresponding protection function is not activated. In conjunction with the ACCESS, USER-ACCESS, BASIC-ACL, GUARDS and FREE-FOR-DELETION protection attributes and with password protection, only default protection attributes (see table 33) may be specified for temporary files. Since only the creating job can access temporary JVs, no protection is required against foreign access.

When the file is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	GUARDS using the software product SECOS	2

Table 34: Hierarchy of access control methods

Passwords are evaluated independently, without regard to the implemented protection level.

If the file's date of release for deletion has been reached (see the FREE-FOR-DELETION operand), the file owner can delete the file regardless of its access protection.

PROTECTION-ATTR = *BY-DEF-PROT-OR-STD / *STD / *FROM-FILE(...)
Specifies from where the protection attributes with the value *BY-PROTECTION-ATTR or *BY-PROT-ATTR-OR-NONE are to be obtained. For the assignments, see table "Effects of PROTECTION-ATTR on protection attributes".

PROTECTION-ATTR = *BY-DEF-PROT-OR-STD
The values supplied by default protection are entered for the operands with *BY-PROTECTION-ATTR or *BY-PROT-ATTR-OR-NONE. If default protection is not active, system default values or *NONE will be assigned to the relevant operands.

PROTECTION-ATTR = *STD
System default values are set for operands with *BY-PROTECTION-ATTR. *NONE is set for operands with *BY-PROT-ATTR-OR-NONE.

PROTECTION-ATTR = *FROM-FILE(...)
Operands for which *BY-PROTECTION-ATTR is specified, receive the value that they have in the catalog entry of the file named next. *NONE is set for operands with *BY-PROT-ATTR-OR-NONE.

If the protection attributes are to be copied for a temporary file, either the operands ACCESS=*WRITE, USER-ACCESS=*OWNER-ONLY, BASIC-ACL=*NONE, and GUARDS=*NONE must be specified explicitly or the specified file must have been cataloged with these attributes. ACCESS and USER-ACCESS can have any value in the case of temporary tape files.

FILE-NAME = <filename 1..54 without-gen>
Reference file from which the protection attributes with *BY-PROTECTION-ATTR are to be copied. The file has to be on the same pubset as the new file currently being created. If the file does not exist or if it is not accessible (e.g. with SHOW-FILE-ATTRIBUTES), then the command is rejected.

ACCESS = *BY-PROTECTION-ATTR / *WRITE / *READ
The ACCESS operand enables a file to be protected against overwriting; it specifies whether write access to the file is permitted (implicitly allowing read access) or only read access. This protection attribute is part of the standard access control mechanism and is only evaluated if no higher protection level has been activated (see table "Hierarchy of access control methods").

Tape files: When the file is first opened, DMS copies the ACCESS type identifier into the HDR3 label. During subsequent accesses to the file, the file owner can bypass the checks on access type by using the command ADD-FILE-LINK... PROTECTION-LEVEL=*LOW.

ACCESS = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used.

ACCESS = *WRITE
All types of access to the file are permitted.

Tape files: HDR3 label: access type identifier = 0

ACCESS = *READ
The file may only be accessed to read it.

Temporary files: Write access cannot be prevented, ACCESS=*READ will be rejected.

Tape files: HDR3 label: access type identifier = 1

USER-ACCESS = *BY-PROTECTION-ATTR / *OWNER-ONLY / *ALL-USERS / *SPECIAL
Specifies whether the file may be accessed by user IDs other than that of its owner or co-owners. The access type permitted in this case is governed by the ACCESS protection attribute (see the ACCESS operand).

This protection attribute is part of the standard access control mechanism. It is evaluated for users without HARDWARE-MAINTENANCE privileges only if no higher access protection is defined for the file (see table "Hierarchy of access control methods").

Tape files: When the file is first opened, DMS copies the SHARE indicator into the HDR1 label (“access indicator”).

USER-ACCESS = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used.

USER-ACCESS = *OWNER-ONLY
The file is not shareable, which means that only the file owner and any co-owners have access to it.

Tape files: HDR1 label: access indicator = 1

USER-ACCESS = *ALL-USERS
The file is shareable, which means that any user ID can access it.

Temporary files: USER-ACCESS=*ALL-USERS is not permitted

Tape files: HDR1 label: access indicator = (X'40') 'BLANK'

USER-ACCESS = *SPECIAL
User IDs with HARDWARE-MAINTENANCE privileges (online maintenance) may access the file. USER-ACCESS=*ALL-USERS applies implicitly, which means that the file can be accessed by all user IDs, including the maintenance IDs. If accesses under a maintenance ID are to be permitted, SPECIAL must be set even if BASIC-ACL or GUARDS is used for access control.

BASIC-ACL = *BY-PROTECTION-ATTR / *NONE / *STD / *PARAMETERS(...) / *GROUP-X / *GROUP-RX / *GROUP-WRX / *ALL-X / *ALL-RX / *ALL-WRX
Specifies whether a BASIC-ACL entry should be created for the file, and hence whether this entry is to be used for access control. A BASIC-ACL entry will only be evaluated if no higher protection level has been activated for the file (see also table "Hierarchy of access control methods").

The following operand values correspond to common BASIC-ACL settings:

Operand value	BASIC-ACL protection								
	OWNER			GROUP			OTHERS		
	R	W	X	R	W	X	R	W	X
*STD	Y	Y	Y	N	N	N	N	N	N
*GROUP-X	Y	Y	Y	N	N	Y	N	N	N
*GROUP-RX	Y	Y	Y	Y	N	Y	N	N	N
*GROUP-WRX	Y	Y	Y	Y	Y	Y	N	N	N
*ALL-X	Y	Y	Y	N	N	Y	N	N	Y
*ALL-RX	Y	Y	Y	Y	N	Y	Y	N	Y
*ALL-WRX	Y	Y	Y	Y	Y	Y	Y	Y	Y
Y: access granted N: access denied									

Table 35: Meaning of the operand values for common BASIC-ACL settings

BASIC-ACL = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used.

BASIC-ACL = *NONE
No BASIC ACL entry will be created for the file. Access will be controlled as defined in the USER-ACCESS and ACCESS entries.

BASIC-ACL = *PARAMETERS(...)
A BASIC-ACL entry is created for the file, and the BASIC-ACL (basic access control list) is used to control access, provided no higher protection level has been activated (see table 34). Read, write and execute authorizations must be explicitly set for each user ID which is to have access rights, otherwise no access right will be granted. Those with access rights are:

- OWNER, i.e. the user ID of the file owner and the user IDs of the co-owners and of systems support (see “Privileged functions”).
- GROUP, i.e. all user IDs which are in the same group as the file owner (excluding the owner, the co-owners and systems support). Definition of user groups is possible only when the software product SECOS is used. However, to allow for possible later installation of SECOS, GROUP should be given the same access rights as for OTHERS.
- OTHERS, i.e. all user IDs which belong to a different group from the file owner (excluding the owner, the co-owners and systems support).

OWNER = *NO-ACCESS / *PARAMETERS(...)
Specifies what access rights are to be given to the owner and the co-owners. The default setting is *NO-ACCESS, i.e. there is no read, write or execute permission.

OWNER = *PARAMETERS(...)
The access rights will be as specified:

READ = *NO / *YES
Specifies whether read authorization is set.
The default setting is *NO, i.e. there is no read permission.

WRITE = *NO / *YES
Specifies whether write authorization is specified.
The default setting is *NO, i.e. there is no write permission. Write permission does not imply read permission.

EXEC = *NO / *YES
Indicates whether read access is permitted or not.
The default setting is *NO, i.e. there is no execute permission.

GROUP = *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for all user IDs from the group of the owner.
The default setting is *NO-ACCESS, i.e. there is no read, write or execute permission.

GROUP = *PARAMETERS(...)
Access rights are to be set as specified:

READ = *NO / *YES
Specifies whether read authorization is set.
The default setting is *NO, i.e. there is no read permission.

WRITE = *NO / *YES
Specifies whether write authorization is specified.
The default setting is *NO, i.e. there is no write permission.
Write permission does not imply read permission.

EXEC = *NO / *YES
Indicates whether read access is permitted or not.
The default setting is *NO, i.e. there is no execute permission.

OTHERS = *NO-ACCESS / *PARAMETERS(...)
Specifies what access rights are to be given to all other user IDs. Unless the software product SECOS is in use, the access authorizations defined for GROUP and OTHERS should be the same. The default setting is *NO-ACCESS, i.e. there is no read, write or execute permission.

OTHERS = *PARAMETERS(...)
Access rights are to be set as specified:

READ = *NO / *YES
Specifies whether read authorization is set. The default setting is *NO, i.e. there is no read permission.

WRITE =* NO / *YES
Specifies whether write authorization is specified.
The default setting is *NO, i.e. there is no write permission. Write permission does not imply read permission.

EXEC = *NO / *YES
Indicates whether read access is permitted or not.
The default setting is *NO, i.e. there is no execute permission.

GUARDS = *BY-PROTECTION-ATTR / *NONE / *PARAMETERS(...)
Specifies whether access to the file is controlled by GUARDS.

GUARDS = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used.

GUARDS = *NONE
Access to the JV is not to be controlled via GUARDS.

GUARDS = *PARAMETERS(...)
Access to the JV is to be controlled via GUARDS.

Access to the file is controlled via a guard, i.e. a specific object identifying all the conditions subject to which access will be granted: such as date, time and user ID. The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard. Each guard is uniquely identified by its name. The guard name resembles a file name: it can contain a user ID and consists of a name part which is up to 8 characters in length. If no user ID is specified explicitly, the user’s own ID is added implicitly. Each access mode can be controlled by a separate guard. If no guard is assigned for an access mode (*NONE), access control will refuse any corresponding access (e.g. WRITE=*NONE prevents all write access). Specifying GUARDS=*PARAMETERS defines access control using GUARDS with the default value *NONE for all access modes, which means that the file cannot be read, updated or executed. The GUARDS subsystem is not required in order to define access control via GUARDS. The appropriate checks by GUARDS are not performed until the time file access takes place: If a guard has been defined but is not available, all access of the type controlled by that guard is prohibited. No access at all is possible if the GUARDS subsystem is not available at the time of access.

READ = *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling read access (up to 8 characters if no user ID is specified).
The default value is *NONE, i.e. no read access is granted.

WRITE = *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling write access (up to 8 characters if no user ID is specified).
The default value is *NONE, i.e. no write access is granted.

EXEC = *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard for execute protection (up to 8 characters when no user ID is specified).
The default setting is *NONE, i.e. the file cannot be executed.

WRITE-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Write or read password for the JV to be modified.
The password defined here must be specified in the ADD-PASSWORD command to enable write access to the file.
The WRITE-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Temporary files: cannot be password-protected

Tape files: the password protection is noted in the HDR3 label

WRITE-PASSWORD = *BY-PROT-ATTR-OR-NONE
Allocation of a write password is independent of the value of the PROTECTION-ATTR operand.
If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered.
With PROTECTION-ATTR=*STD / *FROM-FILE(),*NONE is entered, i.e. no write protection password is used.

WRITE-PASSWORD = *NONE
No write protection password is specified.

WRITE-PASSWORD = <c-string 1..4> / <x-string 1..8> /<integer -2147483648..2147483647>
Defines a password required for write accesses.

READ-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Password for protection against unauthorized reading.
The password defined here must be specified in the ADD-PASSWORD command to enable read access to the file.
The READ-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Temporary files: cannot be password-protected

Tape files: the password protection is noted in the HDR3 label

READ-PASSWORD = *BY-PROT-ATTR-OR-NONE
Allocation of a read password is independent of the value of the PROTECTION-ATTR operand.
If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered.
With PROTECTION-ATTR=*STD / *FROM-FILE( ),*NONE is entered, i.e. no read protection password is used.

READ-PASSWORD = *NONE
No read protection password is specified.

READ-PASSWORD = <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Defines a password required for read accesses.
A source program which is protected by a read password cannot be compiled.

EXEC-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
The password used to protect against unauthorized execution of the file.
This type of password is specified for procedures, ENTER files and programs. The password defined here must be specified in the ADD-PASSWORD command before the procedure or program can be run.
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Temporary files: cannot be password-protected

Tape files: the password protection is noted in the HDR3 label

EXEC-PASSWORD = *BY-PROT-ATTR-OR-NONE
Assignment of an execution protection password depends on the value of the PROTECTION-ATTR operand.
If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered.
With PROTECTION-ATTR=*STD / *FROM-FILE( ),*NONE is entered, i.e. no execution protection password is used.

EXEC-PASSWORD = *NONE
No execute protection password is specified.

EXEC-PASSWORD = <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Defines a password which is required to call a program/procedure file. If EXEC-PASSWORD=X'00000000' is specified, it will be ignored.

DESTROY-BY-DELETE = *BY-PROTECTION-ATTR / *NO / *YES
To increase the level of protection of data, the user can specify in the catalog entry that any data no longer required is overwritten by X'00' (binary zero). For disk files, DESTROY-BY-DELETE affects deletion, file migration, and storage space release operations (see the MODIFY-FILE-ATTRIBUTES, and DELETE-FILE commands); for tape files, any data remaining on the tape when EOF or EOV processing is carried out will be overwritten (see also the ADD-FILE-LINK command, DESTROY-OLD-CONTENTS operand).

DESTROY-BY-DELETE = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used.

DESTROY-BY-DELETE = *NO
If this operand is set to *NO, the action specified in the DELETE-FILE command (OPTION operand) will be carried out.

Disk files: the storage space released will be left unchanged if the operand OPTION= DESTROY-ALL is not specified in the DELETE-FILE command.

Tape files: Any data which follows on the tape will not be overwritten if DESTROY-OLD-CONTENTS=*YES is not specified in the ADD-FILE-LINK command for the current processing run.

DESTROY-BY-DELETE = *YES
The setting *YES for this operand will be effective even if a different specification has been made in the OPTION operand of the DELETE-FILE command.

Disk files: when the storage space is released or deleted, it will be automatically overwritten with binary zeros (X'00').

Tape files: the contents of the tape following the end-of-file will be overwritten with binary zeros (X'00'). It is not necessary to explicitly set the ADD-FILE-LINK command to delete residual data for the current processing run (i.e. the operand DESTROY-OLD-CONTENTS=*YES).

i Please also observe the notes in the section "Data protection by data destruction" in the "Introductory Guide to DMS" [13].

AUDIT = *STD / *NONE / *SUCCESS / *FAILURE / *ALL
This operand specifies whether accesses to the file are to be monitored. This monitoring may also be made dependent on the result of the access (see the operand values *SUCCESS and *FAILURE). Systems support staff (TSOS privilege) can use this function unrestrictedly. Nonprivileged users require the appropriate authorization in the user entry of the pubset in which the file is to be created (see the *FILE-AUDIT* output field of the SHOW-USER-ATTRIBUTES command). Without this authorization, the command will be rejected if auditing is requested.

It is possible to monitor the following DMS actions:

- the creation, amendment (protection attributes), reading and deletion of a catalog entry
- the opening and closing of files
- the renaming, importing and exporting of files

Monitoring is performed by System Exit Routines or, if the software product is being used, by the SAT function unit. In order to use System Exit Routines for monitoring, they must be activated (this is the responsibility of the system support staff, user ID TSOS). In order to use SAT for monitoring, SAT logging must have been started, and events for the FILE to be monitored must not be excluded from the logging procedure (this is the

responsibility of the security officer, under the user ID SYSPRIV). The user cannot alter any explicit settings of SAT made by the security officer. The SAT log files can be analyzed by the SAT file administrator, under the user ID SYSAUDIT.

AUDIT = *STD
The value is currently equivalent to *NONE.

AUDIT = *NONE
No monitoring.

AUDIT = *SUCCESS
All successful DMS operations on the file will be monitored.

AUDIT = *FAILURE
All unsuccessful DMS operations on the file will be monitored.

AUDIT = *ALL
All DMS operations on the file will be monitored.

SPACE-RELEASE-LOCK = *BY-PROTECTION-ATTR / *NO / *YES
Specifies whether the releasing storage space is allowed.

SPACE-RELEASE-LOCK = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used.

SPACE-RELEASE-LOCK = *NO
Space is not released.

SPACE-RELEASE-LOCK = *YES
Space is released.

FREE-FOR-DELETION = *NONE / <date> / <integer 0..99999>
Specifies the date from which the owner is allowed to delete the file regardless of the ACCESS, BASIC-ACL, GUARDS, EXPIRATION-DATE protection attributes and regardless of the password (release date for deletion).

FREE-FOR-DELETION = *NONE
No free-for-deletion date is defined. The protection attributes are taken into account with regard to file deletion.

FREE-FOR-DELETION = <date>
Once the specified date is reached, the file can be deleted regardless of its protection attributes listed above. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

FREE-FOR-DELETION = <integer 0..99999>
After the specified number of days, the file can be deleted regardless of its protection attributes named above. The deletion release date must be specified in the form +n.

SAVE = *STD / *NO / *PARAMETERS(...)
Specifies how the file is to be treated when backups are performed with the ARCHIVE or HSMS utility if no management class has been assigned.

SAVE = *STD
The default values set under PARAMETERS will be applied if no management class has been assigned.

SAVE = *NO
This specification is equivalent to BACKUP-CLASS=*E, NUM-OF-BACKUP-VERS=0 and SAVED-PAGES= *COMPLETE-FILE under *PARAMETERS (q.v.).

SAVE = *PARAMETERS(...)
Specifies the frequency and type of backup. These details are taken into account when regular backups are carried out (using the ARCHIVE or HSMS utility).

BACKUP-CLASS = *STD / *A / *B / *C / *D / *E
Only for disk files. Backup frequency, where *A represents the most frequent backups. BACKUP relates to the automatic backup of files using either ARCHIVE or HSMS and specifies which files are to be backed up during each backup run.

BACKUP-CLASS = *STD
The value defined by the system parameter BACKUP.

BACKUP-CLASS = *A
The most frequent backup. Files with this setting will be backed up by every backup run.

BACKUP-CLASS = *B
Files with this setting will be backed up every time a backup run is performed for files with BACKUP-CLASS=*B or *C or *D.

BACKUP-CLASS = *C
Files with this setting will be backed up every time a backup run is performed for files with BACKUP-CLASS=*C or *D.

BACKUP-CLASS = *D
The least frequent backup. Files with this setting will only be backed up when a backup run is performed for files with BACKUP-CLASS=*D.

BACKUP-CLASS = *E
Not backed up by ARCHIVE or HSMS. This value is the only possible value for temporary files (and is the default value). It is also appropriate for permanent files if, for example, work files are involved.

SAVED-PAGES = *COMPLETE-FILE / *MODIFIED-PAGES
Only for disk files: like BACKUP-CLASS, refers to the backup with ARCHIVE or HSMS and defines whether the entire file is to be backed up completely during automatic backup runs, or whether only those blocks that have changed since the last backup are to be saved.

SAVED-PAGES = *COMPLETE-FILE
The complete file is backed up.

SAVED-PAGES = *MODIFIED-PAGES
Incremental saving: only the modified blocks are saved. This is an appropriate specification for large files.

NUM-OF-BACKUP-VERS = *STD / <integer 0..32>
Specifies the maximum number of file versions kept in the version backup archive.

NUM-OF-BACKUP-VERS = *STD
A permanent file on a public volume or on Net-Storage, as well as a file without specified memory allocation is given the default value by means of the NUMBACK system parameter.
Files on a private disk, on tape or temporary files are given the value 0.

NUM-OF-BACKUP-VERS = <integer 0..32>
Defines the maximum number of file versions kept in the version backup archive. The value 0 means the file will be ignored when version backups are performed.
For temporary files or files on private disks, the values unequal to 0 are rejected.
A file on tape does not participate in the version backup, so the specified value is ignored and the value 0 is set.

MIGRATE = *STD / *ALLOWED / *INHIBITED / *FORBIDDEN
This specification is relevant only for files on public disks. The operand is evaluated by the software product HSMS (Hierarchical Storage Management System). It allows a user to specify whether files that have not been accessed for a long time (by the user) may be migrated to a storage medium with slower access. The files will be migrated from the online processing level S0 to the background level S1, which is available online, or to background level S2 (e.g. tape storage) which is available offline (for further details see the “HSMS” manual [18]).

MIGRATE = *STD
Depends on the type of file or its storage location, the following default values apply:

*ALLOWED	for permanent files
*INHIBITED	for temporary files
*FORBIDDEN	for files created directly on the disk of an SM pubset (VOLUME operand)

MIGRATE = *ALLOWED
If HSMS is being used, the file may be migrated from the processing level (S0) to the background level (S1), or to the archive level (S2).

MIGRATE = *INHIBITED
The file may only be migrated for a brief period, e.g. for reorganization purposes (migration lock).

MIGRATE = *FORBIDDEN
This specification is allowed only in conjunction with authorization to perform physical allocation of public storage space (see “Privileged functions” under “Function” above). The file must not be migrated, typically because it is intended to stay in its current physical storage location (intensified migration lock).

CODED-CHARACTER-SET = *USER-DEFAULT / *NONE / <name 1..8>
This operand is ignored with regard to files on private disks. Determines the code of the file. This defines how the characters of a national character set are to be stored in binary form. The specified character set has an effect on the representation of characters on the screen, the collating sequence, etc. (see the “XHCS” manual [51]).

CODED-CHARACTER-SET = *USER-DEFAULT
The code is taken over from the file owner’s user ID if a code other than EDF03IRV is entered there, otherwise *NONE applies.

CODED-CHARACTER-SET = *NONE
No coded character set is specified for the file.

CODED-CHARACTER-SET = <name 1..8>
Specifies the coded character set for the file.

NET-CODED-CHAR-SET = *USER-DEFAULT / *ISO / *NO-CONVERSION / <name 1..8>
*Only relevant for Net-Storage files of the type node file. This specification is ignored for other files.*Defines which Net-Storage coded character set (NETCCS) is to be used for a node file on Net-Storage. The NETCCS is the character set used to store the data from SAM node files on Net-Storage. During copying, the data are converted from the CODED-CHARACTER-SET into the NET-CODED-CHARATER-SET and vice versa. All SAM node files and PAM node files created with BS2000 V11.0 or later have a defined NETCCS. PAM node files created with an older version than V11.0 are treated as if they were created with *NO-CONVERSION. Only data from SAM node files are converted. In the case of PAM node files, the NET-CODED-CHAR-SET is not evaluated while data are copied.

NET-CODED-CHAR-SET = *USER-DEFAULT

The setting is defined by the definition in the user entry. The resulting NETCCS of the file is determined based on the following table:

User entry (SYSSRPM) or specification in the CREATE-FILE / MODIFY-FILE-ATTRIBUTES command		Resulting NETCCS in the catalog entry of the node file
CCS	**NETCCS**	**NETCCS**
EDF03IRV/*NONE	*ISO	ISO88591; during code conversion, EDF041 is assumed for CCS
EDF03DRV	*ISO	ISO88591; during code conversion, EDF04DRV is assumed for CCS
EDF04DRV	*ISO	ISO88591
EDF04x	*ISO	ISO8859x with x=1,2,..F
ISO8859x	*ISO or *NO-CONV	ISOx
UTFx	*ISO or *NO-CONV	UTFx
<name_a 1..8>	<name_b 1..8>	<name_b 1..8>
<name_a 1..8>	*NO-CONV	<name_a 1..8>

NET-CODED-CHAR-SET = *ISO

For SAM node files, EBCDIC character sets are converted into character sets common in the open world. In the process, the NETCCS is mapped onto an ISO variant that corresponds to the CCS. Examples:

```
EDF03IRV  =>  ISO88591
EDF04DRV  =>  ISO88591
EDF04x    =>  ISO8859x
```

The following applies here: If an ISO or UTF character set was specified for the CODED-CHARACTER-SET, no conversion takes place. In this case, *ISO acts like *NO-CONVERSION.

NET-CODED-CHAR-SET = *NO-CONVERSION

The character set of the file is not converted while the file is transferred to the Net-Storage. The value of the CODED-CHARACTER-SET is adopted for the NET-CODED-CHAR-SET. If the CODED-CHARACTER-SET is equivalent to *NONE or EDV03IRV, the resulting NETCCS becomes EDF03IRV.

A node file is created on the Net-Storage in the EBCDIC character set specified in the CCS.

NET-CODED-CHAR-SET = <name 1..8>

Name of the NETCCS with which a node is created on the Net-Storage.

There is no check whether the name corresponds to a valid character set!

SUPPRESS-ERRORS = *NONE / *FILE-EXISTING
Determines whether the existence of the specified file is handled as an error.

SUPPRESS-ERRORS = *NONE
If the specified file already exists, the command is rejected, and error handling is initiated (spin-off mechanism resp. The error triggers the spin-off mechanism resp. the SDF-P error handling.

SUPPRESS-ERRORS = *FILE-EXISTING
If the specified file already exists, the command has no effect on the file and its catalog entry. No error is reported.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS051E	Inconsistency in private disk pool or operand error detected
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privilege error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS053E	File already cataloged on private volume
	64	DMS0540	Volume does not support requested file attributes
	64	DMS0557	Invalid volume specification
	64	DMS0579	Invalid operand for temporary file or work file
	64	DMS057A	Invalid combination of file attributes and storage class
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available

	64	DMS057F	Renaming of migrated file not permitted
	64	DMS0585	Error detected when processing catalog or multiprocessor system.
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS0588	The disk storage assignment could not be executed
	64	DMS059F	Specified value for number of backup versions invalid
	64	DMS05B5	Guard not available
	64	DMS05BD	Invalid combination of file and volume set attributes
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS060D	Invalid file name for reference file (PROTECTION-ATTR)
	64	DMS0613	Unknown management class
	64	DMS0618	Unknown storage class
	64	DMS061A	Storage class catalog could not be read
	64	DMS0640	Access to Net-Storage is rejected by the ONETSTOR subsystem because of communication problems with the net client
	64	DMS0641	File already exists on Net-Storage
	64	DMS0642	Large files not permitted on the specified pubset
	64	DMS0643	Net client reports access error
	64	DMS0644	Net client reports internal error
	64	DMS0645	File does not exist on Net-Storage
	64	DMS0647	Specified file type does not match the catalog entry
	64	DMS0648	Specification of file type, device and volume are not compatible
	64	DMS0649	Net server reports POSIX-ACL error
	64	DMS064A	Net client reports that access to files is forbidden on the Net-Storage volume
	64	DMS064B	Access to node files not supported by the net client
	64	DMS0652	Absolute storage space request not permitted on Net-Storage
	64	DMS0683	File already exists Guaranteed message: DMS0683
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master

	130	DMS0524	System address space exhausted
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system. Guaranteed message: DMS053C
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0588	The disk storage assignment could not be executed
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Examples

Example 1: Creating a catalog entry

```
/create-file file-name=max.file.1
/show-file-attr file-name=max.file.1,inf=*all-attributes
```

```
%0000000003 :2OSG:$USER1.MAX.FILE.1
%  ------------------------------ HISTORY      --------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     --------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       --------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION --------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  WORK-FILE  = *NO         F-PREFORM  = *K          S0-MIGR    = *ALLOWED
%  ------------------------------ ALLOCATION   --------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       GVS2.3       D3435
%  NUM-OF-EXT = 1
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

The output of the SHOW-FILE-ATTRIBUTES command shows the catalog entry that was generated for the file *MAX.FILE.1* using CREATE-FILE. Since no specification was made for the SUPPORT operand, storage space on public disk was reserved for the file.

Example 2: Creating a catalog entry for a tape file

```
/create-file file-name=max.tape-file.1
            support=*tape(vol=m2326k,dev-type=tape-c4)
/show-file-attr file-name=max.tape-file.1,inf=*all-attributes
```

```
%           :2OSG:$USER1.MAX.TAPE-FILE.1
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = ALL-USERS   ACCESS     = WRITE
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  CODE       = NONE        LABEL      = NONE        FILE-SEQ   = NONE
%  BLK-OFFSET = 0
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT                                 BLK-COUNT =  0
%  EXTENTS     VOLUME     DEVICE-TYPE
%   NONE        NONE         NONE
%:2OSG: TAPE  :      1 FILE
```

The output of the SHOW-FILE-ATTRIBUTES command shows the catalog entry that was generated with CREATE-FILE for the tape file *MAX.TAPE-FILE.1*, which is to be stored on the tape cartridge *M2326K* (volume type *TAPE-C4*). No reserved storage space is shown for the tape file, since only the catalog entry is saved in the file catalog of the pubset *20SG*.

Example 3: Creating a catalog entry for a file on private disk

```
/create-file file-name=max.disk-file.1,support=*priv(vol=work01,
             dev-type=d3435)
/show-file-attr file-name=max.disk-file.1,inf=*all-attr
```

```
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WORK01       D3435
%  NUM-OF-EXT = 1
%:2OSG: PRDISC:      1 FILE  RES=         3 FRE=         3 REL=         0 PAGES
```

The output of the SHOW-FILE-ATTRIBUTES command shows the catalog entry that was generated with CREATE-FILE for the file *MAX.FILE.1*, for which storage space was reserved on the private disk *WORK01*.

Example 4: Creating catalog entries for files on private disk

```
/create-file file-name=max.net-file.1,support=*public(vol=wk0025,
                        dev-type=netstor)
/show-file-attr file-name=max.net-file.,inf=*all-attr ————————————————— (1)
```

```
%0000000004n:CK68:$USER1.MAX.NET-FILE.1
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 4           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WK0025       NETSTOR
%  NUM-OF-EXT = 1
%:CK68: NET   :      1 FILE  RES=         4 FRE=        4 REL=        4 PAGES
```

```
/create-file file-name=max.net-file.2,
            support=*public(storage-type=*net-storage) ————————————————— (2)
/show-file-attr file-name=max.,
             select=*by-attr(storage-type=*net-storage),inf=(alloc=*yes) ———— (3)
```

```
%0000000004n:CK68:$USER1.MAX.NET-FILE.1
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 4           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WK0025       NETSTOR
%  NUM-OF-EXT = 1
%0000000004n:CK68:$USER1.MAX.NET-FILE.2
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 4           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       CK68@0       NETSTOR
%  NUM-OF-EXT = 1
%:CK68: NET   :      2 FILES RES=         8 FRE=         8 REL=         8 PAGES
```

(1) The output of the SHOW-FILE-ATTRIBUTES command shows the catalog entry that was generated with CREATE-FILE for the *MAX.NET-FILE.1* file which was created beforehand on the Net-Storage volume *WK0025*. The Net-Storage volume is allocated to the default pubset *CK68*. As the volume does not has the default name, the VSN and the volume type *NETSTOR* must be specified explicitly in the CREATE-FILE command.

(2) Another *MAX.NET-FILE.2* file is created on the default Net-Storage volume of the pubset *CK68* (the VSN is `CK68@0`) using CREATE-FILE. In this case it is suffient to specify the storage type (see the STORAGE-TYPE=*NET-STORAGE operand).

(3) The output of the SHOW-FILE-ATTRIBUTES command shows the allocation attributes for the two files.

Example 5: Creating a catalog entry / file protection with BASIC-ACL and GUARDS

```
/cre-file file-name=max.file.2,prot=(basic-acl=*std)
/show-file-attr max.file.2,inf=(security=*yes) ————————————————————  (1)
```

```
%0000000003 :2OSG:$USER1.MAX.FILE.2
%  ------------------------------ SECURITY     ----------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
%  OWNER      = R W X       GROUP      = - - -       OTHERS     = - -
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=
```

```
/cre-file file-name=max.file.3,prot=(guards=(read=prot-a01,write=prot-a01))
/show-file-attr file-name=max.file.3,inf=(security=*yes) ————————————————— (2)
```

```
%0000000003 :2OSG:$USER1.MAX.FILE.3
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  GUARD-READ = $USER1.PROT-A01
%  GUARD-WRIT = $USER1.PROT-A01
%  GUARD-EXEC = NONE
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

```
/cre-file file-name=max.file.4,prot=(prot-attr=*from-file(max.file.3))
```

/show-file-attr file-name=max.file.4,inf=(security=*yes) ———————————— (3)

```
%0000000003 :2OSG:$USER1.MAX.FILE.4
%  ------------------------------ SECURITY     -------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  GUARD-READ = $USER1.PROT-A01
%  GUARD-WRIT = $USER1.PROT-A01
%  GUARD-EXEC = NONE
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

(1) The output of the SHOW-FILE-ATTRIBUTES command shows the protection attributes of the file *MAX.FILE.2*. The CREATE-FILE command was used earlier to create the catalog entry and to define access control using a BASIC-ACL. All access rights (read, write, execute) were set for the file owner *USER1*. Other user IDs have no access rights.

(2) The output of the SHOW-FILE-ATTRIBUTES command shows the protection attributes of the file *MAX.FILE.3*. The CREATE-FILE command was used earlier to create the catalog entry and to define access control using GUARDS. Read and write access from the file owner *USER1* and all other users are not permitted unless the conditions which are specified in the guard *PROT-A01* of the user *USER1* are satisfied. The file cannot be executed, since no guard was specified in the EXEC operand.

(3) The output of the SHOW-FILE-ATTRIBUTES command shows the protection attributes of the file *MAX.FILE.4*. When the catalog entry was generated, the protection attributes were copied from *MAX.FILE.3*.

2.74 CREATE-FILE-GENERATION

Create new file generation for file generation group

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The CREATE-FILE-GENERATION command creates a new file generation for a file generation group (which already exists). File attributes such as the generation name, the specification of the volume, the storage allocation, and performance attributes can be defined (see “Overview of functions”). The file protection and data backup attributes are defined once only for the entire file generation group using the CREATE-FILE-GROUP command. User and systems support information (see the USER-INFORMATION and ADM-INFORMATION operands) is not copied from the group entry but can be defined separately for each file generation.

A file generation group write-protected by BASIC-ACL or GUARDS cannot be extended.

For basic information on file generations and file generation groups, see the “Introductory Guide to DMS” [13].

Privileged functions

The following functions are available to nonprivileged users only if physical allocation of public space is allowed (see “Privileged functions” in the function description of the CREATE-FILE command):

- explicit specification (values other than the default, *STD) of a volume or volume set in the VOLUME and VOLUME-SET operands in the structure SUPPORT=*PUBLIC-DISK (STORAGE-CLASS=*NONE(...))
- absolute space reservation using SPACE=*ABSOLUTE(...) in the structure SUPPORT=*PUBLIC-DISK(...) (note that no authorization is required for SUPPORT=*PRIVATE-DISK)

Systems support personnel can supplement the user information in the file catalog with one to eight bytes of information about the file generation (ADM-INFORMATION operand).

By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, create file generations under all user logons). When SECOS is used, this co-ownership can be restricted.

In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners of the file generation groups of his user ID. Co-owners of a user ID are then also allowed to create file generations under that ID.

File generations in SM pubsets

See the function description of the CREATE-FILE command, sections “Files in SM pubsets” and “Physical allocation in SM pubsets”.

Work files

When a file generation is created in an SM pubset, the CREATE-FILE-GROUP command is used to define whether the file generation group is to have the work file attribute (WORK-FILE-GROUP=*YES). For more information on work files see the “Introductory Guide to DMS” [13]. If the file generation is assigned a storage class (explicitly or implicitly, see STORAGE-CLASS operand), the value specified for the WORK-FILE attribute must match the group entry of the file generation group.

File generations on tape (magnetic tape/tape cartridge)

In conjunction with a group entry on a public volume, file generations can also be stored on tape (operand SUPPORT=*TAPE). When creating or accessing the catalog entry of file generations on tape, some special points relating to the use of tapes should be taken into account.

For file generations with standard labels, details of shareability (USER-ACCESS), access type (ACCESS) and passwords are transferred from the catalog entry to the tape labels when the file is created (OPEN). The BASIC-ACL, and GUARDS protection attributes are not transferred.

No access checking is performed when a file generation is created on tape. That means that write protection even for a tape file generation that has yet to be created can be set to ACCESS=*READ. The file generation can be opened and created as an output file; write protection does not come into effect until after it has been created.

The protection attributes of the file generation group can be modified with the MODIFY-FILE-GROUP-ATTRIBUTES command. For any file generations already created on tape, the change is made only in the file catalog, not in the tape labels.

Access (OPEN) to an existing tape file generation is checked against the protection attributes stored in the file catalog. The entries in the labels are disregarded.

When a tape file generation is imported, access checking is based on the protection attributes stored in the file labels. If the tape file generation was password-protected when it was created, the same password must be specified again when it is imported, even if the file generation group is now protected by a different password or none at all.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Specify name of file generation	GENERATION-NAME =	
Specify the volume	SUPPORT	
Volume: pubset	SUPPORT = *PUBLIC-DISK(...)	
• Specify storage class		STORAGE-CLASS
• Performance requirements ○ performance attribute ○ type of I/O operations		IO-ATTRIBUTES PERFORMANCE USAGE
• Define time when data consistency is required after write operations		DISK-WRITE
• Define availability requirements		AVAILABILITY
• preferred file format		FILE-PREFORMAT
• Specify volume set		VOLUME-SET
• Specify the volume		VOLUME
• Specify device type		DEVICE-TYPE
• User information		USER-INFORMATION
• Systems support information		ADM-INFORMATION
Volume: private disk	= *PRIVATE-DISK	

Function / Meaning	Level 1 operands	Level 2/3 operands
• Specify device type		DEVICE-TYPE
• Request volume(s)		VOLUME
• Storage space allocation		SPACE
• Separate storage of data/index forISAM files		DATA-SUPPORT
Volume: tape	= *TAPE	
• Specify device type		DEVICE-TYPE
• Request volume(s)		VOLUME
• Request tape device		PREMOUNT-LIST
Error handling if the file already exists	SUPPRESS-ERRORS	
• Normal error handling	= *NONE	
• Suppress error handling	= *FILE-EXISTING	

Table 36: Overview of CREATE-FILE-GENERATION command functions

Format

CREATE-**FILE-GEN**ERATION Alias: **CRFGN**

GENERATION-**NAME** = <filename 1..54 without-vers>

,**SUP**PORT = * **PUB**LIC-**DISK** (...) / ***PRIV**ATE-**DISK**(...) / ***TAPE**(...) / ***NONE**

* **PUB**LIC-**DISK** (...)

| **STOR**AGE-**CLASS** = ***STD** / <composed-name 1..8> / ***NONE**(...)

| ***NONE**(...)

| | **IO-ATTRIBUTES** = ***STD** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **PERFORMANCE** = ***STD** / ***HIGH** / ***VERY-HIGH** / ***USER-MAX**IMUM

| | | ,**USAGE** = ***READ-WRITE** / ***WR**ITE / ***READ**

| | ,**DISK-WRITE** = ***STD** / ***IMMED**IATE / ***BY-CLOSE**

| | ,**AVAIL**ABILITY = ***STD** / ***HIGH**

| | ,**FILE-PREFORMAT** = ***BY-PUB**SET-**DEF**AULT / ***K** / ***NK2** / ***NK4**

| | ,**VOL**UME-**SET** = ***STD** / ***CONTR**OL-**VOL**UME-**SET** / <cat-id 1..4>

| | ,**VOL**UME = ***STD** / list-poss(255): <vsn 1..6>

| | ,**DEV**ICE-**TYPE** = ***BY-VOL**UME / <device>

| ,**SPACE** = ***STD** / ***RELA**TIVE(...) / ***ABSO**LUTE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY-**ALLOC**ATION = <integer 1..2147483647>

| | ,**SEC**ONDARY-**ALLOC**ATION = ***STD** / <integer 0..32767>

| ***ABSO**LUTE(...)

| | **FIRST-PAGE** = <integer 1..2147483647>

| | ,**SIZE** = <integer 1..2147483647>

| ,**USER-INF**ORMATION = ***NONE** / <c-string 1..8 with-low>

| ,**ADM-INF**ORMATION = ***NONE** / <c-string 1..8 with-low>

***PRIV**ATE-**DISK**(...)

| **VOL**UME = [***ANY**](...) / list-poss(255): <alphanum-name 1..6>

| [***ANY**](...)

| | **NUM**BER-**OF-DEV**ICES = **1** / <integer 1..9>

| ,**DEV**ICE-**TYPE** = ***BY-VOL**UME-**CATALOG** / <device>

```
      |     ,SPACE = *STD / *RELATIVE(...) / *ABSOLUTE(...)
      |          *RELATIVE(...)
      |              |     PRIMARY-ALLOCATION = <integer 1..2147483647>
      |              |     ,SECONDARY-ALLOCATION = *STD / <integer 0..32767>
      |          *ABSOLUTE(...)
      |              |     FIRST-PAGE = <integer 1..2147483647>
      |              |     ,SIZE = <integer 1..2147483647>
      |     ,DATA-SUPPORT = *SAME / [*PARAMETERS](...)
      |          [*PARAMETERS](...)
      |              |     DATA-DEVICE-TYPE = <device>
      |              |     ,DATA-VOLUME = list-poss(255): <alphanum-name 1..6>
      |              |     ,DATA-SPACE = *RELATIVE (...) / *ABSOLUTE(...)
      |              |       *RELATIVE(...)
      |              |         |     PRIMARY-ALLOCATION = <integer 1..2147483647>
      |              |         |     ,SECONDARY-ALLOCATION = *STD / <integer 0..32767>
      |              |       *ABSOLUTE(...)
      |              |         |     FIRST-PAGE = <integer 1..2147483647>
      |              |         |     ,SIZE = <integer 1..2147483647>
  *TAPE(...)
      |     VOLUME = *NO / [*ANY](...) / list-poss(255): <alphanum-name 1..6>
      |          [*ANY](...)
      |              |     NUMBER-OF-DEVICES = 1 / <integer 1..9>
      |     ,DEVICE-TYPE = *BY-VOLUME-CATALOG / <device>
      |     ,PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
,SUPPRESS-ERRORS = *NONE / *FILE-EXISTING
```

Operands

GENERATION-NAME = <filename 1..54 without-vers>
The name of the new file generation.
The catalog and user IDs must match those for the file generation group. Only the user's own user ID or a user ID for which the user is co-owner may be specified. Systems support personnel (TSOS privilege) may specify any user ID. The number specified for the new file generation can be either absolute or relative (to the BASE-NUMBER value of the group entry); for details see the "Introductory Guide to DMS" [13]. Regardless of how it is specified, the number of the new file generation must in absolute terms be the group entry's LAST-GEN value incremented by 1, if the value of LAST-GEN is 9999, the value for the new generation must be 1 (see also the BASE-NUMBER and LAST-GEN output fields of the SHOW-FILE-ATTRIBUTES command).

SUPPORT = *PUBLIC-DISK(...)
Indicates that the file generation is to be set up on a public disk. The pubset (related set of public disks) on which the file generation is to be created is uniquely identified by the (explicitly specified or default) catalog ID in the file name.

STORAGE-CLASS = *STD / <composed-name 1..8> / *NONE(...)
Governs the properties of the file generation's storage location. Systems support defines storage classes to facilitate automatic management of storage space in SM pubsets. A storage class is allocated certain file attributes which are implicitly set for all files assigned to that storage class. If a storage class is specified, there is no need to explicitly specify values for the VOLUME-SET, VOLUME, DEVICE-TYPE, IO-ATTRIBUTES, DISK-WRITE, FILE-PREFORMAT and AVAILABILITY operands. The WORK-FILE attribute of the storage class must match that of the group entry.
The SHOW-STORAGE-CLASS command allows users to find out which storage classes of an SM pubset are available to them and which file attributes are set.

STORAGE-CLASS = *STD
A file generation in an SM pubset is assigned the default storage class from the file generation group's group entry. The default storage class is governed by the STOR-CLASS-DEFAULT operand of the CREATE-FILE-GROUP or MODIFY-FILE-GROUP-ATTRIBUTES command. If the file generation is to be created in an SF pubset or if there is no default storage class defined, the file generation is given the same attributes as with STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = <composed-name 1..8>
A file generation in an SM pubset is assigned the specified storage class. The storage class must exist and be accessible to the user at the time when the assignment is made. This specification is ignored for a file generation in an SF pubset; the file is then given the same attributes as with STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = *NONE(...)
STORAGE-CLASS=*NONE has the same effect as *STD if all the following conditions are met:

- The file generation is created on a volume set intended for permanent storage.
- A default storage class is assigned to the user ID at the SM pubset in question.
- Physical allocation is not permitted.

Only in this case are the operands PERFORMANCE, USAGE, DISK-WRITE, and AVAILIBILITY are ignored.

In all other cases, the properties of the file generation storage location are determined by the operands of the structure *NONE(...) and no storage class is assigned to the file generation.
The WORK-FILE attribute is copied from the group entry (see the CREATE-FILE-GROUP command, WORK-FILE-GROUP operand).

For a description of the remaining operands, see the CREATE-FILE command.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS051E	Inconsistency in private disk pool or operand error detected
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS0533	Requested file not cataloged in pubset Guaranteed message: DMS0533
	64	DMS053E	File already cataloged on private volume
	64	DMS0555	Specified file name already cataloged
	64	DMS0557	Invalid volume specification
	64	DMS057A	Invalid combination of file attributes and storage class
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS057F	Renaming of migrated file not permitted

	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS05BD	Invalid combination of file and volume set attributes
	64	DMS05CC	File name already cataloged
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0618	Unknown storage class
	64	DMS061A	Storage class catalog could not be read
	64	DMS0683	File already exists Guaranteed message: DMS0683
	64	DMS06C4	File generation group not yet cataloged
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space full
	130	DMS053C	No space in pubset catalog file Guaranteed messages: DMS053C
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0588	It was not possible to allocate disk space
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Examples

Example 1: Creating a file generation

```
/create-file-group group-name=max.group.1,
       gen-par=(max=3,ov-opt=del-all,vol=work01,dev-type=d3435) ———— (1)
/show-file-attr group-name=max.group.1,inf=(organisation=*yes) ———— (2)
```

```
%0000000000*:2OSG:$USER1.MAX.GROUP.1 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = DELETE-ALL
%  FIRST-GEN  = 0           LAST-GEN   = 0
%  EXTENTS     VOLUME     DEVICE-TYPE
%              WORK01       D3435
%:2OSG: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

```
/cre-file-gen max.group.1(*1) ——————————————————————————————————— (3)
```

```
%  DMS0681 DMS ERROR '06DA' WHEN ACCESSING FILE ':2OSG:$USER1.MAX.GROUP.1(*0001)
'. FOR FURTHER INFORMATION: /HELP-MSG DMS06DA
```

```
/help-msg dms06da,lang=d  ——————————————————————————————————— (4)
```

```
%  DMS06DA UNZULAESSIGE KOMBINATION VON PRIVATEN UND OEFFENTLICHEN DATENTRAEGERN
 FUER EINE DATEI-GENERATIONS-GRUPPE IM ANGEGEBENEN KOMMANDO
%  ? Der Benutzer versuchte, eine Generation auf einer privaten Platte
%    zu erstellen und die Dateigenerationsgruppe befindet sich auf einem
%    oeffentlichen Datentraeger oder es wurde versucht eine Generation
%    auf oeffentlichem Datentraeger bzw. Band zu erstellen und die
%    Dateigenerationsgruppe befindet sich auf privater Platte.
%  ! Wenn die Dateiengenerationsgruppe auf der privaten Platte
%    verbleibt, muss die Generation auf der privaten Platte erstellt werden.
%    Wenn sie auf einem oeffentlichen Datentraeger verbleibt, muss
%    die Generation auf einem oeffentlichten Datentraeger oder auf
%    einem Band bleiben.
```

```
/cre-file-gen max.group.1(*1),support=*priv(vol=work01,dev-type=d3435) — (5)
/cre-file-gen max.group.1(*2),support=*priv(vol=work01,dev-type=d3435)
/cre-file-gen max.group.1(*3),support=*priv(vol=work01,dev-type=d3435)
/show-file-attr f-name=max.group.1,select=by-attr(gen=y ) ———————————— (6)
```

```
%         0*:2OSG:$USER1.MAX.GROUP.1 (FGG)
%         3*:2OSG:$USER1.MAX.GROUP.1(*0001)
%         3*:2OSG:$USER1.MAX.GROUP.1(*0002)
%         3*:2OSG:$USER1.MAX.GROUP.1(*0003)
%:2OSG: PRDISC:      4 FILES RES=         9 FRE=         9 REL=         0
```

/show-file-attr f-name=max.group.1,inf=(organization=*yes) ————————— (7)

```
%00000000*:2OSG:$USER1.MAX.GROUP.1 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%0000000000*:2OSG:$USER1.MAX.GROUP.1 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = DELETE-ALL
%  FIRST-GEN  = 1           LAST-GEN   = 3
%  EXTENTS     VOLUME     DEVICE-TYPE
%              WORK01       D3435
%:2OSG: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/cre-file-gen max.group.1(*4),support=*priv(vol=work01,dev-type=d3435) —— (8)
/show-file-attr max.group.1,inf=(organization=*yes) ———————————————— (9)

```
%0000000000*:2OSG:$USER1.MAX.GROUP.1 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = DELETE-ALL
%  FIRST-GEN  = 4           LAST-GEN   = 4
%  EXTENTS     VOLUME     DEVICE-TYPE
%              WORK01       D3435
%:2OSG: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/show-file-attr max.group.1,select=*by-attr(gen=*yes)

```
0000000000*:2OSG:$USER1.MAX.GROUP.1 (FGG)
  ------------------------------ GENERATION-INFO ----------------------------
  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = DELETE-ALL
  FIRST-GEN  = 4           LAST-GEN   = 4
  EXTENTS     VOLUME     DEVICE-TYPE
              WORK01       D3435
0000000003*:2OSG:$USER1.MAX.GROUP.1(*0004)
  ------------------------------ ORGANIZATION -------------------------------
  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
  REC-FORM   = NONE        REC-SIZE   = 0
  AVAIL      = *STD
:2OSG: PRDISC:      2 FILES RES=         3 FRE=         3 REL=         0 PAGES
```

(1) A group entry is created for the file generation group *MAX.GROUP.1* on the private disk *WORK01*. A maximum of 3 file generations (MAXIMUM=3) are to be permitted. If this maximum is exceeded, all existing generations are to be deleted (OVERFLOW-OPTION=*DELETE-ALL).

(2) The command SHOW-FILE-ATTRIBUTES displays the group entry.

(3) The command CREATE-FILE-GENERATION is to be used to create the first file generation.

(4) The command will be rejected. The command HELP-MSG-INFORMATION is used to obtain information on the error (*DMS06DA*) that occurred. The group entry is located on private disk. Since the operand SUPPORT was not specified for the file generation *0001, an attempt was made to create the first file generation on public disk.

(5) The file generations *0001, *0002, and *0003 are created on the private disk *WORK01*.

(6) The command SHOW-FILE-ATTRIBUTES returns information on the group entry and the associated file generations (since GENERATION=*YES).

(7) The command SHOW-FILE-ATTRIBUTES shows the attributes of the group entry that affect file generations (since ORGANIZATION=*YES).

(8) The file generation *0004 is created. Since OVERFLOW-OPTION=*DELETE-ALL is defined, and the maximum has been reached, the earlier generations should have been deleted in the process.

(9) The following SHOW-FILE-ATTRIBUTES command indicates that only the group entry and the last created generation (*0004) exist.

Example 2: Creating file generations (read password)

```
/create-file-group group-name=max.group.2,gen-par=(max=3),
    prot=(read-pass='paul')  ———————————————————————————— (1)

/show-file-attr max.group.2,inf=(organization=*yes,security=*yes) ——— (2)
```

```
%0000000000 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-03-18
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 0           LAST-GEN   = 0
%:2OSG: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

```
/cre-file-gen max.group.2(*1) ———————————————————————————— (3)
```

```
%  DMS0681 DMS ERROR '05D8' WHEN ACCESSING FILE ':2OSG:$USER1.MAX.GROUP.2(*0001)
'. FOR FURTHER INFORMATION: /HELP-MSG DMS05D8
```

```
/help-msg dms05d8,lang=d  ———————————————————————————— (4)
```

```
%  DMS05D8 DATEI GESCHUETZT. ZUGEHOERIGES KENNWORT EINGEBEN UND KOMMANDO WIEDERH
OLEN
%  ? Der Benutzer versuchte fuer eine Datei, die mit einem Kennwort
%    katalogisiert war, den Dateikatalog zu modifizieren, ohne dass ein
%    Kennwort in der Kennworttabelle vorhanden ist.
%    Das Kennwort fuer die vorher katalogisierte Datei wurde ueber das
%    Kennwortkommando dem System nicht mitgeteilt.
%  ! Das Dateikennwort ueber das /ADD-PASSWORD-Kommando angeben und danach das
%    Kommando wiederholen.
```

```
/add-pass 'paul' ——————————————————————————————————— (5)
/cre-file-gen max.group.2(*1) ————————————————————————— (6)
/cre-file-gen max.group.2(*3) ————————————————————————— (7)
```

```
%  DMS0681 DMS ERROR '06C7' WHEN ACCESSING FILE ':2OSG:$USER1.MAX.GROUP.1(*0001)
'. FOR FURTHER INFORMATION: /HELP-MSG DMS06C7
```

```
/help-msg dms06c7,lang=d ——————————————————————————————— (8)
```

```
%  DMS06C7 UNGUELTIGE GENERATIONSNUMMER IM KOMMANDO. NUMMERN MUESSEN AUFSTEIGEND
 UND LUECKENLOS SEIN. KOMMANDO NICHT AUSGEFUEHRT
%  ? Generationsdateien muessen katalogisiert werden mit aufsteigend geordneten
%    Generationsnummern, wobei keine Luecken in der Folge der
%    Generationsnummern
%    vorkommen duerfen.
%  MASSNAHME : KEINE
```

```
/cre-file-gen max.group.2(*2) ————————————————————————— (9)
/cre-file-gen max.group.2(*3)
/cre-file-gen max.group.2(*4)
/show-file-attr max.group.2,select=(gen=yes) ——————————— (10)
```

```
%         0 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0002)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0003)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0004)
%:2OSG: PUBLIC:      4 FILES RES=         9 FRE=         9 REL=         9 PAGES
/show-file-attr max.group.2,inf=(organization=*yes)
%0000000000 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 2           LAST-GEN   = 4
%:2OSG: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

(1) A group entry is created for the file generation group *MAX.GROUP.2* on the public disk *WORK01*. A maximum of 3 file generations (MAXIMUM=3) is to be permitted. For each new created generation that would cause the maximum to be exceeded, the oldest existing generation is to be deleted (default value OVERFLOW-OPTION=*CYCLE-REPLACE). The read password *PAUL* (which is replaced by “P” in logs) is defined for file protection. The protection attributes apply to the group entry and to all generations of the file generation group.

(2) The command SHOW-FILE-ATTRIBUTES displays the group entry along with its protection and file generation attributes.

(3) The command CREATE-FILE-GENERATION is to be used to create the first file generation.

(4) The command will be rejected. The command HELP-MSG-INFORMATION is used to obtain information on the error (*DMS05D8*) that occurred. In this case, the group entry, which is updated on creating a new generation, could not be changed due to the password protection.

(5) The password *PAUL* is entered into the password table of the task.

(6) Generation *0001 is created.

(7) An attempt is made to create generation *0003.

(8) The command will be rejected. In this case, the next generation to be created must be generation *0002, since no gaps are permitted in generation numbers.

(9) Generations *0002, *0003, and *0004 are created.

(10) The following SHOW-FILE-ATTRIBUTES commands show the group entry and all existing generations: generation *0004 exceeded the defined maximum of three generations. That is why the oldest generation was deleted when creating it (default value OVERFLOW-OPTION=*CYCLE-REPLACE).

2.75 CREATE-FILE-GROUP

Define name and attributes of new file generation group

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The CREATE-FILE-GROUP command creates the catalog entry for a new file generation group on disk.

File generation groups (FGGs) consist of a group entry and the associated file generations. The group entry is created with the CREATE-FILE-GROUP command and can be modified with the MODIFY-FILE-GROUP-ATTRIBUTES command. File generations are created with the CREATE-FILE-GENERATION command and can be modified with the MODIFY-FILE-GENERATION-SUPPORT command. The file protection and data backup attributes defined in the group entry also apply to the associated file generations. User and systems support information (see USER- and ADM-INFORMATION operands) in the group entry is not “bequeathed” to the generations. This information can be defined separately for each file generation whenever a generation is created or modified.

FGGs can be created on public disks, private disks or in an nonhomogeneous mix, with the group entry on public disk and the associated file generations both on tape and on public disk. FGGs cannot be created on Net-Storage.

FGGs are not saved in the version backup archive, that means the NUM-OF-BACKUP-VERS has the value 0.

FGGs which are held on private volumes and for which there is no catalog entry are designated as exported or “FOREIGN” file generation groups. If such a FGG is to be recataloged, the group entry must be imported first, followed by the associated file generations (using the IMPORT-FILE command).

If no group entry is available for existing file generations (on private volumes or as a result of a system error in the file catalog), the CREATE-FILE-GROUP command can be used to create a new group entry for the existing file generations. This entails specifying where the generations start and finish using the FIRST-GENERATION and LAST-GENERATION operands. If the generations are on private volumes, they must then be imported with the IMPORT-FILE command.

The following must be noted for file generations on tape:

If the FGG is protected by BASIC-ACL or, in conjunction with the SECOS software product, by GUARDS (see the “SECOS” manual [35]), these protection mechanisms are recorded only in the file catalog, not in the tape labels. In this case, the conventional protection mechanisms - standard access control (ACCESS and USER-ACCESS) and passwords - must be used to protect tape files against unauthorized access.

Unlike an FGG which merely has ACCESS=*READ write protection, an FGG “write protected” by BASIC-ACL or GUARDS cannot be extended by creating a new file generation.

Privileged functions

Systems support personnel can supplement the user information in the file catalog with one to eight bytes of information about the file generation group (ADM-INFORMATION operand).

By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, create file generation groups under all user logons). When SECOS is used, this co-ownership can be restricted. In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners of the file generation groups of his user ID. Co-owners of a user ID are then also allowed to create file generations under that ID.

File generation groups in SM pubsets

A file generation group for standard files or for work files can be created in an SM pubset. This is done with the STOR-CLASS-DEFAULT operand, either explicitly (using the WORK-FILE-GROUP operand in the STOR-CLASS-DEFAULT=*NONE(...)) structure or implicitly by assigning a default storage class with the corresponding WORK-FILE attribute. All the file generations in the FGG must have the same WORK-FILE attribute. The WORK-FILE attribute cannot be modified later.

Assigning a storage class simplifies the automatic management of storage space (for details see the “Introduction to System Administration” [14] or the “System-Managed Storage” manual [45]).

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Define name of the file generation group	GROUP-NAME =	
Define general attributes of file generation group	GENERATION-PARAMETER =	
• Maximum permitted number of generations		MAXIMUM
• Action when this number exceeded		OVERFLOW-OPTION
• Base number • absolute • relative to last file generation		BASE-NUMBER =*RELATIVE-TO-LAST- GEN =*RELATIVE-TO-LAST- GEN
• Number of first generation		FIRST-GENERATION
• Number of last generation		LAST-GENERATION

• Specify device type		DEVICE-TYPE
• Specify the volume		VOLUME
Define protection attributes	PROTECTION = *PARAMETERS(...)	
• Import protection attributes from file		PROTECTION-ATTR
• File access rights		ACCESS
• Shareability		USER-ACCESS
• Basic access control list		BASIC-ACL
• Password protection		PASSWORD
• Define passwords		WRITE-PASSWORD/ READ-PASSWORD
• Physical deletion (overwrite with binary zeros)		DESTROY-BY-DELETE
• Monitoring of DMS accesses via SAT /System Exit Routines		AUDIT
• Lock to prevent release of reserved storage space (disk files only)		SPACE-RELEASE-LOCK
• Date of release for deletion		FREE-FOR-DELETION
Specify default storage class	STOR-CLASS-DEFAULT =	
No default storage class	STOR-CLASS-DEFAULT = *NONE(...)	

• Work file attribute		WORK-FILE-GROUP

Function / Meaning	Level 1 operands	Level 2/3 operands
For disk files only: Type and frequency of automatic data backup by ARCHIVE or HSMS	SAVE	
• Backup frequency		BACKUP-CLASS
• Scope of backup		SAVED-PAGES
HSMS storage management class	MANAGEMENT-CLASS	
Code table (XHCS)	CODED-CHARACTER-SET	
HSMS storage management class	MANAGEMENT-CLASS	
user information	USER-INFORMATION	
systems support information	ADM-INFORMATION	

Table 37: Overview of CREATE-FILE-GROUP command functions

Format

CREATE-**FILE-GR**OUP Alias: **CRFGP**

GROUP-**NAME** = <filename 1..47 without-gen-vers>

,**GEN**ERATION-**PAR**AMETER = [***GEN** ERATION **-PAR** AMETER] (...)

[***GEN** ERATION **-PAR** AMETER](...)

| **MAX**IMUM = <integer 1..255>

| ,**OV**ERFLOW-**OPT**ION = ***CYCL** IC **-REPL** ACE / ***REUSE-VOL**UME / ***DEL**ETE-**ALL** /

| ***KEEP-GEN**ERATION

| ,**BASE-NUM**BER = ***EQU** AL **-FIRST** -GEN / <integer 1..9999>

| ,**FIRST-GEN**ERATION = **0** / <integer 0..9999>

| ,**LAST-GEN**ERATION = **0** / <integer 0..9999>

| ,**DEV**ICE-**TYPE** = ***BY-VOL** UME / <device>

| ,**VOL**UME = ***PUB** LIC / <alphanum-name 1..6>

,**PROT**ECTION = ***STD** / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **PROT**ECTION-**ATTR** = ***BY-DEF-PROT-OR-STD** / ***STD** / ***FROM-FILE**(...)

| ***FROM-FILE**(...)

| | **F**ILE-**NAME** = <filename 1..54 without-gen>

| ,**ACCESS** = ***BY-PROT**ECTION **-ATTR** / ***WR**ITE / ***READ**

| ,**USER-ACCESS** = ***BY-PROT**ECTION **-ATTR** / ***OWNER-ONLY** / ***ALL-USERS**

| ,**BASIC-ACL** = ***BY-PROT**ECTION **-ATTR** / ***NONE** / ***STD** / ***PAR**AMETERS(...) / ***GR**OUP-**R** /

| ***GR**OUP-**WR** / ***ALL-R** / ***ALL-WR**

| ***PAR**AMETERS(...)

| | **OWNER** = ***NO-ACCESS** / ***PAR**AMETERS(...)

| | ***PAR**AMETERS(...)

| | | **READ** = ***NO** / ***Y**ES

| | | ,**WR**ITE = ***NO** / ***Y**ES

| | ,**GR**OUP = ***NO-ACCESS** / ***PAR**AMETERS(...)

| | ***PAR**AMETERS(...)

| | | **READ** = ***NO** / ***Y**ES

```
        |               |                           |       ,WRITE = *NO / *YES
        |               |          ,OTHERS = *NO-ACCESS / *PARAMETERS(...)
        |               |                  *PARAMETERS(...)
        |               |                           |       READ = *NO / *YES
        |               |                           |       ,WRITE = *NO / *YES
        |       ,GUARDS = *BY-PROTECTION -ATTR / *NONE / *PARAMETERS(...)
        |           *PARAMETERS(...)
        |               |       READ = *NONE / <filename 1..18 without-cat-gen-vers>
        |               |       ,WRITE = *NONE / <filename 1..18 without-cat-gen-vers>
        |       ,WRITE-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / <c-string 1..4> / <x-string 1..8> /
        |                               <integer -2147483648..2147483647> / *SECRET
        |       ,READ-PASSWORD = *BY-PROT-ATTR-OR-NONE / *NONE / <c-string 1..4> / <x-string 1..8> /
        |                               <integer -2147483648..2147483647> / *SECRET
        |       ,DESTROY-BY-DELETE = *BY-PROT ECTION -ATTR / *NO / *YES
        |       ,AUDIT = *STD / *NONE / *SUCCESS / *FAILURE / *ALL
        |       ,SPACE-RELEASE-LOCK = *BY-PROTECTION-ATTR / *NO / *YES
        |       ,FREE-FOR-DELETION = *NONE / <date> / <integer 0..991231>
,SAVE = *STD / *NO / [*PARAMETERS](...)
    [*PARAMETERS](...)
        |       BACKUP-CLASS = *STD / *A / *B / *C / *D / *E
        |       ,SAVED-PAGES = *COMPLETE-FILE / *MODIFIED-PAGES
,MANAGEMENT-CLASS = *NONE / <composed-name 1..8>
,CODED-CHARACTER-SET = *USER-DEFAULT / *NONE / <name 1..8>
,USER-INFORMATION = *NONE / <c-string 1..8 with-low>
,ADM-INFORMATION = *NONE / <c-string 1..8 with-low>
,STOR-CLASS-DEFAULT = *STD / <composed-name 1..8> / *NONE(...)
    *NONE(...)
        |       WORK-FILE-GROUP = *NO / *YES
```

Operands

GROUP-NAME = <filename 1..47 without-gen-vers>
The name to be given to the file generation group.
Only the user's own user ID or a user ID for which the user is co-owner may be specified. Systems support personnel (TSOS privilege) may specify any user ID.

GENERATION-PARAMETER = *GENERATION-PARAMETER(...)
Specifies the attributes of the file generation group.

MAXIMUM = <integer 1..255>
Defines how many generations of the file generation group may be cataloged at the same time (see the OVERFLOW-OPTION operand).

OVERFLOW-OPTION = *CYCLIC-REPLACE / *REUSE-VOLUME / *DELETE-ALL / *KEEP-GENERATION
Specifies what should be done if the maximum permitted number of file generations (MAXIMUM operand) is exceeded. When the maximum permitted number is reached, the surplus file generations will be deleted regardless of password protection, retention period (EXPIRATION-DATE) and the permitted mode of access (ACCESS).

OVERFLOW-OPTION = *CYCLIC-REPLACE
The current oldest generation is deleted and its storage space, or the tapes it occupies, are released. In the catalog, the entries in the *LAST-GEN* and *FIRST-GEN* output fields (most recent/oldest existing generations) are updated.

OVERFLOW-OPTION = *REUSE-VOLUME
The effect of OVERFLOW-OPTION=*REUSE-VOLUME depends on the storage medium:

For FGGs on public disks: the oldest generation will be deleted and its storage space returned to the system; the group entry is updated (see OVERFLOW-OPTION= *CYCLIC-REPLACE).

For FGGs on private disks: the new generation is created and the oldest generation deleted, the volume being used for storage of the new generation. If the generation which is being deleted extends over several disks, the new generation is cataloged only on the first of these disks. The group entry is updated accordingly. Since the old generation is not deleted until the new generation has been created, lack of storage space on the disk may mean that it is impossible to create the new generation, even though OVERFLOW-OPTION=*REUSE-VOLUME is specified.

For FGGs on tape: the oldest generation is deleted from the catalog, and the new generation is created on the tape thus released. The group entry is updated accordingly. OVERFLOW-OPTION=*REUSE-VOLUME is not permitted for file generation groups on multifile tapes (file sets).

OVERFLOW-OPTION = *DELETE-ALL
All generations of the FGG are deleted, and the new generation becomes the oldest one in the new series. The group entry is updated accordingly.

OVERFLOW-OPTION = *KEEP-GENERATION
The file generations are not automatically deleted. The oldest file generations which overshoot the maximum will not be deleted until OVERFLOW-OPTION or BASE-NUMBER is modified (MODIFY-FILE-GROUP-ATTRIBUTES command).

BASE-NUMBER = *EQUAL-FIRST-GEN / <integer 0..9999>
Defines a reference point/a base generation to which all relative generation numbers refer. The names of the file generations can be specified with absolute (*n) or relative (±n) generation numbers.

BASE-NUMBER = *EQUAL-FIRST-GEN
The starting base is the value specified by FIRST-GENERATION.

FIRST-GENERATION = 0 / <integer 1..9999>
Specifies the absolute generation number of the oldest existing file generation. The operand should be used only in combination with the LAST-GENERATION operand in order to reconstruct the group entry of a file generation group. This needs to be done in order to work with existing file generations for which no group entry exists (see the "Function" description).

LAST-GENERATION = 0 / <integer 0..9999>
Specifies the absolute generation number of the most recent existing file generation. The operand should be used only in combination with the FIRST-GENERATION operand in order to reconstruct the group entry of a file generation group. This needs to be done in order to work with existing file generations for which no group entry exists (see the "Function" description).

DEVICE-TYPE = *BY-VOLUME / <device>
The type of device to which the required disk is assigned (if the file generation group is to be created on a private disk).

DEVICE-TYPE = *BY-VOLUME
File generation groups on public volumes:
The system itself determines the device type. If the file generation group is being set up on a public disk, (VOLUME=*PUBLIC), then the only permissible specification is *BY-VOLUME.

DEVICE-TYPE = <device>
File generation groups on private volumes:
If the file generation group is being set up on a private disk, then the device type must be explicitly specified here (*BY-VOLUME is not allowed). Only device types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device types. If at least one volume ID is specified with VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification. The permissible specifications for DEVICE-TYPE can also be found in the device table in section "Device type table" (device type column).

VOLUME = *PUBLIC / <alphanum-name 1..6>
VSN of the public/private disk on which the file generation is to be created.

VOLUME = *PUBLIC
The file generation group will be created on a public disk. The generations which belong to it can also be set up on tapes or tape cartridges.

VOLUME = <alphanum-name 1..6>
The file generation group will be created on a private disk. The generations which belong to it must also be set up on a private disk.

PROTECTION = *STD / *PARAMETERS(...)
The protection attributes for the file.

PROTECTION = *STD
The protection attributes listed below are assigned the values supplied by default protection.
If default protection is not active, the system default values for the operands of the *PARAMETERS structure are set.

Protection attribute	PROTECTION-ATTR=			
	*FROM-FILE	*STD[1)]	*BY-DEF-PROT-OR-STD	
			Default protection not active[1)]	Default protection active
ACCESS	value from reference file	WRITE	WRITE	values from default protection
USER-ACCESS		OWNER-ONLY	OWNER-ONLY	
BASIC-ACL		NONE	NONE	
DESTROY-BY-DELETE		NO	NO	
GUARDS		NONE	NONE	
SPACE-RELEASE-LOCK		NO	NO	
READ-PASSWORD	NONE	NONE	NONE	
WRITE-PASSWORD	NONE	NONE	NONE	
EXEC-PASSWORD	NONE	NONE	NONE	
FREE-FOR-DELETION	NONE	NONE	NONE	NONE
AUDIT	NONE	NONE	NONE	NONE

[1)] The system default values are entered.
Table 38: Effects of PROTECTION-ATTR on the protection attributes in the case of CREATE-FILE-GROUP

PROTECTION = *PARAMETERS(...)
The file generation group is given the specified protection attributes. For descriptions of the PROTECTION-ATTR, ACCESS, USER-ACCESS, BASIC-ACL, GUARDS, WRITE-PASSWORD, READ-PASSWORD, DESTROY-BY-DELETE, AUDIT, SPACE-RELEASE-LOCK and FREE-FOR-DELETION operands, see the corresponding operand descriptions for the CREATE-FILE command.

> *Note the following*
>
> Since file generations are not executable (program or procedure), they cannot be protected with an execute password (EXEC-PASSWORD). Likewise for the same reason no execute permission can be set within BASIC-ACL or GUARDS.

SAVE = ..., MANAGEMENT-CLASS = ..., CODED-CHARACTER-SET = ..., USER-INFORMATION = ..., ADM-INFORMATION = ...
See the description of the corresponding operand in the CREATE-FILE command.

STOR-CLASS-DEFAULT = *STD / <composed-name 1..8> / *NONE(...)
The operand is evaluated only for file generation groups in SM pubsets. Governs the properties of the storage location if no explicit specification is made when the file generation is created. Only the “work file” attribute is copied from a specified storage class into the group entry, and it then governs whether the associated generations are work files or standard files.

The only specification allowed for a file generation group in an SF pubset is STOR-CLASS-DEFAULT=*NONE.

The SHOW-STORAGE-CLASS command allows users to find out which storage classes of an SM pubset are available to them and which file attributes are set.

Assigning a storage class simplifies the automatic management of storage space in an SM pubset (for details see the “Introduction to System Administration” [14] or the “System-Managed Storage” manual [45]).

STOR-CLASS-DEFAULT = *STD
The pubset-specific default storage class from the user entry is used as the default storage class for the file generation group. If the file generation group is to be created in an SF pubset or if there is no default storage class defined in the user entry, the file generation group is given the same attributes as with STOR-CLASS-DEFAULT=*NONE with default values.

STOR-CLASS-DEFAULT = <composed-name 1..8>
A file generation group in an SM pubset is assigned the specified storage class. The storage class must exist and be accessible to the user at the time when the assignment is made. This specification is ignored for a file generation group in an SF pubset; the FGG is then given the same attributes as with STOR-CLASS-DEFAULT=*NONE with default values.

STOR-CLASS-DEFAULT = *NONE(...)
This value has the same effect as *STD if all the following conditions are met:

- The file generation group is created on a volume set intended for permanent storage.
- A default storage class is assigned to the user ID at the SM pubset in question.
- Physical allocation is not permitted.

Only in this case is the WORK-FILE-GROUP operand ignored.

In all other cases, no storage class is assigned to the file generation group.

WORK-FILE-GROUP = *NO / *YES
The operand is evaluated only for file generation groups in SM pubsets. Specifies whether the associated file generations are work files which systems support is allowed to delete at a time which it defines.

WORK-FILE-GROUP = *NO
The associated file generations are not to be work files.

WORK-FILE-GROUP = *YES
The associated file generations are to be work files.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS06CA	Command executed, but invalid specification in BASE-NUMBER operand ignored
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS053E	File already cataloged on private volume
	64	DMS0579	Invalid operand for temporary file or work file
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS057F	Renaming of migrated file not permitted
	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS059F	Specified value for number of backup versions invalid
	64	DMS05B5	Guard not available
	64	DMS05CC	File name already cataloged
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS060D	Invalid file name for reference file (PROTECTION-ATTR)

	64	DMS0613	Unknown management class
	64	DMS0618	Unknown storage class
	64	DMS061A	Storage class catalog could not be read
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space full
	130	DMS053C	No space in pubset catalog file Guaranteed messages: DMS053C
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Examples

Examples of the use of the CREATE-FILE-GROUP command are given in the examples for the CREATE-FILE-GENERATION command.

2.76 CREATE-ISAM-POOL

Create ISAM pool or attach task to ISAM pool

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

The CREATE-ISAM-POOL command enables the user to create an ISAM pool or to link his or her job (task) with any existing ISAM pool that was created with system-wide scope.

Every ISAM pool is uniquely identified by the following attributes, which are specified at the time that the ISAM pool is created:

- The name of the ISAM pool (POOL-NAME operand)
- The catalog ID of the pubset (CAT-ID operand)
- Its scope of applicability (SCOPE operand)
- The type of buffering (WRITE-IMMEDIATE operand)
- Its size (SIZE operand).
- Its performance attribute (RESIDENT operand)

If the task is to be linked with an existing ISAM pool, there should be no conflict between the specifications in the CREATE-ISAM-POOL command and the attributes of the existing ISAM pool. The existing attributes of a previously created ISAM pool can be displayed by using the SHOW-ISAM-POOL-ATTRIBUTES command.

Note for ISAM pools

As of BS2000/OSD V6.0B cross-task ISAM pools are automatically created on a file specific basis when a file is opened in a data space. The CREATE-ISAM-POOL command with SCOPE=*USER-ID/*USER-GROUP is only supported for reasons of compatibility and has the same effect as SCOPE=*HOST-SYSTEM (for details on ISAM pools in data spaces see the “Introductory Guide to DMS” [13]).

NK-ISAM files in NK2 and NK4 format

NK-ISAM files in both NK2 format as well as NK4 format can be processed via the ISAM pool. When the first NK-ISAM file to be processed is opened, the ISAM pool is formatted in accordance with that file. If an NK-ISAM file in another format is then opened via the same ISAM pool, the ISAM pool is extended dynamically by an extent equal to its previous size and is formatted according to the new file to be processed. In other words, after the extension, the ISAM pool will consist of one extent for processing NK2-ISAM files and one for processing NK4-ISAM files, thus doubling the actually required memory space to twice the SIZE specification.

To prevent the resulting degradation in performance, it is therefore advisable to only process files of the same format via an ISAM pool.

A detailed description of ISAM pools can be found in the “Introductory Guide to DMS” [13].

Format

CREATE**-ISAM-POOL**

POOL-NAME = <name 1..8>

,**CAT-ID** = ***DEF**AULT**-PUB**SET / <cat-id 1..4>

,**SCOPE** = ***TASK** (...) / ***HOST-SYS**TEM(...) / ***USER-ID**(...) / ***USER-GROUP**(...)

***TASK** (...)

| **WR**ITE**-IMMED**IATE = ***NO** / ***Y**ES

***HOST-SYS**TEM(...)

| **WR**ITE**-IMMED**IATE = ***Y**ES / ***NO**

| ,**CRE**ATION**-MODE** = ***ANY** / ***NEW**

***USER-ID**(...)

| **WR**ITE**-IMMED**IATE = ***Y**ES / ***NO**

| ,**CRE**ATION**-MODE** = ***ANY** / ***NEW**

***USER-GROUP**(...)

| **WR**ITE**-IMMED**IATE = ***Y**ES / **NO**

| ,**CRE**ATION**-MODE** = ***ANY** / **NEW**

,**SIZE** = ***STD** / <integer 32..32767 2*Kbyte*>

,**RESIDENT** = ***NO** / ***Y**ES

Operands

POOL-NAME = <name 1..8>
Assigns a name to the ISAM pool which is to be created or which already exists, and to which the task is to be linked. Together with its catalog ID and scope, this allows the pool to be uniquely identified.

CAT-ID = *DEFAULT-PUBSET / <alphanum-name 1..4>
Specifies the catalog ID of the pubset to which the ISAM pool is to be assigned.
The ISAM pool will be set up on the host computer to which this pubset belongs.
The catalog ID can – as in the file name – be regarded as part of the name, i.e. different catalog IDs identify different ISAM pools.

CAT-ID = *DEFAULT-PUBSET
The ISAM pool is assigned to the catalog that was set with the system parameter ISPLDEFC (`ISAM-POOL-DEFAULT-CATID`):

X'00':	default catalog ID from the user entry (see the SHOW-USER-ATTRIBUTES command, output field *DEFAULT-PUBSET*)
X'01':	catalog ID of the home pubset

CAT-ID = <alphanum-name 1..4>
The catalog ID of the pubset to which the ISAM pool is to be assigned.

SCOPE = *TASK(...) / *USER-ID(...) / *USER-GROUP(...) / *HOST-SYSTEM(...)
Specifies the scope of the ISAM pool and governs the possible users:

- task-local, i.e. only for the creating task
- cross-task, for all the tasks of the system

The scope identifies the ISAM pool uniquely, i.e. ISAM pools that have the same name and same catalog ID but different scopes are not the same.

SCOPE = *TASK(...)
The ISAM pool can only be used by the calling job: it is task-local.

WRITE-IMMEDIATE = *NO / *YES
Specifies whether the blocks which are buffered in the ISAM pool are to be written out immediately after any change, or only when the buffer is required for another block.

WRITE-IMMEDIATE = *NO
For files which are to be processed in this pool, any WRITE-IMMEDIATE specification in an ADD-FILE-LINK command, or as specified in the FCB in the program, will apply. If these contain no specification, then *NO will be applicable.

WRITE-IMMEDIATE = *YES
For all the files to be processed in this pool, the WRITE-IMMEDIATE function will apply: any amended blocks will immediately be written back to the disk.
It should be noted that this will greatly increase the input/output rate, and performance will be reduced.

SCOPE = *HOST-SYSTEM(...)
The ISAM pool is cross-task and can be used by any job (task).

WRITE-IMMEDIATE = *YES / *NO
Specifies whether the blocks which are buffered in the ISAM pool are to be written out immediately after any change, or only when the buffer is required for another block.

WRITE-IMMEDIATE = *YES
Activates the WRITE-IMMEDIATE function for all files processed in this pool. In other words, updated blocks are written back to disk immediately.

WRITE-IMMEDIATE = *NO
Modified blocks are not written back to disk until the buffer is required for another block. WRITE-IMMEDIATE=*NO must be defined in the ADD-FILE-LINK command for any file to be processed via this ISAM pool; otherwise, the file cannot be opened.

CREATION-MODE = *ANY / *NEW
Specifies whether the user wishes to establish a new ISAM pool, or whether a link to an ISAM pool with the same name and catalog ID, which may already exist, may be established.

CREATION-MODE = *ANY
If there is already a cross-task ISAM pool with the same name and catalog ID, the job is linked to this pool. The specified SIZE of the pool is **not** taken into account.
If no such ISAM pool currently exists, a new pool is set up with the size defined in SIZE.

CREATION-MODE = *NEW
A new ISAM pool is to be created. However, if a cross-task ISAM pool with the same name and catalog ID already exists, the command will be rejected with an error message.

SCOPE = *USER-ID(...) / *USER-GROUP(...)
The ISAM pool can be used by all jobs (tasks) which belong to the same user group as the task which created it.
For a description of the lower-level operands WRITE-IMMEDIATE and CREATION-MODE see SCOPE=*USER-ID.

SIZE = *STD / <integer 32..32767 *2Kbyte* >
Defines the size of the new ISAM pool to be created.

SIZE = *STD
A task-local ISAM pool is set up with the default size defined in the ISAM parameter LCLPS in the parameter service. An ISAM pool which is cross-task is set up with the size defined in the ISAM parameter GLBPS.

SIZE = <integer 32..524288>
Defines the size of the ISAM pool to be created in units of 2 Kbytes (PAM pages).The following are possible size specifications:

32 <= SIZE <= 32767 for ISAM pools which are cross-task

32 <= SIZE <= 8192 for task-local ISAM pools

The specified SIZE is rounded internally if required. The rounded value for SIZE is shown in the output of the SHOW-ISAM-POOL-ATTRIBUTES command.
The minimum size of 32 PAM pages means that files with logical blocks of no more than STD(6) can be processed. An ISAM pool of 96 PAM pages is required for files with logical blocks of size STD(16).
NK-ISAM files in both NK2 format as well as NK4 format can be processed via the ISAM pool. When the first NK-ISAM file to be processed is opened, the ISAM pool is formatted in accordance with that file. If an NK-ISAM file in another format is then opened via the same ISAM pool, the ISAM pool is extended dynamically by an extent equal to its previous size and is formatted according to the new file to be processed. To prevent a degradation in performance, only files of one format should be processed via an ISAM pool.

RESIDENT = *NO / *YES
Performance attribute of the ISAM pool.
Specifies whether the ISAM pool is to be created as a memory-resident pool if the appropriate resources are currently available.
If the task is to be linked to an existing ISAM pool, this specification must match the performance attribute defined for that pool.

RESIDENT = *NO
The memory pages of the ISAM pool are pageable.

RESIDENT = *YES
This specification is only possible for users who have the DMS tuning privilege CONCURRENT-USE or EXCLUSIVE-USE for the pubset (see the output field*DMS-TUNING-RESOURCES* in the output of the SHOW-USER-ATTRIBUTES command). Depending on the currently available resources, the memory pages of the ISAM pool are kept resident in memory as far as possible.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	32	DMS0A17	Internal system error
	64	DMS0A0E	Syntax error in ISAM pool command
	64	DMS0A11	Specified catalog ID does not exist
	64	DMS0A13	Specified pool name is syntactically invalid
	64	DMS0A15	Specified ISAM pool already exists
	64	DMS0A18	Size of ISAM pool invalid
	64	DMS0A1E	Not authorized for resident pool
	64	DMS0A1F	RESIDENT parameters incompatible
	64	DMS0A20	Parameters not permitted for remote BS2000 version
	64	DMS0A21	ISAM pool limit reached
	64	DMS0A22	User group does not exist
	130	DMS0A12	Specified catalog ID not available
	130	DMS0A14	Shortage of memory space for CREATE-ISAM-POOL

Example

Connecting a task to several ISAM pools

/show-isam-pool-attr pool=*all ——————————————————— **(1)**

```
%
%  CATID    POOLNAME  SCOPE           WROUT   SIZE  EXTENTS  RESIDENT
%=============================================================================
%  1OSB     SDFPOOLN  TASK             NO      128   --/--      NO
%
```

/cre-isam-pool pool-name=poolab01,scope=*host ——————————————— **(2)**
/cre-isam-pool pool-name=poolab01,scope=*task ——————————————— **(3)**
/show-isam-pool-attr pool=*all ——————————————— **(4)**

```
%
%  CATID    POOLNAME  SCOPE           WROUT   SIZE  EXTENTS  RESIDENT
%=============================================================================
%  1OSB     SDFPOOLN  TASK             NO      128   --/--      NO
%  N        POOLAB01  HOST             YES      96   --/--      NO
%  N        POOLAB01  TASK             NO       96   --/--      NO
%
```

/show-isam-pool-attr pool=poolab01(scope=host),inf=*user-and-attr —— **(5)**

```
%
%  CATID    POOLNAME  SCOPE           WROUT   SIZE  EXTENTS  RESIDENT
%=============================================================================
%  N        POOLAB01  HOST             YES      96   --/--      NO
%
%------------------- CONNECTED TASKS --------------------------------
%                                          TSN = 1EUW
%                                          TSN = 1EUE
%-----------------------------------------------------------------------%
%
```

/show-isam-pool-attr pool=poolab01(scope=*task),inf=*user-and-attr ——— **(6)**

```
%
%  CATID    POOLNAME  SCOPE           WROUT   SIZE  EXTENTS  RESIDENT
%=============================================================================
%  N        POOLAB01  TASK             NO       96   --/--      NO
%
%------------------- CONNECTED TASKS --------------------------------
%                                          TSN = 1EUE
%-----------------------------------------------------------------------%
```

(1) Returns information on all ISAM pools to which the task is connected. There is one existing task-local ISAM pool: *SDFPOOLN*.

(2) Connects the task to the cross-task ISAM pool *POOLAB01*.

(3) Connects the task to the task-local ISAM pool *POOLAB01*. The task-local ISAM pool has the same name as the host-specific ISAM pool; however, the name is considered unique, since the scope differs.

(4) Returns information on all ISAM pools to which the task is connected. The output shows that there are three existing ISAM pools: one named *SDFPOOLN* and two with the name *POOLAB01*, of which one is cross-task, and one is task-local. It is evident that no file has been processed with these ISAM pools, since the *EXTENTS* output column does not contain any formatting information.

(5) Shows the attributes and the connected task for the cross-task ISAM pool *POOLAB01*. Two tasks are connected to this pool: the ISAM pool which was created earlier by the task with TSN *1EUW*, and the user's own TSN *1EUE*, which is shown as the second task (see also Point 6).

(6) Shows the attributes and the connected task for the task-local ISAM pool *POOLAB01*. As expected, only the users' own task (TSN *1EUE*) can be connected to the pool in this case. This ISAM pool was created using the CREATE-ISAM-POOL command (see Point 3).

2.77 CREATE-JV

Define name and attributes for new job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The CREATE-JV command generates the catalog entry for a JV whose value is undefined until the first change. The user defines the name of the JV and the following protection attributes:

- read-only or read/write access (ACCESS operand); part of standard access control
- access by foreign user IDs (USER-ACCESS operand); part of standard access control
- explicit assignment of access rights (BASIC-ACL operand); extended access control
- protection by guards (GUARDS operand)
- additional protection via passwords (READ- and WRITE-PASSWORD operands)
- HSMS management class (MANAGEMENT-CLASS operand)

The protection attribute “retention period” is set implicitly. It can only be assigned via the MODIFY-JV-ATTRIBUTES command (RETENTION-PERIOD operand). By default, no retention period is defined for newly created JVs, i.e. the output field *EXPIR-DATE* in the catalog entry contains the creation date (output field *CRE-DATE*). Currently, the output field *EXPIR-TIME* is always set to the value `00:00:00`. For the creation time (output field *CRE-TIME*), the actual time of creation is entered.

For temporary JVs, only the preset values are allowed, i.e. they are not shareable, can always be overwritten and cannot be protected by passwords. The protection function BASIC-ACL is likewise not supported. Since only the creating job can access temporary JVs up to LOGOFF processing, no protection is required against foreign access.

When creating permanent JVs, the user cannot exceed the maximum permitted number specified in the user entry for the relevant pubset. If the number of permanent JVs is the same as the maximum permitted number, any further CREATE-JV commands for creating a permanent JV are rejected (see the *JOBVARIABLES* and *JV-NUMBER-LIMIT* output fields of the SHOW-USER-ATTRIBUTES command).

Privileged functions

By default, systems support (TSOS privilege) is a co-owner of all job variables (and can, therefore, create job variables under all user logons). When SECOS is used, this co-ownership can be restricted for permanent job variables.

Format

CREATE-**JV** Alias: **CRJV**

JV-NAME = <filename 1..54 without-gen-vers>

,**PROT**ECTION = ***STD** / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **PROTECTION-ATTR** = ***BY-DEF-PROT-OR-STD** / ***STD**

| ,**ACCESS** = ***BY-PROTECTION-ATTR** / ***WR**ITE / ***READ**

| ,**USER-ACCESS** = ***BY-PROTECTION-ATTR** / ***OWNER-ONLY** / ***ALL-USERS**

| ,**BASIC-ACL** = ***BY-PROTECTION-ATTR** / ***NONE** / ***STD** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **OWNER** = ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***NO** / ***Y**ES

| | | ,**WR**ITE = ***NO** / ***Y**ES

| | ,**GR**OUP = ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***NO** / ***Y**ES

| | | ,**WR**ITE = ***NO** / ***Y**ES

| | ,**OTHERS** = ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***NO** / ***Y**ES

| | | ,**WR**ITE = ***NO** / ***Y**ES

| ,**GUARDS** = ***BY-PROTECTION-ATTR** / ***NONE** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **READ** = ***NONE** / <filename 1..18 without-cat-gen-vers>

| | ,**WR**ITE = ***NONE** / <filename 1..18 without-cat-gen-vers>

| ,**READ-PASSWORD** = ***BY-PROTECTION-ATTR** / ***NONE** / ***SECRET** /

| <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>

| ,**WRITE-PASSWORD** = ***BY-PROTECTION-ATTR** / ***NONE** / ***SECRET** /

| <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>

,**MANAG**EMENT**-CLASS** = ***NONE** / <composed-name 1..8>

,**SUPPRESS-ERR**ORS = ***NONE** / ***JV-EXIST**ING

Operands

JV-NAME = <filename 1..54 without-gen-vers>
Name of the job variable JV to be created.
Nonprivileged users can create job variables under their own user ID only. The name of a temporary JV begins with the character (# or @) specified in the TEMPFILE system parameter. The internal name is always output by the system (e.g. SHOW-JV-ATTRIBUTES, system messages).

PROTECTION = *STD / *PARAMETERS(...)
Protection attributes of the JV.

PROTECTION = *STD
The protection attributes listed below are assigned the values supplied by default protection.
If default protection is not active, the system default values for the operands of the *PARAMETERS structure are set.

PROTECTION-ATTR=	***STD**	***BY-DEF-PROT-OR-STD**	
		Default protection not active	**Default protection active**
Protection attribute	**(System standard values)**		
ACCESS	WRITE		values from default protection
USER-ACCESS	OWNER-ONLY		
BASIC-ACL	NONE		
PASSWORD	NONE		
READ-/WRITE-PASSWORD	NONE		

Table 39: Effects of PROTECTION-ATTR on protection attributes in the case of CREATE-JV

PROTECTION = *PARAMETERS(...)
The protection attributes of the JV are set as follows. If the default value *NONE or *NO is specified for an attribute, the corresponding protection function is not activated. The protection attribute ACCESS is implicitly set to WRITE (explicitly only with MODIFY-JV-ATTRIBUTES).

For temporary JVs, only the default values are permitted. They are not shareable, can always be overwritten and cannot be protected by passwords. The protection functions basic ACL and guards are likewise not supported. Since only the creating job can access temporary JVs up to LOGOFF processing, no protection is required against foreign access.

If more than one access control mechanism is specified for a JV, the strongest mechanism activated applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control method	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	GUARDS and SECOS	2

Table 40: Hierarchy of access control methods

All other protection attributes of a JV (e.g. passwords) are evaluated independently of the protection level.

PROTECTION-ATTR = *BY-DEF-PROT-OR-STD / *STD
Specifies from where the protection attributes with the value *BY-PROTECTION-ATTR are to be obtained. For the assignments, see table "Effects of PROTECTION-ATTR on protection attributes in the case of CREATE-JV".

PROTECTION-ATTR = *BY-DEF-PROT-OR-STD
The values supplied by default protection are entered for the operands with *BY-PROTECTION-ATTR. If default protection is not active, system default values will be assigned to the relevant operands.

PROTECTION-ATTR = *STD
System default values are set for operands with *BY-PROTECTION-ATTR.

ACCESS = *BY-PROTECTION-ATTR / *WRITE / *READ
Specifies the type of accesses allowed when only standard access control is active (i.e. when there is no BASIC-ACL entry and no protection with GUARDS).

ACCESS = *BY-PROTECTION-ATTR
Standard access control is independent of the value of the PROTECTION-ATTR operand.

ACCESS = *WRITE
Standard access control allows both read and write access.

ACCESS = *READ
Standard access control allows read access only.

USER-ACCESS = *BY-PROTECTION-ATTR / *OWNER-ONLY / *ALL-USERS
Specifies whether the accesses allowed with the ACCESS operand are also available to other user IDs when only standard access control is active (i.e. when there is no BASIC-ACL entry and no protection with GUARDS).

USER-ACCESS = *BY-PROTECTION-ATTR
Access is independent of the value of the PROTECTION-ATTR operand.

USER-ACCESS = *OWNER-ONLY
Only the owner (user ID under which the JV is cataloged) and the system administration have access.

USER-ACCESS = *ALL-USERS
All user IDs have access rights.

BASIC-ACL = *BY-PROTECTION-ATTR / *NONE / STD / *PARAMETERS(...)
Specifies whether a BASIC-ACL entry is to be generated for the JV and whether access control is consequently to be performed through that entry.

BASIC-ACL = *BY-PROTECTION-ATTR
Access control via BASIC-ACL is independent of the value of the PROTECTION-ATTR operand.

BASIC-ACL = *NONE
BASIC-ACL is not activated for the JV. Access control (standard access control) is effected in accordance with the protection attributes USER-ACCESS and ACCESS (see output fields *USER-ACC* and *ACCESS* of the SHOW-JV-ATTRIBUTES command).

BASIC-ACL = *STD
A BASIC-ACL entry with the following values is created for the JV:OWNER = *PARAMETERS(READ = *YES, WRITE = *YES),GROUP = *NO-ACCESS and OTHERS = *NO-ACCESS

BASIC-ACL = PARAMETERS(...)
A BASIC-ACL entry is created for the JV and access control is then effected via the basic access control list (BACL).
The read and write access rights can be explicitly set or denied for each user class.

User classes are:

- OWNER, i.e. user ID of the owner and systems support
- GROUP, i.e. all user IDs which belong to the group of the owner (except the owner and systems support). Definition of user groups is possible only when the software product SECOS is used. With regard to the possible use of SECOS, the same rights should be allocated for GROUP as for OTHERS.
- OTHERS, i.e. all user IDs which do not belong to the group of the owner.

OWNER = *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for the owner. NO-ACCESS is the default value, i.e. the owner has neither read nor write authorization.

OWNER = *PARAMETERS(...)
The owner’s access rights are entered as specified:

READ = *NO / *YES
Specifies whether read authorization is set.

WRITE = *NO / *YES
Specifies whether write authorization is specified.
Write authorization does *not* imply read authorization.

GROUP = *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for all user IDs from the group of the owner.NO-ACCESS is the default value, i.e. the user class GROUP has neither read nor write authorization.

GROUP = *PARAMETERS(...)
Access rights are to be set as specified:

READ = *NO / *YES
Specifies whether read authorization is set.

WRITE = *NO / *YESSpecifies whether write authorization is specified.
Write authorization does *not* imply read authorization.

OTHERS = *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for user IDs which do not belong to the group of the owner. If SECOS is not used, access rights should be set as for GROUP with regard to an analysis for future use of SECOS.
*NO-ACCESS is the default value, i.e. the user class OTHERS has neither read nor write authorization.

OTHERS = *PARAMETERS(...)
Access rights are to be set as specified:

READ = *NO / *YES
Specifies whether read authorization is set.

WRITE = *NO / *YES
Specifies whether write authorization is specified.

GUARDS = *BY-PROTECTION-ATTR / *NONE / *PARAMETERS(...)
Specifies whether access control is to be performed for the JV using GUARDS.

GUARDS = *BY-PROTECTION-ATTR
Access control using GUARDS is independent of the value of the PROTECTION-ATTR operand.

GUARDS = *NONE
Access to the JV is not to be controlled via GUARDS.

GUARDS = *PARAMETERS(...)
Access to the JV is to be controlled via GUARDS.

Access to the job variable is controlled via a guard, i.e. a specific object identifying all the conditions subject to which access will be granted: such as date, time, time period, user ID. The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard.
Each guard is uniquely identified by its name. Guard names resemble JV names: they are made up of two parts, the user ID (optional) and the name part (up to 8 characters). If no user ID is specified explicitly, the user’s own ID is added implicitly.
Each access mode can be controlled by a separate guard. If no guard is assigned for an access mode (*NONE), access control will refuse any corresponding access (e.g. WRITE=*NONE prevents all write access). Specifying GUARDS=*PARAMETERS defines access control via GUARDS with all access modes being set to the default value *NONE, i.e. neither read access to the JV nor write or execute access is allowed.
The GUARDS subsystem is not required in order to define access control via GUARDS. A check by GUARDS takes place only when JV access occurs:
If a defined guard is not accessible, the mode of access protected by it is not permitted. No access at all is possible if the GUARDS subsystem is not available at the time of access.

READ = *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling read access (up to 8 characters if no user ID is specified).
The default value is *NONE, i.e. no read access is granted.

WRITE = *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling write access (up to 8 characters if no user ID is specified).
The default value is *NONE, i.e. no write access is granted.

READ-PASSWORD = *BY-PROTECTION-ATTR / *NONE / *SECRET / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Password for protection against unauthorized reading. The READ-PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

READ-PASSWORD = *BY-PROTECTION-ATTR
Allocation of a read password is independent of the value of the PROTECTION-ATTR operand.

WRITE-PASSWORD = *BY-PROTECTION-ATTR / *NONE / *SECRET / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Write or read password for the JV to be modified. The WRITE-PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

WRITE-PASSWORD = *BY-PROTECTION-ATTR
Allocation of a write password is independent of the value of the PROTECTION-ATTR operand.

MANAGEMENT-CLASS = *NONE / <composed-name 1..8>
Only for job variables on SM pubsets

Specifies whether the HSMS functions JV backup and (long-term) archival are to be controlled via a management class defined via HSMS. See the “HSMS” manual [18] for further details.
Assignment of a management class is rejected in the following cases:

- the JV is to be created on an SF pubset
- the specified management class has not been defined for the SM pubset

SUPPRESS-ERRORS = *NONE / *JV-EXISTING
Specifies whether there is an error if the specified JV exists.

SUPPRESS-ERRORS = *NONE
If the specified JV exists, the command is rejected with an error. The error triggers the spinoff mechanism resp. the SDF-P error handling.

SUPPRESS-ERRORS = *JV-EXISTING
If the specified JV already exists, the command has no effect on the JV. There is no error (error JVS0444 is suppressed).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Examples

```
/create-jv jv=jv.perm.error,prot=*par(user-access=*all-users,write-pass=c'fehl')
/show-jv-attr jv=jv.perm.error,inf=*all-attr
```

```
%0000000 :LEO:$USER1.JV.PERM.ERROR
% USER-ACC   = ALL-USERS   ACCESS     = WRITE
% CRE-DATE   = 2012-03-15  EXPIR-DATE = 2012-03-15
% CRE-TIME   =   09:09:00  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = YES
%SUM   000001 JV'S; JV-VALUE = 00000000 BYTES
```

The job variable JV.PERM.ERROR is created, i.e. its name is entered in the catalog. The job variable is defined as shareable and protected by a write password.

```
/create-jv jv=jv.perm.error.read,
       prot=(basic-acl=(owner=(read=y,write=y),group=(read=y),others=(read=y)))
/show-jv-attr jv=jv.perm.error.read,inf=*all-attr
```

```
%0000000 :LEO:$TSOS.JV.PERM.ERROR.READ
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% OWNER      = R W         GROUP      = R -         OTHERS     = R -
% CRE-DATE   = 2012-01-19  EXPIR-DATE = 2012-01-19
% CRE-TIME   =   18:18:29  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%SUM   000001 JV'S; JV-VALUE = 00000000 BYTES
```

The job variable JV.PERM.ERROR.READ is created. It is not shareable, but read authorization is granted to other users via BASIC-ACL. The owner has both read and write access.

```
/create-jv jv=#jv.temp.work
/show-jv-attr jv=#jv.temp.work,inf=*all-attr
```

```
%0000000 :LEO:$TSOS.S.123.4HM7.JV.TEMP.WORK
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% CRE-DATE   = 2012-01-19  EXPIR-DATE = 2012-01-19
% CRE-TIME   =   18:22:44  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%SUM   000001 JV'S; JV-VALUE = 00000000 BYTES
```

The job variable #JV.TEMP.WORK is created temporarily. The protection attributes are set to their default values (different values cannot be specified). Only the creating job has access.

2.78 CREATE-OPERATOR-ROLE

Define name and routing codes for new operator role

Component:	SRPMNUC
Functional area:	Operator function control
Domain:	SECURITY-ADMINISTRATION
Privileges:	SECURITY-ADMINISTRATION

Function

This command is used to compile a list of routing (authorization) codes, to form an “operator role”, and to inform the specified pubset of it. An operator role corresponds to an area of work, and gives the exerciser of the role the right to issue the commands assigned to that area of work. Each area of work (= operator role) is represented by a set of authorization (routing) codes specified by the system support staff; this may be any combination of the total of 40 authorization codes used in BS2000.
The creation and issuing of operator roles provides a means of increasing protection against unauthorized access to the operating functions. All dynamic authorization names, i.e. operator identifications, (see “Simplifying system operation” in the “Introduction to System Administration” [14]) are treated like user IDs; for each operator identification there is an entry in the user catalog, which uniquely identifies it. If the application wishes to undertake a system operating task, it must specify an operator identification when it is connected, and then apply to be assigned an operator role, using the command REQUEST-OPERATOR-ROLE. Not until this role is assigned can it function properly as a console. The system support staff creates the link between the operator identification and the operator roles which the application may accept under this operator identification, using the MODIFY-OPERATOR-ATTRIBUTES command.

Operator roles cannot be used for logical consoles with generated authorization names, for physical consoles only if NBCONOPI=Y.

The main console, and therefore a human operator, cannot be covered by these roles.

Format

CREATE**-OPER**ATOR**-ROLE**
OPERATOR**-ROLE** = <name 1..8> ,**PUBSET** = ***HOME** / <cat-id 1..4> ,**ROUT**ING**-CODE**S = ***NONE** / ***ALL** / list-poss(40): * / <alphanum-name 1..1>

Operands

OPERATOR-ROLE = <name 1..8>
Defines the name of the operator role. This name must be specified by the authorized user programs as soon as they wish to perform the tasks (=routing codes) associated with this role.

PUBSET =
Specifies the pubset into whose catalog the role is to be entered.

PUBSET = *HOME
The operator role is to be entered into the user catalog for the home pubset.

PUBSET = <cat-id 1..4>
Exact specification of the pubset into whose catalog the new operator role is to be entered.

ROUTING-CODES =
Specifies the routing codes, and hence the area of work, which are assigned to the new operator role.

ROUTING-CODES = *NONE
Default value: no routing codes will be explicitly assigned to the new operator role. The authorized user program may nevertheless accept the role, as this command will have entered it in the user catalog for the specified pubset; however, the requesting application cannot undertake any tasks.

ROUTING-CODES = *ALL
All the routing codes known to the system should be assigned to the role.

Note

A table of routing codes will be found in the “Introduction to System Administration” [14].

ROUTING-CODES = list-poss(40): * / <alphanum-name 1..1>
Detailed specification of up to 40 routing codes to be assigned to the new operator role.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

2.79 CREATE-PAGING-FILE

Create paging file on disk

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	OPERATING TSOS
Routing code:	R

Function

System support can use the CREATE-PAGING-FILE command to create a paging file on a magnetic disk or on any volume of an SF pubset. It creates a paging file of a specified size.

Format

CREATE-**PAG**ING-**FILE**

VOLUME= ***PUBSET**(...) / list-poss(256): <vsn 1..6>

***PUBSET**(...)

| **PUBSET =** list-poss(256): <cat-id 1..4>

,**SIZE** = <integer 1..2097152 *Mbyte*>

Operands

VOLUME = *PUBSET(...)
Specifies one or more SD pubsets. A paging file of the specified size is to be created on each volume of the specified SF pubsets.

PUBSET = list-poss(256): <cat-id 1..4>
Specifies the SF pubsets on which the paging files are to be created by their catalog ID.

VOLUME = list-poss(256): <vsn 1..6>
Identifies the magnetic disk on which the paging file of the specified size is to be created by its by volume serial number (VSN). Up to 256 disks can be listed.

SIZE = <integer 1..2097152 *Mbyte* >
Specifies the size in megabytes of the paging file which is to be created on the disk.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
1	0	CMD0001	Warning: A paging file of the specified size already exists on the magnetic disk. Guaranteed message: EMM2811
	32	EMM2800	The function cannot be executed because of an internal error. Guaranteed messages: EMM2818, EMM2828
	64	EMM2802	The specified pubset or the specified magnetic disk is unknown and cannot be identified in the given configuration. Guaranteed messages: EM2841, EMM2817
	64	EMM2803	Creating the paging file is not permitted for the specified pubset or the specified magnetic disk, the pubset is a shared pubset, the pubset has not been imported. Guaranteed messages: EMM2812, EM2816, EM2820
	64	EMM2805	Operation not permissible: A paging file of a different size already exists on the magnetic disk, the storage space is insufficient, the pubset has not been imported, the SM pubset has not been imported completely, the pubset has not been entered in the MRSCAT. Guaranteed messages: EMM2811, EMM2814, EMM2815, EMM2825, EMM2838, EM2824
	128	EMM2807	The function cannot be executed because of a lack of resources Guaranteed messages: EMM2819, EMM2829

> When lists are specified, command processing is aborted in the event of an error with a return code of EMM2800 or EM2807. In all other cases processing continues.

Notes

Before issuing the command, make sure that the space required for the paging file is available on the disk. For performance reasons, a contiguous area is preferable. Otherwise, the paging file will consist of various extents.

It may be possible to make enough contiguous space by repositioning files on the disk.

The pubset the disk belongs to must have been imported. It may not be a shared pubset.

The paging file is not backed up by ARCHIVE or HSMS.

Example

Creating a 32-megabyte paging file on a disk with the volume serial number 2OSW.0:

```
/CREATE-PAGING-FILE VOLUME=2OSW.0,SIZE=32
```

2.80 CREATE-SNAPSET

Create a Snapset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT SNAPSET
Privileges:	TSOS HSMS-ADMINISTRATION

Function

The CREATE-SNAPSET command creates a Snapset for an imported pubset. This also includes entering the Snapset in the Snapset catalog and placing it in service. The DELETE-EARLIEST operand controls whether a new Snapset is created and under which conditions the oldest existing Snapset is to be deleted and reused before the Snapset is created (the default is deletion when the Snapset limit is reached).

The command is rejected when a new Snapset is to be created and no free Snapset is available (the setting DELETE-EARLIEST=*NO prevents the oldest Snapset from being deleted when the Snapset limit is reached).

Format

CREATE-SNAPSET
PUBSET = <cat-id 1..4> ,**DEL**ETE**-EARLIEST** = ***AT-LIMIT** / ***Y**ES / ***NO**

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the Snapset is to be created.

DELETE-EARLIEST = *AT-LIMIT / *YES / *NO
Specifies whether and under which conditions the oldest Snapset is to be deleted.

DELETE-EARLIEST = *AT-LIMIT
The oldest Snapset is deleted only if the maximum number of Snapsets permissible for the pubset (Snapset limit) has already been reached.

The Snapset limit is entered in the SVL of the pubres/volres of the Control Volume Set using the SET-PUBSET-ATTRIBUTES command.

DELETE-EARLIEST = *YES
The oldest Snapset is always deleted.

DELETE-EARLIEST = *NO
A new Snapset is created. If the Snapset limit has already been reached, the command is rejected.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	CMD0216	No authorization
	64	DMS1351	Internal error
	64	DMS1386	Error in the memory request
	64	DMS1389	Error in MSCF communication
	64	DMS138B	No MRSCAT entry
	64	DMS138C	Pubset not accessible
	64	DMS13D6	Snapset limit exceeded
	64	DMS148F	GCF not loaded
1	64	DMS13D7	Internal error in Snapset management: Return code of GCF
2	64	DMS13D7	Internal error in Snapset management: Return code in the case of mount/dismount
3	64	DMS13D7	Internal error in Snapset management: Return code when reading or writing the SVL
4	64	DMS13D7	Internal error in Snapset management: Return code when setting/resetting the reconfiguration lock
5	64	DMS13D7	Internal error in Snapset management: Return code of DPSVLST (create the volume list)
6	64	DMS13D7	Internal error in Snapset management: Return code of SHC-OSD
7	64	DMS13D7	Internal error in Snapset management: Return code of CCOPY
	64	DMS13DF	SHC-OSD subsystem not available

2.81 CREATE-STORAGE-CLASS

Define storage class for SM pubset

Component: BS2000

Functional area: Pubset and MRSCAT management

Domain: MULTI-CATALOG-AND-PUBSET-MGMT

Privileges: TSOS

Function

The CREATE-STORAGE-CLASS command allows systems support to define a new storage class for an SM pubset. The SM pubset must have been imported to the local system (in exclusive or shared mode).

An entry for the new storage class is added to the current storage class catalog (f ile :<sm-pubset-catid>:$TSOS.SYSCAT.STORCLS). The storage class definition contains a list of file attributes. If it is assigned a volume set list, it also includes the name of the list. The user can assign a storage class to a file in the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands. The file is then implicitly given all the file attributes defined in the storage class. If there is a volume set list assigned to the storage class, the file will if possible be stored in a volume set from the assigned volume set list.

The SHOW-STORAGE-CLASS command can be used to list the attributes of a storage class.

A storage class can be modified with the MODIFY-STORAGE-CLASS command, and its entry can be removed from the storage class catalog with the DELETE-STORAGE-CLASS command.
Systems support can use the CHANGE-STORAGE-CLASS-CATALOG command to change or, in the event of an error, dynamically load the storage class catalog.

Format

CREATE-**STOR**AGE-**CLASS**

STORAGE-**CLASS-NAME** = <composed-name 1..8>

,**PUBSET** = <cat-id 1..4>

,**FILE-ATTR**IBUTES = ***STD** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **IO-ATTRIBUTES** = ***STD** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **PERFORMANCE** = ***STD** / ***HIGH** / ***VERY-HIGH**

| | ,**USAGE** = ***READ-WRITE** / ***WR**ITE / ***READ**

| ,**DISK-WRITE** = ***STD** / ***IMMED**IATE / ***BY-CLOSE**

| ,**AVAIL**ABILITY = ***STD** / ***HIGH**

| ,**FILE-PREFORMAT** = ***BY-PUB**SET-**DEF**AULT / ***K** / ***NK2** / ***NK4**

| ,**WORK-FILE** = ***NO** / ***Y**ES

,**STOR**AGE-**CLASS-INFO** = ***NONE** / <c-string 1..720 with-low>

,**PROT**ECTION = ***NONE** / ***BY-GUARDS**(...)

***BY-GUARDS**(...)

| **GUARD-NAME** = <filename 1..18 without-cat-gen-vers>

,**VOL**UME-**SET-LIST** = ***NONE** / <composed-name 1..8>

Operands

STORAGE-CLASS-NAME = <composed-name 1..8>
Defines a name for the new storage class.

PUBSET = <cat-id 1..4>
Specifies the catalog ID of the pubset for which the storage class is being created. The pubset must be an SM pubset which has been locally imported (in exclusive or shared mode).

FILE-ATTRIBUTES = *STD / *PARAMETERS(...)
Specifies pubset management requirements which can be represented in the form of file attributes. The file attributes apply to all files to which the user assigns the storage class instead of explicit attributes (see the STORAGE-CLASS operand of the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command).

FILE-ATTRIBUTES = *STD
Files assigned this storage class are allocated standard pubset management requirements. These correspond to the default values in the FILE-ATTRIBUTES=*PARAMETERS(...) structure.

FILE-ATTRIBUTES = *PARAMETERS(...)
Specifies which file attributes are allocated to files in this storage class.

IO-ATTRIBUTES = *STD / *PARAMETERS(...)
Specifies which performance requirements apply to files in this storage class.

IO-ATTRIBUTES = *STD
The default values in the *PARAMETERS(...) structure apply.

IO-ATTRIBUTES = *PARAMETERS(...)
Performance attributes are determined by the specifications in the PERFORMANCE and USAGE operands.

PERFORMANCE = *STD / *HIGH / *VERY-HIGH
Specifies the performance attribute for files in this storage class. It indicates the priority required for the I /O operations selected in the USAGE operand.

PERFORMANCE = *STD
No performance requirements are defined for files in this storage class. In this case the USAGE operand has no impact on the processing of the file.

PERFORMANCE = *HIGH
A cache should be used to process files in this storage class (high performance priority).

PERFORMANCE = *VERY-HIGH
A cache should be used to process files in this storage class, and if possible the entire file should be kept permanently in the cache (highest performance priority, only available in the GS cache medium).

USAGE = *READ-WRITE / *WRITE / *READ
Specifies the I/O operations for which enhanced performance (caching) is required. The default is *READ-WRITE, i.e. the requirement applies to both read and write operations.
The requirement may also be applied only to write operations (*WRITE) or only to read operations (*READ).
If the file has no special performance attribute (PERFORMANCE=*STD), the USAGE operand has no impact on processing.

DISK-WRITE = *STD / *IMMEDIATE / *BY-CLOSE
Specifies the time at which data consistency is required for files in this storage class after a write operation.

DISK-WRITE = *STD
The default setting of *STD is equivalent to *IMMEDIATE for permanent files and to *BY-CLOSE for temporary files.

DISK-WRITE = *IMMEDIATE
The data in a file must be in a consistent state immediately on completion of a write operation, so a volatile write cache should not be used to process files in this storage class.

DISK-WRITE = *BY-CLOSE
The data in a file does not have to be in a consistent state until after CLOSE processing, so a volatile write cache may be used to process files in this storage class.

AVAILABILITY = *STD / *HIGH
Specifies availability requirements for files in this storage class.

AVAILABILITY = *STD
There are no special availability requirements.

AVAILABILITY = *HIGH
Files in this storage class are required to have high availability (e.g. storage on mirrored disks).

FILE-PREFORMAT = *BY-PUBSET-DEFAULT / *K / *NK2 / *NK4
Governs the preferred file format for files in this storage class. This specification only applies when the catalog entry is created; it is used to automatically determine the storage location.
As long as the file does not yet have a creation date (CRE-DATE=NONE), the storage location is provisional and may still change in the course of OPEN processing.

FILE-PREFORMAT = *BY-PUBSET-DEFAULT
The pubset-global default applies.

FILE-PREFORMAT = *K
File in this storage class are to be created as K files.

FILE-PREFORMAT = *NK2
File in this storage class are to be created as NK2 files.

FILE-PREFORMAT = *NK4
File in this storage class are to be created as NK4 files.

WORK-FILE = *NO / *YES
Governs whether files in this storage class are work files.

WORK-FILE = *NO
Files in this storage class are created as normal files.

WORK-FILE = *YES
Files in this storage class are created as work files. Systems support can delete work files at appointed times.

STORAGE-CLASS-INFO = *NONE / <c-string 1..720 with-low>
Systems support can compose a brief text describing storage class attributes. It will typically relate to special pubset management requirements which are defined by systems support but cannot be represented in the form of file attributes. This brief text is included in the output of the SHOW-STORAGE-CLASS command to inform the user of any special properties of the storage class.

STORAGE-CLASS-INFO = *NONE
There is to be no explanatory text for the storage class.

STORAGE-CLASS-INFO = <c-string 1..720 with-low>
A brief text describing special properties of the storage class as defined by systems support.

PROTECTION = *NONE / *BY-GUARDS(...)
Specifies whether access to the storage class is to be controlled by guards.

PROTECTION = *NONE
Access to the storage class is not to be controlled by guards.

PROTECTION = *BY-GUARDS(...)
Allocation of the storage class to a file and the listing of the storage class definitions are to be controlled by a guard. The guard named next defines conditions under which a user is allowed to access the storage class.

GUARD-NAME = <filename 1..18 without-cat-gen-vers>
Name of the guard.

VOLUME-SET-LIST = *NONE / <composed-name 1..8>
Specifies whether a volume set list is to be assigned to the storage class.
The default is *NONE, i.e. no volume set list is to be assigned to the storage class at this time.

VOLUME-SET-LIST = <composed-name 1..8>
The specified volume set list is assigned to the storage class. The volume set list must already exist for this SM pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization to issue command
	64	DMS1488	Storage class already defined
	64	DMS1497	Invalid file attribute combination
	64	DMS148B	Volume set list not defined
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS1490	Storage class management not available for this pubset
	64	DMS1483	Storage class catalog invalid
	64	DMS1481	Error accessing storage class catalog
	64	DMS1484	Volume set list catalog invalid
	64	DMS1482	Error accessing volume set list catalog
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready

2.82 CREATE-TAPE-SET

Generate volume serial number set (tape set)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The CREATE-TAPE-SET command is used to create a set of VSNs which can be used for producing tape files. The link with the tape files which are to be processed is set up by the ADD-FILE-LINK command (operand TAPE-SET-NAME). The set of VSNs is entered into the TST (TAPE SET TABLE). Within the TST, the TAPE-SET-NAME performs the same function as does the file link name within the TFT.
Information on TST entries can be obtained with the SHOW-FILE-LINK command.

Format

CREATE**-TAPE-SET**

TAPE-SET-NAME = <alphanum-name 1..4>

,**VOL**UME = [***ANY**](...) / list-poss(255): <alphanum-name 1..6>

[***ANY**](...)

| **NUM**BER**-OF-DEV**ICES = **1** / <integer 1..9>

,**DEV**ICE**-TYPE** = ***TAPE** / <device>

Operands

TAPE-SET-NAME = <alphanum-name 1..4>
The name of the tape set; this establishes the link to the TST with the specified name, or creates a new TST.

> The tape set name must not be used simultaneously within the same task as a file link name.

VOLUME = *ANY(...) / list-poss(255): <alphanum-name 1..6>
VSNs of the tapes which are to be allocated to the tape set.

VOLUME = *ANY(...)
The operator, or MAREN if available, should mount any suitable tapes on the specified device type (no particular VSN is required).

NUMBER-OF-DEVICES = 1 / <integer 1..9>
The number of tapes which is required.

DEVICE-TYPE = *TAPE / <structured-name 1..8>
The device type to which the tapes are assigned.
The value to be specified is the device type or volume type of the tapes, from which the Device Management System determines the device type which is to be made available for tape processing.
Only device types or volume types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device and volume types.
The default value is TAPE, i.e. for tape processing the devices to be used should support a recording density of 1600 or 6250 bpi (bytes per inch). Other permitted specifications will be found in the table in section "Device types for DMS tape processing".

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available

Example

Creation of a tape set with subsequent file processing

```
/cre-tape-set tape-set-name=tap1,vol=(d2312k,d2315k,d2322k),
              dev-type=tape-c4 ————————————————————————————————   (1)
/show-file-link link=tap1,inf=(vol=*yes)                 ————————————————   (2)
```

```
%
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
% T TAP1               *DUMMY
%  ------------------- VOLUME ---------------------------------------------
%  NUM-OF-VOL = 3           NUM-OF-DEV = 0
%  DEV-TYPE   = TAPE-C4     T-SET-NAME = TAP1
%  T-SET-SHR  = 1           F-SET-ID   = D2312K
%  VSN/DEV    = D2312K              D2315K              D2322K
%  T-SET-VSN  = (D2312K)   D2315K    D2322K
```

```
/cre-file max.tape-file.3,sup=*tape(vol=*no,dev-type=tape-c4,premount=0) –  (3)
/add-file-link link=dmcopy22,file-name=max.tape-file.3,
               number-of-premounts=0
               sup=*tape(vol-list=*tape-set(tap1)) ——————————————————   (4)
/show-file-link link=dmcopy22,inf=(file-contr=*yes,vol=*yes)   ——————————   (5)
```

```
%
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
% T DMCOPY22            :2OS2:$USER1.MAX.TAPE-FILE.3
%  ------------------- FILE-CONTROL-BLOCK - GENERAL ATTRIBUTES -------------
%  ACC-METH   = *BY-PROG    OPEN-MODE  = *BY-PROG    REC-FORM   = *BY-PROG
%  REC-SIZE   = *BY-PROG    BUF-LEN    = *BY-PROG    BLK-CONTR  = *BY-PROG
%  F-CL-MSG   = STD         CLOSE-MODE = *BY-PROG
%  ------------------- FILE-CONTROL-BLOCK - DISK FILE ATTRIBUTES -----------
%  SHARED-UPD = *BY-PROG    WR-CHECK   = *BY-PROG    IO(PERF)   = *BY-PROG
%  IO(USAGE)  = *BY-PROG    LOCK-ENV   = *BY-PROG
%  ------------------- FILE-CONTROL-BLOCK - TAPE FILE ATTRIBUTES -----------
%  LABEL      = *BY-PROG   (DIN-R-NUM  = *BY-PROG,   TAPE-MARK  = *BY-PROG)
%  CODE       = *BY-PROG    EBCDIC-TR  = *BY-PROG    F-SEQ      = *BY-PROG
%  CP-AT-BLIM = *BY-PROG    CP-AT-FEOV = *BY-PROG    BLOCK-LIM  = *BY-PROG
%  REST-USAGE = *BY-PROG    BLOCK-OFF  = *BY-PROG    TAPE-WRITE = *BY-PROG
%  STREAM     = *BY-PROG
%  ------------------- FILE-CONTROL-BLOCK - ISAM FILE ATTRIBUTES -----------
%  KEY-POS    = *BY-PROG    KEY-LEN    = *BY-PROG    POOL-LINK  = *BY-PROG
%  LOGIC-FLAG = *BY-PROG    VAL-FLAG   = *BY-PROG    PROPA-VAL  = *BY-PROG
%  DUP-KEY    = *BY-PROG    PAD-FACT   = *BY-PROG    READ-I-ADV = *BY-PROG
%  WR-IMMED   = *BY-PROG    POOL-SIZE  = *BY-PROG
%  ------------------- VOLUME ---------------------------------------------
%  NUM-OF-VOL = 3           NUM-OF-DEV = 1
%  DEV-TYPE   = *NONE       T-SET-NAME = TAP1
%  T-SET-SHR  = 2           F-SET-ID   = D2312K
%  VSN/DEV    = D2312K             D2315K              D2322K
%  T-SET-VSN  = (D2312K)   D2315K    D2322K
```

```
/copy-file from=lst.bsp.2,to=max.tape-file.3 ————————————————————   (6)
/show-file-attr max.tape-file.3,inf=(alloc=*yes) ————————————————   (7)
```

```
%         :2OS2:$USER1.MAX.TAPE-FILE.3
%  ------------------------------ ALLOCATION   --------------------------
%  SUPPORT    = PVT                                  BLK-COUNT =  1
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%              D2312K       TAPE-C4        (           D2315K       TAPE-C4 )
%  (           D2322K       TAPE-C4 )
%:2OS2: TAPE  :      1 FILE
```

(1) Creates the tape set *TAP1* containing the three magnetic tape cartridges (volume type TAPE-C6) with the volume IDs *D2312K*, *D2315K*, and *D2322K*.

(2) Output of the TST entry with the command SHOW-FILE-LINK.

(3) Creates a catalog entry for a tape file under the file name *MAX.TAPE.FILE.3*. No volume identifier has been defined as yet: TAPE-C6 is specified as the volume type. It is not necessary to reserve a magnetic tape cartridge in this case (NUMBER-OF-PREMOUNTS=0).

(4) A TFT under the link name *DMCOPY22* is created for the file *MAX.TAPE.FILE*, since the COPY-FILE command is to be used to copy data into this file. At the same time, the TFT entry is linked with the tape set *TAP1* (VOLUME-LIST= *BY-TAPE-SET).

(5) Output of the TFT entry with the link name *DMCOPY22*. The output includes relevant information on file processing and volumes.

(6) The contents of file *LST.BSP.2* are copied to the file *MAX.FILE.3*.

(7) Returns information from the catalog entry of the file *MAX.FILE.3* showing volume allocation attributes. The file was created on the magnetic tape cartridge *D2312K*. In this case, however, the volume IDs *D2315K* and *D2322K* (from the TST entry) are also entered into the volume list of the catalog entry. These volumes are to be used if the file *MAX.TAPE.3* is extended and the tape cartridge *D2312K* does not have enough space for this purpose.

2.83 CREATE-VOLUME-SET-LIST

Define volume set list for SM pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The CREATE-VOLUME-SET-LIST command allows systems support to define a new volume set list for a system-managed pubset (SM pubset). The SM pubset must have been imported to the local system (in exclusive or shared mode).

An entry for the new volume set list is added to the current volume set list catalog (:<sm-pubset-catid>:$TSOS.SYSCAT.VSETLST). Up to 255 volume sets can be assigned to a volume set list. If the volume set list is associated with a storage class (see the VOLUME-SET-LIST operand in the CREATE- or MODIFY-STORAGE-CLASS command), files in that storage class will if possible be stored in volume sets from the assigned volume set list

The SHOW-VOLUME-SET-LIST command provides information about the composition of volume set lists.

A volume set list can have volume sets added to or removed from it with the MODIFY-VOLUME-SET-LIST command, and its entry can be removed from the volume set list catalog with the DELETE-VOLUME-SET-LIST command.
Systems support can use the CHANGE-VOLUME-SET-LIST-CATALOG command to change or, in the event of an error, dynamically load the volume set list catalog.

Format

CREATE-**VOL**UME-**SET-LIST**

VOLUME-**SET-LIST-NAME** = <composed-name 1..8>

,**PUBSET** = <cat-id 1..4>

,**VOL**UME-**SET** = ***NONE** / list-poss (255): <cat-id 1..4>

,**VOL**UME-**SET-LIST-INFO** = ***NONE** / <c-string 1..720 with-low>

Operands

VOLUME-SET-LIST-NAME = <composed-name 1..8>
Defines a name for the new volume set list.

PUBSET = <cat-id 1..4>
Specifies the catalog ID of the SM pubset for which the volume set list is being created. The pubset must have been imported to the local system (in exclusive or shared mode).

VOLUME-SET = *NONE / list-poss(255): <cat-id 1..4>
Specifies which volume sets are to be assigned to the volume set list.

VOLUME-SET = *NONE
No volume sets are to be assigned to the volume set list at this time.

VOLUME-SET = list-poss(255): <cat-id 1..4>
The specified volume sets are to be assigned to the volume set list. Up to 255 volume sets can be listed.
The command does not check that the specified volume sets belong to the SM pubset for which the volume set list is being created.

VOLUME-SET-LIST-INFO = *NONE / <c-string 1..720 with-low>
Systems support can compose a brief text describing the volume set list. It will typically relate to differences between volume set lists
The default is *NONE, i.e. there is to be no explanatory text.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization to issue command
	64	DMS1489	Volume set list already defined
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS1490	Storage class management not available for this pubset
	64	DMS1484	Volume set list catalog invalid
	64	DMS1482	Error accessing volume set list catalog
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready

2.84 DEACTIVATE-SNAPSHOT

Disable dump generator SNAP

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The DEACTIVATE-SNAPSHOT command disables the SNAP dump function. Any suspended SNAP dump will be processed only after the SNAP dump function is enabled again. The command can be executed multiple times, e.g. in order also to delete the SNAP system files retroactively.

DEACTIVATE-SNAPSHOT is executed asynchronously. Message NSP4000 confirms that the command has been received correctly. The SHOW-SNAPSHOT-STATUS command enables you to check the modified settings.

> i Manual changes to the Snapshot files can lead to undefined statuses when the SNAP dump takes place. Modifications may only be made using the ACTIVATE-SNAPSHOT and DEACTIVATE-SNAPSHOT commands.

Format

DEACTIVATE-SNAPSHOT
DELETE-FILES = ***NO** / ***Y**ES

Operands

DELETE-FILES = *NO / *YES
Specifies whether system files $TSOS.SNAPFILE and $TSOS.SNAPFILE.DAT are to be deleted.

DELETE-FILES = *NO
The SNAP dump function is disabled but the system files are retained.

DELETE-FILES = *YES
The SNAP dump function is disabled and the system files are deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

2.85 DECLARE-PARAMETER

Declare procedure parameters

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The DECLARE-PARAMETER command declares procedure parameters in an S procedure together with the method used to pass the parameter values to the procedure (initial value, prompting, etc.).
It is part of the procedure head. If several DECLARE-PARAMETER commands are issued, they must be combined to form a command block (declaration section) by means of BEGIN-PARAMETER-DECLARATION and END-PARAMETER-DECLARATION commands.

Restrictions

Specification of values other than the defaults for the TYPE and TRANSFER-TYPE operands is possible only if the chargeable SDF-P subsystem has been loaded.

Format

DECLARE**-PAR**AMETER

```
NAME = list-poss(2000): <structured-name 1..20>(...)

    <structured-name 1..20>(...)

        |   INITIAL-VALUE = *NONE / *PROMPT(...) / <text 0..1800 with-low expr>

        |       *PROMPT(...)

        |           |   PROMPT-STRING = *STD / <text 0..1800 with-low string-expr>

        |           |   ,DEFAULT-VALUE = *NONE / <text 0..1800 with-low expr>

        |           |   ,SECRET-INPUT = *NO / *YES

        |   ,TYPE = *ANY / *STRING / *INTEGER / *BOOLEAN

        |   ,TRANSFER-TYPE = *BY-VALUE / BY-REFERENCE
```

Operands

NAME = list-poss(2000): <structured-name 1..20>(...)
Defines the names of the procedure parameters used.
Procedure parameters are S variables that are known within the procedure.
The following attributes are declared for each procedure parameter:

INITIAL-VALUE =
This defines the initial value.

INITIAL-VALUE = *NONE
The procedure parameter is not initialized, i.e. no initial value is declared. When the procedure is called a value must be assigned to the procedure parameter (see the CALL-PROCEDURE or ENTER-PROCEDURE command).

INITIAL-VALUE = *PROMPT(...)
If no value is declared when the procedure is called, SDF-P queries the value when the procedure parameter occurs for the first time (prompting). Prompting is only possible within a dialog. If prompting is not possible or if no value has been entered to the dialog then the initial value declared in the DEFAULT-VALUE operand is used.

PROMPT-STRING =
Defines a string that is output as the prompt string. The text specified for `DEFAULT-VALUE = ...` is added to the prompt string. The prompt always ends with a colon. The prompt therefore has the following form:
<prompt-string>'BLANK'(DEFAULT = <default-value>)'BLANK':

PROMPT-STRING = *STD
By default, the parameter name specified in `NAME=...` (variable name) is output.

PROMPT-STRING = <text 0..1800 with-low *string-expr* >
Defines the string that is to be output as the prompt string.

DEFAULT-VALUE =
Defines an initial value for cases where no input (i.e. only [DUE]) is entered to the dialog or the procedure runs in the background. The value is output (for information) as part of the prompt.

DEFAULT-VALUE = *NONE
No (default) string is declared.

DEFAULT-VALUE = <text 0..1800 with-low *expr*>
Expression that is used as the default for the initial value. The specified expression must match the parameter type.

SECRET-INPUT = *NO / *YES
You can specify whether the dialog input is to be protected or entered in a nondisplaying field. In this case, the input is not logged.

INITIAL-VALUE = <text 0..1800 with-low *expr* >
The procedure parameter has the initial value derived from the specified expression (for permitted expressions see the section "SDF-P-BASYS"). This initial value is assumed if no other value is declared when the procedure is called.

TYPE = *ANY / *STRING / *INTEGER / *BOOLEAN
This defines the variable type of the procedure parameter.
Specification of an operand value other than the default value *ANY is possible only if the chargeable subsystem SDF-P has been loaded.

TRANSFER-TYPE = *BY-VALUE / *BY-REFERENCE
This defines the type of parameter transfer.
Specification of an operand value other than the default value *BY-VALUE is possible only if the chargeable subsystem SDF-P has been loaded.

Return codes

The DECLARE-PARAMETER command can only be used within the procedure header of an S procedure. SDF-P detects errors in the procedure head during pre-analysis and terminates the procedure call. The command return codes can only occur if the command is used outside the procedure head.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

2.86 DECLARE-VARIABLE

Declare as variable

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

DECLARE-VARIABLE is used to create variables and set the attributes and possibly an initial value as well.

Job variables can be integrated in SDF-P via the CONTAINER operand.

Restrictions

If the chargeable SDF-P subsystem is not available, the following restrictions apply:

- Only simple S variables can be declared (TYPE=*ANY and MULTIPLE-ELEMENTS=*NO).
- Declarations can only be accepted from a variable container (CONTAINER=<composed-name>). Otherwise, it is only possible to specify CONTAINER=*STD.
- The scope can be defined with SCOPE=*CURRENT(...) only. Within the *CURRENT(...) structure, only the default value IMPORT-ALLOWED=*NO is allowed.

Format

DECLARE-**VAR**IABLE Alias: **DCV**

VARIABLE-**NAME** = list-poss(2000): <structured-name 1..20>(...)

<structured-name 1..20>(...)

| **INIT**IAL-**VAL**UE = ***NONE** / <text 0..1800 with-low *expr*>

| ,**TYPE** = ***ANY** / ***STRING** / ***INTEGER** / ***BOOL**EAN / ***STRUC**TURE(...)

| ***STRUC**TURE(...)

| | **DEFI**NITION = ***DYN**AMIC / ***BY-SYSCMD** / <structured-name 1..20>

,**MULT**IPLE-**ELEM**ENTS = ***NO** / ***ARRAY**(...) / ***LIST**(...)

***ARRAY**(...)

| **LOW**ER-**BOUND** = **0** / ***NONE** / <integer -2147483648..2147483647>

| ,**UP**PER-**BOUND** = ***NONE** / <integer -2147483648..2147483647>

***LIST**(...)

| **LIMIT** = ***NONE** / <integer 1..2147483647>

,**SCOPE** = ***CURR**ENT(...) / ***PROC**EDURE(...) / ***TASK**(...)

***CURR**ENT(...)

| **IMPORT-ALLOWED = *NO** / ***Y**ES

***PROC**EDURE(...)

| **IMPORT-ALLOWED = *NO** / ***Y**ES

***TASK**(...)

| **STATE** = ***ANY** / ***NEW** / ***OLD**

,**CONTAINER** = ***STD** / **<composed-name 1..64> / *VAR**IABLE(...) / ***JV**(...)

***VAR**IABLE(...)

| **VAR**IABLE-**NAME** = <structured-name 1..20>

| ,**SCOPE** = ***VISIBLE** / ***TASK**

***JV**(...)

| **JV-NAME** = <filename 1..54>

| ,**STATE** = ***ANY** / ***NEW** / ***OLD**

Operands

VARIABLE-NAME = list-poss (2000): <structured-name 1..20>(...)
Declares the variable name, i.e. the name of a simple variable which is not an element in a compound variable, or the name of a compound variable.

INITIAL-VALUE = *NONE
The variable is not initialized.
For a new variable, this means that the variable does not contain an initial value. A read access would produce an error.
If the variable is already present, its contents remain unchanged; it is not assigned a new initial value.

INITIAL-VALUE = <text 0..1800 with-low *expr* >
Assigns an initial value to a new variable; the value must match the data type of the variable and can also be specified as an expression.
The entry is ignored for existing variables; they are not assigned a new initial value. Compound variables cannot be initialized in their entirety, i.e. INITIAL-VALUE cannot be used to assign a new initial value to these variables.

TYPE = *ANY / *STRING / *INTEGER / *BOOLEAN / *STRUCTURE(...)
Assigns the data type to the variable.

TYPE = *ANY
The variable can be assigned any value of data types STRING, INTEGER and BOOLEAN.

> The operand values *STRING, *INTEGER, *BOOLEAN and *STRUCTURE(...) can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

MULTIPLE-ELEMENTS = *NO / *ARRAY(...) / *LIST(...)
Specifies whether there can be multiple elements of a variable in an array or a list.

MULTIPLE-ELEMENTS = *NO
Indicates that the variable is not an array or list.

> The operand values *ARRAY(...) and *LIST(...) can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

SCOPE = *CURRENT(...) / *PROCEDURE(...) / *TASK(...)
Defines the variable scope.

SCOPE = *CURRENT(...)
The variable is a procedure-local variable.
This corresponds to the PROCEDURE argument in call procedures.
In include procedures, *CURRENT means that the variable is declared in the current include procedure. It is then visible in this include procedure and in all include procedures on lower nesting levels (= scope: include). The lower-level IMPORT-ALLOWED operand is preset to *NO (default value), which means that the declared variable cannot be imported using IMPORT-VARIABLE. If the chargeable SDF-P subsystem is not loaded, only this default value is allowed.

> The operand values *PROCEDURE(...) and *TASK(...) can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

CONTAINER = *STD / <composed-name 1..64> / *VARIABLE(...) / *JV(...)
Defines the assignment of the variable to a container.

CONTAINER = *STD
The variable is not assigned a variable container. The value of the variable is stored in class 5 memory.

CONTAINER = <composed-name 1..64>
Assigns the variable container specified here to the variable declared with this command. Only a previously opened variable container may be specified. The specification of “STD” is not permissible here because “STD” is not interpreted as a permanent variable container.

> The operand values *VARIABLE(...) and *JV(...) can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No errors
1	0	CMD0001	Warning: Element already declared
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	User does not have required privilege
	64	SDP0091	Semantic error Guaranteed messages: SDP1018, SDP1030
	130	SDP0099	No more address space available

Examples

Example 1

The procedure-local variable DATA of type *ANY is initialized with the string 'ANTON' and subsequently, the value of the variable is output with the SHOW-VARIABLE command:

```
/declare-variable data(c'Anton',*any)
/show-variable data
```

```
DATA = Anton
```

Example 2

The variable container MY-CONT is opened. Then the S variable MY-VAR-1 is declared as a container variable. Once a value has been assigned, the variable container (and thus also the S variable) is saved. When the variable container has been closed, the S variable MY-VAR-1 can no longer be accessed:

```
/declare-variable my-var-1, container=my-cont
/open-variable-container my-cont,from=*lib-elem(lib=my-lib)
/my-var-1=’saved value’
/show-variable my-var-1
```

```
MY-VAR-1 = saved value
*END-OF-CMD
```

```
/save-variable-container my-cont
/...
/close-variable-container my-cont
/show-variable
```

```
%  SDP1030 CONTAINER / VARIABLE-CONTAINER 'MY-CONT' DOES NOT EXIST
%  SDP0234 OPERAND 'NAME' INVALID
```

2.87 DECRYPT-FILE

Decrypt an encrypted file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The DECRYPT-FILE command converts an encrypted file into an unencrypted file. This is only possible if the crypto password specified for this file in the ENCRYPT-FILE command is entered in to the task-specific crypto password table (see the ADD-CRYPTO-PASSWORD command).

The conversion of an encrypted file is logged by SAT, whereby the output audit attribute is taken from the catalog entry of the converted file (see the CREATE-FILE command, AUDIT operand).

By converting into an encrypted file, the auxiliary file is created and automatically deleted after completion of the function execution. The auxiliary file requires as much storage place as the converting file.
The file name of the auxiliary file has the following structure: `S.DMS.<tsn>.<date><time>.CRYPTO`

Notes on command execution

File locking and protection attributes which reject write access to the catalog entry or the content of the file prevent its conversion via the DECRYPT-FILE command.

The file conversion with the DECRYPT-FILE command requests having owner rights for executing operations on the file. The conversion takes place only in the following cases:

- The file is under user ID of the calling task.
- The called task is under a user ID with TSOS privilege.
- The user ID of a called task is a co-owner of the file, and the file is not temporary.

DECRYPT-FILE is rejected if the converted file can be accessed only via RFA.

Privileged functions

If the called task has the TSOS privilege, the following additional functions are possible:

- Temporary files that belong not to this current task, but to another one can be specified too.
- Temporary files can be allocated on another pubset set as default one for this user ID (such files are not automatically deleted after completion the called task).

Format

DECRYPT**-FILE**
FILE**-NAME** = <filename 1..54 without-gen>

Operands

FILE-NAME = <filename 1..54 without-gen>
Name of the file to be converted.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in the command
1	0	CMD0001	No action required
2	0	DMS05B6	Time conversion UTC to LT errored
2	0	DMS05F5	Defective blocks were not copied
	130	DMS0524	System address space exhausted
	130	DMS0582	The file is currently locked or in use and cannot be processed
	130	DMS0585	An error was detected during catalog processing or during multiprocessor processing.
	130	DMS0588	Disk storage could not be assigned
	130	DMS0594	Insufficient virtual memory available
	32	DMS0584	During processing a status was reported which prevents the function from being continued.
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User does not have access right for pubset Guaranteed message: DMS051C

	64	DMS0535	Specified file not shareable
	64	DMS057C	Processing not possible because of HSMS error
	64	DMS057E	File migrated, HSMS not available
	64	DMS0585	An error was detected during catalog processing or during multiprocessor processing.
	64	DMS0588	Disk storage could not be assigned
	64	DMS05FC	Specified user ID not in the home pubset
	64	DMS0609	Access to system file not possible
	64	DMS0681	DMS error while executing job
	64	DMS0684	File does not exist
	64	DMS06B5	File open or catalog entry not updated after system error

3 DELETE-ALTERNATE-INDEX - LOGOFF

The manual "Commands" is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

3.1 DELETE-ALTERNATE-INDEX

Delete secondary indices of NK-ISAM file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

Using the DELETE-ALTERNATE-INDEX command, the user can delete secondary indices in a file.
If the command is terminated, the user will be unable to see the specified secondary indices (output produced by SHOW-INDEX-ATTRIBUTES), but there may still be blocks in the file which have not been released. These blocks will be released when a logical copy is made of the file (e.g. using the REPAIR-DISK-FILES command or the PERCON utility program).

Format

DELETE**-ALTER**NATE**-INDEX**
FILE-NAME = <filename 1..54> ,**KEY-NAME** = ***ALL** / list-poss(30): <name 1..8>

Operands

FILE-NAME = <filename 1..54>
The name of the file from which the specified secondary indices are to be deleted.

KEY-NAME = *ALL / list-poss(30): <name 1..8>
Identifies the secondary index/indices which are to be deleted.
Specifying *ALL will delete all the secondary indices in the file.
One list may specify the names of up to 30 secondary indices which are to be deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	DMS0A37	Internal system error
	32	DMS0A3A	Inconsistent control block found
	32	DMS0A42	Internal error on opening the file
	32	DMS0A43	Internal error on closing the file
	32	DMS0A4F	RDTFT error
	32	DMS0A30	Remote BS2000 system has a version < V10.0A
	32	DMS0A31	Specified catalog ID does not exist
	64	DMS0A35	Secondary index does not exist
	64	DMS0A46	Not an NK-ISAM file
	64	DMS0A4E	SHARUPD = YES was specified
	128	DMS0A49	Command interrupted
	130	DMS0A32	Specified catalog ID not available
	130	DMS0A38	Insufficient virtual memory
	130	DMS0A3C	Maximum number of secondary keys
	130	DMS0A3E	ISAM pool is overloaded

3.2 DELETE-FILE

Delete file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The DELETE-FILE command can be used to delete temporary or permanent files which are cataloged under the user's own user ID, and selected according to criteria which must be specified in the command. A tape file may also be specified, but since an implicit EXPORT-FILE is executed for it, only its catalog entry will be deleted.

There are separate commands for deleting file generations and file generation groups (see DELETE-FILE-GENERATION and DELETE-FILE-GROUP).

The DELETE-FILE command has 4 main functions:

1. *Selection*

   With the SELECT operand, the user specifies which files or catalog entries are to be processed. The attributes stored in the catalog entries are used as selection criteria. These selection criteria correspond with those of the SHOW-FILE-ATTRIBUTES command.

2. *Action parameters*

   The OPTION operand permits the user to control the internal execution of the DELETE-FILE processing. The scope of the deletions can be specified, i.e. the handling of the catalog entry, the data contained in the file, and the reserved storage space.

3. *Verifying command execution*

   The DIALOG-CONTROL, OUTPUT and SUPPRESS-ERRORS operands allow the user to define his own user interface, within certain limits. For example, he may use interactive prompts, request the names of deleted files on SYSOUT, or have DMS errors ignored (for error handling in procedures).

4. *File protection*

   The IGNORE-PROTECTION and PASSWORDS-TO-IGNORE operands save the user from having to enter the MODIFY-FILE-ATTRIBUTES or ADD-PASSWORD commands when files which are protected against write access by passwords, retention periods, or active access control need to be deleted.

Privileged functions

The privileged functions for systems support staff (TSOS privilege) include specification of temporary or cataloged files of any user ID, the ability to ignore protection attributes of the file being deleted and, in the case of a user ID change, to branch to guided dialog. Systems support staff can use wildcards in the user ID. If no catalog ID is specified in such cases, the specified files are deleted from the associated default pubsets of the relevant users.
By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, delete files under any user ID). When SECOS is used, this co-ownership can be restricted for permanent files.
Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners. Co-owners of a user ID are also allowed to delete files under that ID.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Name of file to be deleted	FILE-NAME =	
Selection criteria for the files to be deleted	SELECT = *BY-ATTRIBUTES(...)	
Date specification		
• creation date ○ Time		CREATION-DATE =
• Expiration date (implicit retention period) ○ Time		EXPIRATION-DATE =
• date of last access ○ Time		LAST-ACCESS-DATE =
• Date of last write access ○ Time		LAST-CHANGE-DATE =
• Date when file is freed for deletion ○ Time		FREE-FOR-DELETION =
• Number of accesses to the file		ACCESS-COUNTER =

Storage space		
• Type of volume		SUPPORT =
○ Pubset and Net-Storage ○ Private disk ○ tape		=*PUBLIC-DISK =*PRIVATE-DISK =*TAPE
• Volume set		VOLUME-SET =
• Volume identifier (VSN)		VOLUME =
• Availability		AVAILABILITY =
• Storage type		STORAGE-TYPE =
○ File type (on Net-Storage)		FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
• Storage class		STORAGE-CLASS =
• Reserved storage space		SIZE =
• Number of extents		NUMBER-OF-EXTENTS =
• Size of reserved storage space not yet used		NUMBER-OF-FREE-PAGES =
• Number of the last page used (last page pointer)		HIGHEST-USED-PAGE =
• Number of logical blocks in a tape file		BLOCK-COUNTER =
File security/file protection		

• Access		ACCESS =
• Shareability		USER-ACCESS =
• Basic access control list		BASIC-ACL =
• Password protection		GUARDS =
• Highest activated access control		PROTECTION-ACTIVE =
• Password protection		PASSWORD =
• protection against release of storage space		SPACE-RELEASE-LOCK =
• BACKUP level		BACKUP-CLASS =
• Work file attribute		WORK-FILE =
• Type of file ○ Files only ○ PLAM libraries only		TYPE-OF-FILES =
• preferred file format		FILE-PREFORMAT =
• Type of file encryption		ENCRYPTION =
• File format		BLOCK-CONTROL-INFO =
• Access method at creation		FILE-STRUCTURE =

• Code table (CCS)		CODED-CHARACTER-SET =
• Performance attributes ○ Performance requirements ○ Type of I/O operations		IO-ATTRIBUTES =
• Time of ensuring data consistency after write operations		DISK-WRITE =
• Status of the file ○ Closed ○ Processed in a cache ○ Not closed properly and not yet reconstructed ○ Locked or opening allowed ○ Contains defective disk blocks ○ Modified data not written out to disk when closed		STATUS = • CLOSED-OUTPUT • CACHED • REPAIR-NEEDED • OPEN-ALLOWED • DEFECT-REPORTED • CACHE-NOT-SAVED
• User information		USER-INFORMATION =
• Systems support information		ADM-INFORMATION =
HSMS-related file attributes		
• Ability to migrate from processing level (S0) to background level (S1 or S2)		MIGRATE =
• Ability to migrate within processing level (S0)		S0-MIGRATION =
• Storage level		STORAGE-LEVEL =
• Management class		MANAGEMENT-CLASS =

Deletion parameters	OPTION	
• Delete the catalog entry and release storage space	OPTION = *ALL	
• Release storage space only, retain catalog entry	OPTION = *SPACE	
• Logical deletion: delete the data-related attributes of the file, change the catalog entry accordingly, retain the storage space allocation	OPTION = *DATA	
• Logical deletion as with *DATA, but the data-related attributes of the file are retained	OPTION = *DATA-KEEP-ATTRIBUTES	
• Delete the catalog entry, release the storage space and overwrite its contents	OPTION = *DESTROY-ALL	
Mount request	MOUNT =	
Control parameters		
• User intervention not permitted (default setting for procedures and batch mode)	DIALOG-CONTROL = *NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	DIALOG-CONTROL = *MORE-THAN-ONE-FILE	
• Dialog when an error occurs	DIALOG-CONTROL = *ERROR	
• Dialog when catalog ID changes	DIALOG-CONTROL = *CATALOG-CHANGE	

• For each file selected, there will be an interactive dialog with the user to determine whether the current DELETE-FILE command should be processed or not	DIALOG-CONTROL = *FILE- CHANGE	
• Dialog when user ID changes	DIALOG-CONTROL = *USER-ID-CHANGE	
Message for successfully deleted files	OUTPUT =	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	
Ignore protection attributes	IGNORE-PROTECTION =	
• Ignore write protection provided by ACCESS=READ, BASIC-ACL or GUARDS	=*ACCESS	
• Ignore retention periods	=*EXPIRATION-DATE	
• Ignore password protection	=*WRITE-PASSWORD / *READ-PASSWORD / *EXEC-PASSWORD	
Ignore password protection provided by specified passwords	PASSWORDS-TO-IGNORE =	
Suppress error situations	SUPPRESS-ERRORS =	

Table 41: Overview of DELETE-FILE command functions

Format

DELETE-**FILE** Alias: **DLF**

```
FILE-NAME = *DUMMY / <filename 1..54 without-gen with-wild(80)>

,SELECT = *ALL / [*BY-ATTR]IBUTES](...)

    [*BY-ATTR]IBUTES](...)

        |     CREATION-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>
              (...) /

        |                     <date>(...) / *INTERVAL(...)

        |         *TODAY(...)

        |             |     TIME = *ANY / [*INTERVAL](...)

        |             |         [*INTERVAL](...)

        |             |             |     FROM = 00:00:00 / <time>

        |             |             |     ,TO = 23:59:59 / <time>

        |         *YESTERDAY(...)

        |             |     TIME = *ANY / [*INTERVAL](...)

        |             |         [*INTERVAL](...)

        |             |             |     FROM = 00:00:00 / <time>

        |             |             |     ,TO = 23:59:59 / <time>

        |         <integer -99999..991231>(...)

        |             |     TIME = *ANY / [*INTERVAL](...)

        |             |         [*INTERVAL](...)

        |             |             |     FROM = 00:00:00 / <time>

        |             |             |     ,TO = 23:59:59 / <time>

        |         <date>(...)

        |             |     TIME = *ANY / [*INTERVAL](...)

        |             |         [*INTERVAL](...)

        |             |             |     FROM = 00:00:00 / <time>

        |             |             |     ,TO = 23:59:59 / <time>

        |         *INTERVAL(...)

        |             |     FROM = *EARLIEST / *TODAY(...) / *YESTERDAY(...) /
```

```
|          |              <integer -99999..991231>(...) / <date>(...)
|          |          *TODAY(...)
|          |              |      TIME = 00:00:00 / <time>
|          |          *YESTERDAY(...)
|          |              |      TIME = 00:00:00 / <time>
|          |          <integer -99999..991231>(...)
|          |              |      TIME = 00:00:00 / <time>
|          |          <date>(...)
|          |              |      TIME = 00:00:00 / <time>
|          |      ,TO = *TODAY (...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
|          |          *TODAY(...)
|          |              |      TIME = 23:59:59 / <time>
|          |          *YESTERDAY(...)
|          |              |      TIME = 23:59:59 / <time>
|          |          <integer -99999..991231>(...)
|          |              |      TIME = 23:59:59 / <time>
|          |          <date>(...)
|          |              |      TIME = 23:59:59 / <time>
|     ,EXPIRATION-DATE = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|                          <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
|       *TOMORROW(...)
|          |      TIME = *ANY / [*INTERVAL](...)
|          |          [*INTERVAL](...)
|          |              |      FROM = 00:00:00 / <time>
|          |              |      ,TO = 23:59:59 / <time>
|       *TODAY(...)
|          |      TIME = *ANY / [*INTERVAL](...)
|          |          [*INTERVAL](...)
|          |              |      FROM = 00:00:00 / <time>
|          |              |      ,TO = 23:59:59 / <time>
|       *YESTERDAY(...)
```

```
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |       FROM = 00:00:00 / <time>
|           |               |       ,TO = 23:59:59 / <time>
|       <integer -99999..991231>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |       FROM = 00:00:00 / <time>
|           |               |       ,TO = 23:59:59 / <time>
|       <date>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |       FROM = 00:00:00 / <time>
|           |               |       ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |       FROM = EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|           |                   <integer -99999..991231>(...) / <date>(...)
|           |           *TOMORROW(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           *TODAY(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           <integer -99999..991231>(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |               |       TIME = 00:00:00 / <time>
|           |       ,TO = LATEST / TODAY(...) / *LATEST / *TOMORROW(...) / *YESTERDAY(...) /
|           |           <integer -99999..991231>(...) / <date>(...)
|           |           *TODAY(...)
|           |               |
```

| | | ***TOMORROW**(...)
| | | |
| | | ***YESTERDAY**(...)
| | | |
| | | <integer -99999..991231>(...)
| | | |
| | | <date>(...)
| | | |
| ,**LAST-ACCESS**-DATE = ***ANY** / ***NONE** / ***TODAY**(...) / ***YESTERDAY**(...) /
| <integer -99999..991231>(...) / <date>(...) / ***INTERVAL**(...)
| ***TODAY**(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | |
| | |
| ***YESTERDAY**(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | |
| | |
| <integer -99999..991231>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | |
| | |
| <date>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | |
| | |
| ***INTERVAL**(...)

```
|           |       FROM = *EARLIEST / *TODAY(...) / *YESTERDAY(...) /
|           |                  <integer -99999..991231>(...) / <date>(...)
|           |           *TODAY(...)
|           |                  |       TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |                  |       TIME = 00:00:00 / <time>
|           |           <integer -99999..991231>(...)
|           |                  |       TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |                  |       TIME = 00:00:00 / <time>
|           |       ,TO = *TODAY (...) / *YESTERDAY(...) / <integer -99999..991231>(...) /
|           |           <date>(...)
|           |           *TODAY (...)
|           |                  |       TIME = 23:59:59 / <time>
|           |           *YESTERDAY(...)
|           |                  |       TIME = 23:59:59 / <time>
|           |           <integer -99999..991231>(...)
|           |                  |       TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |                  |       TIME = 23:59:59 / <time>
|     ,LAST-CHANGE-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>
      (...) /
|                          <date>(...) / *INTERVAL(...)
|       *TODAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                  |       FROM = 00:00:00 / <time>
|           |                  |       ,TO = 23:59:59 / <time>
|       *YESTERDAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
```

| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| <integer -99999..0>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| <date>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| ***INTERVAL**(...)
| | FROM = ***EARL**IEST / <integer -99999..0>(...) / <date>(...) / ***TODAY**(...) /
| | ***YESTERDAY**(...)
| | <integer -99999..0>(...)
| | | TIME = **00:00:00** / <time>
| | <date>(...)
| | | TIME = **00:00:00** / <time>
| | ***TODAY**(...)
| | | TIME = **00:00:00** / <time>
| | ***YESTERDAY**(...)
| | | TIME = **00:00:00** / <time>
| | ,TO = ***TODAY** (...) / <integer -99999..0>(...) / <date>(...) / ***YESTERDAY**(...)
| | ***TODAY** (...)
| | | TIME = **23:59:59** / <time>
| | <integer -99999..0>(...)
| | | TIME = **23:59:59** / <time>
| | <date>(...)
| | | TIME = **23:59:59** / <time>
| | ***YESTERDAY**(...)

```
|                |                    |      TIME = 23:59:59 / <time>
|      ,SUPPORT = *ANY / list-poss(3): *PUBLIC-DISK / *PRIVATE-DISK / *TAPE
|      ,STORAGE-TYPE = *ANY / *PUBLIC-SPACE / *NET-STORAGE(...)
|          *NET-STORAGE(...)
|              |      FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
|      ,VOLUME = *ANY / <vsn 1..6>
|      ,SIZE = *ANY / *FREESIZE / <integer 0..2147483647> / [*INTERVAL](...)
|          [*INTERVAL](...)
|              |      FROM = 0 / <integer 0..2147483647>
|              |      ,TO = 2147483647 / <integer 0..2147483647>
|      ,NUMBER-OF-EXTENTS = *ANY / <integer 0..65535> / [*INTERVAL](...)
|          [*INTERVAL](...)
|              |      FROM = 0 / <integer 0..65535>
|              |      ,TO = 65535 / <integer 0..65535>
|      ,NUMBER-OF-FREE-PAGES = *ANY / *SIZE / <integer 0..2147483647> / *ALL-ALLOCATED /
|              [*INTERVAL](...)
|          [*INTERVAL](...)
|              |      FROM = 0 / <integer 0..2147483647>
|              |      ,TO = 2147483647 / <integer 0..2147483647>
|      ,HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / [*INTERVAL](...)
|          [*INTERVAL](...)
|              |      FROM = 0 / <integer 0..2147483647>
|              |      ,TO = 2147483647 / <integer 0..2147483647>
|      ,BLOCK-COUNTER = *ANY / <integer 0..2147483647> / [*INTERVAL](...)
|          *INTERVAL(...)
|              |      FROM = 0 / <integer 0..2147483647>
|              |      ,TO = 2147483647 / <integer 0..2147483647>
|      ,ACCESS = *ANY / *READ / *WRITE
|      ,PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD /
|                      *EXEC-PASSWORD
|      ,USER-ACCESS = *ANY / list-poss(3): *OWNER-ONLY / *ALL-USERS / *SPECIAL
```

```
|       ,FILE-STRUCTURE = *ANY / list-poss(5): *PAM / *SAM / *ISAM / *BTAM / *NONE
|       ,BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
|       ,BLOCK-CONTROL-INFO = *ANY / list-poss(9): *NONE / *NO / *WITHIN-DATA-BLOCK /
|                                  *WITHIN-DATA-2K-BLOCK / *WITHIN-DATA-4K-BLOCK /
|                                  *PAMKEY / *NK / *NK2 / *NK4
|       ,MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
|       ,STORAGE-LEVEL = *ANY / list-poss(3): *S0 / *S1 / *S2
|       ,BASIC-ACL = *ANY / *NONE / *YES / [*PARAMETERS](...)
|           [*PARAMETERS](...)
|               |       OWNER = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|               |           [*PARAMETERS](...)
|               |               |       READ = *ANY / *NO / *YES
|               |               |       ,WRITE = *ANY / *NO / *YES
|               |               |       ,EXEC = *ANY / *NO / *YES
|               |       ,GROUP = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|               |           [*PARAMETERS](...)
|               |               |       READ = *ANY / *NO / *YES
|               |               |       ,WRITE = *ANY / *NO / *YES
|               |               |       ,EXEC = *ANY / *NO / *YES
|               |       ,OTHERS = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|               |           [*PARAMETERS](...)
|               |               |       READ = *ANY / *NO / *YES
|               |               |       ,WRITE = *ANY / *NO / *YES
|               |               |       ,EXEC = *ANY / *NO / *YES
|       ,GUARDS = *ANY / *YES / *NO / [*PARAMETERS](...)
|           [*PARAMETERS](...)
|               |       READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|               |       ,WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|               |       ,EXEC = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|       ,PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
|       ,ACCESS-COUNTER = *ANY / <integer 0..2147483647> / [*INTERVAL](...)
```

```
|       [*INTERVAL](...)
|           |       FROM = 0 / <integer 0..2147483647>
|           |       ,TO = 2147483647 / <integer 0..2147483647>
|   ,CODED-CHARACTER-SET = *ANY / *NONE / <name 1..8>
|   ,STATUS = *ANY / [*PARAMETERS](...)
|       [*PARAMETERS](...)
|           |       CLOSED-OUTPUT = *ANY / *YES / *NO
|           |       ,CACHED = *ANY / *YES / *NO
|           |       ,REPAIR-NEEDED = *ANY / *YES / *NO
|           |       ,OPEN-ALLOWED = *ANY / *YES / *NO
|           |       ,DEFECT-REPORTED = *ANY / *YES
|           |       ,CACHE-NOT-SAVED = *ANY / *YES
|   ,TYPE-OF-FILES = *ANY / *FILE / *PLAM-LIBRARY
|   ,SPACE-RELEASE-LOCK = *ANY / *NO / *YES
|   ,IO-ATTRIBUTES = *ANY / [*PARAMETERS](...)
|       [*PARAMETERS](...)
|           |       PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
|           |       ,USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
|   ,DISK-WRITE = *ANY / *IMMEDIATE / *BY-CLOSE
|   ,FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|                           <integer -99999..99999>(...) / <date>(...) / *INTERVAL(...)
|       *TOMORROW(...)
|           |       TIME = *ANY / *INTERVAL(...)
|           |           *INTERVAL(...)
|           |               |       FROM = 00:00:00 / <time>
|           |               |       ,TO = 23:59:59 / <time>
|       *TODAY(...)
|           |       TIME = *ANY / *INTERVAL(...)
|           |           *INTERVAL(...)
|           |               |       FROM = 00:00:00 / <time>
|           |               |       ,TO = 23:59:59 / <time>
```

```
|          *YESTERDAY(...)
|              |       TIME = *ANY / *INTERVAL(...)
|              |           *INTERVAL(...)
|              |               |       FROM = 00:00:00 / <time>
|              |               |       ,TO = 23:59:59 / <time>
|       <integer -99999..99999>(...)
|           |   TIME = *ANY / *INTERVAL(...)
|           |           *INTERVAL(...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           ,TO = 23:59:59 / <time>
|       <date>(...)
|           |   TIME = *ANY / *INTERVAL(...)
|           |           *INTERVAL(...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |   FROM = *EARL IEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|           |           <integer -99999..99999>(...) / <date>(...)
|           |           *TOMORROW(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           *TODAY(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           <integer -99999..99999>(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |               |           TIME = 00:00:00 / <time>
|           |   ,TO = *LATEST / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|           |          <integer -99999..99999>(...) / <date>(...)
|           |           *TODAY(...)
```

| | | | **TIME** = **23:59:59** / <time>

| | ***TOMORROW**(...)

| | | | **TIME** = **23:59:59** / <time>

| | ***YESTERDAY**(...)

| | | | **TIME** = **23:59:59** / <time>

| | <integer -99999..99999>(...)

| | | | **TIME** = **23:59:59** / <time>

| | <date>(...)

| | | | **TIME** = **23:59:59** / <time>

| ,**STOR**AGE-**CLASS** = ***ANY** / ***NONE** / <composed-name 1..8>

| ,**MANAG**EMENT-**CLASS** = ***ANY** / ***NONE** / <composed-name 1..8>

| ,**ADM-INF**ORMATION = ***ANY** / ***NONE** / <c-string 1..8 with-low>

| ,**USER-INF**ORMATION = ***ANY** / ***NONE** / <c-string 1..8 with-low>

| ,**VOL**UME-**SET** = ***ANY** / <cat-id 1..4>

| ,**AVAIL**ABILITY = ***ANY** / list-poss(2): ***STD** / ***HIGH**

| ,**S0-MIG**RATION = ***ANY** / list-poss(2): ***ALLOW**ED / ***FORBIDDEN**

| ,**WORK-FILE** = ***ANY** / ***NO** / ***Y**ES

| ,**FILE-PREFORMAT** = ***ANY** / list-poss(4): ***NONE** / ***K** / ***NK2** / ***NK4**

| ,**ENCRYPTION** = ***ANY** / list-poss(3): ***NONE** / ***AES** / ***DES**

,**OPTION** = ***ALL** / ***SPACE** / ***DATA** / ***DATA-KEEP-ATTRIBUTES** / ***DESTROY-ALL**

,**MOUNT** = ***FIRST-DISK** / ***ALL-DISKS**

,**DIALOG-CONTR**OL = ***STD** / ***NO** / ***ERROR** / ***F**ILE-**CHA**NGE / ***MORE-THAN-ONE-F**ILE /

***CAT**ALOG-**CHA**NGE / ***USER-ID-CHA**NGE

,**OUTPUT** = ***STD** / ***NO** / ***SYSOUT**

,**IGNORE-PROT**ECTION = ***NONE** / list-poss(5): ***ACCESS** / ***EXPIR**ATION-DATE / ***WR**ITE-**PASS**WORD /

***READ-PASS**WORD / ***EXEC-PASS**WORD

,**PASS**WORDS-**TO-IGNORE** = ***NONE** / ***SECRET** / list-poss(3): <x-string 1..8> / <c-string 1..4> /

<integer -2147483648..2147483647>

,**SUPPRESS-ERR**ORS = ***NONE** / list-poss(3): <alphanum-name 7..7>

Operands

FILE-NAME = *DUMMY / <filename 1..54 without-gen with-wild(80)>
The name of the file to be deleted. Only the user's own user ID or a user ID for which the user is co-owner may be specified. If the wildcard "*" is the first character in a wildcard string, it must be entered twice.

FILE-NAME = *DUMMY
Designates the dummy file *DUMMY, which "always exists", and which satisfies all selection criteria. Any other operands, except for the control parameters DIALOG-CONTROL, OUTPUT and SUPPRESS-ERRORS will be checked for their formal correctness, but otherwise ignored. If *DUMMY is specified, no catalog or data access is necessary. The main use of *DUMMY is in testing procedures.

SELECT = *ALL
All the files in the set specified by FILE-NAME are selected.

SELECT = *BY-ATTRIBUTES(...)
Restricts the files in the set specified in FILE-NAME to files which satisfy the criteria which follow. The default values, *ANY and ANY, each indicates that the file set is not to be restricted to any particular values for the attribute concerned.

CREATION-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
The user can select the files to be deleted by their creation date. On a given date, the selection can be restricted to a time interval within which the file was created (see the relevant TIME operands in each structure).
On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands. See also the *CRE-DATE* and *CRE-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

CREATION-DATE = *ANY
The creation date is not to be used as a selection criterion.

CREATION-DATE = *NONE
Only those files which have the value NONE entered in the CREATION-DATE field in their catalog entry are deleted, i.e. files which have never been opened.

CREATION-DATE = *TODAY(...)
Only those files which have today's date entered in the CREATION-DATE field in their catalog entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files for deletion to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes only those files which were created on the specified day within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = *YESTERDAY(...)
Only those files which have yesterday's date entered in the CREATION-DATE field in their catalog entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Deletes only those files which were created on the specified day within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = <integer -99999..991231>(...)
Only those files which have the specified date entered in the CREATION-DATE field in their catalog entry are deleted. Here, the user can specify the creation date in either of two ways:

1. as an *absolute date value*:
   (6 digits), a specific date in the form yymmdd
   (yy = year, mm = month, dd = day)
2. as a *relative date value*:
   (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future;
   (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes only those files which were created on the specified day within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = <date>(...)
Only those files which have the specified date entered in the CREATION-DATE field in their catalog entry are deleted. The user can specify the creation date in the form [yy]yymm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes only those files which were created on the specified day within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = *INTERVAL(...)
Only those files which were created within the specified time period are deleted. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified using <integer> values). It is also possible to specify limits using the operands FROM (lower limit) and TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Only those files which have been created since the specified date (i.e. CREATION-DATE >= specified date) are deleted. If EARLIEST is specified, the system will use the earliest possible date.

FROM = *TODAY(...)
Deletes only those files which were created after the specified date (i.e. files for which CREATION-DATE >= current date).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

FROM = *YESTERDAY(...)
Deletes only those files which were created after the specified date (i.e. files for which CREATION-DATE >= date of preceding day).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

FROM = <integer -99999..991231>(...)
Deletes only those files which were created after the specified date (i.e. files for which CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

FROM = <date>(...)
Deletes only those files which were created after the specified date (i.e. files for which CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Deletes only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TO = *TODAY(...)
Deletes only those files which were created before the specified date (i.e. files for which CREATION-DATE <= current date).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

TO = *YESTERDAY(...)
Deletes only those files which were created before the specified date (i.e. files for which CREATION-DATE <= date of preceding day).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

TO = <integer -99999..991231>(...)
Deletes only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

TO = <date>(...)
Deletes only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

EXPIRATION-DATE = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
The user can select the files to be deleted by their release date (expiration date). The selection can be restricted for a specified date to a time interval in which the last file update occurred (see the TIME operand for each structure). Note that at present the time 00:00:00 is always entered in the file catalog as the time of the expiration date. On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands. See also the *EXPIR-DATE* and *EXPIR-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

EXPIRATION-DATE = *ANY
The expiration date is not to be used as a selection criterion.

EXPIRATION-DATE = *NONE
Only those files which have no expiration date (i.e. the value NONE) entered in the EXPIRATION-DATE field in their catalog entry are deleted.

EXPIRATION-DATE = *TOMORROW(...)
Deletes only those files which have tomorrow's date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those files whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = *TODAY(...)
Only those files which have today's date entered as the EXPIRATION-DATE in their catalog entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those files whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = *YESTERDAY(...)
Only those files which have yesterday's date entered as the EXPIRATION-DATE in their catalog entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those files whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = <integer -99999..991231>(...)
Only those files which have the specified date entered as the EXPIRATION-DATE in their catalog entry are deleted. Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value*:
   (6 digits), a specific date in the form yymmdd
   (yy = year, mm = month, dd = day)
2. as a *relative date value*:
   (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future;
   (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those files whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = <date>(...)
Only those files which have the specified date entered as the EXPIRATION-DATE in their catalog entry are deleted. The user can specify the expiration date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those files whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = *INTERVAL(...)
Only those files for which the expiration date lies within the specified time period, i.e. files for which the retention period ends within the specified time period, will be deleted. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for EXPIRATION-DATE = <integer...>. It is also possible to specify limits using the operands FROM (lower limit) and TO (upper limit)). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit.

FROM = EARLIEST / TOMORROW(...) / TODAY(...) / YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
If EARLIEST is specified, the system will use the earliest possible date. Only those files for which the retention period expires on or after the specified date (EXPIRATION-DATE >= specified date) are deleted.

FROM = *TOMORROW(...)
Deletes only those files for which the EXPIRATION-DATE >= the date of next day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = TODAY(...)
Deletes only those files for which the EXPIRATION-DATE >= current date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *YESTERDAY(...)
Deletes only those files for which the EXPIRATION-DATE >= date of preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <integer -99999..991231>(...)
Deletes only those files for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <date>(...)
Deletes only those files for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *LATEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Only files for which the retention period expires on or before the specified date (EXPIRATION-DATE <= specified date) will be deleted.

TO = *TOMORROW(...)
Deletes only those files for which the EXPIRATION-DATE <= date of next day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *TODAY(...)
Deletes only those files for which the EXPIRATION-DATE <= current date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *YESTERDAY(...)
Deletes only those files for which the EXPIRATION-DATE <= date of preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <integer -99999..991231>(...)
Deletes only those files for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <date>(...)
Deletes only those files for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

LAST-ACCESS-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)

The user can select the files to be deleted by the date when they were last accessed. On a given date, the selection can be restricted to a time interval within which the file was last accessed (see the relevant TIME operands in each structure). On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands. See also the *ACC-DATE* and *ACC-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

LAST-ACCESS-DATE = *ANY

The date of last access is not to be used as a selection criterion.

LAST-ACCESS-DATE = *NONE

Deletes only those files which have the value NONE entered in the *ACC-DATE* field in their catalog entry, i.e. files which have never been opened.

LAST-ACCESS-DATE = *TODAY(...)

Deletes only those files for which today's date has been entered as the LAST-ACCESS-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)

Restricts the selection to a time period relative to today's date.

TIME = *INTERVAL(...)

Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>

Selects files that were last accessed after the specified time.

TO = 23:59:59 / <time>

Selects files that were last accessed before the specified time.

LAST-ACCESS-DATE = *YESTERDAY(...)

Deletes only those files for which yesterday's date has been entered as the LAST-ACCESS-DATE in the catalog entry.

TIME = INTERVAL(...)

Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>

Selects files that were last accessed after the specified time.

TO = 23:59:59 / <time>

Selects files that were last accessed before the specified time.

LAST-ACCESS-DATE = <integer -99999..991231>(...)

Deletes only those files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. Here, the user can specify the date of last access in either of two ways:

1. as an *absolute date value*:
   (6 digits), a specific date in the form yymmdd
   (yy = year, mm = month, dd = day)

2. as a *relative date value*:
   (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future;
   (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

TIME = *INTERVAL(...)
Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files that were last accessed after the specified time.

TO = 23:59:59 / <time>
Selects files that were last accessed before the specified time.

LAST-ACCESS-DATE = <date>(...)
Deletes only those files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. The user can specify the creation date in the form [yy]yy-mm-dd.

TIME = *INTERVAL(...)
Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files that were last accessed after the specified time.

TO = 23:59:59 / <time>
Selects files that were last accessed before the specified time.

LAST-ACCESS-DATE = *INTERVAL(...)
Only files which were last accessed within the specified time period will be deleted. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified using <integer> values). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Only files which have been accessed since the specified date (i.e. for which LAST-ACCESS-DATE >= specified date) will be deleted. If EARLIEST is specified, the system will use the earliest possible date.

FROM = *TODAY(...)
Returns information on files for which the LAST-ACCESS-DATE >= date of the current day.

TIME = 00:00:00 / <time>
Time on the specified date. All files which were last accessed after the specified time are selected.

FROM = *YESTERDAY(...)
Returns information on files for which the LAST-ACCESS-DATE >= date of the preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All files which were last accessed after the specified time are selected.

FROM = <integer -99999..991231>(...)
Returns information on files for which the LAST-ACCESS-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files which were last accessed after the specified time are selected.

FROM = <date>(...)
Returns information on files for which the LAST-ACCESS-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files which were last accessed after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Only those files which were last accessed on or before the specified date (i.e. files for which LAST-ACCESS-DATE <= the specified date) are deleted.

TO = *TODAY(...)
Returns information on files for which the LAST-ACCESS-DATE <= date of the current day.

TIME = 23:59:59 / <time>
Time on the specified date. All files which were last accessed before the specified time are selected.

TO = *YESTERDAY(...)
Returns information on files for which the LAST-ACCESS-DATE <= date of the preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All files which were last accessed before the specified time are selected.

TO = <integer -99999..991231>(...)
Returns information on files for which the LAST-ACCESS-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files which were last accessed before the specified time are selected.

TO = <date>(...)
Returns information on files for which the LAST-ACCESS-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files which were last accessed before the specified time are selected.

LAST-CHANGE-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...) / *INTERVAL(...)
The user can select the files to be deleted based on the date on which they were last accessed for writing (i.e. the date they were last changed). On a given date, the selection can be restricted to a time interval within which the file was last changed (see the relevant TIME operands in each structure). On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands. See also the *CHANG-DATE* and *CHANG-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

LAST-CHANGE-DATE = *ANY
The date of the last write access is not to be used as a selection criterion.

LAST-CHANGE-DATE = *NONE
Deletes only those files for which no LAST-CHANGE-DATE has been entered in the catalog entry, i.e. files which have never been opened.

LAST-CHANGE-DATE = *TODAY(...)
Deletes only those files for which today's date has been entered as the LAST-CHANGE-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a time period relative to today's date.

TIME = *INTERVAL(...)
Deletes only those files which were last changed within the specified time interval.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = *YESTERDAY(...)
Deletes only those files for which yesterday's date has been entered as the LAST-CHANGE-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Deletes only those files which were last changed within the specified time interval.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = <integer -99999..0>(...)
Deletes only those files for which the specified date has been entered as the LAST-CHANGE-DATE in the catalog entry. Here, the user can specify the date of the last write access relative to the current date (in the form -n).

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Deletes only those files which were last changed within the specified time interval.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = <date>(...)
Deletes only those files for which the specified date has been entered as the LAST-CHANGE-DATE in the catalog entry. The user can specify the date in the form [yy]yymm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Deletes only those files which were last changed within the specified time interval.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = *INTERVAL(...)
Only files which were last changed within the specified time period will be deleted. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for the operand LAST-CHANGE-DATE= <integer...>). It is also possible to specify only the FROM operand (lower limit) or the TO operand (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...)
Only those files which have been changed since the specified date (i.e. LAST-CHANGE-DATE >= specified date) are deleted.

FROM = *TODAY(...)
Deletes only those files for which the LAST-CHANGE-DATE >= current date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

FROM = *YESTERDAY(...)
Deletes only those files for which the LAST-CHANGE-DATE >= date of preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

FROM = <integer -99999..0>(...)
Deletes only those files for which the LAST-CHANGE-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

FROM = <date>(...)
Deletes only those files for which the LAST-CHANGE-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...)
Only those files which were changed on or before the specified date (i.e. LAST-CHANGE-DATE <= specified date) are deleted.

TO = *TODAY(...)
Deletes only those files for which the LAST-CHANGE-DATE <= current date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

TO = *YESTERDAY(...)
Deletes only those files for which the LAST-CHANGE-DATE <= date of preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

TO = <integer -99999..0>(...)
Returns information on files for which the LAST-CHANGE-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

TO = <date>(...)
Deletes only those files for which the LAST-CHANGE-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

SUPPORT = *ANY / list-poss(3): *PUBLIC-DISK / *PRIVATE-DISK / *TAPE
The user can select which files are to be deleted by the DELETE-FILE command by the type of their volumes. On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands.

SUPPORT = *ANY
The volume type is not to be used as a selection criterion.

SUPPORT = *PUBLIC-DISK
Only files on disks of the pubset or on Net-Storage volumes are deleted.

SUPPORT = *PRIVATE-DISK
Only files on private disks are to be deleted.

SUPPORT = *TAPE
Only files on tape or tape cartridge are to be deleted.

STORAGE-TYPE = *ANY / *PUBLIC-SPACE / *NET-STORAGE
The selection criterion is the assigned storage type.

STORAGE-TYPE = *ANY
The storage type is not a selection criterion.

STORAGE-TYPE = *PUBLIC-SPACE
Only files residing on disks of the pubset are deleted.

STORAGE-TYPE = *NET-STORAGE(...)
Only files residing on Net-Storage volumes are deleted.

FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
The selection criterion is the file type.

FILE-TYPE = *ANY
The file type is not a selection criterion.

FILE-TYPE = *BS2000
Only BS2000 files on Net-Storage volumes are deleted.

FILE-TYPE = *NODE-FILE
Only node files on Net-Storage volumes are deleted.

VOLUME = *ANY / <vsn 1..6>
For files on private volumes: by specifying a volume serial number (VSN) the user can limit the deletion of files by the DELETE-FILE command to those files only which are stored on this volume.

VOLUME = *ANY
The volume is not to be used as a selection criterion.

VOLUME = <vsn 1..6>
All files which are stored on the specified volume, or which have dummy entries on the volume, are to be deleted. In this case, no file name must be specified under the FILE-NAME operand.

SIZE = *ANY / *FREESIZE / <integer 0..2147483647> / *INTERVAL(...)
Only for files on disks and Net-Storage volumes: the user can select which files are to be deleted by the DELETE-FILE command according to their size, or the size of their reserved storage area (= number of PAM pages). On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands.
The value of the SIZE operand specifies the number of PAM pages: the upper and lower limits are both included in the range specified.

SIZE = *ANY
The file size is not to be used as a selection criterion.

SIZE = *FREESIZE
Only files for which storage space has been reserved but which do not yet occupy any of it (*HIGH-US-PA=0)* are to be deleted.

SIZE = <integer 0..2147483647>
Only files for which the number of PAM pages reserved is exactly equal to the number specified here are to be deleted.

SIZE = *INTERVAL(...)
Only files for which the number of pages lies within the specified range are to be deleted. The upper and lower limits are both included in the range specified (see description of SIZE=<integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit. Only files for which the number of PAM pages reserved is at least equal to the FROM value and at most equal to the TO value will be processed (FROM <= SIZE <= TO).

FROM = 0 / <integer 0..2147483647>
Only files for which the number of PAM pages reserved is at least equal to the specified number are to be deleted (SIZE >= specified value).

TO = 2147483647 / <integer 0..2147483647>
Only files for which the number of PAM pages reserved is at most equal to the specified number are to be deleted (SIZE <= specified value).

NUMBER-OF-EXTENTS = *ANY / <integer 0..65535> / *INTERVAL(...)
Only for files on disks and Net-Storage volumes: the user can select the files to be processed by DELETE-

FILE by the number of extents into which a file is “split”. An extent is a contiguous area on a disk, occupied by one file; the output field *EXTENTS* shows how many extents the file has. On deleting file generation groups and file generations see the DELETE-FILE-GROUP and DELETE-FILE-GENERATION commands.

NUMBER-OF-EXTENTS = *ANY
The number of extents is not to be used as a selection criterion.

NUMBER-OF-EXTENTS = <integer 0..65535>
Only disk files with exactly the specified number of extents (*EXTENDS* = integer) are to be deleted.

NUMBER-OF-EXTENTS = *INTERVAL(...)
Selects all the files whose number of extents lies within the specified range. The upper and lower limits are both included in the range specified. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit. Only disk files which have at least as many EXTENTS as specified by the FROM value and at most as many as given by the TO value will be processed (FROM <= *EXTENTS* <= TO).

FROM = 0 / <integer 0..65535>
Only files for which the number of extents is at least equal to the specified number are to be deleted (*EXTENTS* >= integer).

TO = 65535 / <integer 0..65535>
Only files for which the number of extents is at most equal to the specified number are to be exported (*EXTENTS* <= integer).

NUMBER-OF-FREE-PAGES = *ANY / *SIZE / <integer 0..2147483647> / INTERVAL(...)
Only for files on disks and Net-Storage volumes: the user can select the files to be processed according to their number of free PAM pages, i.e. the number of pages reserved for the file but unused.

NUMBER-OF-FREE-PAGES = *ANY
The number of free PAM pages is not to be used as a selection criterion.

NUMBER-OF-FREE-PAGES = *SIZE
Only files which actually occupy no storage space are to be deleted (i.e. no PAM page has been written yet).

NUMBER-OF-FREE-PAGES = <integer 0..2147483647>
Only files which have exactly the number of reserved but unused (=free) PAM pages specified by <integer...> are to be deleted.

NUMBER-OF-FREE-PAGES = *INTERVAL(...)
Selects all files for which the number of unused PAM pages lies within the specified range. The upper and lower limits are both included in the range specified (see description of NUMBER-OF-FREE-PAGES = <integer...>). It is also possible to specify limits using the operands FROM (lower limit) and TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit. Only disk files which have at least as many free PAM pages as specified by the FROM value and at most as many as given by the TO value will be deleted (FROM <= FREE <= TO).

FROM = 0 / <integer 0..2147483647>
Only files for which the number free PAM pages is at least equal to the specified number are to be deleted (FREE >= integer).

TO = 2147483647 / <integer 0..2147483647>
Only files for which the number free PAM pages is at most equal to the specified number are to be deleted (FREE <= integer).

HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The number of PAM pages used serves as a selection criterion here, i.e. the last page pointer points to the specified page (see also the *HIGH-US-PA* output field of the SHOW-FILE-ATTRIBUTES command).

HIGHEST-USED-PAGE = *ANY
The number of PAM pages used is not used as a selection criterion.

HIGHEST-USED-PAGE = <integer 0..2147483647>
Only the files for which the specified number of PAM pages are used (i.e. files for which the last page pointer points to the specified page) are deleted.

HIGHEST-USED-PAGE = *INTERVAL(...)
Deletes only those files which use a number of pages that falls within the specified range.

FROM = 0 / <integer 0..2147483647>
Only the files in which the number of used pages >= the specified number are deleted.

TO = 2147483647 / <integer 0..2147483647>
Only the files in which the number of used pages <= the specified number are deleted.

BLOCK-COUNTER = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The number of blocks occupied by a tape file serves as the selection criterion (see also the *BLK-COUNT* output field of the SHOW-FILE-ATTRIBUTES command).

BLOCK-COUNTER = *ANY
The number of occupied tape blocks is not to be used as a selection criterion.

BLOCK-COUNTER = <integer 0..2147483647>
Deletes only those tape files which occupy exactly the specified number of tape blocks.

BLOCK-COUNTER = *INTERVAL(...)
Deletes only those tape files for which the occupied number of tape blocks falls within the specified range.

FROM = 0 / <integer 0..2147483647>
Only the tape files for which the number of occupied tape blocks >= the specified number are deleted.

TO = 2147483647 / <integer 0..2147483647>
Only the tape files for which the number of occupied tape blocks <= the specified number are deleted.

ACCESS = *ANY / *READ / *WRITE
The specified access type will be used as a selection criterion (ACCESS value in the catalog entry.)

ACCESS = *ANY
The ACCESS value is not to be used as a selection criterion.

ACCESS = *READ
Only files for which write access is prevented by ACCESS=READ, i.e. for which only read access is permitted, will be deleted.

ACCESS = *WRITE
Only files for which write and read access are permitted will be deleted.

PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD / *EXEC-PASSWORD
The user can select files with specific password types for processing by the DELETE-FILE command.

PASSWORD = *ANY
Password protection is not to be used as a selection criterion.

PASSWORD = *NONE
Only files for which there is no password protection are to be deleted.

PASSWORD = *READ-PASSWORD
Only files which are protected by a read password are to be deleted.

PASSWORD = *WRITE-PASSWORD
Only files which are protected by a write password are to be deleted.

PASSWORD = *EXEC-PASSWORD
Only files which are protected by an execute password are to be deleted.

USER-ACCESS = *ANY / list-poss(3): *OWNER-ONLY / *ALL-USERS / *SPECIAL
The user can select files using their access authorizations as a criterion.

USER-ACCESS = *ANY
The access authorization is not to be used as a selection criterion.

USER-ACCESS = *OWNER-ONLY
Only files which the owner alone may access are to be deleted.

USER-ACCESS = *ALL-USERS
Only files which permit access to all users are to be deleted.

USER-ACCESS = *SPECIAL
Only files which can be accessed by all user IDs including the maintenance IDs (i.e. user IDs with HARDWARE-MAINTENANCE privileges) are to be deleted.

FILE-STRUCTURE = *ANY / list-poss(5): *PAM / *SAM / *ISAM / *BTAM / *NONE
The user can select files for processing according to their access method (*FILE-STRUC* output field).

FILE-STRUCTURE = *ANY
The access method is not to be used as a selection criterion.

FILE-STRUCTURE = *PAM
Only PAM files should be processed.

FILE-STRUCTURE = *SAM
Only SAM files are to be processed.

FILE-STRUCTURE = *ISAM
Only ISAM files are to be processed.

FILE-STRUCTURE = *BTAM
Only BTAM files are to be processed. BTAM files are tape files.

FILE-STRUCTURE = *NONE
Only files for which FILE-STRUCTURE=NONE, i.e. files which have not yet been opened, are to be deleted.

BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
The user can select files for deletion by their BACKUP-CLASS level.

BACKUP-CLASS = *ANY
The BACKUP-CLASS level is not to be used as a selection criterion.

BACKUP-CLASS = *A
Only the files for which the value A is entered in the catalog as the BACKUP-CLASS (most frequent backup) are deleted.

BACKUP-CLASS = *B
Only the files for which the value B is entered in the catalog as the BACKUP-CLASS are deleted.

BACKUP-CLASS = *C
Only the files for which the value C is entered in the catalog as the BACKUP-CLASS are deleted.

BACKUP-CLASS = *D
Only the files for which the value D is entered in the catalog as the BACKUP-CLASS are deleted.

BACKUP-CLASS = *E
Only the files for which the value E is entered in the catalog as the BACKUP-CLASS are deleted.

BLOCK-CONTROL-INFO = *ANY / list-poss(9): *NONE / *NO / *WITHIN-DATA-BLOCK / *WITHIN-DATA-2K-BLOCK / *WITHIN-DATA-4K-BLOCK / *PAMKEY / *NK / *NK2 / *NK4
The user can select files for deletion by their block format (*BLK-CONTR* output field).

BLOCK-CONTROL-INFO = *ANY
The BLOCK-CONTROL entry is not to be used as a selection criterion.

BLOCK-CONTROL-INFO = *NONE
Only files for which no BLK-CNTRL value has been defined, i.e. files which have not yet been opened, are to be deleted.

BLOCK-CONTROL-INFO = *NO
Only files which contain no block control field are to be deleted.

BLOCK-CONTROL-INFO = *WITHIN-DATA-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-BLOCK (i.e. files for which block control information is held in a block control field at the start and within the data block) are to be deleted.

BLOCK-CONTROL-INFO = *WITHIN-DATA-2K-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-2K-BLOCK (i.e. files for which block control information is located at the start of each 2K block) are to be deleted.

BLOCK-CONTROL-INFO = *WITHIN-DATA-4K-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-4K-BLOCK (i.e. files for which block control information is located at the start of each 4K block) are to be deleted.

BLOCK-CONTROL-INFO = *PAMKEY
Only files which use a separate PAM key for the block control field (i.e the block control information is held in a separate key field, outside the PAM block) are to be deleted.

BLOCK-CONTROL-INFO = *NK
Only the NK files are to be deleted, i.e. files which can also be stored on NK volumes (NK2 and NK4).

BLOCK-CONTROL-INFO = *NK2
Only files which can also be stored on NK2 volumes (but not NK4 volumes) are to be deleted.

BLOCK-CONTROL-INFO = *NK4
Only files which can also be stored on NK4 volumes are to be deleted.

MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
The user can specify which files are to be processed by the DELETE-FILE command by the migration entry in the catalog (see the CREATE-FILE command, MIGRATE operand).

MIGRATE = *ANY
The specified files are to be deleted, irrespective of the value in the MIGRATE operand in each of their catalog entries.

MIGRATE = *ALLOWED
Only files for which the catalog entry specifies the appropriate operand value, i.e. files which may be migrated to storage levels S1 and S2, are to be deleted.

MIGRATE = *INHIBITED
Only files for which the catalog entry specifies the appropriate operand value are to be processed, i.e. files for which a simple migration lock is declared.

MIGRATE = *FORBIDDEN
Only files for which the catalog entry specifies the appropriate operand value are to be processed, i.e. files for which an intensified migration lock is declared. The files may not even be migrated for a brief period (e.g. for reorganization purposes).

STORAGE-LEVEL = *ANY / list-poss(3): *S0 / *S1 / *S2
Only files at a specific HSMS storage level are to be deleted. Where HSMS (**H**ierarchical **S**torage **M**anagement **S**ystem) is used, there are three possible storage levels for files on shared storage media:

- The processing level, S0. This comprises all pubsets to which the user has access according to his user entry.
- The background level, S1. This comprises disks on which HSMS has stored files which have been migrated from the S0 level. When DMS requires access to them, they are fetched back to processing level S0 by HSMS.
- The archival level, S2. This is a tape archive in which HSMS stores files which have been migrated from S0 on a longer term basis. When DMS requires access to them, they are fetched back to the processing level S0, depending on the HSMS operating parameters which have been set, and the availability of tape units.

The user can select files for deletion according to the level in the storage hierarchy (STORAGE-LEVEL) at which they are held. Where HSMS (Hierarchical Storage Management System) is used, the following three storage levels are possible for files on shared storage media:

S0: implemented as fast access disk storage (for online processing); all the pubsets to which his user entry gives him access.

S1: implemented as high capacity disk storage (background level, available online). These are disks on which HSMS stores files which have been migrated from the S0 level. When DMS requires access to them, they are fetched back to processing level S0 by HSMS.

S2: implemented as a magnetic tape and tape cartridge archive (background level, available offline). Archive level S2 is a tape archive in which HSMS stores files which are to be migrated from S0 on a

longer-term basis. When DMS requires access to them, they are fetched back to the processing level S0, depending on the HSMS operating parameters which have been set, and the availability of tape units.

STORAGE-LEVEL = *ANY
The specified files are to be deleted, irrespective of the storage level at which they are being held.

STORAGE-LEVEL = *S0
Only files which are being held at level S0 are to be deleted.

STORAGE-LEVEL = *S1
Only files which are being held at level S1 are to be deleted.

STORAGE-LEVEL = *S2
Only files which are being held at level S2 are to be deleted.

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
The BASIC-ACL entry in the file catalog is used as a selection criterion.

BASIC-ACL = *ANY
The BASIC-ACL entry is not to be used as a selection criterion.

BASIC-ACL = *NONE
Only the files that have no BASIC-ACL entry in the catalog are to be deleted.

BASIC-ACL = *YES
Only the files which have a BASIC-ACL entry in the catalog are to be deleted.

BASIC-ACL = *PARAMETERS(...)
Only the files which have the specified BASIC-ACL entry in the catalog are to be deleted. NO-ACCESS means that no access rights were granted.

> Access rights specified with the OWNER, GROUP and OTHERS operands within the *PARAMETERS(...) structure are logically ORed.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner’s user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner’s user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

GUARDS = *ANY / *NO / *YES / *PARAMETERS(...)
The use of GUARDS for access control (see the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command) is used as a selection criterion.

GUARDS = *ANY
Access control with GUARDS is not to be used as a selection criterion.

GUARDS = *NO
Only the files which are not protected by GUARDS against unauthorized access are to be deleted (see also the PROTECTION-LEVEL operand).

GUARDS = *YES
Only the files which are protected by GUARDS against unauthorized access (i.e. files for which access is controlled via the GUARDS function unit) are to be deleted.

GUARDS = *PARAMETERS(...)
Deletes only those files which are protected by GUARDS against unauthorized access as specified, i.e. files for which access control is implemented using GUARDS: Access to the file is controlled by a guard, i.e. a special object which contains all the conditions under which a user is granted access authorization (e.g. date, time, user ID). The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard. Each access mode can be controlled by a separate guard. If no guard (*NONE) is defined for a given access mode, no corresponding access is permitted. If a defined guard is not accessible, the mode of access protected by it is not permitted. If the GUARDS subsystem is not available at the time of accessing the job variable, no access of any kind is allowed for the job variable.

The values specified for the following READ, WRITE and EXEC operands are logically ORed.

READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Only the files which are protected against unauthorized read access by the specified guard are deleted.

The default value *ANY means that the selection of files is not based on read protection with a guard. *NONE selects files for which no read access is permitted.

WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Only the files which are protected against unauthorized write access by the specified guard are deleted. The default value *ANY means that the selection of files is not based on a guard. *NONE selects files for which no write access is permitted. These files can be deleted with IGNORE-PROTECTION=*ACCESS.

EXEC = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Only the files which are protected against unauthorized execution by the specified guard are deleted. The default value *ANY means that the selection of files is not based on execute access protection by a guard. *NONE selects files for which no execution is permitted.

PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
The highest activated access control method (protection level) is used as a selection criterion. Only the files which have access protection at specified protection level are deleted. When the file is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 42: Hierarchy of access control methods

All other protection attributes of the file (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

PROTECTION-ACTIVE = *ANY
The access control method is not to be used as a selection criterion.

PROTECTION-ACTIVE = *LEVEL-0
Only the files for which access is controlled via standard access control are to be deleted.

PROTECTION-ACTIVE = *LEVEL-1
Only the files for which access is controlled via a basic access control list (BASIC-ACL protection) are to be deleted.

PROTECTION-ACTIVE = *LEVEL-2
Only the files for which access takes place via GUARDS are deleted.

ACCESS-COUNTER = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The access counter for the file is used as a selection criterion (see the *ACC-COUNT* output field of the SHOW-FILE-ATTRIBUTES command).

ACCESS-COUNTER = *ANY
The access counter is not to be used as a selection criterion.

ACCESS-COUNTER = <integer 0..2147483647>
Only the files for which the access counter exactly matches the specified value are selected for deletion.

ACCESS-COUNTER = *INTERVAL(...)
Deletes only the files for which the access counter lies in the specified value range which follows.

FROM = 0 / <integer 0..2147483647>
Deletes only those files for which the access counter >= the specified value.

TO = 2147483647 / <integer 0..2147483647>
Deletes only those files for which the access counter <= the specified value.

CODED-CHARACTER-SET = *ANY / *NONE / <name 1..8>
The coded character set defined in the catalog entry is used as a selection criterion (see the CREATE-FILE command; if a CCS is defined, see also the *COD-CH-SET* output field of the SHOW-FILE-ATTRIBUTES command).

CODED-CHARACTER-SET = *ANY
The defined character set is not to be used as a selection criterion.

CODED-CHARACTER-SET = *NONE
Only the files for which no coded character set was explicitly defined are selected for deletion.

CODED-CHARACTER-SET = <name 1..8>
Only the files for which the specified character set was defined are selected for deletion.

STATUS = *ANY / *PARAMETERS(...)
The current file status is used as a selection criterion.

STATUS = *ANY
The file status is not to be used as a selection criterion.

STATUS = *PARAMETERS(...)
Only the files which have the specified status are selected for deletion. The following selection criteria are possible:

> The selection criteria within the *PARAMETERS(...) structure are logically ORed.

CLOSED-OUTPUT = *ANY / *YES / *NO
Specifies whether the “file closed” status is to be used as a selection criterion.

CLOSED-OUTPUT = *YES
Only the files which have already been closed are deleted.

CLOSED-OUTPUT = *NO
Only the output files which have been opened in a program (OPEN OUTIN, INOUT or OUTPUT) and files which were not closed in an earlier system run or because a job was aborted are selected for deletion.

CACHED = *ANY / *YES / *NO
Specifies whether file processing via a cache is to be used as a selection criterion.

CACHED = *ANY
Deletes files regardless of whether or not they are cached.

CACHED = *YES
Only the currently cached files are selected for deletion.

CACHED = *NO
Only the files for which no data has been cached are deleted.

REPAIR-NEEDED = *ANY / *YES / *NO
Specifies whether files which were not closed in an earlier system run and not reconstructed with REPAIR-DISK-FILES are to be selected.

REPAIR-NEEDED = *ANY
Deletes files regardless of whether or not they need to be repaired.

REPAIR-NEEDED = *YES
Only the files which were not closed in an earlier system run and which have not yet been reconstructed are selected for deletion.

REPAIR-NEEDED = *NO
Only the files which were closed normally or reconstructed with the REPAIR-DISK-FILES command are deleted.

OPEN-ALLOWED = *ANY / *YES / *NO
Specifies whether files which could not be opened due to data inconsistency are to be selected.

OPEN-ALLOWED = *ANY
Deletes files regardless of whether or not they can be opened.

OPEN-ALLOWED = *YES
Only the files that can be opened are deleted.

OPEN-ALLOWED = *NO
Only the files which cannot be opened due to data inconsistency are deleted.

DEFECT-REPORTED = *ANY / *YES
Specifies whether files which may contain defective disk blocks are to be used as a selection criterion.

DEFECT-REPORTED = *ANY
Files are deleted irrespective of whether or not they may contain defective blocks.

DEFECT-REPORTED = *YES
Only files which may contain defective blocks are deleted.

CACHE-NOT-SAVED = *ANY / *YES
Specifies whether to select files for which updates have not been written out from the cache.

CACHE-NOT-SAVED = *ANY
Files are deleted irrespective of whether or not they contain modified data which could not be written back from the cache.

CACHE-NOT-SAVED = *YES
Only files containing modified data which could not be written back from the cache are deleted.

TYPE-OF-FILES = *ANY / list-poss(2): *FILE / *PLAM-LIBRARY
Specifies whether files are to be selected on the basis of information specific to the file type. The files to be exported can restrict to normal files or to PLAM libraries.

TYPE-OF-FILES = *ANY
Deletes files without taking their file type into account.

TYPE-OF-FILES = *FILE
Only files are deleted.

TYPE-OF-FILES = *PLAM-LIBRARY
Only PLAM libraries are deleted.

SPACE-RELEASE-LOCK = *ANY / *NO / *YES
The lock to prevent the release of unused memory space is used as a selection criterion (see the *SP-REL-LOCK* output field in the SHOW-FILE-ATTRIBUTES command).

SPACE-RELEASE-LOCK = *ANY
The permission to release unused memory space is not used as a selection criterion.

SPACE-RELEASE-LOCK = *NO
Only the files for which unused memory space may be released are selected for deletion.

SPACE-RELEASE-LOCK = *YES
Only the files for which the release of unused memory space is not permitted are selected for deletion.

IO-ATTRIBUTES = *ANY / *PARAMETERS(...)
The performance attributes defined in the catalog are used as a selection criterion.

IO-ATTRIBUTES = *ANY
The performance attributes are not to be used as a selection criterion.

IO-ATTRIBUTES = *PARAMETERS(...)
Only the files for which the specified performance attributes which follow have been entered in the catalog are selected for deletion.

PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
Deletes files with the specified performance attribute (*IO(PERF)* output field).

PERFORMANCE = *ANY
The performance attribute is not a selection criterion.

PERFORMANCE = *STD
Only the files that can be processed without any special performance requirements are deleted.

PERFORMANCE = *HIGH
Only the files which should be processed via a cache (high performance priority) are deleted.

PERFORMANCE = *VERY-HIGH
Only the files which should be processed via a cache and which should be permanently maintained in the cache if possible (highest performance priority) are selected for deletion.

USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
Only the files which have a performance attribute that applies to the specified I/O operations (*IO(USAGE)* output field) are to be deleted.

USAGE = *ANY
The type of I/O operations to which the performance attribute applies is not to be used as a selection criterion.

USAGE = *READ-WRITE
Only the files for which the performance attribute applies to read-write operations are selected for deletion.

USAGE = *WRITE
Deletes files for which the performance attribute applies to only write operations.

USAGE = *READ
Deletes files for which the performance attribute applies to only read operations.

DISK-WRITE = *ANY / *IMMEDIATE / *BY-CLOSE
The time at which data consistency is required after a write operation is used as a selection criterion (see also the *DISK-WRITE* output field in the SHOW-FILE-ATTRIBUTES command).

DISK-WRITE = *ANY
The point at which data consistency is require is not a selection criterion.

DISK-WRITE = *IMMEDIATE
Deletes files which must be in a consistent state immediately after a write operation.

DISK-WRITE = *BY-CLOSE
Deletes files for which consistency of data is required only after CLOSE processing.

FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...) / *INTERVAL(...)
The date of release for deletion (free-for-deletion date) can be used as a selection criterion for the files which are to be deleted. The selection for a specified date can be restricted to a specific period of time on the free-for-deletion date (see the TIME operands in the various structures) On deleting file generation groups and file generations see the DELETE-FILE-GROUP, and DELETE-FILE-GENERATION commands. See also the SHOW-FILE-ATTRIBUTES command, *FREE-DEL-D* and *FREE-DEL-T* output fields.

FREE-FOR-DELETION = *ANY
The free-for-deletion date is not used as a selection criterion.

FREE-FOR-DELETION = *NONE
Only deletes files for which no free-for-deletion date has yet been entered in the catalog.

FREE-FOR-DELETION = *TOMORROW(...)
Only deletes files for which the next day is entered as the free-for-deletion date in the catalog entry.

> **TIME = *ANY / *INTERVAL(...)**
> Restricts the file selection to a period relative to the date of the next day.
>
> **TIME = *INTERVAL(...)**
> Only deletes files with a free-for-deletion date which falls within the period specified next.
>
> > **FROM = 00:00:00 / <time>**
> > Selects files with a free-for-deletion date >= the specified time.
> >
> > **TO = 23:59:59 / <time>**
> > Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *TODAY(...)
Only deletes files with today’s date recorded as the free-for-deletion date in their catalog entry.

> **TIME = *ANY / *INTERVAL(...)**
> Restricts the selection to a period of time relative to today’s date.
>
> **TIME = *INTERVAL(...)**
> Only deletes files with a free-for-deletion date which falls within the period specified next.
>
> > **FROM = 00:00:00 / <time>**
> > Selects files with a free-for-deletion date >= the specified time.
> >
> > **TO = 23:59:59 / <time>**
> > Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *YESTERDAY(...)
Only deletes files with yesterday's date recorded as the free-for-deletion date in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to yesterday's date.

TIME = *INTERVAL(...)
Only deletes files with a free-for-deletion date which was changed within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *INTERVAL(...)
Only deletes files with a free-for-deletion date which falls within the specified period. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for the FREE-FOR-DELETION= <integer...> operand). It is also possible to specify only the FROM operand (lower limit) or the TO operand (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...)
Only deletes files with a free-for-deletion date >= the specified date.

FROM = *TOMORROW(...)
Only deletes files whose free-for-deletion date >= date of the next day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = *TODAY(...)
Only deletes files with a free-for-deletion date >= today's date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = *YESTERDAY(...)
Only deletes files with a free-for-deletion date >= yesterday's date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = <integer -99999..99999>(...)
Deletes only those files whose free-for-deletion date >= the specified date (in the form -n for the past or +n for the future).

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = <date>(...)
Only deletes files with a free-for-deletion date >= the specified date. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

TO = *LATEST / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...)
Only deletes files with a free-for-deletion date <= the specified date.

TO = *LATEST
There is no upper limit on the selection range based on the free-for-deletion date.

TO = *TODAY(...)
Only deletes file generations with a free-for-deletion date <= today's date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = *TOMORROW(...)
Only deletes files whose free-for-deletion date <= date of the next day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = *YESTERDAY(...)
Only deletes files with a free-for-deletion date <= yesterday's date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = <integer -99999..99999>(...)
Deletes only those files whose free-for-deletion date <= the specified date (in the form -n for the past or +n for the future).

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = <date>(...)
Only deletes files with a free-for-deletion date <= the specified date. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

STORAGE-CLASS = *ANY / *NONE / <composed-name 1..8>
The selection criterion is the assigned storage class.

STORAGE-CLASS = *ANY
The storage class is not a selection criterion.

STORAGE-CLASS = *NONE
Only deletes files with no storage class assigned to them.

STORAGE-CLASS = <composed-name 1..8>
Only deletes files with the specified storage class assigned to them.

MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
The selection criterion is the HSMS management class.

MANAGEMENT-CLASS = *ANY
The HSMS management class is not a selection criterion.

MANAGEMENT-CLASS = *NONE
Only deletes files with no HSMS management class assigned to them.

MANAGEMENT-CLASS = <composed-name 1..8>
Only deletes files with the specified HSMS management class assigned to them.

ADM-INFORMATION = *ANY / *NONE / <c-string 1..8 with-low>
The selection criterion is the information that systems support has added to the catalog.

ADM-INFORMATION = *ANY
The systems support information is not a selection criterion.

ADM-INFORMATION = *NONE
Only deletes files with no systems support information in their catalog.

ADM-INFORMATION = <c-string 1..8 with-low>
Only deletes files with the specified string as the systems support information in their catalog.

USER-INFORMATION = *ANY / *NONE / <c-string 1..8 with-low>
The selection criterion is the information that the user has added to the catalog.

USER-INFORMATION = *ANY
The user information is not a selection criterion.

USER-INFORMATION = *NONE
Only deletes files with no user information in their catalog.

USER-INFORMATION = <c-string 1..8 with-low>
Only deletes files with the specified string as the user information in their catalog.

VOLUME-SET = *ANY / <cat-id 1..4>
The selection criterion is the volume set in which the file is stored.

VOLUME-SET = *ANY
The volume set is not a selection criterion.

VOLUME-SET = <cat-id 1..4>
Only deletes files stored in the specified volume set.

AVAILABILITY = *ANY / list-poss(2): *STD / *HIGH
The selection criterion is the required availability.

AVAILABILITY = *ANY
Availability is not a selection criterion.

AVAILABILITY = *STD
Only deletes files with no high availability requirements.

AVAILABILITY = *HIGH
Only deletes files with high availability requirements.

S0-MIGRATION = *ANY / list-poss(2): *ALLOWED / *FORBIDDEN
The selection criterion is the permissibility of migration within the processing level (S0).

S0-MIGRATION = *ANY
Migration within the processing level is not a selection criterion.

S0-MIGRATION = *ALLOWED
Only deletes files for which migration to other volume sets within the processing level is allowed.

S0-MIGRATION = *FORBIDDEN
Only deletes files for which migration to other volume sets within the processing level is forbidden.

WORK-FILE = *ANY / *NO / *YES
The selection criterion is the work file attribute.

WORK-FILE = *ANY
The work file attribute is not a selection criterion.

WORK-FILE = *NO
Only deletes files which are not marked as work files.

WORK-FILE = *YES
Only deletes files which are marked as work files.

FILE-PREFORMAT = *ANY / list-poss(4): *NONE / *K / *NK2 / *NK4
The selection criterion is the preferred file format.

FILE-PREFORMAT = *ANY
The preferred file format is not a selection criterion.

FILE-PREFORMAT = *NONE
Only deletes files for which no preferred file format has been indicated.

FILE-PREFORMAT = *K
Only deletes files which are intended to be K files.

FILE-PREFORMAT = *NK2
Only deletes files which are intended to be NK files in 2K format.

FILE-PREFORMAT = *NK4
Only deletes files which are intended to be NK files in 4K format.

ENCRYPTION = *ANY / list-poss(3): *NONE / *AES / *DES
The selection criterion is the encryption method.

ENCRYPTION = *ANY
The encryption method is not a selection criterion.

ENCRYPTION = *NONE
Only unencrypted files are deleted.

ENCRYPTION = *AES
Only files which were encrypted using the AES method are deleted.

ENCRYPTION = *DES
Only files which were encrypted using the DES method are deleted.

OPTION = *ALL / *SPACE / *DATA / *DATA-KEEP-ATTRIBUTES / *DESTROY-ALL
Controls the deletion of the file.
If *DESTROY-BY-DELETE=YES* was defined in the catalog entry of the file, the file or released storage space will *definitely* be overwritten with binary zeros. If this is not the case and if OPTION=*DESTROY-ALL was also not specified, the file or released storage space will be deleted only logically, rather than being overwritten.

OPTION = *ALL
All catalog entries for the selected files are deleted.
The storage space *for files on disks and Net-Storage volumes* is also released.

OPTION = *SPACE
Only for files on pubset disks and Net-Storage volumes: The storage space for the deleted files is released and the catalog entry on Net-Storage, if existing, is deleted. The catalog entry in BS2000 is retained, although amended: it is then identical with a catalog entry created with a CREATE-FILE SUPPORT=*NONE command. For *tape files* the default value ALL applies; for *private disks* the operand SPACE will be rejected.

OPTION = *DATA
Only for files on disks and Net-Storage volumes (for tape files the default value ALL applies): the data in the selected files is “logically deleted”. After this, the user can no longer access the data, since he/she is no longer permitted to access the volume concerned physically. The catalog entry and the storage space allocation are retained.

OPTION = *DATA-KEEP-ATTRIBUTES
Only for files on disks and Net-Storage volumes (for tape files the default value ALL applies): the data of the files involved is “logically deleted” as with OPTION=*DATA, but the data related file attributes are retained. The data can no longer be addressed by the user.

OPTION = *DESTROY-ALL
Only for files on disks and Net-Storage volumes (for tape files the default value ALL applies):
the storage space for the files involved is released and the catalog entry is deleted; in addition, the storage space thus released is overwritten with binary zeros so that, if the space is allocated again, nobody can read the old data (data security). In the case of files on private disks, all the volumes on which the file was stored must be mounted at the time of deletion.
“Data destruction” when a file is deleted can also be permanently recorded in the catalog entry using the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command (DESTROY-BY-DELETE=*YES operand); a “DESTROY” flag is then set in the catalog entry (*DESTROY=YES* output field). In this case storage space is released and it will be automatically overwritten.

> Please also observe the notes in the section “Data protection by data destruction” in the “Introductory Guide to DMS” [13].

MOUNT = *FIRST-DISK / *ALL-DISK
Only for files on private disks:
specifies whether to mount all private disks containing files which are to be deleted. The user can request that only the first of the required private disks be mounted, or all of them. The MOUNT operand should be specified if the options *ALL or *DESTROY-ALL are specified. For tape files or files on public disks or Net-Storage volumes, any MOUNT specification will be ignored.

MOUNT = *FIRST-DISK
It is only necessary for the first of the private disks, containing the start of the file and its catalog entry, to be online. The associated private disks do not have to be online.

MOUNT = *ALL-DISKS
All the private disks on which parts of the file are held, must be online. If any of the disks is missing, the file will not be deleted; on completion of the DELETE-FILE processing, the spin-off mechanism will be triggered.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE / *USER-ID-CHANGE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process. A control dialog is only possible in dialog mode but, in this mode, may also be used in procedures. The only operand value that you can specify in batch mode is *STD or *NO.

The user can intervene with the following inputs:

Y: the specified file or file set will then be deleted.

N: the specified file or file set will not be deleted.

T: processing of the command will be terminated.

?: the possible responses will be listed, with an explanation of each.

In addition, the following options can be specified, separated by commas:

,CHECK = NO
The DIALOG-CONTROL mode will be changed to ‘*NO’.

,CHECK = PVS
The DIALOG-CONTROL mode will be changed to ‘*CATALOG-CHANGE’.

,CHECK = MULTIPLE
The DIALOG-CONTROL mode will be changed to ‘*MORE-THAN-ONE-FILE’.

,CHECK = SINGLESINGLE
The DIALOG-CONTROL mode will be changed to ‘*FILE-CHANGE’.

,CHECK = ERROR*
The DIALOG-CONTROL mode will be changed to ‘*ERROR’.

,IGNORE = list-poss(5): ACCESS / EXDATE / RDPASS / WRPASS / EXPASS
Specifies which protection attributes are to be ignored during deletion. The specification only applies to a single file in the control dialog. RDPASS, WRPASS and EXPASS are available to privileged users only.

,PASSWORD = list-poss(3): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>Enables password-protected files to be deleted (maximum of 3 passwords). The specification only applies to a single file in the control dialog.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
The user cannot intervene in DELETE-FILE processing; all the specified files will be deleted (without a verification dialog).

DIALOG-CONTROL = *ERROR
If deletion of the selected files proceeds without error, they will be deleted immediately, as when *NO is specified (i. e. no verification dialog). However, if a user-correctable error occurs, then a verification dialog takes place as for DIALOG-CONTROL=*FILE-CHANGE. DIALOG-CONTROL=*ERROR applies implicitly if DIALOG-CONTROL=*FILE-CHANGE is set. In the event of an error, the user may acknowledge the error message, abort DELETE-FILE processing or attempt to rectify the error. If he wishes, he can also change the DIALOG-CONTROL mode (see also the possible forms of intervention listed under the first DIALOG-CONTROL operand).

DIALOG-CONTROL = *FILE-CHANGE
For each file which is to be deleted, the user has the intervention options described under the first DIALOG-CONTROL operand. For each file which is to be processed, the user can decide interactively whether it should be deleted or not (response: YES/NO). If in the verification dialog he specifies protection attributes under “IGNORE”, or one or more passwords under “PASSWORD”, these will be taken into account for any selected file and, if satisfied, the file will be deleted without further queries (“YES” must also be specified). The user can also abort DELETE-FILE processing, or change the DIALOG-CONTROL mode.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
If exactly one file is specified, this will be deleted immediately. If the file is specified in partially qualified form, which means that more than one file is selected, or if the file name contains wildcards, the user can decide, each time the catalog ID changes, whether or not files from the new catalog are to be deleted (see the intervention options described for the first of the DIALOG-CONTROL operands). He must respond to the question issued by the system with “YES” or “NO”. DIALOG-CONTROL = *MORE-THAN-ONE-FILE is useful if wildcards are specified for “catid” in the FILE-NAME operand. In the verification dialog, DELETE-FILE processing can be terminated, or the DIALOG-CONTROL mode can be changed.

DIALOG-CONTROL = *CATALOG-CHANGE
As with DIALOG-CONTROL = *MORE-THAN-ONE-FILE, the DELETE-FILE processing routine branches to a verification dialog if files in different catalogs (PUBSETS) are affected. The user can determine whether the files in the current PUBSET should be deleted (YES/NO), DELETE-FILE processing should be terminated, or the DIALOG-CONTROL mode should be changed.

DIALOG-CONTROL = *USER-ID-CHANGE
Whenever the user ID is changed when deleting the files, a branch is made to guided dialog.

OUTPUT = *STD / *NO / *SYSOUT
The user can specify whether a message (`DMS0800`) with the name of the deleted file is to be output to SYSOUT for each successfully deleted file. The default setting *STD is equivalent to OUTPUT=*NO.

OUTPUT = *NO
No messages are output to SYSOUT for successfully deleted files.

OUTPUT = *SYSOUT
For each file that is successfully deleted, a message with the name of that file is output to SYSOUT.

IGNORE-PROTECTION = *NONE / list-poss(5): *ACCESS / *EXPIRATION-DATE / *READ-PASSWORD / *EXEC-PASSWORD
The user can specify whether any defined file protection against write access or any defined retention period is to be ignored. Systems support staff can also ignore password protection. The specification IGNORE-PROTECTION in the DELETE-FILE command thus makes it unnecessary to issue MODIFY-FILE-ATTRIBUTES commands to reset the protection attributes before the files can be deleted.

IGNORE-PROTECTION = *NONE
The protection attributes “read-only” (ACCESS=READ or no write access with BASIC-ACL or GUARDS) and “retention period” (EXPIRATION-DATE) will be observed during deletion.

IGNORE-PROTECTION = *ACCESS
Files for which write access by the owner is not allowed at the highest activated protection level can still be deleted using DELETE-FILE (see the selection criteria PROTECTION-ACTIVE, ACCESS, BASIC-ACL orGUARDS).

IGNORE-PROTECTION = *EXPIRATION-DATE
Files which are still within their retention period (*EXPIR-DATE* > current date) may be deleted using DELETE-FILE.

IGNORE-PROTECTION = *WRITE-PASSWORD
System support staff are authorized to ignore the protection attribute **write password** when deleting the file.

IGNORE-PROTECTION = *READ-PASSWORD
System support staff are authorized to ignore the protection attribute **read password** when deleting the file.

IGNORE-PROTECTION = *EXEC-PASSWORD
System support staff are authorized to ignore the protection attribute **execute password** when deleting the file.

PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
The user can specify one or more passwords, which will permit files protected by these passwords to be deleted. The passwords entered here are not recorded in the password table for the job, and are valid only for the current DELETE-FILE processing. Up to 3 passwords may be specified in the form of a list.
In order to delete a password-protected file, the password at the highest access level must be specified (see also the ADD-PASSWORD command).
The operand has the following special characteristics:

The password entered is not logged.

The input field is automatically blanked out in the guided dialog.

In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

PASSWORDS-TO-IGNORE = *NONE
No passwords are specified.

SUPPRESS-ERRORS =*NONE / list-poss(3): <alphanum-name 7..7>
In procedures the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified. DMS error code: 7 characters, of which the first three are always “DMS”; the last 4 characters identify the error; the digits 0...9 and letters A...F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.

A detailed list of valid DMS error codes can be found on the manual server (URL: *http://bs2manuals.ts.fujitsu.com*) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS05F7	File generation does not exist, but group entry is updated
2	0	DMS06D6	Error on deleting certain files Guaranteed messages: DMS0800, DMS0801, DMS06D5, DMS0666, DMS05C6, DMS05BF, DMS05C3, DMS053F
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privilege errors
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0535	Specified file not shareable
	64	DMS055C	The catalog entry could not be found on the assigned volume
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057D	File has been migrated and cannot be recalled without delay
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file

	64	DMS0640	Access to Net-Storage is rejected by the ONETSTOR subsystem because of communication problems with the net client
	64	DMS0643	Net client reports access error
	64	DMS0644	Net client reports internal error
	64	DMS0645	File does not exist on Net-Storage
	64	DMS0649	Net server reports POSIX-ACL error
	64	DMS064A	Net client reports that access to files is forbidden on the Net-Storage volume
	64	DMS064B	Access to node files not supported by the net client
	64	DMS064C	Directory of the specified user ID does not exist on Net-Server
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available

Notes

If a file held on a private disk is to be deleted, the device on which this disk is mounted will be requested for the job. After deletion of the file generation, the device will be returned to the system.

For files stored on private disks, if OPTION=*DESTROY-ALL or MOUNT=*ALL-DISK is specified then all the volumes which hold the file must be already mounted at the time the command is executed. Otherwise, only the first volume which holds the file has to be mounted. The following volumes will not be requested until the command is being executed. This rule also applies if a partially qualified file name is specified in the DELETE-FILE command, thus addressing a number of files. In this situation, it is not necessary that all the volumes for all the files are mounted simultaneously. The system will determine which of the files requires the most devices, and will request the corresponding number of devices.

Examples

Example 1: Deleting selected files; in this case, files that have names starting with 'D.' followed by one of the numbers from '1' to '8'

/show-file-attr inf=*minimum ———————————————————— (1)

```
%N NNN NW                3 :2OS2:$USER1.D.1
%N NNN NW                3 :2OS2:$USER1.D.10
%N NNN R--------         3 :2OS2:$USER1.D.2
%S NNN NW               60 :2OS2:$USER1.D.3
%N NNN NR                3 :2OS2:$USER1.D.4
%N NNN GUARDS            3 :2OS2:$USER1.D.5
%N NNN NW                3 :2OS2:$USER1.D.6
%N NYN NW                3 :2OS2:$USER1.D.7
%N NNN NW                3 :2OS2:$USER1.D.8
%N NNN NW                3 :2OS2:$USER1.D.9
%S NNN NW                6 :2OS2:$USER1.LST.ADDCMD
%S NNN NW              333 :2OS2:$USER1.LST.DOMAIN.D
%S NNN NW              333 :2OS2:$USER1.LST.DOMAIN.E
%S NNN NW               24 :2OS2:$USER1.LST.HELP
%S NNN NW               24 :2OS2:$USER1.LST.RFA.416
%S NNN NW               66 :2OS2:$USER1.LST.SDF.D.1
%S NNN NW               30 :2OS2:$USER1.LST.SDF.E
%N NNN NW                3*:2OS2:$USER1.MAX.DISK-FILE.1
%N NNN NW                3 :2OS2:$USER1.MAX.FILE.1
%N NNN RWX------         3 :2OS2:$USER1.MAX.FILE.2
%N NNN GUARDS            3 :2OS2:$USER1.MAX.FILE.3
%N NNN NW                0*:2OS2:$USER1.MAX.GROUP.1 (FGG)
%N YNN NW                0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%N NNN NW                0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%N NNN YW                  :2OS2:$USER1.MAX.TAPE-FILE.1
%I NNN NW              384 :2OS2:$USER1.SF.NEU
%I NNN NW               48 :2OS2:$USER1.SF.ROBAR
%I NNN NW              123 :2OS2:$USER1.SF.TEST.DEV.1
```

/del-file :*:d.<1:8>,dialog-control=*catalog-change ———————————————— (2)

```
%  DMS0516 DELETE FILE(S) ':2OBU:$USER1.D.<1:8>' ? REPLY (Y=YES; N=NO; T=TER
MINATE COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y  ———————————————————————— (3)
%  DMS0801 ERROR WHEN DELETING FILE ':2OBU:$USER1.D.<1:8>'
%  DMS051B REQUESTED USER ID NOT IN PUBSET 2OBU
%  DMS0516 DELETE FILE(S) ':2ORZ:$USER1.D.<1:8>' ? REPLY (Y=YES; N=NO; T=TER
MINATE COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y  ———————————————————————— (4)
%  DMS0801 ERROR WHEN DELETING FILE ':2ORZ:$USER1.D.<1:8>'
%  DMS051B REQUESTED USER ID NOT IN PUBSET 2ORZ
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.<1:8>' ? REPLY (Y=YES; N=NO; T=TER
MINATE COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)??  ———————————————————————— (5)
%  ? The user can decide, in interactive mode, whether or not to execute the
%    specified delete task.
%    (&00): partially qualified file name, or name of a file, a file generation
%           or a file generation group.
%    Y: the file, file generation or file generation group will be deleted.
%    N: the displayed file, file generation or file generation group will
%       not be deleted.
```

```
%    T: processing of the entered delete command will be terminated.
%    ?: explanations of the additional options will be displayed, followed
%       by renewed display of the task.
%       The meanings of the operands of the possible additional options are
%       analogous to those of the corresponding operands in the command and
%       may be looked up in the 'Control System Command Language' manual.
%       The following additional options may be added, separated by a comma,
%       to the response ('Y' or 'N' or 'T'):
%    ,CHECK:    update the current dialog form:
%               ,CHECK=NO or =PVS or =MULTIPLE or =SINGLE or =ERROR.
%    ,IGNORE:   redefine the protection attribute before processing the delete
%               task:
%               ,IGNORE=ACCESS or =EXDATE or ,IGNORE=(ACCESS,EXDATE).
%    ,PASSWORD: reassign the passwords before processing the delete task.
%               A maximum of 3 (hexadecimal or numeric) passwords are
%    permitted.
%               ,PASSWORD=password or =(password,...).
%  ! Enter the appropriate reply for the explanation in the 'Meaning' text.
%    If the reply is invalid or if an empty string is entered, the task
%    will not be processed.
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.<1:8>' ? REPLY (Y=YES; N=NO; T=TERM
INATE COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y,check=single  ──────────────────────── (6)
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.1' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.2' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
%  DMS0801 ERROR WHEN DELETING FILE ':2OS2:$USER1.D.2'
%  DMS0666 REQUESTED ACCESS TO FILE NOT PERMITTED DUE TO EXISTING FILE PROTEC
TION. COMMAND NOT PROCESSED  ──────────────────────────────────────────────────────── (7)
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.3' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
%  DMS0801 ERROR WHEN DELETING FILE ':2OS2:$USER1.D.3'
%  DMS05C3 FILE TO BE DELETED IS IN USE. RETRY COMMAND LATER  ──────────────────────── (8)
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.4' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
%  DMS0801 ERROR WHEN DELETING FILE ':2OS2:$USER1.D.4'
%  DMS06D5 FILE IS READ-ONLY. CHECK FILE. MODIFY ACCESS TYPE AND REENTER COMM
AND
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.4' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y,ignore=access   ──────────────────────── (9)
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.5' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
%  DMS0801 ERROR WHEN DELETING FILE ':2OS2:$USER1.D.5'  ──────────────────────────── (10)
%  DMS0666 REQUESTED ACCESS TO FILE NOT PERMITTED DUE TO EXISTING FILE PROTEC
TION. COMMAND NOT PROCESSED
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.6' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.7' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y   ──────────────────────────────────── (11)
%  DMS0801 ERROR WHEN DELETING FILE ':2OS2:$USER1.D.7'
%  DMS05BF FILE PASSWORD-PROTECTED. FIRST ENTER CORRECT PASSWORD VIA APPROPRI
ATE COMMAND, THEN REENTER COMMAND FOR DELETION
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.7' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y,password=1234   ──────────────────────── (12)
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.8' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y
```

/show-file-attr d. ——————————————————————————————— (13)

```
%        3 :2OS2:$USER1.D.10
%        3 :2OS2:$USER1.D.2
%       60 :2OS2:$USER1.D.3
%        3 :2OS2:$USER1.D.5
%        3 :2OS2:$USER1.D.9
%:2OS2: PUBLIC:      5 FILES RES=        72 FRE=       36  REL=        36 PAGES
```

/show-system-file-assignment ——————————————————————————— (14)

```
%PROCEDURE LEVEL NUMBER 0
%SYSCMD  : (PRIMARY)
%SYSDTA  : (PRIMARY)
%SYSIPT  : NOT ASSIGNED
%SYSOUT  : (PRIMARY)
%SYSLST  : :2OS2:$USER1.D.3
%SYSOPT  : (PRIMARY)
%TASKLIB : (PRIMARY)
```

(1) Lists all files of the user ID *USER1* on the default pubset *2OS2*. The most important file attributes are shown in condensed form (INFORMATION=*MINIMUM).

(2) All files that have names which begin with *D.*, end with one of the numbers from 1 to 8, and which comprise a total of 3 characters are to be deleted. In order to do this, all file catalogs that can be accessed by the user are searched (with the wildcard * in the catalog ID). In addition, an interactive prompt is to be issued for all selected files to be deleted (DIALOG-CONTROL=*CATALOG-CHANGE).

(3) (Prompt to verify whether the searched file set on pubset *2OBU* is to be deleted. The positive response that was indicated with *Y* is rejected, since no files which match the sequence of wildcards exist on the pubset.

(4) Prompt to verify whether the searched file set on pubset *2ORZ* is to be deleted. The positive response that was indicated with *Y* is rejected, since no files which match the sequence of wildcards exist on the pubset.

(5) Prompt to verify whether the searched file set on pubset *2OS2* is to be deleted. The *?* is used to request an explanation for the various responses that can be made.

(6) The response to the prompt to verify whether the searched file set on pubset *2OS2* is to be deleted is *Y*. In addition, the dialog control mode is set to *CHECK=SINGLE*, which means that a prompt is to be displayed for each file that is found.

(7) The file *D.2* cannot be deleted, since it is protected by a BASIC-ACL and the user (OWNER) has no write authorization, see item (1).

(8) The file *D.3* cannot be deleted because it is still open, see item (14).

(9) The file *D.4* is protected against write access using ACCESS=READ. The response to the second prompt for the file is *Y,IGNORE=ACCESS*, so the file can now be deleted.

(10) The file *D.5* cannot be deleted because it is protected using GUARDS and because the user has no write authorization (see example 2).

(11) The file *D.7* cannot be deleted, since it is protected against write access by a password and the user has not yet entered the password into his password table.

(12) When the second prompt appears, the required password is also specified. This allows the file to be deleted; however, the specified password is not entered into the password table of the task. The only possible way to do that is by using the ADD-PASSWORD command.

(13) Output of all file names beginning with *D.*

(14) Output of the system files along with their assignments: The file *D.3* is assigned to the system file SYSDTA and could not be deleted as a result (see item 8).

Example 2: Deleting files which are protected against write access by means of a BASIC-ACL or GUARDS

/show-file-attr d.<2,5>,inf=(security=*yes) ——————————————————————— (1)

```
%0000000003 :2OS2:$USER1.D.2
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  OWNER      = R - -       GROUP      = - - -       OTHERS     = - - -
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%0000000003 :2OS2:$USER1.D.5
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  GUARD-READ = $USER1.OWN-PROT
%  GUARD-WRIT = NONE
%  GUARD-EXEC = NONE
%:2OS2: PUBLIC:      2 FILES RES=         6 FRE=         3 REL=         3 PAGES
```

/delete-file d.<2,5>,dialog-control=*file-change,ignore-protection=*access ——— (2)

```
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.2' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y     ————————————————————————————   (3)
%  DMS0516 DELETE FILE(S) ':2OS2:$USER1.D.5' ? REPLY (Y=YES; N=NO; T=TERMINAT
E COMMAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y     ————————————————————————————   (4)
```

/show-file-attr d.<2,5> ——— (5)

```
% DMS06CC NO FILE CORRESPONDING TO SPECIFIED OPERANDS
```

(1) Shows the protection attributes of the files *D.2* and *D.5*. Access control for the file *D.2* is implemented by a BASIC-ACL. The user (OWNER) has no write authorization, i.e. cannot delete the file without a change in the protection attributes. Access control for the file *D.5* is implemented using GUARDS. Since no guard has been defined for write access, no write access is granted to any user, i.e. the user cannot delete his or her file unless the protection attributes are changed.

(2) The two files are to be deleted by ignoring any access protection that may have been defined (with ACCESS, BASIC-ACL or GUARDS). The deletion of each file is to be verified by means of a prompt.

(3) On confirmation of the prompt with *Y*, the file *D.2* is deleted.

(4) On confirmation of the prompt with *Y*, the file *D.5* is deleted.

(5) The file catalog now contains no information on these files.

Example 3: Selecting files using wildcards in the file name

```
/show-file-attr <lst,max>. ──────────────────────────────────────────────── (1)
```

```
%        6 :2OS2:$USER1.LST.ADDCMD
%        3 :2OS2:$USER1.LST.BSP.2
%      333 :2OS2:$USER1.LST.DOMAIN.D
%      333 :2OS2:$USER1.LST.DOMAIN.E
%       24 :2OS2:$USER1.LST.HELP
%       24 :2OS2:$USER1.LST.RFA.416
%       66 :2OS2:$USER1.LST.SDF.D.1
%       30 :2OS2:$USER1.LST.SDF.E
%        3*:2OS2:$USER1.MAX.DISK-FILE.1
%        3 :2OS2:$USER1.MAX.FILE.1
%        3 :2OS2:$USER1.MAX.FILE.2
%        3 :2OS2:$USER1.MAX.FILE.3
%        0*:2OS2:$USER1.MAX.GROUP.1 (FGG)
%        0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%        0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%          :2OS2:$USER1.MAX.TAPE-FILE.1
%:2OS2: PUBLIC:     13 FILES RES=       828 FRE=        26 REL=        18 PAGES
%:2OS2: PRDISC:      2 FILES RES=         3 FRE=         3 REL=         0 PAGES
%:2OS2: TAPE  :      1 FILE
```

```
/delete-file ///.file.2,dialog-control=*file-change ──────────────────────── (2)
/show-file-attr ///.file. ──────────────────────────────────────────────── (3)
```

```
%         3 :2OS2:$USER1.MAX.FILE.1
%         3 :2OS2:$USER1.MAX.FILE.3
%:2OS2: PUBLIC:      2 FILES RES=         6 FRE=         6 REL=         6 PAGES
```

(1) Shows all files for which the first partial name is *MAX* or *LST*.

(2) Selects files for deletion if their first partial name consists of exactly three characters and if the file name ends in *FILE.2*.

(3) Only one file was selected, i.e. the file *MAX.FILE.2*. Since this was the only file available for selection, it was deleted without confirmation.

3.3 DELETE-FILE-GENERATION

Delete file generations from file generation group

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

With the DELETE-FILE-GENERATION command, a user can delete file generations which are cataloged under his own user ID, and selected according to criteria which must be specified in the command. Specific deletion operations allow the user to release storage space. The user is assisted in doing this by a guided dialog. The operands of the DELETE-FILE-GENERATION command can be divided into four groups, which correspond to the different functional levels of the command (see "Overview of functions" in section "DELETE-FILE-GENERATION").

Selection

Using the selection parameters, the user specifies which files generations/ catalog entries are to be processed. The attributes stored in the group entries are used as selection criteria. For this purpose, some operands in the DELETE-FILE-GENERATION command correspond with those of the SHOW-FILE-ATTRIBUTES command.

File protection

File protection parameters make it unnecessary for the user to input a MODIFY-FILE-GROUP-ATTRIBUTES or ADD-PASSWORD command in order to delete files for which file protection attributes such as passwords, retention period, etc. are defined.

Action parameters

Action parameters control the internal execution of the DELETE-FILE-GENERATION command. The user can, on the one hand, determine the scope of the deletions, and on the other hand, can define conditions for deletion.

Control parameters

Control parameters permit the user to define his own user interface, within certain limits. For example, he can use interactive prompts in the dialog or can request a SYSOUT log, or have DMS errors ignored (for the spin-off mechanism or SDF-P error handling).

Privileged functions

The privileged functions for system support staff include specification of any user ID, the ability to ignore protection attributes of the file generations being deleted and, in the case of a user ID change, to branch to guided dialog.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can therefore delete file generations under any user ID). When SECOS is used, this co-ownership can be restricted.

In conjunction with the SECOS software product, a user can allow other user IDs to act as co-owners of the file generation groups of his user ID. Co-owners of a user ID are also allowed to delete file generations under that ID.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
The name of the file generation which is to be deleted	GENERATION-NAME =	
File generation to be deleted, specified in relative form	DELETE =	
Criteria for selection of the file generations to be deleted	SELECT = *BY-ATTRIBUTES(...)	
Date specification		
• Expiration date (implicit retention period) ○ Time		EXPIRATION-DATE =
• Date when file is freed for deletion ○ Time		FREE-FOR-DELETION =
Storage space		
• Type of volume		SUPPORT =
• Public disk or private disk • Private disk		=*ANY =*PRIVATE-DISK
File security/file protection		
• Access		ACCESS =
• Shareability		USER-ACCESS =
• Basic access control list		BASIC-ACL =
• Password protection		GUARDS =

• Access control using GUARDS		PASSWORD =
• protection against release of storage space		SPACE-RELEASE-LOCK =
• Code table (CCS)		CODED-CHARACTER-SET =
• BACKUP level		BACKUP-CLASS =
• Ability to migrate from processing level (S0) to background level (S1 or S2) when the HSMS software product is in use		MIGRATE =
• HSMS management class (MANAGEMENT-CLASS operand)		MANAGEMENT-CLASS =
• Work file attribute		WORK-FILE-GROUP =
Deletion parameters	OPTION	
• Delete the catalog entry and release storage space	OPTION = *ALL	
• Release storage space only, retain catalog entry	OPTION = *SPACE	
• Logical deletion: delete the data-related attributes of the file, change the catalog entry accordingly, retain the storage space allocation	OPTION = *DATA	
• Logical deletion as with *DATA, but the data-related attributes of the file are retained	OPTION = *DATA-KEEP-ATTRIBUTES	
• Delete the catalog entry, release the storage space and overwrite its contents	OPTION = *DESTROY-ALL	
Mount request	MOUNT =	
Control parameters	DIALOG-CONTROL	

• User intervention not permitted (default setting for procedures and batch mode)	DIALOG-CONTROL = *NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	DIALOG-CONTROL = *MORE-THAN-ONE-FILE	
• Dialog when an error occurs	DIALOG-CONTROL = *ERROR	
• Dialog when catalog ID changes	DIALOG-CONTROL = *CATALOG-CHANGE	
• For each file selected, there will be an interactive dialog with the user to determine whether the current command should be processed	DIALOG-CONTROL = *FILE-CHANGE	
• Dialog when user ID changes	DIALOG-CONTROL = *USER-ID-CHANGE	
Message for successfully deleted files	OUTPUT =	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	
Ignore protection attributes	IGNORE-PROTECTION =	
• Ignore write protection provided by ACCESS=READ	=*ACCESS	
• Ignore retention periods	=*EXPIRATION-DATE	
• Ignore password protection	=*WRITE-PASSWORD / *READ-PASSWORD	
Ignore password protection provided by specified passwords	PASSWORDS-TO-IGNORE =	
Suppress error situations	SUPPRESS-ERRORS =	

Table 43: Overview of DELETE-FILE-GENERATION command functions

Format

DELETE-**FILE-GEN**ERATION Alias: **DLFGN**

GENERATION-**NAME** = ***DUMMY** / <filename 1..54 without-vers with-wild(80)>

,**DEL**ETE = ***GEN**ERATIONS-**BEF**ORE / ***GEN**ERATIONS-**AF**TER

,**SEL**ECT = ***ALL** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| **EXPIR**ATION-DATE = ***ANY** / ***NONE** / ***TOMORROW**(...) / ***TODAY**(...) / ***YESTERDAY**(...) /

| <integer -99999..991231>(...) / <date>(...) / ***INTERVAL**(...)

| ***TOMORROW**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| ***TODAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| ***YESTERDAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| <integer -99999..991231>(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| <date>(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

```
|          |          [*INTERVAL](...)
|          |               |    FROM = 00:00:00 / <time>
|          |               |    ,TO = 23:59:59 / <time>
|      *INTERVAL(...)
|          |    FROM = *EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|          |                                        <integer -99999..991231>(...) / <date>(...)
|          |          *TOMORROW(...)
|          |               |    TIME = 00:00:00 / <time>
|          |          *TODAY(...)
|          |               |    TIME = 00:00:00 / <time>
|          |          *YESTERDAY(...)
|          |               |    TIME = 00:00:00 / <time>
|          |          <integer -99999..991231>(...)
|          |               |    TIME = 00:00:00 / <time>
|          |          <date>(...)
|          |               |    TIME = 00:00:00 / <time>
|          |    ,TO = *LATEST / TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|          |               <integer -99999..991231>(...) / <date>(...) / *ANY
|          |          *TODAY(...)
|          |               |    TIME = 23:59:59 / <time>
|          |          *TOMORROW(...)
|          |               |    TIME = 23:59:59 / <time>
|          |          *YESTERDAY(...)
|          |               |    TIME = 23:59:59 / <time>
|          |          <integer -99999..991231>(...)
|          |               |    TIME = 23:59:59 / <time>
|          |          <date>(...)
|          |               |    TIME = 23:59:59 / <time>
|    ,SUPPORT = *ANY / *PRIVATE-DISK
|    ,ACCESS = *ANY / *READ / *WRITE
|    ,PASSWORD = *ANY / list-poss(3): *NONE / *READ-PASSWORD / *WRITE-PASSWORD
```

```
|  ,USER-ACCESS = *ANY / list-poss(2): *OWNER-ONLY / *ALL-USERS
|  ,BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
|  ,MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
|  ,CODED-CHARACTER-SET = *ANY / *NONE / <name 1..8>
|  ,SPACE-RELEASE-LOCK = *ANY / *NO / *YES
|  ,BASIC-ACL = *ANY / *NONE / *YES / [*PARAMETERS](...)
|     [*PARAMETERS](...)
|        |  OWNER = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|        |     [*PARAMETERS](...)
|        |        |  READ = *ANY / *NO / *YES
|        |        |  ,WRITE = *ANY / *NO / *YES
|        |  ,GROUP = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|        |     [*PARAMETERS](...)
|        |        |  READ = *ANY / *NO / *YES
|        |        |  ,WRITE = *ANY / *NO / *YES
|        |  ,OTHERS = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|        |     [*PARAMETERS](...)
|        |        |  READ = *ANY / *NO / *YES
|        |        |  ,WRITE = *ANY / *NO / *YES
|  ,GUARDS = *ANY / *YES / *NO / [*PARAMETERS](...)
|     [*PARAMETERS](...)
|        |  READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|        |  ,WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|  ,MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
|  ,FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|                                      <integer -99999..99999>(...) / <date>(...) / *INTERVAL(...)
|     *TOMORROW(...)
|        |  TIME = *ANY / *INTERVAL(...)
|        |     *INTERVAL(...)
|        |        |  FROM = 00:00:00 / <time>
|        |        |  ,TO = 23:59:59 / <time>
```

```
|       *TODAY(...)
|           |   TIME = *ANY / *INTERVAL(...)
|           |       *INTERVAL(...)
|           |           |   FROM = 00:00:00 / <time>
|           |           |   ,TO = 23:59:59 / <time>
|       *YESTERDAY(...)
|           |   TIME = *ANY / *INTERVAL(...)
|           |       *INTERVAL(...)
|           |           |   FROM = 00:00:00 / <time>
|           |           |   ,TO = 23:59:59 / <time>
|       <integer -99999..99999>(...)
|           |   TIME = *ANY / *INTERVAL(...)
|           |       *INTERVAL(...)
|           |           |   FROM = 00:00:00 / <time>
|           |           |   ,TO = 23:59:59 / <time>
|       <date>(...)
|           |   TIME = *ANY / *INTERVAL(...)
|           |       *INTERVAL(...)
|           |           |   FROM = 00:00:00 / <time>
|           |           |   ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |   FROM = *EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|           |                                   <integer -99999..99999>(...) / <date>(...)
|           |       *TOMORROW(...)
|           |           |   TIME = 00:00:00 / <time>
|           |       *TODAY(...)
|           |           |   TIME = 00:00:00 / <time>
|           |       *YESTERDAY(...)
|           |           |   TIME = 00:00:00 / <time>
|           |       <integer -99999..99999>(...)
|           |           |   TIME = 00:00:00 / <time>
```

```
        |           |       <date>(...)
        |           |           |    TIME = 00:00:00 / <time>
        |           |   ,TO = *LATEST / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
        |           |           <integer -99999..99999>(...) / <date>(...)
        |           |       *TODAY(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |       *TOMORROW(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |       *YESTERDAY(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |       <integer -99999..99999>(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |         <date>(...)
        |           |           |    TIME = 23:59:59 / <time>
        |   ,WORK-FILE-GROUP = *ANY / *NO / *YES
,OPTION = *ALL / *SPACE / *DATA / *DATA-KEEP-ATTRIBUTES / *DESTROY-ALL
,MOUNT = *FIRST-DISK / *ALL-DISKS
,DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE /
                  *CATALOG-CHANGE / *USER-ID-CHANGE
,OUTPUT = *STD / *NO / *SYSOUT
,IGNORE-PROTECTION = *NONE / list-poss(4): *ACCESS / *EXPIRATION-DATE / *WRITE-PASSWORD /
                     *READ-PASSWORD
,PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> /
                       <integer -2147483648..2147483647>
,SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
```

Operands

GENERATION-NAME = *DUMMY / <filename 1..54 without-vers with-wild(80)>
The name of a reference generation, from which or up to which the files are to be deleted (see the DELETE operand). Only the user's own user ID or a user ID for which the user is co-owner may be specified.

GENERATION-NAME = *DUMMY
Designates the dummy generation *DUMMY, which "always exists", and which satisfies all selection criteria. Any other operands (except for DIALOG-CONTROL, OUTPUT, and SUPPRESS-ERRORS) will be checked for their formal correctness, but otherwise ignored. The main use of *DUMMY is in testing procedures.

DELETE = *GENERATIONS-BEFORE / GENERATIONS-AFTER
Specifies which file generations are to be deleted: all those whose number is less than the reference generation, or all those whose number is greater than it.

SELECT = *ALL
All the files in the set specified by GENERATION-NAME are selected.

SELECT = *BY-ATTRIBUTES(...)
Restricts the files in the set specified in GENERATION-NAME to files which satisfy the criteria which follow. The default values, *ANY and ANY, each indicates that the set of file generations is not to be restricted to any particular values for the attribute concerned.

EXPIRATION-DATE = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
The user can select the file generation to be deleted on the basis of the expiration date. A retention period exists if the expiration date is greater than the current date. The selection can be restricted for a specified date to a time interval in which the last file update occurred (see the TIME operand for each structure). Note that at present the time 00:00:00 is always entered in the file catalog as the time of the expiration date. See also the *EXPIR-DATE* and *EXPIR-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

EXPIRATION-DATE = *ANY
The expiration date is not to be used as a selection criterion.

EXPIRATION-DATE = *NONE
Only the file generations for which no release date (NONE) has been entered as the EXPIRATION-DATE in the group entry will be deleted, i.e. file generations which have never been opened.

EXPIRATION-DATE = *TOMORROW(...)
Only those file generations which have tomorrow's date entered as the EXPIRATION-DATE in their group entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those file generations whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects file generations for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects file generations for which the time of expiration <= the specified time.

EXPIRATION-DATE = *TODAY(...)
Only those file generations which have today's date entered as the EXPIRATION-DATE in their group entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those file generations whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects file generations for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects file generations for which the time of expiration <= the specified time.

EXPIRATION-DATE = *YESTERDAY(...)
Only those file generations which have yesterday's date entered as the EXPIRATION-DATE in their group entry are deleted.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those file generations whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects file generations for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects file generations for which the time of expiration <= the specified time.

EXPIRATION-DATE = <integer -99999..991231>(...)
Only those file generations which have the specified date entered as the EXPIRATIONDATE in their group entry are deleted. Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value*: (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = INTERVAL(...)
Deletes only those file generations whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects file generations for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects file generations for which the time of expiration <= the specified time.

EXPIRATION-DATE = <date>(...)
Only those file generations which have the specified date entered as the EXPIRATION-DATE in their group entry are deleted. The user can specify the expiration date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes only those file generations whose expiration date lies within the specified time interval that follows.

FROM = 00:00:00 / <time>
Selects file generations for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects file generations for which the time of expiration <= the specified time.

EXPIRATION-DATE = *INTERVAL(...)
Only file generations whose release date lies within the specified time period, i.e. whose retention period ends within the specified time period, will be deleted. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for EXPIRATION-DATE = <integer...>. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for deletion can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
If EARLIEST is specified, the system will use the earliest possible date. Only those file generations for which the retention period expires on or after the specified date (EXPIRATION-DATE >= specified date) are deleted.

FROM = *TOMORROW(...)
Deletes only those file generations for which the EXPIRATION-DATE >= date of next day.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *TODAY(...)
Deletes only those file generations for which the EXPIRATION-DATE >= current date.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE after the specified

time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *YESTERDAY(...)
Deletes only those file generations for which the EXPIRATION-DATE >= date of preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <integer -99999..991231>(...)
Deletes only those file generations for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <date>(...)
Deletes only those file generations for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *LATEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Only those file generations for which the retention period expires on or before the specified date (EXPIRATION-DATE <= specified date) will be deleted.

TO = *TOMORROW(...)
Deletes only those file generations for which the EXPIRATION-DATE <= date of next day.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *TODAY(...)
Deletes only those file generations for which the EXPIRATION-DATE <= current date.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *YESTERDAY(...)
Deletes only those file generations for which the EXPIRATION-DATE <= date of preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <integer -99999..991231>(...)
Deletes only those file generations for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <date>(...)
Deletes only those file generations for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

SUPPORT = *ANY / *PRIVATE-DISK
The user can select which file generations are to be deleted by the type of their volumes.

SUPPORT = *ANY
The volume type is not to be used as a selection criterion.

SUPPORT = *PRIVATE-DISK
Only file generations on private disks are to be deleted.

ACCESS = *ANY / *READ / *WRITE
The specified access type will be used as a selection criterion (ACCESS value in the group entry.)

ACCESS = ANY
The ACCESS value is not to be used as a selection criterion.

ACCESS = *READ
Only file generations for which write access is prevented by ACCESS=READ, i.e. for which only read access is permitted, will be deleted.

PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD / *EXEC-PASSWORD
The user can select file generations by specific password types for processing.

PASSWORD = *ANY
Password protection is not to be used as a selection criterion.

PASSWORD = *NONE
Only file generations for which there is no password protection are to be deleted.

PASSWORD = *READ-PASSWORD
Only file generations which are protected by a read password are to be deleted.

PASSWORD = *WRITE-PASSWORD
Only file generations which are protected by a write password are to be deleted.

USER-ACCESS = *ANY / list-poss(2): *OWNER-ONLY / *ALL-USERS
The user can select file generations using their access authorizations as a criterion.

USER-ACCESS = *ANY
The access authorization is not to be used as a selection criterion.

USER-ACCESS = *OWNER-ONLY
Only file generations which the owner alone may access are to be deleted.

USER-ACCESS = *ALL-USERS
Only file generations which permit access to all users are to be deleted.

BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
The user can select file generations for deletion by their BACKUP-CLASS level.

BACKUP-CLASS = *ANY
The BACKUP-CLASS level is not to be used as a selection criterion.

BACKUP-CLASS = *A
Only file generations for which the group entry contains the value BACKUP=A (most frequent backup) are to be processed.

BACKUP-CLASS = *B
Only file generations for which the group entry contains the value BACKUP=B are to be processed.

BACKUP-CLASS = *C
Only file generations for which the group entry contains the value BACKUP=C are to be processed.

BACKUP-CLASS = *E
Only file generations for which the group entry contains the value BACKUP=E are to be processed.

MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
The user can select which file generations are to be processed by the migration entry for the group (see the CREATE-FILE-GROUP command, MIGRATE operand).

MIGRATE = *ANY
The specified file generations are to be deleted, irrespective of the value in the MIGRATE operand in each of their group entries.

MIGRATE = *ALLOWED
Only file generations for which the group entry specifies the appropriate operand value, i.e. file generations which may be migrated to storage levels S1 and S2, are to be deleted.

MIGRATE = *INHIBITED
Only file generations for which the group entry specifies the appropriate operand value are to be processed, i. e. file generations which may not be migrated.

MIGRATE = *FORBIDDEN
Only file generations for which the catalog entry specifies the appropriate operand value are to be processed, i. e. file generations for which an intensified migration lock is declared. The file generations may not even be migrated for a brief period (e.g. for reorganization purposes).

CODED-CHARACTER-SET = *ANY / *NONE / <name 1..8>
The coded character set defined in the group entry is used as a selection criterion (see the CREATE-FILE command for an explanation; if a CCS is defined, see also the *COD-CH-SET* output field of the SHOW-FILE-ATTRIBUTES command).

CODED-CHARACTER-SET = *ANY
The defined character set is not to be used as a selection criterion.

CODED-CHARACTER-SET = *NONE
Only the file generations for which no coded character set was explicitly defined are selected for deletion.

CODED-CHARACTER-SET = <name 1..8>
Only the files for which the specified character set was defined are selected for deletion.

SPACE-RELEASE-LOCK = *ANY / *NO / *YES
The lock to prevent the release of unused memory space is used as a selection criterion (see the *SP-REL-LOCK* output field in the SHOW-FILE-ATTRIBUTES command).

SPACE-RELEASE-LOCK = *ANY
The permission to release unused memory space is not used as a selection criterion.

SPACE-RELEASE-LOCK = *NO
Only the file generations for which unused memory space may be released are selected for deletion.

SPACE-RELEASE-LOCK = *YES
Only the file generations for which the release of unused memory space is not permitted are selected for deletion.

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
The BASIC-ACL entry in the file catalog is used as a selection criterion.

BASIC-ACL = *ANY
The BASIC-ACL entry is not to be used as a selection criterion.

BASIC-ACL = *NONE
Only the file generations that have no BASIC-ACL entry in the catalog are to be deleted.

BASIC-ACL = *YES
Only the file generations which have a BASIC-ACL entry in the catalog are to be deleted.

BASIC-ACL = *PARAMETERS(...)
Only the file generations which have the specified BASIC-ACL entry in the catalog are to be deleted. NO-ACCESS means that no access rights were granted.

> Access rights specified with the OWNER, GROUP and OTHERS operands within the *PARAMETERS(...) structure are logically ORed.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner's user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner's user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

GUARDS = *ANY / *NO / *YES / *PARAMETERS(...)
The use of GUARDS for access control (see the CREATE-FILE-GROUP or MODIFY-FILE-GROUP-ATTRIBUTES command) is used as a selection criterion.

GUARDS = *ANY
Access control with GUARDS is not to be used as a selection criterion.

GUARDS = *NO
Only the file generations which are not protected by GUARDS against unauthorized access are to be deleted (see also the PROTECTION-LEVEL operand).

GUARDS = *YES
Only the file generations which are protected by GUARDS against unauthorized access (i.e. files for which access is controlled via the GUARDS function unit) are to be deleted.

GUARDS = *PARAMETERS(...)
Deletes only those file generations which are protected by GUARDS against unauthorized access as specified, i.e. files for which access control is implemented using GUARDS: Access to the file generation is controlled by a guard, i.e. a special object which contains all the conditions under which a user is granted access authorization (e.g. date, time, user ID). The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard.
Each access mode can be controlled by a separate guard. If no guard (*NONE) is defined for a given access mode, no corresponding access is permitted. If a defined guard is not accessible, the mode of access protected by it is not permitted. If the GUARDS subsystem is not available at the time of accessing the job variable, no access of any kind is allowed for the job variable.

i The values specified for the following READ and WRITE operands are logically ORed.

READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Only the file generations which are protected against unauthorized read access by the specified guard are deleted. The default value *ANY means that the selection of file generations is not based on read access protection by a guard. *NONE selects file generations for which no read access is permitted.

WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Only the file generations which are protected against unauthorized write access by the specified guard are deleted. The default value *ANY means that the selection of file generations is not based on write access protection by a guard. *NONE selects file generations for which no write access is permitted. These file generations can be deleted with IGNORE-PROTECTION=*ACCESS.

MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
The selection criterion is the HSMS management class.

MANAGEMENT-CLASS = *ANY
The HSMS management class is not a selection criterion.

MANAGEMENT-CLASS = *NONE
Only deletes file generations with no HSMS management class assigned to them.

MANAGEMENT-CLASS = <composed-name 1..8>
Only deletes file generations with the specified HSMS management class assigned to them.

FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...) / *INTERVAL(...)
The date of release of deletion (free-for-deletion date) can be used as a selection criterion for the file generations which are to be deleted. The selection for a specified date can be restricted to a specific period of time on the free-for-deletion date (see the TIME operands in the various structures) See also the SHOW-FILE-ATTRIBUTES command, *FREE-DEL-D,* and *FREE-DEL-T* output fields.

FREE-FOR-DELETION = *ANY
The free-for-deletion date is not used as a selection criterion.

FREE-FOR-DELETION = *NONE
Only deletes file generations for which no free-for-deletion date has yet been entered in the catalog.

FREE-FOR-DELETION = *TOMORROW(...)
Only deletes file generations for which the next day is entered as the free-for-deletion date in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the file selection to a period relative to the date of the next day.

TIME = *INTERVAL(...)
Only deletes file generations with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *TODAY(...)
Only deletes file generations with today’s date recorded as free-for-deletion date in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to today’s date.

TIME = *INTERVAL(...)
Only deletes file generations with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects file generations with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects file generations with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *YESTERDAY(...)
Only deletes file generations with yesterday’s date recorded as free-for-deletion date in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to yesterday's date.

TIME = *INTERVAL(...)
Only deletes file generations with a free-for-deletion date which was changed within the period specified next.

FROM = 00:00:00 / <time>
Selects file generations with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects file generations with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = <integer -99999..99999>(...)
Only deletes file generations with the specified free-for-deletion date recorded in their catalog entry. The free-for-deletion date is specified relative to today's date (in the form -n for the past or +n for the future).

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to the specified date.

TIME = *INTERVAL(...)
Only deletes file generations with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects file generations with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects file generations with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = <date>(...)
Only deletes file generations with exactly the specified date recorded as free-for-deletion date in their catalog entry. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >=

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to the specified date.

TIME = *INTERVAL(...)
Only deletes file generations with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects file generations with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects file generations with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *INTERVAL(...)
Only deletes file generations with a free-for-deletion date which falls within the specified period. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for the FREE-FOR-DELETION= <integer...> operand). It is also possible to specify only the FROM operand (lower limit) or the TO operand (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...)
Only deletes file generations with a free-for-deletion date >= the specified date.

FROM = *TOMORROW(...)
Only deletes file generations whose free-for-deletion date >= date of the next day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = *TODAY(...)
Only deletes file generations with a free-for-deletion date >= today's date.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have a free-for-deletion date after the specified time are deleted.

FROM = *YESTERDAY(...)
Only deletes file generations with a free-for-deletion date >= yesterday's date.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have a free-for-deletion date after the specified time are deleted.

FROM = <integer -99999..99999>(...)
Deletes only those file generations whose free-for-deletion date >= the specified date (in the form -n for the past or +n for the future).

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have a free-for-deletion date after the specified time are deleted.

FROM = <date>(...)
Only deletes file generations with a free-for-deletion date >= the specified date. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

TIME = 00:00:00 / <time>
Time on the specified date. All file generations that have a free-for-deletion date after the specified time are deleted.

TO = *LATEST / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...)
Only deletes file generations with a free-for-deletion date <= the specified date.

TO = *LATEST
There is no upper limit on the selection range based on the free-for-deletion date.

TO = *TODAY(...)
Only deletes file generations with a free-for-deletion date <= today's date.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have a free-for-deletion date before the specified time are deleted.

TO = *TOMORROW(...)
Only deletes file generations whose free-for-deletion date <= date of the next day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = *YESTERDAY(...)
Only deletes file generations with a free-for-deletion date <= yesterday's date.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have a free-for-deletion date before the specified time are deleted.

TO = <integer -99999..99999>(...)
Deletes only those file generations whose free-for-deletion date <= the specified date (in the form -n for the past or +n for the future).

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have a free-for-deletion date before the specified time are deleted.

TO = <date>(...)
Only deletes file generations with a free-for-deletion date <= the specified date. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

TIME = 23:59:59 / <time>
Time on the specified date. All file generations that have a free-for-deletion date before the specified time are deleted.

WORK-FILE-GROUP = *ANY / *NO / *YES
The selection criterion is the work file attribute.

WORK-FILE-GROUP = *ANY
The work file attribute is not a selection criterion.

WORK-FILE-GROUP = *NO
Only deletes file generations which are not marked as work files.

WORK-FILE-GROUP = *YES
Only deletes file generations which are marked as work files.

OPTION = *ALL / *SPACE / *DATA / *DATA-KEEP-ATTRIBUTES / *DESTROY-ALL
Controls the deletion of the file.
If `DESTROY-BY-DELETE=YES` was defined in the catalog entry of the file, the file or released storage space will *definitely* be overwritten with binary zeros. If this is not the case and if OPTION=DESTROY-ALL was also not specified, the file or released storage space will be deleted only logically, rather than being overwritten.

OPTION = *ALL
The default setting for disk files.
The catalog entries for the selected file generations are to be deleted and their storage space will also be released.

OPTION = *SPACE
Only for file generations on public disks (for tape files the default setting ALL applies): the storage space for the file generations deleted by DELETE-FILE-GENERATION is released, but the catalog entry is retained, although

amended: it is then identical with a catalog entry created by a CREATE-FILE-GENERATION command and SUPPORT=*NONE.

For private disks, the SPACE operand will be rejected.

OPTION = *DATA
Only for disk files (for tape files the default value ALL applies): The data in the selected files is “logically deleted”. After this, the user can no longer access the data, since he is no longer permitted to physically access the volume concerned. The group entry and storage space allocation still exist. The catalog entry is identical to that for a file generation which was created using CREATE-FILE-GENERATION but which has not yet been opened (*FILE-STRUC=NONE*, *CRE-DATE=NONE*).

OPTION = *DATA-KEEP-ATTRIBUTES
Only for disk files (the default ALL applies for tape files):
The data of the file generations involved is “logically deleted” as with OPTION=*DATA, but the data-related file attributes are retained. The data can no longer be addressed by the user.

OPTION = *DESTROY-ALL
Only for disk files (for tape files the default value ALL applies):
the storage space for the affected file generations is released and the group entry is deleted; in addition, the storage space thus released is overwritten with binary zeros so that, if the space is allocated again, nobody can read the old data (data protection). In the case of files on private disks, all the volumes on which the file was stored must be mounted at the time of deletion.
When a file is deleted, the action parameters are evaluated first. See the EXPORT-FILE command for details of exporting file generations. “Data destruction” when a file is deleted can also be permanently recorded in the group entry for the file using the command

CREATE-FILE-GROUP; in the group entry a “DESTROY” indicator is then set (DESTROY=YES). In this case storage space is released and it will be automatically overwritten.

> ¡ Please also observe the notes in the section “Data protection by data destruction” in the “Introductory Guide to DMS” [13].

MOUNT = *FIRST-DISK / *ALL-DISKS
Only for files on private disks:
Specifies whether or not to mount all the private disks which hold any part of the file which is to be deleted.
The user can request that only the first of the required private disks be mounted, or all of them. The MOUNT operand should be specified if the operands ALL or DESTROY-ALL are specified. For tape files or files on public disks, any MOUNT specification will be ignored.

MOUNT = *FIRST-DISK
It is only necessary for the first of the private disks, containing the start of the file generation and its group entry, to be online. The associated private disks do not have to be online.

MOUNT = *ALL-DISKS
All the private disks on which parts of the file are held, must be online. If any of the disks is missing, the file generation will not be deleted; on completion of the DELETE-FILE-GENERATION processing, the spin-off mechanism will be triggered.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE / *USER-ID-CHANGE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process. The verification dialog mechanism is available only in interactive mode, though that does include procedures. The only operand value that you can specify in batch mode is *STD or *NO.

The user can intervene with the following inputs:

- Y: the specified file or file set will then be deleted.
- N: the specified file or file set will not be deleted.
- T: processing of the command will be terminated.
- ?: the possible responses will be listed, with an explanation of each.

In addition, the following options can be specified, separated by commas:

- ,CHECK = NO The DIALOG-CONTROL mode will be changed to '*NO'.
- ,CHECK = PVS The DIALOG-CONTROL mode will be changed to '*CATALOG-CHANGE'.
- ,CHECK = MULTIPLE The DIALOG-CONTROL mode will be changed to '*MORE-THAN-ONE-FILE'.
- ,CHECK = SINGLE The DIALOG-CONTROL mode will be changed to '*FILE-CHANGE'.
  - ,CHECK = ERROR The DIALOG-CONTROL mode will be changed to '*ERROR'.
  - ,IGNORE = list-poss(4): ACCESS / EXDATE / RDPASS / WRPASS Specifies which protection attributes are to be ignored during deletion. Only applies to a verification dialog for a single file. RDPASS and WRPASS are available to privileged users only.
  - ,PASSWORD = list-poss(3): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> Enables password-protected files to be deleted (maximum of 3 passwords). Only applies to a verification dialog for a single file.

DIALOG-CONTROL = *STD
The default value *STD corresponds to *MORE-THAN-ONE-FILE in interactive mode (SYSCMD is allocated to the terminal), and in procedures or in batch mode it corresponds to *NO.

DIALOG-CONTROL = *NO
The user cannot intervene in DELETE-FILE-GENERATION processing; all the specified file generations will be deleted (without a verification dialog).

DIALOG-CONTROL = *ERROR
If deletion of the selected file generations proceeds without error, they will be deleted immediately, as when NO is specified (i.e. no verification dialog). However, if a user-correctable error occurs, then a verification dialog takes place as for DIALOG-CONTROL = *FILE-CHANGE. DIALOG-CONTROL = *ERROR applies implicitly if DIALOG-CONTROL = *FILE-CHANGE is set. In the event of an error, the user may acknowledge the error message, abort DELETE-FILE-GENERATION processing or attempt to rectify the error. If he wishes, he can also change the DIALOG-CONTROL mode.

DIALOG-CONTROL = *FILE-CHANGE
For each file generation which is to be deleted, the user has the intervention options described under the first DIALOG-CONTROL operand. For each file generation which is to be processed, the user can decide in a dialog whether it should be deleted or not (response: YES/NO). If in the dialog he specifies protection attributes under "IGNORE", or one or more passwords under "PASSWORD", these will be taken into account for any selected file generation and, if satisfied, the file generation will be deleted without further queries ("YES" must also be specified). The user can also abort DELETE-FILE-GENERATION processing, or change the DIALOG-CONTROL mode.
The file generations which have been deleted will be listed in alphanumeric order.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
If exactly one file generation is specified, this will be deleted immediately. If GENERATION-NAME is partially qualified, which means that more than one file generation is selected, or if GENERATION-NAME contains

wildcards, the user can decide, each time the catalog ID changes, whether or not file generations from the new catalog are to be deleted (see the intervention options described for the first of the DIALOG-CONTROL operands). He must respond to the question issued by the system with “YES” or “NO”. DIALOG-CONTROL =*MORE-THAN-ONE-FILE is useful if wildcards are specified for “catid” in the GENERATION-NAME operand. In the dialog, DELETE-FILE-GENERATION processing can be terminated, or the DIALOG-CONTROL mode can be changed.

DIALOG-CONTROL = *CATALOG-CHANGE
As for DIALOG-CONTROL = *MORE-THAN-ONE-FILE, the system starts a dialog if file generations in different catalogs (pubsets) are affected by DELETE-FILE-GENERATION processing. The user can determine whether the file generations in the current pubset should be deleted (YES/NO), DELETE-FILE-GENERATION processing should be terminated, or the DIALOG-CONTROL mode should be changed.

DIALOG-CONTROL = *USER-ID-CHANGE
Whenever the user ID is changed when deleting the file generations, a branch is made to guided dialog.

OUTPUT = *STD / *NO / *SYSOUT
The user can specify whether a message (`DMS0800`) with the name of the deleted file generation is to be output to SYSOUT for each successful deletion. The default setting *STD is equivalent to OUTPUT=*NO.

OUTPUT = *NO
No messages are output to SYSOUT for successfully deleted file generations.

OUTPUT = *SYSOUT
For each file generation that is successfully deleted, a message with the name of that file generation is output to SYSOUT.

IGNORE-PROTECTION = *NONE / list-poss(4): *ACCESS / *EXPIRATION-DATE / *WRITE-PASSWORD / *READ-PASSWORD
The user can specify whether any defined protection against write access or any defined retention period is to be ignored. Systems support staff can also ignore password protection. The specification IGNORE-PROTECTION in the DELETE-FILE-GENERATION command thus makes it unnecessary to issue MODIFY-FILE-GENERATION-ATTRIBUTES commands to reset the protection attributes before the file generations can be deleted.

IGNORE-PROTECTION = *NONE
The protection attributes “read-only” (ACCESS=READ) and “retention period” (EXPIRATION-DATE) will be observed during deletion.

IGNORE-PROTECTION = *ACCESS
File generations for which protection against writing is defined by ACCESS=READ can still be deleted using DELETE-FILE-GENERATION.

IGNORE-PROTECTION = EXPIRATION-DATE
File generations which are still within their retention period (EXDATE > current date) may nevertheless be deleted using DELETE-FILE-GENERATION.

IGNORE-PROTECTION = *WRITE-PASSWORD
System support staff are authorized to ignore the protection attribute **write password** when deleting the file generation.

IGNORE-PROTECTION = *READ-PASSWORD
System support staff are authorized to ignore the protection attribute **read password** when deleting the file generation.

PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
The user can specify one or more passwords, which will permit files protected by these passwords to be deleted. The passwords entered here are not recorded into the password table for the job, and are valid only for the current DELETE-FILE-GENERATION processing. Up to 3 passwords may be specified in the form of a list.
In order to delete a password-protected file, the password at the highest access level must be specified (see the ADD-PASSWORD command).
The operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

PASSWORDS-TO-IGNORE = *NONE
No passwords are specified.

SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
In procedures the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified.
DMS error code: 7 characters, of which the first three are always “DMS”; the last 4 characters identify the error; the digits 0..9 and letters A..F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.
A detailed list of valid DMS error codes can be found on the manual server (URL: *http://bs2manuals.ts.fujitsu.com*) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS05F7	File generation does not exist, but group entry is updated
2	0	DMS06D6	Error on deleting certain files Guaranteed messages: DMS0800, DMS0801, DMS06D5, DMS0666, DMS05C6,DMS05BF, DMS05C3, DMS053F
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	Specified file not shareable
	64	DMS055C	Catalog entry not found on specified private disk
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057D	File has been migrated and cannot be recalled without delay
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	Access to system file not permitted
	64	DMS06FF	BCAM connection severed

	130	DMS0524	System address space full
	130	DMS0582	File is currently locked or in use and cannot be processed

Notes

- If it is necessary to delete a file generation which is held on a private disk, then the device on which this disk is mounted will be requested for the job. After deletion of the file generation, the device will be returned to the system.
- For file generations stored on private disks, if DESTROY-ALL or MOUNT=*ALL-DISK is specified then all the volumes which hold the file generation must be already mounted at the time the command is executed. Otherwise, only the first volume which holds the file generation has to be mounted. The following volumes will not be requested until the command is being executed.

  This rule also applies if a partially qualified file generation name is specified in the DELETE-FILE-GENERATION command, thus addressing a number of files. In this situation, it is not necessary that all the volumes for all the file generations are mounted simultaneously. The system will determine which of the file generations requires the most devices, and will request the corresponding number of devices.

Example

```
/show-file-attr max.group.4,select=(generation=*yes) ————————————————————  (1)
```

```
%         0 :2OS2:$USER1.MAX.GROUP.4 (FGG)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0001)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0002)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0003)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0004)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0005)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0006)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0007)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0008)
%:2OS2: PUBLIC:      9 FILES RES=        24 FRE=        24 REL=        24 PAGES
```

```
/del-file-gen gen-name=max.group.4(*2),delete=*generation-before,output=*sysout
```

```
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0001)' DELETED————————————(2)
```

```
/del-file-gen gen-name=max.group.4(*6),delete=*generation-after,output=*sysout
```

```
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0008)' DELETED————————————(3)
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0007)' DELETED
```

```
/del-file-gen gen-name=max.group.4(*2) ——————————————————————————————————————— (4)
```

```
%  CMD0051 INVALID OPERAND 'DELETE'
%  CMD0099 MANDATORY OPERAND INVALID OR MISSING————————————————————————————(5)
```

```
/show-file-attr max.group.4,select=(generation=*yes) ————————————————————  (6)
```

```
%         0 :2OS2:$USER1.MAX.GROUP.4 (FGG)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0002)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0003)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0004)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0005)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0006)
%:2OS2: PUBLIC:      6 FILES RES=        15 FRE=        15 REL=        15 PAGES
```

(1) The SHOW-FILE-ATTRIBUTES command returns information on the file generation group `MAX.GROUP` and all associated generations.

(2) The DELETE-FILE-GENERATION command is used to delete all generations that were created prior to generation *0002. The message sent to SYSOUT indicates that generation *0001 was deleted (see the operand OUTPUT=*SYSOUT).

(3) The DELETE-FILE-GENERATION command is used to delete all generations that were created after generation *0006. The message sent to SYSOUT indicates that generations *0007 and *0008 were deleted (see the operand OUTPUT=*SYSOUT).

(4) The DELETE-FILE-GENERATION command is issued for generation *0002 without a specification for the DELETE operand.

(5) The above command is rejected, since the DELETE operand is mandatory. The DELETE-FILE-GENERATION command is used to delete generations that were created before or after the specified generation.

(6) The SHOW-FILE-INFORMATION command returns information on the current catalog entries for the file generation group and for its existing generations.

3.4 DELETE-FILE-GROUP

Delete file generation group and generations

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

With the DELETE-FILE-GROUP command, a user can delete file generation groups, and their associated file generations, which are cataloged under his own user ID, and selected according to criteria which must be specified in the command. If the specified file is neither a file generation group nor a file generation, it will still be deleted. Specific deletion operations allow the user to release storage space. The user is assisted in doing this by a guided dialog. The operands of the DELETE-FILE-GROUP command can be divided into four groups, which correspond to the different functional levels of the command (see "Overview of functions" in section "DELETE-FILE-GROUP").

Selection

Using the selection parameters, the user specifies which file generation groups/catalog entries are to be processed. The attributes stored in the catalog entries are used as selection criteria. For this purpose, some of the operands in the DELETE-FILE-GROUP command correspond with those of the SHOW-FILE-ATTRIBUTES command.

File protection

File protection parameters make it unnecessary for the user to input a MODIFY-FILE-GROUP-ATTRIBUTES or ADD-PASSWORD command in order to delete files for which file protection attributes such as passwords, retention period, etc. are defined.

Action parameters

Action parameters control the internal execution of the DELETE-FILE-GROUP command. The user can, on the one hand, determine the scope of the deletions, and on the other hand can define conditions for deletion.

Control parameters

Control parameters permit the user to define his own user interface, within certain limits. For example, he can use interactive prompts in the dialog, or can request a SYSOUT log, or have DMS errors ignored (for the spin-off mechanism or SDF-P error handling).

Privileged functions

The privileged functions for system support staff include specification of any user ID, the ability to ignore protection attributes of the file generations being deleted and, in the case of a user ID change, to branch to guided dialog.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, delete file generation groups under any user ID). When SECOS is used, this co-ownership can be restricted.

In conjunction with the SECOS software product, a user can allow other user IDs to act as co-owners of the file generation groups of his user ID. Co-owners of a user ID are then also allowed to delete file generation groups.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
The name of the file generation group to be deleted	GROUP-NAME =	
Criteria for selection of the file generations to be deleted	SELECT = *BY-ATTRIBUTES(...)	
Date specification		
• Expiration date (implicit retention period) • Time		EXPIRATION-DATE TIME
• Date when file is freed for deletion • Time		FREE-FOR-DELETION TIME
Storage space		
• Type of volume		SUPPORT
• Public disk or private disk • Private disk		=*ANY =*PRIVATE-DISK
• File security/file protection		
• Access		ACCESS
• Shareability		USER-ACCESS
• Basic access control list		BASIC-ACL
• Password protection		PASSWORD

• Access control using GUARDS		GUARDS
• Protection against release of storage space		SPACE-RELEASE-LOCK
• Code table (CCS)		CODED-CHARACTER-SET
• BACKUP level		BACKUP-CLASS
• Ability to migrate from processing level (S0) to background level (S1 or S2) when the HSMS software product is in use		MIGRATE
• HSMS management class		MANAGEMENT-CLASS
• Work file attribute		WORK-FILE-GROUP
Deletion parameters	OPTION =	
• Delete the catalog entry and release storage space	=*ALL	
• Release storage space only, retain catalog entry	=*SPACE	
• Logical deletion: delete the data-related attributes of the file, change the catalog entry accordingly, retain the storage space allocation	=*DATA	
• Logical deletion as with *DATA, but the data-related attributes of the file are retained	=*DATA-KEEP-ATTRIBUTES	
• Delete the catalog entry, release the storage space and overwrite its contents	=*DESTROY-ALL	

Mount request	MOUNT =	
Control parameters	DIALOG-CONTROL =	
• User intervention not permitted (default setting for procedures and batch mode)	=*NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	=*MORE-THAN-ONE-FILE	
• Dialog when an error occurs	=*ERROR	
• Dialog when catalog ID changes	=*CATALOG-CHANGE	
• For each file selected, there will be an interactive dialog with the user to determine whether the current command should be processed	=*FILE-CHANGE	
• Dialog when user ID changes	=*USER-ID-CHANGE	
Message for successfully deleted files	OUTPUT =	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	
Ignore protection attributes	IGNORE-PROTECTION =	
• Ignore write protection provided by ACCESS=READ	=*ACCESS	
• Ignore retention periods	=*EXPIRATION-DATE	
• Ignore password protection	=*WRITE-PASSWORD / *READ-PASSWORD	
Ignore password protection provided by specified passwords	PASSWORDS-TO-IGNORE =	
Suppress error situations	SUPPRESS-ERRORS =	

Table 44: Overview of DELETE-FILE-GROUP command functions

Format

DELETE-**FILE-GR**OUP Alias: **DLFGP**

GROUP-**NAME** = ***DUMMY** / <filename 1..54 without-gen-vers with-wild(80)> /

,**SEL**ECT = ***ALL** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| **EXPIR**ATION-DATE = ***ANY** / ***NONE** / ***TOMORROW**(...) / ***TODAY**(...) / ***YESTERDAY**(...) /

| <integer -99999..991231>(...) / <date>(...) / ***INTERVAL**(...)

| ***TOMORROW**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| ***TODAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| ***YESTERDAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| <integer -99999..991231>(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| <date>(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

```
|           |           |    FROM = 00:00:00 / <time>
|           |           |    ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |   FROM = *EARLIEST / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|           |                                <integer -99999..991231>(...) / <date>(...)
|           |       *TOMORROW(...)
|           |           |       TIME = 00:00:00 / <time>
|           |       *TODAY(...)
|           |           |       TIME = 00:00:00 / <time>
|           |       *YESTERDAY(...)
|           |           |       TIME = 00:00:00 / <time>
|           |       <integer -99999..991231>(...)
|           |           |       TIME = 00:00:00 / <time>
|           |       <date>(...)
|           |           |       TIME = 00:00:00 / <time>
|           |   ,TO = *LATEST / TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|           |                   <integer -99999..991231>(...) / <date>(...) / *ANY
|           |       *TODAY(...)
|           |           |       TIME = 23:59:59 / <time>
|           |       *TOMORROW(...)
|           |           |       TIME = 23:59:59 / <time>
|           |       *YESTERDAY(...)
|           |           |       TIME = 23:59:59 / <time>
|           |       <integer -99999..991231>(...)
|           |           |       TIME = 23:59:59 / <time>
|           |       <date>(...)
|           |           |       TIME = 23:59:59 / <time>
|   ,SUPPORT = *ANY / *PRIVATE-DISK
|   ,ACCESS = *ANY / *READ / *WRITE
|   ,PASSWORD = *ANY / list-poss(3): *NONE / *READ-PASSWORD / *WRITE-PASSWORD
|   ,USER-ACCESS = *ANY / list-poss(2): *OWNER-ONLY / *ALL-USERS
```

```
|  ,BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
|  ,MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
|  ,CODED-CHARACTER-SET = *ANY / *NONE / <name 1..8>
|  ,SPACE-RELEASE-LOCK = *ANY / *NO / *YES
|  ,BASIC-ACL = *ANY / *NONE / *YES / [*PARAMETERS](...)
|     [*PARAMETERS](...)
|        |  OWNER = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|        |     [*PARAMETERS](...)
|        |        |  READ = *ANY / *NO / *YES
|        |        |  ,WRITE = *ANY / *NO / *YES
|        |  ,GROUP = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|        |     [*PARAMETERS](...)
|        |        |  READ = *ANY / *NO / *YES
|        |        |  ,WRITE = *ANY / *NO / *YES
|        |  ,OTHERS = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|        |     [*PARAMETERS](...)
|        |        |  READ = *ANY / *NO / *YES
|        |        |  ,WRITE = *ANY / *NO / *YES
|  ,GUARDS = *ANY / *YES / *NO / [*PARAMETERS](...)
|     [*PARAMETERS](...)
|        |  READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|        |  ,WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|  ,MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
|  ,FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|                       <integer -99999..99999>(...) / <date>(...) / *INTERVAL(...)
|     *TOMORROW(...)
|        |  TIME = *ANY / *INTERVAL(...)
|        |     *INTERVAL(...)
|        |        |  FROM = 00:00:00 / <time>
|        |        |  ,TO = 23:59:59 / <time>
|     *TODAY(...)
```

| | **TIME** = **<u>*ANY</u>** / ***INTERVAL**(...)
| | ***INTERVAL**(...)
| | | **FROM** = **<u>00:00:00</u>** / <time>
| | | ,**TO** = **<u>23:59:59</u>** / <time>
| ***YESTERDAY**(...)
| | **TIME** = **<u>*ANY</u>** / ***INTERVAL**(...)
| | ***INTERVAL**(...)
| | | **FROM** = **<u>00:00:00</u>** / <time>
| | | ,**TO** = **<u>23:59:59</u>** / <time>
| <integer -99999..99999>(...)
| | **TIME** = **<u>*ANY</u>** / ***INTERVAL**(...)
| | ***INTERVAL**(...)
| | | **FROM** = **<u>00:00:00</u>** / <time>
| | | ,**TO** = **<u>23:59:59</u>** / <time>
| <date>(...)
| | **TIME** = **<u>*ANY</u>** / ***INTERVAL**(...)
| | ***INTERVAL**(...)
| | | **FROM** = **<u>00:00:00</u>** / <time>
| | | ,**TO** = **<u>23:59:59</u>** / <time>
| ***INTERVAL**(...)
| | **FROM** = **<u>*EARL</u>** <u>lEST</u> / ***TOMORROW**(...) / ***TODAY**(...) / ***YESTERDAY**(...) /
| | <integer -99999..99999>(...) / <date>(...)
| | ***TOMORROW**(...)
| | | **TIME** = **<u>00:00:00</u>** / <time>
| | ***TODAY**(...)
| | | **TIME** = **<u>00:00:00</u>** / <time>
| | ***YESTERDAY**(...)
| | | **TIME** = **<u>00:00:00</u>** / <time>
| | <integer -99999..99999>(...)
| | | **TIME** = **<u>00:00:00</u>** / <time>
| | <date>(...)

```
        |           |           |    TIME = 00:00:00 / <time>
        |           |  ,TO = *LATEST / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
        |           |                <integer -99999..99999>(...) / <date>(...)
        |           |      *TODAY(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |      *TOMORROW(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |      *YESTERDAY(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |      <integer -99999..99999>(...)
        |           |           |    TIME = 23:59:59 / <time>
        |           |      <date>(...)
        |           |           |    TIME = 23:59:59 / <time>
        |  ,WORK-FILE-GROUP = *ANY / *NO / *YES
,OPTION = *ALL / *SPACE / *DATA / *DATA-KEEP-ATTRIBUTES / *DESTROY-ALL
,MOUNT = *FIRST-DISK / *ALL-DISKS
,DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE /
                  *CATALOG-CHANGE / *USER-ID-CHANGE
,OUTPUT = *STD / *NO / *SYSOUT
,IGNORE-PROTECTION = *NONE / list-poss(4): *ACCESS / *EXPIRATION-DATE / *WRITE-PASSWORD /
                     *READ-PASSWORD
,PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> /
                       <integer -2147483648..2147483647>
,SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
```

Operands

GROUP-NAME = *DUMMY / <filename 1..54 without-gen-vers with-wild(80)>
The name of the file generation group (FGG) which is to be deleted. If the specified file is not a file generation group (and also not a file generation), then it will still be deleted. Only the user's own user ID or a user ID for which the user is co-owner may be specified.

GROUP-NAME = *DUMMY
Designates the dummy file generation group *DUMMY, which "always exists", and which satisfies all selection criteria. Any other operands (except for DIALOG-CONTROL, OUTPUT, and SUPPRESS-ERRORS) will be checked for their formal correctness, but otherwise ignored. If *DUMMY is specified, no catalog or data access is necessary. The main use of *DUMMY is in testing procedures.

SELECT = *ALL
All the files in the set specified by GROUP-NAME are selected.

SELECT = *BY-ATTRIBUTES(...)
Restricts the files in the set specified by GROUP-NAME to FGGs for which the fields in the group entry satisfy the criteria which follow. The default values, *ANY and ANY, each indicate that the file set is not to be restricted to any particular values for the attribute concerned.

For descriptions of the selection criteria see the DELETE-FILE-GENERATION command, which is used to delete file generations only.

OPTION = *ALL / *SPACE / *DATA / DATA-KEEP-ATTRIBUTES / *DESTROY-ALL
Controls the deletion of the file.
If `DESTROY-BY-DELETE=YES` was defined in the catalog entry of the file, the file or released storage space will *definitely* be overwritten with binary zeros. If this is not the case and if OPTION=DESTROY-ALL was also not specified, the file or released storage space will be deleted only logically, rather than being overwritten.

OPTION = *ALL
The default setting for disk files.
The group entry and the catalog entries for the selected file generations are to be deleted and their storage space will also be released.

OPTION = *SPACE
*Only for file generations on public disks (for tape files the default value *ALL applies):*
The storage space for the file generations deleted by DELETE-FILE-GROUP is released, but the catalog entry is retained, although amended: it is then identical with a catalog entry created by a CREATE-FILE-GROUP command. *For private disks,* the SPACE operand will be rejected.

OPTION = *DATA
*Only for disk files (for tape files the default value *ALL applies):*
The data in the selected files is "logically deleted". After this, the user can no longer access the data, since he is no longer permitted to physically access the volume concerned. The group entry and storage space allocation still exist. The catalog entries for the file generation are identical to those for a file generation which was created using CREATE-FILE-GENERATION but which has not yet been opened (*FILE-STRUC=NONE*, *CRE-DATE=NONE*).

OPTION = *DATA-KEEP-ATTRIBUTES
*Only for disk files (for tape files the default value *ALL applies):*
The data of the file generations involved is "logically deleted" as with OPTION=*DATA, but the data-related file attributes are retained. The data can no longer be addressed by the user.

OPTION = *DESTROY-ALL
Only for disk files (for tape files the default value ALL applies): The storage space for the affected file generations is released and the group entry is deleted and the catalog entries of the file generation are deleted; in addition, the storage space thus released is overwritten with binary zeros so that, if the space is allocated again, nobody can read the old data (data protection). In the case of files on private disks, all the volumes on which the file was stored must be mounted at the time of deletion.
When a file is deleted, the action parameters are evaluated first. See the command EXPORT-FILE for details of exportation of file generations. “Data destruction” when a file is deleted can also be permanently recorded in the group entry for the file using the command CREATE-FILE-GROUP; in the group entry a “DESTROY” indicator is then set (DESTROY=YES). In this case storage space is released and it will be automatically overwritten.

> ¡ Please also observe the notes in the section “Data protection by data destruction” in the “Introductory Guide to DMS” [13].

MOUNT = *FIRST-DISK / *ALL-DISKS
Only for files on private disks: Specifies whether to mount all the private disks which hold any part of the file which is to be deleted. The user can request that only the first of the required private disks be mounted, or all of them. The MOUNT operand should be specified if the operands ALL or DESTROY-ALL are specified. For tape files or files on public disks, any MOUNT specification will be ignored.

MOUNT = *FIRST-DISK
It is only necessary for the first of the private disks, containing the start of the file generation and its group entry, to be online. The associated private disks do not have to be online.

MOUNT = *ALL-DISKS
All the private disks on which parts of the file are held must be online. If any of the disks are missing, the file will not be deleted; on completion of the DELETE-FILE-GROUP processing, the spin-off mechanism will be triggered.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE / *USER-ID-CHANGE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process. The verification dialog mechanism is available only in interactive mode, though that does include procedures. The only operand value that you can specify in batch mode is *STD or *NO.

The user can intervene with the following inputs:

- Y: the specified file or file set will then be deleted.
- N: the specified file or file set will not be deleted.
- T: processing of the command will be terminated.
- ?: the possible responses will be listed, with an explanation of each.

In addition, the following options can be specified, separated by commas:

- ,CHECK = NO The DIALOG-CONTROL mode will be changed to ‘*NO’.
- ,CHECK = PVS The DIALOG-CONTROL mode will be changed to ‘*CATALOG-CHANGE’.
- ,CHECK = MULTIPLE The DIALOG-CONTROL mode will be changed to ‘*MORE-THAN-ONE-FILE’.
- ,CHECK = SINGLE The DIALOG-CONTROL mode will be changed to ‘*FILE-CHANGE’.
- ,CHECK = ERROR The DIALOG-CONTROL mode will be changed to ‘*ERROR’.

- ,IGNORE = list-poss(4): ACCESS / EXDATE / RDPASS/ WRPASS Specifies which protection attributes are to be ignored during deletion. Only applies to a verification dialog for a single file generation group. RDPASS and WRPASS are available to privileged users only.
- ,PASSWORD = list-poss(3): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> Enables password-protected files to be deleted (maximum of 3 passwords). Only applies to a verification dialog for a single file generation group.

DIALOG-CONTROL = *STD
The default value *STD corresponds to *MORE-THAN-ONE-FILE in interactive mode (SYSCMD is allocated to the terminal), and in procedures or in batch mode it corresponds to *NO.

DIALOG-CONTROL = *NO
The user cannot intervene in DELETE-FILE-GROUP processing; all the specified file generation groups will be deleted (without a verification dialog).

DIALOG-CONTROL = *ERROR
If deletion of the selected file generation groups proceeds without error, they will be deleted immediately, as when *NO is specified (i.e. no verification dialog). However, if a user-correctable error occurs, then a verification dialog takes place as for DIALOG-CONTROL = *FILE-CHANGE. DIALOG-CONTROL = *ERROR applies implicitly if DIALOG-CONTROL = *FILE-CHANGE is set. In the event of an error, the user may acknowledge the error message, abort processing of DELETE-FILE-GROUP or attempt to rectify the error. If he wishes, he can also change the DIALOG-CONTROL mode.

DIALOG-CONTROL = *FILE-CHANGE
For each file generation group which is to be deleted, the user has the intervention options described under the first DIALOG-CONTROL operand. For each file generation group which is to be processed, the user can decide in a verification dialog whether it should be deleted or not (response: YES/NO). If in the dialog he specifies protection attributes under “IGNORE”, or one or more passwords under “PASSWORD”, these will be taken into account for any selected file generation group and, if satisfied, the file generation group will be deleted without further queries (“YES” must also be specified). The user can also abort DELETE-FILE-GROUP processing, or change the DIALOG-CONTROL mode.
The file generations which have been deleted will be listed in alphanumeric order.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
If exactly one file generation group is specified, this will be deleted immediately. If GROUP-NAME is partially qualified, which means that more than one group is selected, or if GROUP-NAME contains wildcards, the user can decide, each time the catalog ID changes, whether the file generation groups from the new catalog are to be deleted (see also the intervention options described under the first DIALOG-CONTROL operand). He must respond to the question issued by the system with “YES” or “NO”. DIALOG-CONTROL = *MORE-THAN-ONE-FILE is useful if wildcards are specified for the catalog ID in the GROUP-NAME. In the dialog, DELETE-FILE-GROUP processing can be terminated, or the DIALOG-CONTROL mode can be changed.

DIALOG-CONTROL = *CATALOG-CHANGE
As for DIALOG-CONTROL = *MORE-THAN-ONE-FILE, the system starts a dialog if file generation groups in different catalogs (pubsets) are affected by the DELETE-FILE-GROUP processing. The user can determine whether the file generation groups in the current pubset should be deleted (YES/NO), DELETE-FILE-GROUP processing should be terminated, or the DIALOG-CONTROL mode should be changed.

DIALOG-CONTROL = *USER-ID-CHANGE
Each time the user ID changes during the deletion of the file generation group, the system branches into the guided dialog.

OUTPUT = *STD / *NO / *SYSOUT
The user can specify whether a message (DMS0800) with the name of the deleted file generation group is to be output to SYSOUT for each successful deletion. The default setting *STD is equivalent to OUTPUT=*NO.

OUTPUT = *NO
No messages are output to SYSOUT for successfully deleted file generation groups.

OUTPUT = *SYSOUT
For each file generation group that is successfully deleted, a message with the name of that file generation group is output to SYSOUT.

IGNORE-PROTECTION = *NONE / list-poss(4): *ACCESS / *EXPIRATION-DATE / *WRITE-PASSWORD / *READ-PASSWORD
The user can specify whether any defined protection against write access or any defined retention period is to be ignored. Systems support staff can also ignore password protection. The specification of IGNORE-PROTECTION in the DELETE-FILE-GROUP command thus makes it unnecessary to issue MODIFY-FILE-GROUP-ATTRIBUTES commands to reset the protection attributes before the files can be deleted.

IGNORE-PROTECTION = *NONE
The protection attributes “read-only” (ACCESS=READ) and “retention period” (EXPIRATION-DATE) will be observed during deletion.

IGNORE-PROTECTION = *ACCESS
File generation groups for which protection against writing is defined by ACCESS=READ can still be deleted using DELETE-FILE-GROUP.

IGNORE-PROTECTION = *EXPIRATION-DATE
File generation groups which are still within their retention period (EXDATE > current date) may nevertheless be deleted using DELETE-FILE-GROUP.

IGNORE-PROTECTION = *WRITE-PASSWORD
Systems support staff are authorized to ignore the protection attribute **write password** when deleting the file generation group.

IGNORE-PROTECTION = *READ-PASSWORD
System support staff are authorized to ignore the protection attribute **read password** when deleting the file generation group.

PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
The user can specify one or more passwords, which will permit file generation groups protected by these passwords to be deleted. The passwords entered here are not recorded into the password table for the job and are valid only for the current DELETE-FILE-GROUP processing. Up to 3 passwords may be specified in the form of a list. In order to delete a password-protected file generation group, the password at the highest access level must be specified (see the ADD-PASSWORD command).
The operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password .
- The password entered is not logged.

PASSWORDS-TO-IGNORE = *NONE
No passwords are specified.

SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
In procedures the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified.

DMS error code: 7 characters, of which the first three are always “DMS”; the last
4 characters identify the error; the digits 0...9 and letters A..F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.

A detailed list of valid DMS error codes can be found on the manual server (URL: *http://bs2manuals.ts.fujitsu.com*) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS05F7	File generation does not exist, but group entry is updated
2	0	DMS06D6	Error on deleting certain files Guaranteed messages: DMS0800, DMS0801, DMS06D5, DMS0666, DMS05C6,DMS05BF, DMS05C3, DMS053F
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset

	64 64	DMS0535 DMS055C	Specified file not shareable Catalog entry not found on specified private disk
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057D	File has been migrated and cannot be recalled without delay
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	Access to system file not permitted
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space full
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0594	Not enough virtual memory available

Notes

- If it is required to delete an FGG which is held on a private disk, then the device on which this disk is mounted will be requested for the job.
- For files stored on private disks, if OPTION=*DESTROY-ALL is specified then all the volumes which hold the file group must be already mounted at the time the command is executed or, if DATA is specified, only the first volume which holds the file group has to be mounted. This rule also applies if a partially qualified file name is specified in the DELETE-FILE-GROUP command, thus addressing a number of files. In this situation, it is not necessary that all the volumes for all the files are mounted simultaneously. The system will determine which of the files requires the most devices and will request the corresponding number of devices.
- If an error arises during the deletion of a file generation group or some of the generations in a group, then any remaining file generations which are present will not be deleted, and the catalog entry for the file generation group will be updated.

Example

```
/show-file-attr max.group.4,select=(generation=*yes)     ————————————    (1)
```

```
%         0 :2OS2:$USER1.MAX.GROUP.4 (FGG)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0002)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0003)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0004)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0005)
%         3 :2OS2:$USER1.MAX.GROUP.4(*0006)
%:2OS2: PUBLIC:      6 FILES RES=        15 FRE=        15 REL=        15 PAGES
```

```
/del-file-gr group-name=max.group.4,output=*sysout     ————————————————————    (2)
```

```
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0002)' DELETED  ————————    (3)
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0003)' DELETED
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0004)' DELETED
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0005)' DELETED
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4(*0006)' DELETED
%  DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.GROUP.4' DELETED
```

```
/show-file-attr max.group.4,select=(gen=*yes)    ——————————————————————————    (4)
```

```
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OS2'.COMMAND TERMINATED
```

(1) The SHOW-FILE-INFORMATION command returns information on the catalog entries for the file generation group *MAX.GROUP.4* and its existing generations.

(2) The DELETE-FILE-GROUP command is to be used to delete the file generation group, i.e. all generations as well as the group entry. A separate message is to be output to SYSOUT for each deleted catalog entry (operand OUTPUT=*SYSOUT).

(3) The messages sent to SYSOUT indicate the generations *0002 to *0006 and the group entry for the file generation group *MAX.GROUP.4* have been deleted.

(4) The SHOW-FILE-ATTRIBUTES command confirms that all catalog entries for the file generation group *MAX.GROUP.4* have been deleted.

3.5 DELETE-ISAM-POOL

Delete ISAM pool or link to ISAM pool

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

The DELETE-ISAM-POOL command enables users to delete task-specific ISAM pools which they have created or to cancel links between their jobs and shareable ISAM pools (with scopes of USER-ID, USER-GROUP and HOST-SYSTEM). If the link between a shareable ISAM pool and the last job to which it was connected is canceled, the ISAM pool is automatically deleted.

An ISAM pool is uniquely identified by the specified name, the catalog ID (see the CAT-ID operand) and the scope (see the SCOPE operand). If an ISAM pool named in the command does not exist, the command is rejected with an error message. The user can check the ISAM pools to which his or her job is linked by using the SHOW-ISAM-POOL-ATTRIBUTES command.

Before it is possible to delete an ISAM pool, or the link between a job and a pool, the command REMOVE-ISAM-POOL-LINK must be issued to delete all entries for the pool concerned from the pool table of the job. Otherwise, if a pool is still linked to the pool table by its pool link name, the DELETE-ISAM-POOL command will be rejected with an error message. Entries in the pool table can be displayed by means of the SHOW-ISAM-POOL-LINK command.

Note on ISAM pools

Cross-task ISAM pools are automatically created on a file-specific basis when a file is opened in a data space. The CREATE-ISAM-POOL command with SCOPE=*USER-ID/*USER-GROUP is only supported for reasons of compatibility and has the same effect as SCOPE=*HOST-SYSTEM (for details on ISAM pools in data spaces see the “Introductory Guide to DMS” [13]).

A detailed description of the ISAM pool can be found in the manuals “Introductory Guide to DMS” [13] and “DMS Macros” [12].

Format

DELETE**-ISAM-POOL**

POOL-NAME = ***ALL** / <name 1..8>(...)

<name 1..8>(...)

| **CAT-ID** = ***DEF**AULT**-PUB**SET / <cat-id 1..4>

| ,**SCOPE** = ***TASK** / ***HOST-SYS**TEM / ***USER-ID** / ***USER-GROUP**

Operands

POOL-NAME =*ALL / <name 1..8>(...)
Specifies whether it is only particular ISAM pools, or all those which are linked to the job, which are to be released.

POOL-NAME = *ALL
All the ISAM pools which are linked to the calling job are to be deleted or – for shareable pools – all the links to the ISAM pool are to be canceled. If the pool link names still define links between pools and files for the calling job, the command will be rejected with an error message.

POOL-NAME = <name 1..8>(...)
The specified ISAM pool is to be deleted. The ISAM pool is uniquely identified by the name, the catalog ID (see the CAT-ID operand) and the scope (see the SCOPE operand). If no ISAM pool was created as specified or no link to the pool was established (see the CREATE-ISAM-POOL command), the command is rejected with an error message.

CAT-ID = *DEFAULT-PUBSET / <alphanum-name 1..4>
Catalog ID of the pubset to which the ISAM pool is assigned.

CAT-ID = *DEFAULT-PUBSET
The ISAM pool is assigned to the catalog that was set with the `ISPLDEFC` system parameter `ISPLDEFC (ISAM-POOL-DEFAULT-CATID)`:

X'00':	default catalog ID from the user entry (see the SHOW-USER-ATTRIBUTES command, *DEFAULT-PUBSET* output field*)*
X'01':	catalog ID of the home pubset

CAT-ID = <alphanum-name 1..4>
Catalog ID of the specified ISAM pool.

SCOPE = *TASK / *HOST-SYSTEM / *USER-ID / *USER-GROUP
Scope of the specified ISAM pool.

SCOPE = *TASK
The corresponding task-local ISAM pool, which can only be used by its own task, is to be deleted.

SCOPE = *HOST-SYSTEM
The corresponding cross-task ISAM pool, which can be used by all tasks, is to be deleted.

SCOPE = *USER-ID / USER-GROUP
These scopes are only supported for reasons of compatibility (see the "Note on ISAM pools" in section "DELETE-ISAM-POOL").

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	DMS0A17	Internal system error
	64	DMS0A0E	Syntax error in ISAM pool command
	64	DMS0A11	Specified catalog ID does not exist
	64	DMS0A13	Specified pool name is syntactically invalid
	64	DMS0A19	Specified ISAM pool does not exist
	64	DMS0A1A	Pool links to ISAM pool still exist
	64	DMS0A21	ISAM pool limit reached
	64	DMS0A22	User group does not exist
	130	DMS0A12	Specified catalog ID not available

Examples

See the ADD-ISAM-POOL-LINK command.

3.6 DELETE-JV

Delete job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The DELETE-JV command is used to delete job variables cataloged under the user's own ID. Job variables that monitor a job (SET-LOGON-PARAMETERS, ENTER-JOB, ENTER-PROCEDURE) cannot be deleted until the job is completed (status indicator: $T or $A) or unless job monitoring is prematurely terminated with the MODIFY-JV-ATTRIBUTES command (MONJV-PROTECTION operand).

Job variables that are used in conditional job control (CJC) commands and macros are likewise protected against deletion (information can be obtained with the SHOW-CJC-STATUS command), i.e. a condition formulated in the ADD-CJC-ACTION or WAIT-EVENT commands or in the ONEVT macro continues to apply.

Privileged functions

The privileged functions for systems support (TSOS privilege) include specification of temporary or cataloged files of any user ID, the ability to ignore protection attributes of the job variable being deleted and, in the case of a user ID change, to branch to guided dialog.

By default, systems support (TSOS privilege) is a co-owner of all the job variables (and can, therefore, delete job variables under any user ID). When SECOS is used, this co-ownership can be restricted for permanent job variables.

Format

DELETE**-JV** Alias: **DLJV**

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)> / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

,**IGNORE-PROT**ECTION = ***NONE** / list-poss(4): ***ACCESS** / ***EXPIR**ATION-DATE /

***READ-PASS**WORD / ***WRITE-PASS**WORD

,**PASS**WORDS**-TO-IGNORE** = ***NONE** / ***SECRET** / list-poss(3): <c-string 1..4> / <x-string 1..8> /

<integer -2147483648..2147483647>

,**DIALOG-CONTR**OL = ***STD** / ***JV-CHA**NGE / ***USER-ID-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***NO**

,**OPTION** = ***ALL** / ***DATA**

,**OUTPUT** = ***NO** / ***SYSOUT**

,**SUPPRESS-ERR**ORS = ***NONE** / list-poss(3): <alphanum-name 7..7>

,**SEL**ECT = ***ALL** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| **ACCESS** = ***ANY** / ***READ** / ***WR**ITE

| ,**USER-ACCESS** = ***ANY** / list-poss(2): ***OWNER-ONLY** / ***ALL-USERS**

| ,**PASS**WORD = ***ANY** / list-poss(3): ***NONE** / ***READ-PASS**WORD / ***WR**ITE**-PASS**WORD

| ,**CRE**ATION**-DATE** = ***ANY** / ***TODAY**(...) / ***YESTERDAY**(...) /

| <integer -99999..991231>(...) /<date>(...) / ***INTERVAL**(...)

| ***TODAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| ***YESTERDAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

```
|       <integer -99999..991231>(...)
|               |       TIME = *ANY / [*INTERVAL](...)
|               |               [*INTERVAL](...)
|               |                       |       FROM = 00:00:00 / <time>
|               |                       |       ,TO = 23:59:59 / <time>
|       <date>(...)
|               |       TIME = *ANY / [*INTERVAL](...)
|               |               [*INTERVAL](...)
|               |                       |       FROM = 00:00:00 / <time>
|               |                       |       ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|               |       FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) /
|               |                  *TODAY (...) /*YESTERDAY(...)
|               |               <integer -99999..991231>(...)
|               |                       |       TIME = 00:00:00 / <time>
|               |               <date>(...)
|               |                       |       TIME = 00:00:00 / <time>
|               |               *TODAY(...)
|               |                       |       TIME = 00:00:00 / <time>
|               |               *YESTERDAY(...)
|               |                       |       TIME = 00:00:00 / <time>
|               |       ,TO = *TODAY (...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
|               |               *TODAY (...)
|               |                       |       TIME = 23:59:59 / <time>
|               |               *YESTERDAY(...)
|               |                       |       TIME = 23:59:59 / <time>
|               |               <integer -99999..991231>(...)
|               |                       |       TIME = 23:59:59 / <time>
|               |               <date>(...)
|               |                       |       TIME = 23:59:59 / <time>
|   ,EXPIRATION-DATE = *ANY / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
```

| <integer -99999..991231>(...) / <date>(...) / ***INTERVAL**(...)

| ***TOMORROW**(...)

| | TIME = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | FROM = **00:00:00** / <time>

| | | ,TO = **23:59:59** / <time>

| ***TODAY**(...)

| | TIME = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | FROM = **00:00:00** / <time>

| | | ,TO = **23:59:59** / <time>

| ***YESTERDAY**(...)

| | TIME = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | FROM = **00:00:00** / <time>

| | | ,TO = **23:59:59** / <time>

| <integer -99999..991231>(...)

| | TIME = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | FROM = **00:00:00** / <time>

| | | ,TO = **23:59:59** / <time>

| <date>(...)

| | TIME = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | FROM = **00:00:00** / <time>

| | | ,TO = **23:59:59** / <time>

| ***INTERVAL**(...)

| | FROM = **1950-01-01** / <integer -99999..991231>(...) / ***TOMORROW**(...) /

| | ***TODAY (...) /*YESTERDAY**(...) / <date>(...)

| | <integer -99999..991231>(...)

| | | TIME = **00:00:00** / <time>

```
|           |           *TOMORROW(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           *TODAY(...)
|           |               |       TIME = 00:00:0 0 / <time>
|           |           *YESTERDAY(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |               |       TIME = 00:00:00 / <time>
|           |       ,TO = *ANY / TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|           |                   <integer -99999..991231>(...) / <date>(...) / *ANY
|           |           *TODAY(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           *TOMORROW(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           *YESTERDAY(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           <integer -99999..991231>(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |               |       TIME = 23:59:59 / <time>
|   ,BASIC-ACL = *ANY / *NONE / *YES / [*PARAMETERS](...)
|       [*PARAMETERS](...)
|           |       OWNER = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|           |           [*PARAMETERS](...)
|           |               |       READ = *ANY / *NO / *YES
|           |               |       ,WRITE = *ANY / *NO / *YES
|           |       ,GROUP = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|           |           [*PARAMETERS](...)
|           |               |       READ = *ANY / *NO / *YES
|           |               |       ,WRITE = *ANY / *NO / *YES
|           |       ,OTHERS = *ANY / *NO-ACCESS / [*PARAMETERS](...)
```

```
|           |           [*PARAMETERS](...)
|           |                   |       READ = *ANY / *NO / *YES
|           |                   |       ,WRITE = *ANY / *NO / *YES
|  ,GUARDS = *ANY / *YES / *NONE / [*PARAMETERS](...)
|      [*PARAMETERS](...)
|           |       READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|           |       ,WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|  ,MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
|  ,PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
|  ,SIZE = *ANY / <integer 0..256> / [*INTERVAL](...)
|      [*INTERVAL](...)
|           |       FROM = 0 / <integer 0..256>
|           |       ,TO = 256 / <integer 0..256>
```

Operands

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)> / *LINK(...)
Specification identifying the job variable to be deleted. JVs to be deleted can be identified by name or link name. If the JV is protected by a password, the password must be specified (in the ADD-PASSWORD command). The password with the higher protection function should always be specified (write before read password).

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>
Name of the JV to be deleted. Nonprivileged users may only specify their own user ID without using wildcards. If no catalog ID is specified, the default catalog ID of the user ID concerned is selected. If the first character in the string is “*”, then it has to be entered twice.

JV-NAME = *LINK(...)
The JV to be deleted is identified by a link name.

> **LINK-NAME = <alphanum-name 1..7>**
> Link name of the JV to be deleted.
> The JV to be deleted must be cataloged under the user’s own ID.

IGNORE-PROTECTION = *NONE / list-poss(4): *ACCESS / *EXPIRATION-DATE / *READ-PASSWORD / *WRITE-PASSWORD
Specifies which protection attributes are to be ignored during deletion of a JV. The *ACCESS entry also applies to BASIC-ACL and GUARDS protection.
*Only systems support (TSOS privilege) can delete JVs by entering the operand values *READ-PASSWORD and *WRITE-PASSWORD without entering the password.*

PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
Allows the deletion of job variables that are protected by the specified passwords (write before read password). No entry is made in the password table.
The operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

DIALOG-CONTROL =
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process. Verification is advisable if the job variable name is partially qualified or specified with wildcards, thus enabling more than one job variable to be deleted (also unintentionally).
The verification dialog mechanism is available only in interactive mode, though that does include procedures.
Each verification query can be answered with `response [,CHECK=mode]`.

Answer	**Effects**	
Y	The JV or JV set displayed in the query is to be deleted.	
N	The JV or JV set displayed is not to be deleted.	
T	The verification dialog is aborted. The job variables concerned are not deleted.	
Other values	Same effect as "N"	
Optional suffix:	**Effects**	
,CHECK=mode	CHECK enables the setting for the verification dialog to be changed (corresponds to DIALOG-CONTROL). The following values can be specified for <mode>:	
	SINGLE	: corresponds to DIALOG-CONTROL=*JV-CHANGE
	MULTIPLE	: corresponds to DIALOG-CONTROL=*USER-ID-CHANGE
	PVS	: corresponds to DIALOG-CONTROL=*CATALOG-CHANGE
	NO	: corresponds to DIALOG-CONTROL=*NO
	STD	: corresponds to DIALOG-CONTROL=*STD

DIALOG-CONTROL = *STD
Default value: corresponds to *USER-ID-CHANGE in true interactive mode and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
All selected job variables are deleted without a verification dialog.

DIALOG-CONTROL = *JV-CHANGE
A verification query occurs for each job variable to be deleted (message JVS0469).

DIALOG-CONTROL = *USER-ID-CHANGE
A verification query occurs in each case for all job variables under one user ID that are to be deleted (message JVS0465). The query does not occur if only one job variable is to be deleted.

DIALOG-CONTROL = *CATALOG-CHANGE
A verification query occurs in each case for all job variables of a pubset that are to be deleted (message JVS0468). The query does not occur if only one job variable is to be deleted.

OPTION = *ALL / *DATA
Specifies whether the job variable entry or only the contents are to be deleted.

OUTPUT = *NO / *SYSOUT
Specifies whether the names of the deleted job variables are to be output.

SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
In procedures, the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified. DMS error code: 7 characters, of which the first three are always “DMS”; the last 4 characters identify the error; the digits 0..9 and letters A..F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.

A detailed list of valid JVS error codes can be found in the “JV” manual [20] or on the manual server (URL: *http://manuals.ts.fujitsu.com*) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

SELECT = *ALL / *BY-ATTRIBUTES(...)
The job variable selection criteria. The following selection criteria are not relevant for displaying special job variables.

SELECT = *ALL
Deletes all the job variables which the user is authorized to access.

SELECT = *BY-ATTRIBUTES(...)
Restricts the job variables selected from the set specified by JV-NAME to those which satisfy the following specifications. The default value *ANY for an attribute means that the job variable set is not to be restricted to particular values of that attribute.

> **ACCESS = *ANY / *READ / *WRITE**
> Deletes job variables depending on the permitted access type.
>
> **ACCESS = *READ**
> Deletes only those job variables for which write access is prohibited by ACCESS=READ, i.e. to which only read access is permitted.
>
> **ACCESS = *WRITE**
> Deletes only those job variables for which write access is permitted.

USER-ACCESS = *ANY / list-poss(2): *OWNER-ONLY / *ALL-USERS
Deletes job variables depending on whether they are shareable. If a user ID other than the user's own is specified, then implicitly USER-ACCESS=ALL-USERS.

USER-ACCESS = *OWNER-ONLY
Deletes job variables which only the owner or co-owner may access.

USER-ACCESS = *ALL-USERS
Deletes job variables which may also be accessed under other user IDs.

PASSWORD = *ANY / list-poss(3): *NONE / *READ-PASSWORD / *WRITE-PASSWORD
Deletes job variables depending on the password protection defined. If several types of password are specified as a list, the system will link them by logical Or, and will return information on all the job variables which satisfy any one of the specified conditions.

PASSWORD = *NONE
Deletes job variables which have no password protection.

PASSWORD = *READ-PASSWORD
Deletes job variables which are protected by a read password.

PASSWORD = *WRITE-PASSWORD
Deletes job variables which are protected by a write password

CREATION-DATE = *ANY / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
Deletes job variables on the basis of their creation date (CREATION-DATE); range specifications are inclusive of the specified limit values. It is meaningless to specify a CREATION-DATE which lies in the future!

CREATION-DATE = *TODAY(...)
Deletes job variables which have today's date entered as the CREATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of creation >= the specified time.

CREATION-DATE = *YESTERDAY(...)
Deletes job variables which have yesterday's date entered as the CREATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of creation >= the specified time.

CREATION-DATE = <integer -99999..991231>(...)
Deletes job variables which were created on the specified date. Here, the user can specify the creation date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of creation >= the specified time.

CREATION-DATE = <date>(...)
Deletes job variables which were created on the specified date.
The user can specify the creation date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Deletes job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of creation >= the specified time.

CREATION-DATE = *INTERVAL(...)
Deletes job variables which were created within the specified time period. The upper and lower limits are both included in the range specified. See also the explanation of how dates are specified in the EXPIRATION-DATE=<integer ...> operand. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / *TODAY(...) / *YESTERDAY(...) / <date>(...)
Deletes job variables which were created after the specified date (i.e. CREATION-DATE >= specified date).

FROM = <integer -99999..991231>(...)
Deletes job variables which were created after the specified date (i.e. CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

FROM = *TODAY(...)
Deletes job variables which were created after the specified date (i.e. CREATION-DATE >= current date).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

FROM = *YESTERDAY(...)
Deletes job variables which were created after the specified date (i.e. CREATION-DATE >= date of preceding day).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

FROM = <date>(...)
Deletes job variables which were created after the specified date (i.e. CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Deletes job variables which were created before the specified date (i.e. CREATION-DATE <= specified date).

TO = *TODAY(...)
Deletes job variables which were created before the specified date (i.e. CREATION-DATE <= current date).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

TO = *YESTERDAY(...)
Deletes job variables which were created before the specified date (i.e. CREATION-DATE <= date of preceding day).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

TO = <integer -99999..991231>(...)
Deletes job variables which were created before the specified date (i.e. CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

TO = <date>(...)
Deletes job variables which were created before the specified date (i.e. CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

EXPIRATION-DATE = *ANY / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
The EXPIRATION-DATE operand deletes job variables as a function of the “expiration date” (*EXPIR-DATE* output field), i.e. the date from which write accesses to the job variable are allowed. It is meaningful to specify a date in the future if retention periods are being queried.

EXPIRATION-DATE = *TOMORROW(...)
Deletes job variables which have tomorrow’s date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = *TODAY(...)
Deletes only job variables which have today’s date entered as the EXPIRATION-DATE in their catalog entry

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = *YESTERDAY(...)
Deletes only job variables which have yesterday’s date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = <integer -99999..991231>(...)
Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits with preceding sign), the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = <date>(...)
Deletes job variables for which exactly the specified date is entered as the EXPIRATION-DATE in the catalog entry. The user can specify the expiration date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Deletes job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Deletes job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Deletes job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = *INTERVAL(...)
Deletes only job variables whose expiration dates lie within the period specified below, i.e. files whose retention period expires after the specified period. The upper and lower limits are both included in the range specified. See also the explanation of how dates are specified in the EXPIRATION-DATE=<integer ...> operand. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...)
Deletes job variables for which the EXPIRATION-DATE >= the specified date.

FROM = <integer -99999..991231>(...)
Deletes job variables for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <date>(...)
Deletes job variables for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = TOMORROW(...)
Deletes job variables for which the EXPIRATION-DATE >= date of the next day.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *TODAY(...)
Deletes job variables for which the EXPIRATION-DATE >= date of the current day.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *YESTERDAY(...)
Deletes job variables for which the EXPIRATION-DATE >= date of the preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *ANY / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Deletes job variables for which the EXPIRATION-DATE <= the specified date.

TO = *ANY
Specifies an open interval that starts with the EXPIRATION-DATE but has no upper limit.

TO = *TODAY(...)
Deletes job variables for which the EXPIRATION-DATE <= date of the current day.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *TOMORROW(...)
Deletes job variables for which the EXPIRATION-DATE <= date of the next day.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *YESTERDAY(...)
Deletes job variables for which the EXPIRATION-DATE <= date of the preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <integer -99999..991231>(...)
Deletes job variables for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <date>(...)
Deletes job variables for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
Deletes job variables whose BASIC-ACL entry matches the specified values.

BASIC-ACL = *NONE
Deletes job variables that have no BASIC-ACL entry in the catalog.

BASIC-ACL = *YES
Deletes job variables that have a BASIC-ACL entry in the catalog.

BASIC-ACL = *PARAMETERS(...)
Deletes job variables for which the specified access rights are defined in the BASIC-ACL entry. NO-ACCESS means that no access rights have been defined.

> Access rights specified with the OWNER, GROUP and OTHERS operands within the *PARAMETERS(...) structure are logically ORed.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner's user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner's user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

GUARDS = *ANY / *NONE / *YES / *PARAMETERS(...)
Deletes job variables for which access is controlled using GUARDS (see the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command).

GUARDS = *NONE
Deletes job variables that are not protected by GUARDS against unauthorized access.

GUARDS = *YES
Deletes job variables that are protected by GUARDS against unauthorized access, i.e. for which access is controlled via GUARDS.

GUARDS = *PARAMETERS(...)
Deletes job variables which are protected by GUARDS against unauthorized access as specified, i.e. job variables for which access control is implemented using GUARDS: Access to the job variable is controlled by a guard, i.e. a special object which contains all the conditions under which a user is granted access authorization (e.g. date, time, user ID). The GUARDS function unit of the chargeable software product SECOS (see the "SECOS" manual [35]) must be installed in order to create and maintain a guard. Each access mode can be controlled by a separate guard. If no guard (*NONE) is defined for a given access mode, no corresponding

access is permitted. If a defined guard is not accessible, the mode of access protected by it is not permitted. If the GUARDS subsystem is not available at the time of accessing the job variable, no access of any kind is allowed for the job variable.

> The values specified for the following READ and WRITE operands will be linked by logical AND.

READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Deletes job variables which are protected against unauthorized read access by the specified guard. The default value *ANY means that the selection of job variables is not based on read protection with a guard. *NONE selects job variables for which no read guard was defined, i.e. job variables for which no read access is permitted.

WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Deletes job variables which are protected against unauthorized write access by the specified guard. The default value *ANY means that the selection of job variables is not based on a guard. *NONE selects job variables for which no guard was defined, i.e. job variables for which no write access is permitted.

MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
Deletes job variables assigned the specified HSMS management class.

MANAGEMENT-CLASS = *NONE
Deletes job variables with no HSMS management class assigned to them

MANAGEMENT-CLASS = <composed-name 1..8>
Deletes job variables assigned the specified HSMS management class.

PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
Deletes job variables for which the specified protection level is the highest activated access control.

When the job variable is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control method	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 45: Hierarchy of access control methods

All other protection attributes of the job variable (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

PROTECTION-ACTIVE = *LEVEL-0
Deletes job variables for which access is controlled via standard access control.

PROTECTION-ACTIVE = *LEVEL-1
Deletes job variables for which access is controlled via a basic access control list (BASIC-ACL protection)

PROTECTION-ACTIVE = *LEVEL-2
Deletes job variables which are accessed via GUARDS.

SIZE =* ANY / <integer 0..256> / *INTERVAL(...)
Requests information on job variables depending on the length of their value.

SIZE = <integer 0..256>
Deletes job variables whose value is the specified number of bytes in length.

SIZE = *INTERVAL(...)
Deletes job variables for which the length of the job variable value lies within the specified range. The upper and lower limits are both included in the range specified. See also the explanation of the operand SIZE = <integer> It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit. Information will only be returned about job variables for which the length of the value is at least equal to the FROM value and at most equal to the TO value (FROM <= SIZE <= TO).

FROM = 0 / <integer 0..256>
Deletes job variables for which the length of the value is at least the specified number of bytes (SIZE >= specified value).

TO = 256 / <integer 0..256>
Deletes job variables for which the length of the value is at most the specified number of bytes (SIZE <= specified value).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

3.7 DELETE-OPERATOR-ROLE

Delete operator role

Component:	SRPMNUC
Functional area:	Operator function control
Domain:	SECURITY-ADMINISTRATION
Privileges:	SECURITY-ADMINISTRATION

Function

This command is used to delete a list of routing (authorization) codes which has been compiled to form an “operator role” and stored in the user catalog of a pubset. An operator role corresponds to an area of work, and gives the exerciser of the role the right to issue the commands assigned to that area of work. Each area of work (= operator role) is represented by a set of authorization (routing) codes specified by the system administration; this may be any combination of the total of 40 authorization codes used in BS2000. The system administration uses the MODIFY-OPERATOR-ATTRIBUTES command to assign to each operator identification the operator roles which it may undertake.

The DELETE-OPERATOR-ROLE command can only be used to delete roles which are not assigned to any operator identification.

Format

DELETE**-OPER**ATOR**-ROLE**
OPERATOR**-ROLE** = list-poss(20): <name 1..8> ,**PUBSET** = ***HOME** / <cat-id 1..4>

Operands

OPERATOR-ROLE = list-poss(20): <name 1..8>
Names of the operator roles to be deleted. In total, the names of 20 operator roles may be specified. These roles must not be assigned to any user ID (= operator identification) in the user catalog.

PUBSET =
Specifies the pubset from whose user catalog the role is to be deleted.

PUBSET = *HOME
The operator role is to be deleted from the user catalog of the home pubset.

PUBSET = <cat-id 1..4>
Exact specification of the pubset from whose catalog the operator role is to be deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	SRM6001	Command executed with a warning
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

3.8 DELETE-PAGING-FILE

Delete paging file from disk

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	OPERATING TSOS
Routing code:	R

Function

System support can use the DELETE-PAGING-FILE command to delete the paging file on a magnetic disk or on any volume of an SF pubset.

When the paging file is deleted, the space it was occupying is overwritten with binary zeros.

Format

DELETE-**PAG**ING-**FILE**

VOLUME = ***PUBSET**(...) / list-poss(256): <vsn 1..6>

***PUBSET**(...)

| **PUBSET =** list-poss(256): <cat-id 1..4>

,**FORCE = *NO** / ***Y**ES

Operands

VOLUME = *PUBSET(...)
Specifies one or more SD pubsets. The paging file is to be deleted on each volume of the specified SF pubsets.

PUBSET = list-poss(256): <cat-id 1..4>
Specifies the SF pubsets on which the paging files are to be deleted by their catalog ID.

VOLUME = list-poss(256): <vsn 1..6>
Identifies the disk from which the paging file is to be deleted by its volume serial number (VSN).
Up to 256 disks can be listed.

FORCE = *NO / *YES
Specifies whether the deletion of paging files on the home pubset or on volumes specified in the PAGING parameter service of the current system run should be forced. Other paging files are deleted irrespective of the specification made via the FORCE operand.
The default *NO causes the command to be rejected for the paging files mentioned above if the startup paging area is smaller than 200 MB.

FORCE = *YES
This setting should be selected only in exceptional circumstances.
Paging files on the home pubset or on volumes specified on the PAGING parameter service of the current system run are deleted irrespective of the minimum size of the paging area.

> If the startup paging area is smaller than 200 MB, system startup is only possible in DIALOG mode. The paging volumes have to be entered individually.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command processing start without error
	32	EMM2800	Internal error Guaranteed messages: EMM2818, EMM2828
	64	EMM2802	The specified pubset is unkown and cannot be identified in the given configuration. Guaranteed message: EM2841
	64	EMM2805	Possible errors: • The pubset has not been imported. • The MRSCAT entry of the pubset is missing. Guaranteed messages: EMM2820, EMM2824, EMM2838
	128	EMM2807	Operation cannot be performed due to lack of resources Guaranteed messages: EMM2819, EMM2829

> When lists are specified, command processing is aborted in the event of an error with a return code of EMM2800 or EMM2807.

Notes

- The pubset the disk belongs to must have been imported.
- Processing of the command may take a number of minutes. For that reason it is not executed in the calling task, but is delegated to a server task created specially for the purpose. The job completion message is delivered to the calling task asynchronously. If the calling task terminates before the completion message is delivered, the message is sent to the console instead.
- If more than one volume is specified (explicitly or by specifying a pubset) when the command is issued, a separate job is started for each volume.
- The deletion of paging files on the home pubset or on volumes specified in the PAGING parameter service of the current system run is critical in those cases, where the total size of the startup paging area is below 200 MB. This can happen if, during ongoing operation, paging files that are not used during startup are added with the EXTEND-PAGING-AREA command and if other paging files are deleted.

  If the startup paging area is smaller than 200 MB, system startup is only possible in DIALOG mode. The paging volumes have to be entered individually. To avoid this, the home pubset should have paging files of sufficient size (>200 MB) or, in the case of the PAGING parameter service, the volume specification in the parameter file should get changed to still existing paging files.

Example

Deleting the paging file from a disk with the volume serial number 2OSW.0:

```
/DELETE-PAGING-FILE VOLUME=2OSW.0
```

3.9 DELETE-SNAPSET

Delete Snapset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT SNAPSET
Privileges:	TSOS HSMS-ADMINISTRATION

Function

The DELETE-SNAPSET command deletes one or all existing Snapsets for an imported pubset. When a Snapset is deleted, the individual volumes of the Snapset are cleared and removed from the Snapset catalog. When all existing Snapsets are deleted, the context required for Snapset operation is also removed: the Snapset catalog is deleted and the Snapset limit is set to zero.

Format

DELETE-SNAPSET
PUBSET = <cat-id 1..4> ,**SNAPSET** = ***EARLIEST** / <name 1..1 with-low> / <integer -52..-1> / ***ALL**

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the specified Snapset is to be deleted.

SNAPSET = *EARLIEST / <name 1..1 with-low> / <integer -52..-1> / *ALL
Specifies which Snapsets are to be deleted.

> , When operating with ETERNUS DX/AF, only the oldest Snapset can be deleted. This must be borne in mind when a Snapset which is to be deleted is specified explicitly using the Snapset ID or the relative age.

SNAPSET = *EARLIEST
The oldest Snapset is deleted.

SNAPSET = <name 1..1 with-low>
Specifies the Snapset explicitly by means of the Snapset ID. The maximum of 52 pubsets are distinguished by means of Snapset IDs specified which comprise letters from the 26 lowercase letters a to z and the 26 uppercase letters A to Z.

SNAPSET = <integer -52..-1>
The Snapset to be deleted is specified by means of its relative age. The value -1 specifies the latest Snapset here.

SNAPSET = *ALL
All Snapsets are deleted and the context for Snapset operation of this pubset is removed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	CMD0216	No authorization
	64	DMS1351	Internal error
	64	DMS1386	Error in the memory request
	64	DMS1389	Error in MSCF communication
	64	DMS138B	No MRSCAT entry
	64	DMS138C	Pubset not accessible
	64	DMS13D5	The Snapset specified does not exist on the pubset
	64	DMS148F	GCF not loaded
1	64	DMS13D7	Internal error in Snapset management: Return code of GCF
2	64	DMS13D7	Internal error in Snapset management: Return code in the case of mount/demount
3	64	DMS13D7	Internal error in Snapset management: Return code when reading or writing the SVL
4	64	DMS13D7	Internal error in Snapset management: Return code when setting/resetting the reconfiguration lock
6	64	DMS13D7	Internal error in Snapset management: Return code of SHC-OSD
7	64	DMS13D7	Internal error in Snapset management: Return code of CCOPY
	64	DMS13DF	Subsystem SHC-OSD not available

3.10 DELETE-STORAGE-CLASS

Delete storage class definition

Component: BS2000

Functional area: Pubset and MRSCAT management

Domain: MULTI-CATALOG-AND-PUBSET-MGMT

Privileges: TSOS

Functions

The DELETE-STORAGE-CLASS command enables systems support to delete storage classes from the storage class catalog. If more than one storage class is specified, the SELECT operand can be used to restrict the set of storage classes being deleted to those with specific attributes. The DIALOG-CONTROL operand defines the conditions under which a dialog is conducted to verify that objects are to be deleted.

The SM pubset must have been imported to the local system (in exclusive or shared mode).

Before deleting a storage class, note that references to that storage class may still exist. The following types of reference are possible:

The storage class is already assigned to existing files. You can find out which files these are with the SHOW-FILE-ATTRIBUTES command and the STORAGE-CLASS selection criterion. Before deleting the storage class you should assign these files to another class or cancel their storage class assignment. Otherwise, the files might be given an inappropriate storage location if migrated with HSMS and then recalled.

The storage class is assigned to user IDs as their default storage class (see the MODIFY-USER-PUBSET-ATTRIBUTES command). You can find out which user IDs these are with the SHOW-USER-ATTRIBUTES command. Before deleting the storage class you should assign these user IDs a different default storage class or cancel the default storage class assignment. Otherwise, the users affected will have to specify a storage class or the file attributes explicitly when creating files in the pubset in question.

Format

DELETE-**STOR**AGE-**CLASS**

STORAGE-**CLASS-NAME** = ***ALL** / <composed-name 1..8 with-wild>

,**PUBSET** = <cat-id 1..4>

,**SEL**ECT = ***ALL** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **FILE-ATTR**IBUTES = ***ANY** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **IO-ATTRIBUTES** = ***ANY** / ***PAR**AMETERS(...)

| | ***PAR**AMETERS(...)

| | | **PERFORMANCE** = ***ANY** / list-poss(3): ***STD** / ***HIGH** / ***VERY-HIGH**

| | | ,**USAGE** = ***ANY** / list-poss(3): ***READ-WRITE** / ***WR**ITE / ***READ**

| | ,**DISK-WRITE** = ***ANY** / list-poss(3): ***STD** / ***IMMED**IATE / ***BY-CLOSE**

| | ,**AVAIL**ABILITY = ***ANY** / list-poss(2): ***STD** / ***HIGH**

| | ,**FILE-PREFORMAT** = ***ANY** / list-poss(4): ***BY-PUB**SET-**DEF**AULT / ***K** / ***NK2** / ***NK4**

| | ,**WORK-FILE** = ***ANY** / list-poss(2): ***NO** / ***Y**ES

| ,**VOL**UME-**SET-LIST** = ***ANY** / ***NONE** / <composed-name 1..8>

,**DIALOG-CONTR**OL = ***STD** / ***NO** / ***ERROR** / ***CLASS-CHANGE** / ***MORE-THAN-ONE-CLASS**

Operands

STORAGE-CLASS-NAME = *ALL / <composed-name 1..8 with-wild>
Specifies which storage classes to delete.

STORAGE-CLASS-NAME = *ALL
The storage classes to delete are all those which are assigned to the pubset specified in the PUBSET operand and which also meet the selection criteria defined in the SELECT operand.

STORAGE-CLASS-NAME = <composed-name 1..8 with-wild>
Name of the storage class that is to be deleted. Wildcards can be used to select more than one storage class. The storage classes to delete are all those specified here which are assigned to the pubset specified in the PUBSET operand and which also meet the selection criteria defined in the SELECT operand.

PUBSET = <cat-id 1..4>
Catalog ID of the associated SM pubset. The SM pubset must have been imported to the local system (in exclusive or shared mode).

SELECT = *ALL / *PARAMETERS(...)
Specifies whether the set of storage classes specified in the STORAGE-CLASS-NAME operand is to be restricted by selection criteria.

SELECT = *ALL
There is no restriction on the set of storage classes specified in the STORAGE-CLASS-NAME operand.

SELECT = *PARAMETERS(...)
Defines selection criteria to restrict the set of storage classes specified in the STORAGE-CLASS-NAME operand. Only those storage classes which possess all the attributes specified next are to be deleted.
The default value, *ANY, means that the attribute in question is not a selection criterion.

FILE-ATTRIBUTES = *ANY / *PARAMETERS(...)
Specifies whether the selection of storage classes to delete is to be based on the file attributes defined in them.

FILE-ATTRIBUTES = *ANY
The file attributes are not a selection criterion.

FILE-ATTRIBUTES = *PARAMETERS(...)
The storage classes which are to be deleted are selected on the basis of the file attributes specified next.

IO-ATTRIBUTES = *ANY / *PARAMETERS(...)
Specifies whether the performance attributes are to be a selection criterion.

IO-ATTRIBUTES = *PARAMETERS(...)
The storage classes which are to be deleted must have definitions containing the performance attributes specified next.

PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
Deletes all storage classes which possess one of the specified performance attributes.

PERFORMANCE = *ANY
The performance attribute is not a selection criterion.

PERFORMANCE = *STD
Deletes only those storage classes which have their performance attribute set to *STD (no special performance requirement).

PERFORMANCE = *HIGH
Deletes only those storage classes which have their performance attribute set to *HIGH (high performance requirement).

PERFORMANCE = *VERY-HIGH
Deletes only those storage classes which have their performance attribute set to *VERY-HIGH (highest performance requirement).

USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
Deletes all storage classes which have the performance attribute set for one of the specified I/O operations.

USAGE = *ANY
The I/O operation mode is not a selection criterion.

USAGE = *READ-WRITE
Deletes only those storage classes which have their performance attribute set for read/write operations.

USAGE = *WRITE
Deletes only those storage classes which have their performance attribute set for write operations.

USAGE = *READ
Deletes only those storage classes which have their performance attribute set for read operations.

DISK-WRITE = *ANY / list-poss(3): *STD / *IMMEDIATE / *BY-CLOSE
Specifies whether the attribute governing the time when data consistency is required after write operations is to be a selection criterion.

DISK-WRITE = *ANY
The point at which data consistency is required is not a selection criterion.

DISK-WRITE =*STD
Deletes only those storage classes which have their consistency point defined as DISK-WRITE=*STD.

DISK-WRITE = *IMMEDIATE
Deletes only those storage classes which have their consistency point defined as immediately after completion of write operations.

DISK-WRITE = *BY-CLOSE
Deletes only those storage classes which have their consistency point defined as only after CLOSE processing.

AVAILABILITY = *ANY / list-poss(2): *STD / *HIGH
Specifies whether the availability attribute is to be a selection criterion.

AVAILABILITY = *ANY
The required availability is not to be a selection criterion.

AVAILABILITY = *STD
Deletes only those storage classes for which no special availability requirements are defined.

AVAILABILITY = *HIGH
Deletes only those storage classes for which high availability requirements are defined.

FILE-PREFORMAT = *ANY / list-poss(4): *BY-PUBSET-DEFAULT / *K / *NK2 / *NK4
Specifies whether the attribute for preferred file format is to be a selection criterion.

FILE-PREFORMAT = *ANY
The preferred file format is not to be a selection criterion.

FILE-PREFORMAT = *BY-PUBSET-DEFAULT
Deletes only those storage classes for which the preferred file format is defined as the pubset-global default.

FILE-PREFORMAT = *K
Deletes only those storage classes in which files are set to be created as K files.

FILE-PREFORMAT = *NK2
Deletes only those storage classes in which files are set to be created as NK2 files.

FILE-PREFORMAT = *NK4
Deletes only those storage classes in which files are set to be created as NK4 files.

WORK-FILE = *ANY / list-poss(2): *NO / *YES
Specifies whether the work file attribute is to be a selection criterion.

WORK-FILE = *ANY
The work file attribute is not to be a selection criterion.

WORK-FILE = *NO
Deletes only those storage classes in which files are created as normal files.

WORK-FILE = *YES
Deletes only those storage classes in which files are created as work files.

VOLUME-SET-LIST = *ANY / *NONE / <composed-name 1..8>
Specifies whether the storage classes are to be selected on the basis of volume set list assignment.

VOLUME-SET-LIST = *ANY
Volume set list assignment is not to be a selection criterion.

VOLUME-SET-LIST = *NONE

Deletes only those storage classes to which no volume set list is assigned.

VOLUME-SET-LIST = <composed-name 1..8>
Deletes only those storage classes to which the specified volume set list is assigned.

DIALOG-CONTROL = *STD / *NO / *ERROR / *CLASS-CHANGE / *MORE-THAN-ONE-CLASS
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process.
The verification dialog mechanism is available only in interactive mode, though that does include procedures. In batch mode, all values have the same effect as *NO.

Systems support can intervene with the following inputs:

Y	the specified storage class or storage class set will then be deleted.
N	the specified storage class or storage class set will not be deleted.
T	processing of the command will be terminated.
S	the specified storage class or storage class set will be displayed. The verification dialog will then be repeated.
?	the possible responses will be listed, with an explanation of each.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
Systems support cannot intervene in DELETE-STORAGE-CLASS processing; all the specified files will be deleted (without a verification dialog).

DIALOG-CONTROL = *ERROR
If deletion of the selected storage classes proceeds without error, all the storage classes will be deleted

immediately, as when *NO is specified (i.e. no verification dialog). However, if a correctable error occurs during deletion, then a verification dialog takes place for each storage class which it was not possible to delete.
In batch mode, this value has the same effect as *NO.

DIALOG-CONTROL = *CLASS-CHANGE
A verification dialog is conducted for each storage class selected. In batch mode this value has the same effect as *NO.

DIALOG-CONTROL = *MORE-THAN-ONE-CLASS
If exactly one storage class is specified or identified by the selection criteria, this will be deleted immediately. If more than one storage class is to be deleted, a verification dialog is conducted for the set which is to be deleted. In batch mode, this value has the same effect as *NO.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization to issue command
	64	DMS1481	Error accessing storage class catalog
	64	DMS1483	Storage class catalog invalid
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS148A	Storage class not defined
	64	DMS1490	Storage class management not available for this pubset
	64	DMS149A	No storage classes meet the selection criteria
	64	DMS149C	No storage class exists for the specified pubset
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready

3.11 DELETE-SYSTEM-FILE

Delete system file

Component:	BS2000
Functional area:	Job processing File processing
Domain:	FILE JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The DELETE-SYSTEM-FILE command deletes the contents of a system file logically. If a file has been allocated to the system file to be deleted, the contents of that file will be logically deleted, but the allocation will remain in effect. This enables the user to delete an allocated file without removing the allocation to a system file. The DELETE-FILE command cannot be used on the allocated file since the file is open.

If the logical system file SYSLST is specified, only the part that was created after the last COPY-SYSTEM-FILE command can be deleted, regardless of whether the COPY-SYSTEM-FILE command was executed successfully.

See section "System files" in chapter "Volume 1: General Part" and the description of the COPY-SYSTEM-FILE command.

Format

DELETE-**SYS**TEM-**FILE** Alias: **DLSF**

SYSTEM-FILE = ***SYSLST** / ***SYSOUT** / ***OMF** / ***SYSLST-NUM**BER(...) / ***ALL-SYS**(...)

***SYSLST-NUM**BER(...)

| SYSLST-NUMBER = <integer 1..99> / <filename 1..2 with-wild(73)>

***ALL-SYS**(...)

| SYS-IDENTIFIER = <filename 1..3 with-wild(76)>

,DIALOG-CONTROL = ***STD** / ***NO** / ***ERROR** / ***F**ILE-**CHA**NGE / ***MORE-THAN-ONE-F**ILE

,OUTPUT = ***STD** / ***NO** / ***SYSOUT**

,SUPPRESS-ERRORS = ***NONE** / list-poss(3): <alphanum-name 7..7>

Operands

SYSTEM-FILE = *SYSLST / *SYSOUT / *OMF / *SYSLST-NUMBER(...) / *ALL-SYS(...)
The name of the system file to be deleted.
The contents of the specified system file, or the (cataloged) SAM file allocated to it, will be logically deleted. Any existing allocation will be retained. After its deletion, data will be written to the file starting at its beginning.

SYSTEM-FILE = *SYSLST
The contents of the specified system file, or the (cataloged) SAM file allocated to it, will be logically deleted.

SYSTEM-FILE = *SYSOUT
The contents of the specified system file, or the (cataloged) SAM file allocated to it, will be logically deleted.

SYSTEM-FILE = *OMF
Deletes the EAM object module file, which is produced and used by the language processor, for the job currently running. If this file is empty, the command will be ignored. This case does not trigger a spin-off mechanism or SDF-P error handling in procedures.

SYSTEM-FILE = *SYSLST-NUMBER(...)
The contents of the allocated SAM file will be logically deleted. The existing allocation will be retained; after its deletion, data will be written to the file starting at its beginning. The command will be rejected if the system file SYSLST-NUMBER is not allocated to a (cataloged) SAM file.

SYSLST-NUMBER = <integer 1..99> / <filename 1..2 with-wild(73)>
The number of the SYSLST file which is to be deleted. This must always be given as a two-digit number. Several numbers may be specified by using a sequence of wildcards.

SYSTEM-FILE = *ALL-SYS(...)
Enables several system output files to be deleted simultaneously.

SYS-IDENTIFIER = <filename 1..3 with-wild(76)>
Deletes one or more system output files, which can be specified by a sequence of wildcards. The name of the system file is specified without its SYS prefix, e.g. LST for the SYSLST system file.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE /*MORE-THAN-ONE-FILE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process.
The verification dialog mechanism is available only in interactive mode, though that does include procedures. The only operand value that you can specify in batch mode is *STD or *NO.

The user can intervene with the following inputs:

- Y: the specified file or file set will then be deleted.
- N: the specified file or file set will not be deleted.
- T: processing of the command will be terminated.
- ?: the possible responses will be listed, with an explanation of each.

In addition, the following options can be specified, separated by commas:

- ,CHECK = NO
  The DIALOG-CONTROL mode will be changed to '*NO'.
- ,CHECK = MULTIPLE
  The DIALOG-CONTROL mode will be changed to '*MORE-THAN-ONE-FILE'.
- ,CHECK = SINGLE
  The DIALOG-CONTROL mode will be changed to '*FILE-CHANGE'.
- ,CHECK = ERROR
  The DIALOG-CONTROL mode will be changed to '*ERROR'.
- ,IGNORE = list-poss(2): ACCESS / EXDATE
  Specifies which protection attributes are to be ignored during deletion.
- ,PASSWORD = list-poss(3): <c-string 1..4> / <x-string 1..8> /<integer -2147483648..2147483647>
  Enables password-protected files to be deleted (maximum of 3 passwords).

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
The user cannot intervene in DELETE-SYSTEM-FILE processing; all the specified files will be deleted.

DIALOG-CONTROL = *ERROR
If deletion of the selected files proceeds without error, they will be deleted immediately, as when *NO is specified (i. e. no verification dialog). However, if a user-correctable error occurs, then a verification dialog takes place as for DIALOG-CONTROL=*FILE-CHANGE. In the event of an error, the user may acknowledge the error message, abort DELETE-SYSTEM-FILE processing or attempt to rectify the error. If he wishes, he can also change the DIALOG-CONTROL mode (see also the possible forms of intervention listed under the first DIALOG-CONTROL operand).

DIALOG-CONTROL = *FILE-CHANGE
For each system file to be deleted, the user has the intervention options described under the first DIALOG-CONTROL operand. For each file which is to be processed, the user can decide in a dialog whether it should be deleted or not (response: YES/NO). If in the dialog he specifies protection attributes under "IGNORE", or one or more passwords under "PASSWORD", these will be taken into account for any selected file and, if satisfied, the file will be deleted without further queries ("YES" must also be specified). The user can also abort DELETE-SYSTEM-FILE processing, or change the DIALOG-CONTROL mode.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
If exactly one system file is specified, this file will be deleted immediately. If SYSTEM-FILE is partially qualified, which means that more than one file is selected, or if “pathname” contains wildcards, the user can decide, each time the catalog ID changes, whether files from the new catalog are to be deleted (see the intervention options described for the first of the DIALOG-CONTROL operands). He must respond to the question issued by the system with “YES” or “NO”. DIALOG-CONTROL = *MORE-THAN-ONE-FILE is useful if wildcards are specified for “catid” in the FILE-NAME operand. In the dialog, DELETE-SYSTEM-FILE processing can be terminated, or the DIALOG-CONTROL mode can be changed.

OUTPUT = *STD / *NO / *SYSOUT
The user can specify whether a message (`DMS0800`) with the name of the deleted file is to be output to SYSOUT for each successful deletion. The default setting *STD is equivalent to OUTPUT=*NO.

OUTPUT = *NO
No messages are output to SYSOUT for successfully deleted files.

OUTPUT = *SYSOUT
For each file that is successfully deleted, a message with the name of that file is output to SYSOUT.

SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
In procedures the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling. The deletion of an empty system file is not treated as an error.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified.
DMS error code: 7 characters, of which the first three are always “DMS”; the last
4 characters identify the error; the digits 0..9 and letters A..F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.

A detailed list of valid DMS error codes can be found on the manual server (URL: http://bs2manuals.ts.fujitsu.com) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	No action required
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing.
	64	DMS0572	SYSLST file not allocated to DMS file
	64	DMS0574	DMS error when deleting a system file Guaranteed message: DMS0574
	64	DMS0587	Use of the specified command has been restricted by systems support
	130	DMS0524	System address space exhausted
	130	DMS0594	Not enough virtual memory available

3.12 DELETE-TAPE-SET

Release volume serial number set (tape set)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The DELETE-TAPE-SET command is used to release the set of volumes specified by means of the CREATE-TAPE-SET or EXTEND-TAPE-SET command.

Format

DELETE**-TAPE-SET**
TAPE-SET-NAME = <alphanum-name 1..4>

Operands

TAPE-SET-NAME = <alphanum-name 1..4>
Name of the tape set.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	During processing a status was reported that renders continuation of the function impossible.
	32	CMD05C7	Unexpected internal error in DMS
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted

3.13 DELETE-VARIABLE

Delete variable

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

DELETE-VARIABLE deletes the declaration of an S variable within the current scope, i.e. including the declarations of imported task variables.

The name of the S variable can no longer be used, and its value is deleted.

Either simple or complex variables can be deleted, but not individual elements of complex variables.

The following variable declarations cannot be deleted using DELETE-VARIABLE:

- procedure parameters
- elements of complex variables
- system variables (e.g. SYSWITCH)
- container JVs
- nonpermanent container variables
- structure layouts

Note

In such cases, error message SDP1098 is only output if no wildcards are specified in the variable name.

Format

DELETE-**VAR**IABLE
VARIABLE-**NAME** = <structured-name 1..20 with-wild(40)> / list-poss(2000): <structured-name 1..20>

Operands

VARIABLE-NAME =
Name of the S variable to be deleted.

VARIABLE-NAME = <structured-name 1..20 with-wild(40)>
All the S variables which match this search pattern are deleted.

VARIABLE-NAME = list-poss(2000):<structured-name 1..20>
List of S variables to be deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	Warning; nothing executed
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	Do not have required privilege
	64	SDP0091	Semantic error
	130	SDP0099	No further address space available

3.14 DELETE-VOLUME-SET-LIST

Delete volume set list

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The DELETE-VOLUME-SET-LIST command enables systems support to delete volume set lists from the volume set list catalog. If more than one volume set list is specified, the SELECT operand can be used to restrict the set of volume set lists being deleted to those containing specific volume sets. The DIALOG-CONTROL operand defines the conditions under which a dialog is conducted to verify that objects are to be deleted.

The SM pubset must have been imported to the local system (in exclusive or shared mode).

Format

DELETE**-VOL**UME**-SET-LIST**

VOLUME**-SET-LIST-NAME** = ***ALL** / <composed-name 1..8 with-wild>

,**PUBSET** = <cat-id 1..4>

,**SEL**ECT = ***ALL** / ***BY-VOL**UME**-SET**(...)

***BY-VOL**UME**-SET**(...)

| **ENTRY** = list-poss(255): <cat-id 1..4>

,**DIALOG-CONTR**OL = ***STD** / ***NO** / ***ERROR** / ***LIST-CHANGE** / ***MORE-THAN-ONE-LIST**

Operands

VOLUME-SET-LIST-NAME = *ALL / <composed-name 1..8 with-wild>
Specifies which volume set lists to delete.

VOLUME-SET-LIST-NAME = *ALL
The volume set lists to delete are all those which are assigned to the pubset specified in the PUBSET operand and which also meet the selection criteria defined in the SELECT operand.

VOLUME-SET-LIST-NAME = <composed-name 1..8 with-wild>
Name of the volume set list that is to be deleted. Wildcards can be used to select more than one volume set list.

The volume set lists to delete are all those specified here which are assigned to the pubset specified in the PUBSET operand and which also meet the selection criteria defined in the SELECT operand.

PUBSET = <cat-id 1..4>
Catalog ID of the associated SM pubset. The SM pubset must have been imported to the local system (in exclusive or shared mode).

SELECT = *ALL / *BY-VOLUME-SET(...)
Specifies whether the set of volume set lists specified in the VOLUME-SET-LIST-NAME operand is to be restricted by selection criteria.

SELECT = *BY-VOLUME-SET(...)
The selection is to be restricted to volume set lists which contain any of the volume sets specified next.

ENTRY = list-poss(255): <cat-id 1..4>
Volume set ID.
Up to 255 volume sets can be listed.

DIALOG-CONTROL = *STD / *NO / *ERROR / *LIST-CHANGE / *MORE-THAN-ONE-LIST
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the deletion process.
The verification dialog mechanism is available only in interactive mode, though that does include procedures. In batch mode all values have the same effect as *NO.

Systems support can intervene with the following inputs:

Y	the specified volume set list or set of volume set lists will then be deleted.
N	the specified volume set list or set of volume set lists will not be deleted.
T	processing of the command will be terminated.
S	the specified volume set list or set of volume set lists will be displayed. The verification dialog will then be repeated.
?	the possible responses will be listed, with an explanation of each.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
Systems support cannot intervene in DELETE-VOLUME-SET-LIST processing; all the specified volume set lists will be deleted (without a verification dialog).

DIALOG-CONTROL = *ERROR
If deletion of the selected volume set lists proceeds without error, all the volume set lists will be deleted immediately, as when *NO is specified (i.e. no verification dialog). However, if a correctable error occurs during deletion, then a verification dialog takes place for each volume set list which it was not possible to delete.
In batch mode this value has the same effect as *NO.

DIALOG-CONTROL = *LIST-CHANGE
A verification dialog is conducted for each volume set list selected.
In batch mode this value has the same effect as *NO.

DIALOG-CONTROL = *MORE-THAN-ONE-LIST
If exactly one volume set list is specified or identified by the selection criteria, this will be deleted immediately. If more than one volume set list is to be deleted, a verification dialog is conducted for the set which is to be deleted. In batch mode this value has the same effect as *NO.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization to issue command
	64	DMS1482	Error accessing volume set list catalog
	64	DMS1484	Volume set list catalog invalid
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS148B	Volume set list not defined
	64	DMS1490	Storage class management not available for this pubset
	64	DMS149B	No volume set lists meet the selection criteria
	64	DMS149C	No volume set list exists for the specified pubset
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready

3.15 DETACH-DEVICE

Detach hardware units

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

This command enables the operator to detach one or more hardware units, i.e. prohibit the operating system from using these units.

Effect of the DETACH-DEVICE command

1. Each of the hardware units specified assumes (if permitted) the state “detached explicitly”. In this case, the hardware units cannot be used by the system for input/output.
2. All relevant outward connections assume the state “removed implicitly”. These connections cannot be used.
3. Each outer unit none of whose internal connections is in the “included” state is placed in the state “detached implicitly”. The unit cannot be used.
4. If the units to be detached are hardware units with corresponding SVP actions, these actions are initiated. The units are placed in the configuration state “detached”, regardless of whether these actions are successful.
5. If a device which is capable of forming a path group is detached then the path group for this device is eliminated. If a channel or controller is detached then the path groups of all the connected devices are eliminated.
6. If a PAV device (**P**arallel **A**ccess **V**olumes, see the “Introduction to System Administration” [14]) is detached then the following applies:

   If a base device is detached, the associated alias devices switch to the “not ready” status and are implicitly detached. Alias devices can also be explicitly detached by means of the DETACH-DEVICE command.
7. If a FastDPAV base device is detached, all associated alias devices are not detached implicitly (see the manual “Introduction to System Administration” [14]).
8. For a FastDPAV alias device in the configuration state ENABLED, the state DISABLED can be set by means of the DETACH-DEVICE command.

Format

DETACH-DEVICE

UNIT = ***CPU**(...) / ***EXTRA-CPU**(...) / ***CHANNEL**(...) / ***CONTR**OLLER(...) /

***CHANNEL-RANGE**(...) / ***DEV**ICE-**RANGE**(...) / ***PUB**SET-**DEV**ICES(...) /

list-poss(255): <alphanum-name 2..2> / <x-text 4..4>

***CPU**(...)

| CPU-IDENTIFIER = list-poss(16): <x-text 2..2>

***EXTRA-CPU**(...)

| CPU-IDENTIFIER = ***ALL** / ***ANY** / <x-text 2..2>

***CHANNEL**(...)

| CHANNEL-PATH-ID = list-poss(16): <x-text 2..2>

| ,SCOPE = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

***CONTR**OLLER(...)

| CONTROLLER-UNIT = list-poss(16):<alphanum-name 2..2> / <x-text 4..4>

| ,SCOPE = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

***CHANNEL-RANGE**(...)

| FROM = <x-text 2..2>

| ,TO = <x-text 2..2>

| ,SCOPE = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

***DEVICE-RANGE**(...)

| FROM = <alphanum-name 2..2> / <x-text 4..4>

| ,TO = <alphanum-name 2..2> / <x-text 4..4>

***PUB**SET-**DEV**ICES(...)

| PUBSET = list-poss(255): <cat-id 1..4> / ***BY-PUBRES-DEV**ICE(...)

| ***BY-PUBRES-DEV**ICE(...)

| | UNIT = list-poss(255): <alphanum-name 2..2> / <x-text 4..4>

,FORCE = ***STD** / ***Y**ES / ***NO**(...) / ***UNCOND**ITIONAL-**OFFLINE**

***NO**(...)

| WAIT = ***NO** / ***STD** / <integer 1..32767>(...)

```
|       <integer 1..32767>(...)
|           |    DIM = *STD / *MIN / *SEC
```

Operands

UNIT =
Specifies the hardware units to be detached from the system.

UNIT = *CPU(...)
Specifies the CPU to be detached.

CPU-IDENTIFIER = list-poss(16): <x-text 2..2>
Specifies the CPU identifier.

UNIT = *EXTRA-CPU(...)
Specifies the extra CPU that is to be detached.

CPU-IDENTIFIER = *ALL / *ANY / <x-text 2..2>
Specifies the identifier of the extra CPU. *ANY detaches one available extra CPU. *ALL detaches all available extra CPUs.

UNIT = *CHANNEL(...)
Specifies the channel to be detached.

CHANNEL-PATH-ID = list-poss(16): <x-text 2..2>
Specifies the channel path ID of the channel. In the case of channels, the device code (MN) is the same as the hexadecimal channel path ID.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the Monitor System (SU /390), the command is executed in all guest systems. If entered in another guest system or in the Monitor System (SU x86), the command is rejected with the message NKR0178.
The command is rejected if one of the guest systems is protected against global detachment (system parameter VMGIORAL=NO) and the channel that is to be detached does not yet possess the status DETACHED (unless FORCE= *UNCONDITIONAL-OFFLINE has been specified).

UNIT = *CONTROLLER(...)
Specifies the controller to be detached.

CONTROLLER-UNIT = list-poss(16): <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) of the controller to be detached.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the Monitor System (SU /390), the command is executed in all guest systems. If entered in another guest system or in the Monitor System (SU x86), the command is rejected with the message NKR0178.
The command is rejected if one of the guest systems is protected against global detachment (system parameter VMGIORAL=NO) and the controller that is to be detached does not yet possess the status DETACHED.

UNIT = *CHANNEL-RANGE(...)
Specifies a set of channels to be detached.

Note

In the case of channels, the device code (MN) is the same as the hexadecimal channel path ID.

FROM = <x-text 2..2>
Specifies the channel path ID of the first channel in the set of channels to be detached.

TO = <x-text 2..2>
Specifies the channel path ID of the first (FROM) and last (TO) channel in the set of channels to be detached. The following rules apply: chn_1 *-id* < chn_2 *-id* and chn_2 *-id* - chn_1*-id* < *64* , i.e. a maximum of 64 channels can be detached at a time.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the Monitor System (SU /390), the command is executed in all guest systems. If entered in another guest system or in the Monitor System (SU x86), the command is rejected with the message NKR0178.
The command is rejected if one of the guest systems is protected against global detachment (system parameter VMGIORAL=NO) and the channels that are to be detached do not yet possess the status DETACHED (unless FORCE= *UNCONDITIONAL-OFFLINE has been specified).

UNIT = *DEVICE-RANGE(...)
Specifies a number of up to 256 devices that are to be detached. The device type codes specified in the range do not have to be contiguous. If no device is generated for one of the device type codes, then processing continues with the next device type code that follows.

FROM = <alphanum-name 2..2> / <x-text 4..4>
Specifies the device type code of the first device in the range of devices to be detached.

TO = <alphanum-name 2..2> / <x-text 4..4>
Specifies the device type code of the last device in the range of devices to be detached.

UNIT = PUBSET-DEVICES(...)
Specifies that a pubset's disks are to be detached. The pubset must have been imported at least once. The mnemonic device codes (MNs) of the associated disks are administered in the system disk's SVL. This entry is made on IMPORT-PUBSET, EXPORT-PUBSET or MODIFY-PUBSET-PROCESSING.
As many disks as possible are always detached. If pubset disks are mirrored then the following should be noted:

- In the case of mirroring in external disk storage systems (see the “SHC-OSD” User Guide [37]) then only the standard disks (source or normal unit) are detached. If the mirror disks are to be detached, then the mirror disk (target or additional mirror unit) of the system disk (pubres) must be specified in the PUBSET operand.

PUBSET = list-poss(255): <cat-id 1..4> / *BY-PUBRES-DEVICE(...)
Designates the pubset whose disks are to be detached. The pubset can be specified via its catalog ID or the device code of its system disk.

PUBSET = <cat-id 1..4>
Specifies the pubset’s catalog ID. There must be a corresponding entry in the MRS catalog. If no such entry exists then the disks can only be detached by specifying the system disk (see PUBSET=*BY-PUBRES-DEVICE).

PUBSET = *BY-PUBRES-DEVICE(...)
Specifies the pubset’s system disk (pubres).

UNIT = list-poss(255): <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code (MN) of the pubres.

UNIT = list-poss(16): <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) if a controller or a device is to be detached.

FORCE =
Specifies the execution mode.

FORCE = *STD
The reconfiguration job is to be executed only if the unit is not being used. There is a maximum wait time of 15 minutes for release of the unit. During the wait time the unit is in the DETACH-PENDING state. If it is released within 15 minutes, the unit switches to the DETACHED state, otherwise it returns to the ATTACHED state.

FORCE = *YES
The reconfiguration job is to be executed immediately. This setting is **not** permitted for detaching CPU (see notes).

FORCE = *NO(...)
The reconfiguration job is only to be executed immediately if the unit is not being used. Otherwise the time specified in the WAIT operand must elapse before the unit is released. The device then switches to the DETACH-PENDING state. If the unit is released within the specified period, it switches to the DETACHED state; if not, it switches to the ATTACHED state.

WAIT =
Specifies the maximum wait time for execution of the reconfiguration job in execution mode FORCE=*NO.

WAIT = *NO
No maximum wait time is specified for execution of the reconfiguration job.

WAIT = *STD
The maximum wait time for execution of the reconfiguration job is set to 15 minutes.

WAIT = <integer 1..32767>(...)
Specifies the maximum wait time.

DIM =
Specifies whether the value defined for the wait time is to interpreted in minutes or seconds.

DIM = *STD
Wait time as for DIM=*MIN.

DIM = *MIN
Specifies the maximum wait time in minutes. Possible values: 1 <= <integer> <= 546

DIM = *SEC
Specifies the maximum wait time in seconds. Possible values: 1 <= <integer> <= 32767

FORCE = *UNCONDITIONAL-OFFLINE
The reconfiguration job should always be performed immediately. Unlike FORCE=*YES, the hardware action associated with the job should always be executed immediately. This setting is only permitted for the detachment of channels (CHANNEL or CHANNEL-RANGE) in the monitoring system (SU /390).
The protection of any of the guest systems against global detachment (system parameter VMGIORAL=NO) is ignored if this operand is specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	64	ETMRK..	Command execution faulty
2	64	ETMRK..	Command partially processed without error
4	64	NKR0...	Hardware unit was already detached
12	64	NKR0...	Internal check negative
16	64	NKR0...	Caller error
20	64	NKR0...	Software error

If there is an error in command termination, the maincode contains the message code of the message output during command processing. The command return codes with the ETMRK.. maincodes occur only if the hardware unit to be reconfigured is a CPU.

Notes

- If the reconfiguration job cannot be executed with FORCE=*NO within the specified maximum wait time, it is rejected with the following message:

  ```
  NKR0037 DEVICE=mn MAY CURRENTLY NOT BE DETACHED
  NKR0049 unit-class=mn DETACHMENT REJECTED
  ```

  In this case the operator should take one of the following actions:

  - Request more detailed information with the SHOW command, terminate all tasks which have reserved the device, or assign other devices.
  - Repeat the reconfiguration job in execution mode FORCE=*YES.
- Regardless of the execution mode set, a reconfiguration job is not executed if the unit affected is highly essential for the system. The system requires the following units:
  - the only or the last CPU ready for operation
  - the only or the last console
  - the only or the last controller for the public disks

- a disk drive for a public disk.

- The “detach pending” state can be terminated by means of the appropriate command ATTACH-DEVICE or DETACH-DEVICE ..., FORCE=*YES.
- A CPU may only be detached with FORCE=*YES.
- The following steps are performed when detaching hardware units in the execution mode FORCE=*NO(...):
  1. if the command is permitted, message `NKR0092` is issued,
  2. if the unit is being used neither by the system nor by user jobs, the command is executed immediately,
  3. if the unit concerned is being used, the command is executed when the unit is no longer occupied. If execution is not possible within the period specified by WAIT, the following messages are issued:

     ```
     NKR0037 DEVICE=mn MAY CURRENTLY NOT BE DETACHED
     NKR0049 unit-class=mn DETACHMENT REJECTED
     ```
  4. the command /DET <unit>,FORCE=*NO(...) can be canceled by /ATT <unit>
- For all devices, connections, etc., 2 alphanumeric characters are valid as ‘mn’. In the case of disk/tape devices and controllers, ‘mn’s comprising 4 hexadecimal characters (which must be specified in alphanumeric notation without 'X') are also valid. Restrictions see the “System Installation” manual [46].

Examples

1. Detach channels 41, 51 and 23 as soon as possible; wait state: 5 minutes

   ```
   /DETACH *CH((41,51,23)),FORCE=*NO(WAIT=5(DIM=*MIN))
   ```
2. Immediate unconditional detaching of channel 30

   ```
   /DETACH *CH(30),FORCE=*UNCONDITIONAL-OFFLINE
   ```
3. Detach CPU 0

   ```
   /DETACH-DEVICE UNIT=*CPU(CPU-IDENTIFIER=00) or /DET *CPU(00)
   ```

3.16 DISCONNECT-CMD-SERVER

Delete/modify entry in operator command table

Component:	BS2000
Functional area:	Operator function control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	@

Function

The DISCONNECT-CMD-SERVER command deletes the link between an operator command and a command server running as a $CONSOLE application.

> The DISCONNECT-CMD-SERVER command is only permitted for $CONSOLE applications and is only ever effective for the command-issuing $CONSOLE application.

Format

DISCONNECT**-CMD-SERVER**
CMD-NAME = <structured-name 1..30>

Operands

CMD-NAME = <structured-name 1..30>
Specifies the command name for which an entry in the command table is to be deleted. The command name may be up to 30 characters long and must comply with the naming convention for command names.

The entry with the highest priority, i.e. the entry assigned to the command-issuing $CONSOLE application, is deleted. If the command was entered in the list of operator commands using the CONNECT-CMD-SERVER command, the command name and all aliases are deleted from the list of operator commands when the last link is deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	NBR1114	Link involved does not exist
	1	CMD0202	Syntax error

3.17 EDIT-FILE-ATTRIBUTES

Start guided dialog for MODIFY-FILE-ATTRIBUTES

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

This command starts the guided dialog mechanism for the MODIFY-FILE-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified file.

Format

EDIT-FILE-ATTRIBUTES	Alias: **EDFA**
FILE**-NAME** = <filename 1..54>	

Operands

FILE-NAME = <filename 1..54>
Name of the file for which guided dialog is required. The operands are assigned the values specifically applicable to the named file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error

In addition, all the return codes of the MODIFY-FILE-ATTRIBUTES and SHOW-FILE-ATTRIBUTES commands can returned.
If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.18 EDIT-FILE-GENERATION-SUPPORT

Start guided dialog for MODIFY-FILE-GENERATION-SUPPORT

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING

Function

This command starts the guided dialog mechanism for the MODIFY-FILE-GENERATION-SUPPORT command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified file generation.

Format

EDIT-FILE-GENERATION-SUPPORT
GENERATION**-NAME** = <filename 1..54 without-vers>

Operands

GENERATION-NAME = <filename 1..54 without-vers>
Name of the file generation for which guided dialog is required. The operands are assigned the values specifically applicable to the named file generation.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error

In addition, all the return codes of the MODIFY-FILE-GENERATION-SUPPORT and SHOW-FILE-ATTRIBUTES commands can returned.
If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.19 EDIT-FILE-GROUP-ATTRIBUTES

Start guided dialog for MODIFY-FILE-GROUP-ATTRIBUTES

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING

Function

This command starts the guided dialog mechanism for the MODIFY-FILE-GROUP-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified file generation group.

Format

EDIT-FILE-GROUP-ATTRIBUTES
GROUP**-NAME** = <filename 1..47 without-gen-vers>

Operands

GROUP-NAME = <filename 1..47 without-gen-vers>
Name of the file generation group for which guided dialog is required. The operands are assigned the values specifically applicable to the named file generation group.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error

In addition, all the return codes of the MODIFY-FILE-GROUP-ATTRIBUTES and SHOW-FILE-ATTRIBUTES commands can returned.
If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.20 EDIT-FILE-LINK

Start guided dialog for ADD-FILE-LINK

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

This command starts the guided dialog mechanism for the ADD-FILE-LINK command. Where technically possible and helpful, the predefined default operand values are each replaced by values from the TFT entry corresponding to the specified link name.
This command does not cause the existing TFT entry to be modified; it creates a new entry and implicitly releases the “old” TFT entry (see the ADD-FILE-LINK command).
The command is rejected if there is no TFT entry for the specified link name.

Format

EDIT-FILE-LINK	Alias: **EDFL**
LINK-NAME = <filename 1..8 without-gen>	

Operands

LINK-NAME = <filename 1..8 without-gen>
Link name for guided dialog is required.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error

In addition, all the return codes of the ADD-FILE-LINK and SHOW-FILE-LINK commands can returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.21 EDIT-JOB

Start guided dialog for MODIFY-JOB

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-JOB command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified job.

Format

EDIT-JOB Alias: **EDJ**

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

Operands

JOB-IDENTIFICATION =
Type of job allocation. Jobs can be identified by their TSN or monitoring JV.

JOB-IDENTIFICATION = *TSN(...)

TSN = <alphanum-name 1..4>
Task serial number of the required job.

JOB-IDENTIFICATION = *MONJV(...)

MONJV = <filename 1..54 without-gen-vers>
Name of the JV which monitors the required job.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-JOB and SHOW-JOB-STATUS commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.22 EDIT-JOB-OPTIONS

Start guided dialog for MODIFY-JOB-OPTIONS

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS

Function

This command starts the guided dialog for the MODIFY-JOB-OPTIONS command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified job.

Format

EDIT-JOB-OPTIONS Alias: **EDJO**

JOB-IDENTIFICATION = ***OWN** / ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| TSN = <alphanum-name 1..4>

***MONJV**(...)

| MONJV = <filename 1..54 without-gen-vers>

Operands

JOB-IDENTIFICATION =
This operand is available only to privileged users.
Specifies the job for which job monitoring is to be modified. The job can be identified by the TSN or by the job variable which monitors it.

JOB-IDENTIFICATION = *OWN
Job monitoring is to be modified for the user's own task. The settings for INFORMATION-LEVEL, OPERATOR-INTERACTION, SYSLST-LIMIT and LOGGING can only be modified for the user's own task.

JOB-IDENTIFICATION = *TSN(...)

TSN = <alphanum-name 1..4>
Task serial number of the required job.

JOB-IDENTIFICATION = *MONJV(...)

MONJV = <filename 1..54 without-gen-vers>
Name of the JV which monitors the required job.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-JOB-OPTIONS, SHOW-JOB-OPTIONS and SHOW-JOB-STATUS commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.23 EDIT-JV

Start guided dialog for MODIFY-JV

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-JV command. Where technically possible (a JV can contain up to 256 characters, but MODIFY-JV can only set a maximum of 254), the current content of the JV is predefined as the new content and can thus be edited.

Format

EDIT-JV	Alias: **EDJV**
JV-NAME = <filename 1..54 without-gen-vers>	
,**OUT**PUT-FORMAT = ***CHAR** ACTER / ***HEX**ADECIMAL	
,**PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>	

Operands

JV-NAME = <filename 1..54 without-gen-vers>
Name of the JV for which guided dialog is required. The SET-VALUE operand is assigned the current JV content.

OUTPUT-FORMAT =
Determines the output format.

OUTPUT-FORMAT = *CHARACTER
Output in character format.

OUTPUT-FORMAT = *HEXADECIMAL
Output in hexadecimal format. **PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>**
Read or write password of the JV. The PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- The password entered is not logged.

PASSWORD = *NONE

The JV has no password or the password was already specified in the ADD-PASSWORD command.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-JV and SHOW-JV -ATTRIBUTES commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.24 EDIT-JV-ATTRIBUTES

Start guided dialog for MODIFY-JV-ATTRIBUTES

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-JV-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified JV.

Format

EDIT-JV-ATTRIBUTES	Alias: **EDJVA**
JV-NAME = <filename 1..54 without-gen-vers>	

Operands

JV-NAME = <filename 1..54 without-gen-vers>
Name of the JV for which guided dialog is required. The operands are assigned the values specifically applicable to the named JV.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-JV-ATTRIBUTES and SHOW-JV-ATTRIBUTES commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.25 EDIT-MASTER-CATALOG-ENTRY

Start guided dialog for MODIFY-MASTER-CATALOG-ENTRY

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command starts the guided dialog for the MODIFY-MASTER-CATALOG-ENTRY command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified pubset.

Format

EDIT-MASTER-CATALOG-ENTRY
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which guided dialog is required. The operands are assigned the values specifically applicable to the named pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-MASTER-CATALOG-ENTRY and SHOW-MASTER-CATALOG-ENTRY commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.26 EDIT-POSIX-USER-ATTRIBUTES

Start guided dialog for MODIFY-POSIX-USER-ATTRIBUTES

Component:	SRPMNUC
Functional area:	User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING POSIX-ADMINISTRATION USER-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-POSIX-USER-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified user.

Format

EDIT-POSIX-USER-ATTRIBUTES
USER-IDENTIFICATION = <name 1..8> ,**PUB**SET = ***HOME** / <cat-id 1..4>

Operands

USER-IDENTIFICATION = <name 1..8>
BS2000 user ID whose POSIX user attributes are to be modified.

PUBSET = *HOME / <cat-id 1..4>
Pubset in whose user catalog the POSIX user attributes are to be modified.

PUBSET = *HOME
The change is made on the home pubset.

PUBSET = <cat-id 1..4>
The change is made on the specified pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-POSIX-USER-ATTRIBUTES and SHOW-POSIX-USER-ATTRIBUTES commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P command return codes are supplied.

3.27 EDIT-POSIX-USER-DEFAULTS

Start guided dialog for MODIFY-POSIX-USER-DEFAULTS

Component:	SRPMNUC
Functional area:	User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING POSIX-ADMINISTRATION USER-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-POSIX-USER-DEFAULTS command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified pubsets.

Format

EDIT-POSIX-USER-DEFAULTS
PUBSET = ***HOME** / <cat-id 1..4>

Operands

PUBSET = *HOME / <cat-id 1..4>
Pubset in whose user catalog the POSIX default user attributes are to be modified.

PUBSET = *HOME
The change is made on the home pubset.

PUBSET = <cat-id 1..4>
The change is made on the specified pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-POSIX-USER-DEFAULTS and SHOW-POSIX-USER-DEFAULTS commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.28 EDIT-PUBSET-CACHE-ATTRIBUTES

Start guided dialog for MODIFY-PUBSET-CACHE-ATTRIBUTES

Component:	BS2000
Functional area:	Caching media control Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command starts the guided dialog for the MODIFY-PUBSET-CACHE-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified pubset.

Format

EDIT-PUBSET**-CACHE-ATTR**IBUTES

PUBSET = <cat-id 1..4>

,**PUB**SET**-TYPE** = ***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED(...)

***SYS**TEM**-MANAG**ED(...)

| **VOL**UME**-SET** = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which guided dialog is required. The operands are assigned the values specifically applicable to the named pubset.

PUBSET-TYPE = *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Specifies the type of pubset for which a new entry is to be created in the MRSCAT.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset is an SF pubset.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. The PFA cache configuration is defined or modified for the volume set specified next.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	DMS140C	Pubset type conflict Wrong pubset type specified

In addition, all the return codes of the MODIFY-PUBSET-CACHE-ATTRIBUTES and SHOW-PUBSET-CACHE-ATTRIBUTES commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.29 EDIT-PUBSET-DEFINITION-FILE

Start guided dialog for MODIFY-PUBSET-DEFINITION-FILE

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command starts the guided dialog for the MODIFY-PUBSET-DEFINITION-FILE command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified pubset.

Format

EDIT-PUBSET**-DEFI**NITION**-FILE**
PUBSET = <cat-id 1..4>
,**VOL**UME**-SET** = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which guided dialog is required. The operands are assigned the values specifically applicable to the named pubset.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	DMS1486	Pubset is not a system-managed pubset

In addition, all the return codes of the MODIFY-PUBSET-DEFINITION-FILE and SHOW-PUBSET-DEFINITION-FILE commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P command return codes are returned.

3.30 EDIT-PUBSET-SPACE-DEFAULTS

Start guided dialog for MODIFY-PUBSET-SPACE-DEFAULTS

Component:	BS2000
Functional area:	Pubset and MRSCAT management System control and optimization
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command starts the guided dialog for the MODIFY-PUBSET-SPACE-DEFAULTS command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified pubset.

Format

EDIT-PUBSET-**SPACE-DEF**AULTS
PUBSET = <cat-id 1..4> ,**SCOPE** = ***TEMP**ORARY / ***PERMANENT** / ***NEXT-PUB**SET-**SESSION**

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which guided dialog is required. The operands are assigned the values specifically applicable to the named pubset.

SCOPE = *TEMPORARY / *PERMANENT / *NEXT-PUBSET-SESSION
Defines how long the setting applies and when it comes into effect.

SCOPE = *TEMPORARY
The setting takes immediate effect and applies only for the duration of the current pubset session, i.e. until the pubset is taken out of service.

SCOPE = *PERMANENT
The setting takes immediate effect and applies until the next modification.

SCOPE = *NEXT-PUBSET-SESSION
The setting applies until the next permanent modification. However, the setting does not take effect until the start of the next pubset session.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-PUBSET-SPACE-DEFAULTS and SHOW-PUBSET-SPACE-DEFAULTS commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.31 EDIT-SPACE-SATURATION-LEVELS

Start guided dialog for MODIFY-SPACE-SATURATION-LEVELS

Component:	BS2000
Functional area:	Pubset and MRSCAT management System control and optimization
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command starts the guided dialog for the MODIFY-SPACE-SATURATION-LEVELS command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified pubset or volume set.

Format

EDIT-SPACE-SATURATION**-LEV**ELS

PUBSET = <cat-id 1..4>

,**PUB**SET**-TYPE** = ***SINGLE-FEATURE** / **SYS**TEM**-MANAG**ED(...)

SYSTEM**-MANAG**ED(...)

| **VOL**UME**-SET** = <cat-id 1..4>

,**SCOPE** = ***TEMP**ORARY / ***PERMANENT** / ***NEXT-PUB**SET**-SESSION**

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which guided dialog is required. The operands are assigned the values specifically applicable to the named pubset.

PUBSET-TYPE = *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Specifies whether the pubset is an SF or SM pubset.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset is an SF pubset. The thresholds are defined on a pubset-global basis.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. The thresholds are defined for the volume set specified next.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

SCOPE = *TEMPORARY / *PERMANENT / *NEXT-PUBSET-SESSION
Defines how long the setting applies and when it comes into effect.

SCOPE = *TEMPORARY
The setting takes immediate effect and applies only for the duration of the current pubset session, i.e. until the pubset is taken out of service.

SCOPE = *PERMANENT
The setting takes immediate effect and applies until the next modification.

SCOPE = *NEXT-PUBSET-SESSION
The setting applies until the next permanent modification. However, the setting does not take effect until the start of the next pubset session.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	DMS140C	Pubset type conflict: Wrong pubset type specified

In addition, all the return codes of the MODIFY-SPACE-SATURATION-LEVELS and SHOW-SPACE-SATURATION-LEVELS commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.32 EDIT-STORAGE-CLASS

Start guided dialog for MODIFY-STORAGE-CLASS

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command starts the guided dialog for the MODIFY-STORAGE-CLASS command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the storage class.

Format

EDIT-STORAGE**-CLASS**
STORAGE**-CLASS-NAME** = <composed-name 1..8> **,PUB**SET = <cat-id 1..4>

Operands

STORAGE-CLASS-NAME = <composed-name 1..8>
Name of the storage class for which guided dialog is required. The operands are assigned the values specifically applicable to the named storage class.

PUBSET = <cat-id 1..4>
Identifies the pubset for which the storage class was created. The pubset must have been imported to the local system (in exclusive or shared mode).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-STORAGE-CLASS and SHOW-STORAGE-CLASS commands can returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.33 EDIT-USER-ATTRIBUTES

Start guided dialog for MODIFY-USER-ATTRIBUTES

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-USER-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified user.

Format

EDIT-USER-ATTRIBUTES
USER-IDENTIFICATION = <name 1..8> ,**PUB**SET = ***HOME** / <cat-id 1..4>

Operands

USER-IDENTIFICATION = <name 1..8>
Name of the user ID whose entry is to be modified.

PUBSET = *HOME / <cat-id 1..4>
(SM) pubset in whose user catalog the pubset-specific user attributes are to be modified.

PUBSET = *HOME
The change is made on the home pubset.

PUBSET = <cat-id 1..4>
The change is made on the specified pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-USER-ATTRIBUTES and SHOW-USER-ATTRIBUTES commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P return codes are supplied.

3.34 EDIT-USER-PUBSET-ATTRIBUTES

Start guided dialog for MODIFY-USER-PUBSET-ATTRIBUTES

Component:	SRPMNUC
Functional area:	User management Pubset and MRSCAT management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION

Function

This command starts the guided dialog for the MODIFY-USER-PUBSET-ATTRIBUTES command. Where technically possible and helpful, the predefined default operand values are each replaced by values currently applicable to the specified user.

Format

EDIT-USER-PUBSET-**ATTR**IBUTES
USER-IDENTIFICATION = <name 1..8> ,**PUB**SET = ***HOME** / <cat-id 1..4>

Operands

USER-IDENTIFICATION = <name 1..8>
Name of the user ID whose pubset-specific user attributes are to be modified.

PUBSET = *HOME / <cat-id 1..4>
(SM) pubset in whose user catalog the pubset-specific user attributes are to be modified.

PUBSET = *HOME
The change is made on the home pubset

PUBSET = <cat-id 1..4>
The change is made on the specified pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

In addition, all the return codes of the MODIFY-USER-PUBSET-ATTRIBUTES and SHOW-USER-ATTRIBUTES commands can be returned. If errors occur while S variables are being processed, the corresponding SDF-P command return codes are returned.

3.35 ELSE

Initiate ELSE branch

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

ELSE is an SDF-P control flow command and serves to initiate the ELSE branch in IF blocks. The ELSE branch (the commands between ELSE and END-IF) is processed if the test fails to meet any of the conditions set by the IF command or any ELSE-IF commands that are included (ELSE-IF command are chargeable).

In an IF-BLOCK-ERROR block or a (chargeable) IF-CMD-ERROR block, the ELSE branch is taken is no error occurs.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Format

ELSE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	1	SDP0223	Incorrect environment
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SDP0091	Semantic error
	130	SDP0099	No further address space available

Example

See IF command.

3.36 ENCRYPT-FILE

Encrypt an unencrypted file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Use of this command makes sense only when the CRYPT subsystem has been loaded for performing the encryption.

Function

The ENCRYPT-FILE command converts an unencrypted file into an encrypted file. The encryption method used for conversion is set using the system parameter FILECRYP and is stored in the catalog entry (see the *ENCRYPTION* output field in the SHOW-FILE-ATTRIBUTES command).

Within a file generation group either all generations are unencrypted or all generations except tape generations are encrypted. Within a file generation group all encrypted generations have the same crypto password and the same encryption method.

When a file is converted into an encrypted file the read and execute passwords are implicitly deleted, but the write password remains unchanged. With files that are already encrypted the assignment of read and execute passwords is ignored.

Encrypting the files with last-byte pointer is rejected.

Encrypted files are protected against unauthorized decryption:
The encrypted file contents can only be accessed if the user knows the crypto password specified for encryption. The relevant crypto password must be entered into the crypto password table (see the ADD-CRYPTO-PASSWORD command) both for explicit decryption (DECRYPT-FILE command) and for implicit decryption while a file is being accessed or processed.

File encryption does not, however, include greater protection against deletion, overwriting or destruction of the file contents. File encryption can thus not replace data protection and security.

The conversion into an encrypted file is logged by SAT. The output AUDIT attribute is taken from the catalog entry of the converted file (see CREATE-FILE, AUDIT operand).

By converting in an encrypted file, an auxiliary file is created and automatically deleted after completion of the function. The auxiliary file requires as much storage place as the converted file.
The file name of the auxiliary file has the following structure: `S.DMS.<tsn>.<date><time>.CRYPTO`

Notes on command execution

File locking and protection attributes which reject write access to the catalog entry or the content of the file prevent its conversion via the ENCRYPT-FILE command.

The file conversion with the ENCRYPT-FILE command requests having owner rights for executing operations on the file. The conversion takes place only in the following cases:

- The file is under user ID of the calling task.
- The called task is under a user ID with TSOS privileges.
- The user ID of a called task is a co-owner of the file, and the file is not temporary.

The command is rejected in the following cases:

- The command refers to a file with a last byte pointer.
- The converted file can be accessed only via RFA.

Privileged functions

When the called task has the privilege TSOS, the following additional functions are possible:

- Temporary files that belong not to this, but to another task can be input too.
- Temporary files can be allocated on another pubset as the default one for this user ID (such files are not automatically deleted after finishing the called task).

Format

ENCRYPT**-FILE**

FILE**-NAME** = <filename 1..54 without-gen>

,**CRYPTO-PASS**WORD = <c-string 1..8> / <x-string 1..16> / ***SECRET** / ***FROM-FILE**(...)

***FROM-FILE**(...)

| **F**ILE**-NAME** = <filename 1..54 without-gen>

,**CONFIRM-PASS**WORD = ***NOT-SPECIFIED** / <c-string 1..8> / <x-string 1..16> / ***SECRET**

Operands

FILE-NAME = <filename 1..54 without-gen>
Name of the file to be converted. It must satisfy the following requirements:

- It must already have a catalog entry.
- The pubset on which it is cataloged must be accessible locally.
- It may not yet be encrypted.
- It may not reside on a private disk.
- No tape type may be entered.

CRYPTO-PASSWORD = <c-string 1..8> / <x-string 1..16> / *SECRET / *FROM-FILE(...)
Crypto password for protecting against unauthorized decryption. To permit access to the unencrypted file content this password must be entered into the job's crypto password table. The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

CRYPTO-PASSWORD = <c-string 1..8> / <x-string 1..16>
Direct specification of the crypto password. If the system parameter FREFCRYP contains a user ID, direct specification of a crypto password is permitted only for files of this user ID. Only a reference file may be specified for files of other user IDs (CRYPTO-PASSWORD=*FROM-FILE).

CRYPTO-PASSWORD = *FROM-FILE(...)
The crypto password is to be taken over from a reference file. If the password has not been entered into the job's crypto password table (with ADD-CRYPTO-PASSWORD), it must be confirmed in the CONFIRM-PASSWORD operand.

FILE-NAME = <filename 1..54 without-gen>
Reference file from which the crypto password is taken over.
The pubset on which the reference file is cataloged must be locally accessible.

CONFIRM-PASSWORD = *NOT-SPECIFIED / <c-string 1..8> / <x-string 1..16> / *SECRET
Confirmation of the password entry to guard against typos.
The CONFIRM-PASSWORD operand has the following special features:

- The value entered is not logged.
- In guided dialog the entry field is automatically blanked out.
- If *SECRET or ^ is specified, in unguided dialog and in foreground procedures SDF provides a nondisplaying entry field for concealed entry of the password.

The default is *NOT-SPECIFIED, i.e. the password need not be acknowledged. This operand value is, however, only allowed if the crypto password is taken over from a reference file and this crypto password is entered into the job's crypto password table (with ADD-CRYPTO-PASSWORD or temporarily with ENCRYPT-FILE).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS05B6	Time conversion UTC to LT errored
2	0	DMS05F5	Defective blocks were not copied
	1	CMD0202	Syntactical or semantic error in the command
	32	DMS0584	During processing a status was reported which prevents the function from being continued.
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privileges error
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User does not have access right for pubset Guaranteed message: DMS051C
	64	DMS0535	Specified file not shareable
	64	DMS057C	Processing not possible because of HSMS error
	64	DMS057E	File migrated, HSMS not available
	64	DMS0585	An error was detected during catalog processing or during multiprocessor processing.
	64	DMS0588	Disk storage could not be assigned
	64	DMS05FC	Specified user ID not in the home pubset
	64	DMS0609	Access to system file not possible
	64	DMS060D	Invalid file name for reference file
	64	DMS0663	File encryption not permitted
	64	DMS0667	File cannot be used as reference file
	64	DMS0669	Protection attribute modified implicitly
	64	DMS066A	Crypto password cannot be used
	64	DMS066D	Crypto password entry restricted
	64	DMS0681	DMS error while executing job

	64	DMS0684	File does not exist
	64	DMS0691	Crypto password list has reached maximum size
	64	DMS0692	Maximum number of crypto passwords per task has been reached
	64	DMS06B5	File open or catalog entry not updated after system error
	130	DMS0524	System address space exhausted
	130	DMS0582	The file is currently locked or in use and cannot be processed
	130	DMS0585	An error was detected during catalog processing or during multiprocessor processing.
	130	DMS0588	Disk storage could not be assigned
	130	DMS0594	Insufficient virtual memory available

3.37 END-CJC-ACTION

Mark end of CJC command sequence

Component: JV

Functional area: Job variables

Domain: JOB-VARIABLES

Privileges: STD-PROCESSING
HARDWARE-MAINTENANCE
SAT-FILE-EVALUATION
SAT-FILE-MANAGEMENT
SECURITY-ADMINISTRATION

Function

The END-CJC-ACTION command is the last command in a CJC command sequence. As soon as it is issued, the ADD-CJC-ACTION command becomes effective, i.e. the specifications contained in it are evaluated.
(For structure and execution of the CJC command sequences, and also notes, see the ADD-CJC-ACTION command description.)

Format

END-CJC-ACTION

Return codes

(SC2)	SC1	Maincode	Meaning
0	1	CMD0202	No CJC command sequence was initiated

Note

Command return codes referring to a CJC command sequence are not returned until after completion of the CJC command sequence with the END-CJC-ACTION command. Possible values are indicated in the description of the ADD-CJC-ACTION command.

3.38 END-IF

Mark end of IF command block

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

END-IF is an SDF-P control flow command and serves to terminate a command block initiated by means of an IF, IF-BLOCK-ERROR or IF-CMD-ERROR command. Procedure execution then continues with the command that follows END-IF.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Format

END-IF
BLOCK = ***LAST** / <structured-name 1..255>

Operands

BLOCK = *LAST / <structured-name 1..255>
This terminates the command block initiated by means of an IF, IF-BLOCK-ERROR or IF-CMD-ERROR command. The default value is *LAST, i.e. the last command block to have been initiated is now terminated.
When a block name is specified, SDF-P checks whether this name was assigned to the last command block to have been initiated. If the specified name and the label do not tally, SDF-P rejects the END-IF command with an error message. Specifying a block name is therefore useful for consistency checking and for documentation.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	1	SDP0223	Incorrect environment
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SDP0091	Semantic error
	130	SDP0099	No further address space available

3.39 END-PARAMETER-DECLARATION

Mark end of parameter declarations

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

END-PARAMETER-DECLARATION is an SDF-P control flow command and serves to terminate the parameter declarations initiated by means of the BEGIN-PARAMETER-DECLARATION command. It is the last command in the procedure head.

Format

END-PARAMETER**-DECL**ARATION

Return codes

The END-PARAMETER-DECLARATION command can only be used as the last command in the procedure head of an S procedure. SDF-P detects errors in the procedure head during pre-analysis and terminates the procedure call. The command return codes can only occur if the command is used outside the procedure head.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	1	SDP0139	Maximum number of backward jumps reached
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SDP0091	Semantic error
	130	SDP0099	No further address space available

3.40 END-PROCEDURE

Mark end of non-S procedure file

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The END-PROCEDURE command must appear as the last record in a non-S procedure file. It terminates execution of the procedure and causes processing to return to the point of interruption in the calling procedure - if there was one; otherwise it causes a return to primary command input (the terminal in interactive mode, ENTER file in batch mode). The system files, including TASKLIB, are given the allocations in force at the time of interruption. A file that was assigned by means of ASSIGN-SYSLST in the procedure is closed with END-PROCEDURE.

The END-PROCEDURE command may be used in procedure files only and therefore does not appear in the menu.

Format

END-PROCEDURE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	SSM2039	Error on closing output system file; the SYSOUT message contains the DMS error code as an insert
	64	SSM1013	No procedure has been called

Notes

- Commands in procedure files:

  If an error in the command sequence activates the spin-off mechanism, processing branches to the next of the following commands:
  END-PROCEDURE, LOGOFF, EXIT-JOB, SET-JOB-STEP, CANCEL-PROCEDURE or EXIT-PROCEDURE.
- The effect of an END-PROCEDURE command in ESCAPE mode is described under the HOLD-PROCEDURE command (figure "Nesting of ESCAPE levels" in section "HOLD-PROCEDURE").
- If a procedure is called in ESCAPE mode, the following message is issued when control is returned:
  `TASK IS IN ESCAPE-MODE AT LEVEL NUMBER i`

  where i = number of the procedure level to which processing has returned. When primary command input is reached (level 0), this message is not issued.

Examples

See the BEGIN-PROCEDURE, CANCEL-PROCEDURE, HOLD-PROCEDURE and RESUME-PROCEDURE commands.

3.41 ENDP-RESUME

Terminate non-S procedure run and resume loaded program

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE SDF
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The ENDP-RESUME command terminates execution of a non-S procedure and resumes a program loaded during the procedure.
In S procedures, the EXIT-PROCEDURE command with RESUME-PROGRAM=*YES must be used for this function.

Method of operation

ENDP-RESUME is used when a program call is to be implemented as a command, e.g. a call to the PROG.EDIT problem program:

/START-EXE-PROG FROM-FILE=PROG.EDIT is to be implemented as the command /X-EDIT:

- In a user syntax file a command must, for example, be defined under the name X-EDIT and implemented as a procedure (SDF-A statement ADD-COMMAND; for further details see the “SDF-A” manual [33]). The path name of the procedure file is also defined in the process.
- The user syntax file must be activated (MODIFY-SDF-OPTIONS command). The user must be authorized to execute the procedure file. The procedure file may have the following contents:

```
/BEGIN-PROC
/LOAD-EXEPROG FROM-FILE=PROG.EDIT
/ENDP-RESUME
```

Format

ENDP-RESUME

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SSM2039	Error on closing output system file; the SYSOUT message contains the DMS error code as an insert
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SSM1013	No procedure has been called
	130	SDP0099	No further address space available

3.42 ENTER-JOB

Start command sequence (ENTER file) as batch job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	P

Function

The ENTER-JOB command enables another batch job (ENTER job) to be initiated from an interactive or batch job. This new batch job is independent of the issuing job and is assigned its own task sequence number (TSN) by the system. The batch job is also called an ENTER job (see figure "ENTER-JOB starts ENTER job" in section "ENTER-JOB"). The former term ENTER procedure, on the other hand, is regarded as obsolete because it is too reminiscent of the ENTER-PROCEDURE command. However, this command expects a different file format.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Privileged functions

An operator can start the ENTER file on the console with the job attributes which are specified in the SET-LOGON-PARAMETERS command of the ENTER file (see default values *STD) or modify or add job attributes. This special function is linked to the consoles and user IDs with the OPERATING privilege (see also the DEFAULT-FROM-FILE operand. If the command is issued from a user ID which is not equipped with the OPERATING privilege, job attributes from the SET-LOGON-PARAMETERS command of the ENTER file are ignored.

Method

The commands for the ENTER job must be stored in a file. The first command of such an ENTER file must always be SET-LOGON-PARAMETERS, and the last EXIT-JOB or LOGOFF. The name of the file must be specified in the ENTER-JOB command. When the command is accepted, a message containing the task sequence number (TSN) which assigned the system to the new ENTER job is issued as the job confirmation. The ENTER job does not have to start immediately as the systems support can restrict the number and runtime of the batch jobs in the system. If this is the case, the ENTER job is entered in the job queue and remains there until it can be processed by the system.

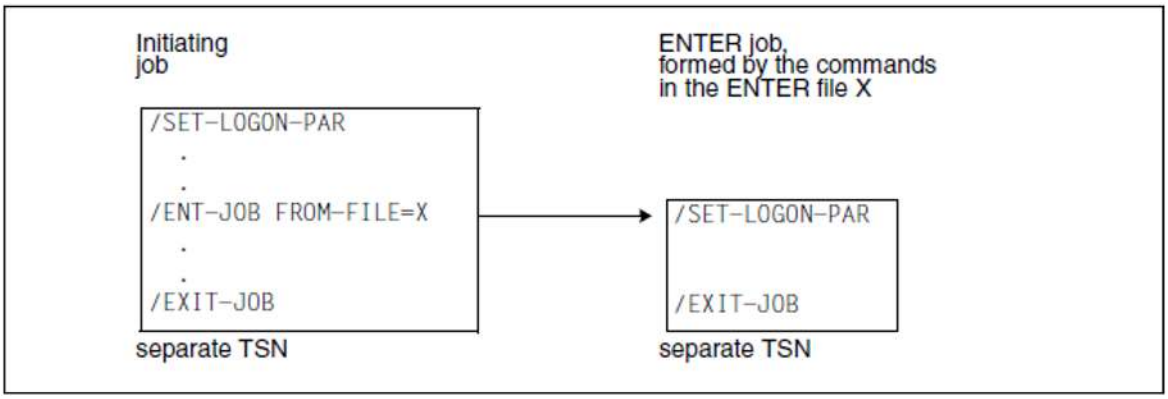


Figure 4: ENTER-JOB starts ENTER job

Format

ENTER**-JOB** Alias: **ENJ**

FROM-FILE = ***LIB**RARY**-ELEM**ENT(...) / <filename 1..54 without-gen>

***LIB**RARY**-ELEM**ENT(...)

| **LIB**RARY = <filename 1..51 without-gen-vers>

| ,**ELEM**ENT = <composed-name 1..38>

,**PROC**ESSING**-ADMIS**SION = ***STD** / ***PAR**AMETERS(...) / ***FROM-CALL**ER(...)

***PAR**AMETERS(...)

| **USER-ID**ENTIFICATION = ***NONE** / <name 1..8>

| ,**ACCOUNT** = ***NONE** / <alphanum-name 1..8>

| ,**PASS**WORD = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET**

***FROM-CALL**ER(...)

| **ACCOUNT** = ***STD** / <alphanum-name 1..8>

,**DEF**AULT**-FROM-FILE** = ***STD** / ***NO** / ***Y**ES

,**F**ILE**-PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / ***SECRET**

| ,**CRYPTO-PASS**WORD = ***NONE** / <c-string 1..8> / <x-string 1..16> / ***SECRET**

,**DEL**ETE = ***NO** / ***Y**ES

,**HOST** = ***STD** / <c-string 1..8> / <filename 1..54 without-gen-vers> / ***ANY** / ***CAT**ALOG(...)

***CAT**ALOG(...)

| **ID**ENTIFICATION = <c-string 1..4> / <filename 1..54 without-gen-vers>

,**JOB-CLASS** = ***STD** / <name 1..8> / ***BY-USER-ID**

,**JOB-NAME** = ***NO** / <name 1..8>

,**MONJV** = ***NONE** / <filename 1..54 without-gen-vers>

,**JV-PASS**WORD = **_*NONE_** / <c-string 1..4> / <x-string 1..8> / ***SECRET** /
<integer -2147483648..2147483647>
,**JOB-PRIO**RITY = **_*STD_** / <integer 1..9> / ***BY-JOB-CLASS**
,**RERUN-AF**TER-**CRASH** = **_*STD_** / ***NO** / ***Y**ES
,**FLUSH-AF**TER-**SHUTDOWN** = **_*STD_** / ***NO** / ***Y**ES
,**SCHED**ULING-**TIME** = **_*STD_** / ***PAR**AMETERS(...) / ***BY-CALENDAR**(...)
***PAR**AMETERS(...)
| **START** = **_*STD_** / ***BY-JOB-CLASS** / ***SOON** / ***IMMED**IATELY / ***AT-STREAM**-STARTUP /
| ***WITHIN**(...) / ***AT**(...) / ***EARL**IEST(...) / ***LATEST**(...)
| ***WITHIN**(...)
| | **HOURS** = **_0_** / <integer 0..23 *hours*>
| | ,**MINUT**ES = **_0_** / <integer 0..59 *minutes*>
| ***AT**(...)
| | **DATE** = **_*TODAY_** / <date>
| | ,**TIME** = <time>
| ***EARL**IEST(...)
| | **DATE** = **_*TODAY_** / <date>
| | ,**TIME** = <time>
| ***LATEST**(...)
| | **DATE** = **_*TODAY_** / <date>
| | ,**TIME** = <time>
| ,**REP**EAT-**JOB** = **_*STD_** / ***BY-JOB-CLASS** / ***NO** / ***DAILY** / ***WEEKLY** / ***AT-STREAM**-STARTUP /
| ***PER**IOD(...)
| ***PER**IOD(...)
| | **HOURS** = **_0_** / <integer 0..23 *hours*>
| | ,**MINUT**ES = **_0_** / <integer 0..59 *minutes*>
***BY-CALENDAR**(...)
| **CALENDAR-NAME** = <filename 1..54 without-gen-vers>
| ,**SYMB**OLIC-**DATE** = <filename 1..20 without-cat-user-vers> /
| <partial-filename 2..20 without-cat-user>
,**LIMIT** = **_*STD_** / <integer 1..32767> / ***BY-DATE**(...)

```
    *BY-DATE(...)
        |       DATE = <date>
        |       ,TIME = <time>
,RESOURCES = *PARAMETERS(...)
    *PARAMETERS(...)
        |       RUN-PRIORITY = *STD / <integer 30..255> / *BY-JOB-CLASS
        |       ,CPU-LIMIT = *STD / *NO / <integer 1..32767 seconds> / *BY-JOB-CLASS
        |       ,SYSLST-LIMIT = *STD / *NO / <integer 0..999999> / *BY-JOB-CLASS
,LOGGING = *PARAMETERS (...)
    *PARAMETERS(...)
        |       LISTING = *STD / *NO / *YES
,JOB-PARAMETER = *STD / *NO / <c-string 1..127>
,PROTECTION = *NONE / *CANCEL
```

Operands

FROM-FILE = *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen>
Name of the ENTER file.

> ¡ If the file/library name is specified without a catalog/user ID and if it is not cataloged in the user ID, the system tries to access a file or library of the same name in the system default ID. (For information on this “secondary read” function see the “Introductory Guide to DMS” [13].)

If the job submitter is not the file owner (differing user IDs), the file must be accessible (see the USER-ACCESS=*ALL-USERS operand in the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands).
The job submitter must in any case have at least execution privileges if the file is protected by a basic ACL or GUARDS.
If the file has an execute password, the password must be specified in the FILE-PASSWORD operand.

FROM-FILE = *LIBRARY-ELEMENT(...)
The ENTER file is stored in a PLAM library.

LIBRARY = <filename 1..51 without-gen-vers>
Name of the library containing the ENTER file as an element. The specification of a library list (see the “LMS” manual [21]) instead of a library file is not supported.

ELEMENT = <composed-name 1..38>
Name of the element.

The following applies for the sum of the lengths of the library and member names:

- Without catalog and user IDs the sum may amount to at most 39 characters.
- In the case of a multi-character catalog ID, the sum with the full path name of the library including the catalog and user IDs may amount to at most 52 characters.

PROCESSING-ADMISSION =
Specifies the user ID under which the batch job is to run (target user ID).

PROCESSING-ADMISSION = *STD
The batch job is to run under the user's own user ID (i.e. the one under which ENTER-JOB was specified).
The following applies if the batch job is started on the console by an operator:
The batch job runs under the user ID which is contained in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file. If no user ID is specified there, a distinction must be made between the following two cases:

- If the operator LOGON function is not enabled (compatible mode), the console has no user ID of its own and the batch job is rejected.
- If the operator LOGON function is enabled (incompatible mode), the batch job runs under the operator's user ID.

PROCESSING-ADMISSION = *PARAMETERS(...)
Parameters defining the LOGON authorization of the target user ID.

USER-IDENTIFICATION = *NONE / <name 1..8>
User ID under which the batch job should run.

ACCOUNT = *NONE / <alphanum-name 1..8>
Account number of the user ID.

PASSWORD = *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
Password for the user ID.
The long password mechanism is supported (<c-string 9..32>). See the MODIFY-USER-PROTECTION command for details of the long password mechanism.
The PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

PROCESSING-ADMISSION = *FROM-CALLER(...)
This specification is only permissible for tasks with the OPERATING privilege.
The batch job is to run under the user ID of the calling task. However, the option of specifying a different account number is available.

ACCOUNT = *STD / <alphanum-name 1..8>
Account number for job execution. Default value =*STD, i.e. job execution is billed under the account number of the calling task.

DEFAULT-FROM-FILE = *STD / *NO / *YES
This operand is only available for tasks with the OPERATING privilege.
Specifies whether the job attributes from the SET-LOGON-PARAMETERS command of the ENTER file are to be taken over when the default value is specified implicitly or explicitly in the ENTER-JOB command (see also the section "Privileged functions", "ENTER-JOB").

DEFAULT-FROM-FILE = *STD
If the ENTER-JOB command is called from the console, attributes with which the default value is specified are taken over from the ENTER file (corresponds to DEFAULT-FROM-FILE=*YES). With all other calls, the specification corresponds to DEFAULT-FROM-FILE=*NO.

DEFAULT-FROM-FILE = *NO
When the default value is specified, the job attributes are not taken over from the ENTER file.

DEFAULT-FROM-FILE = *YES
Job attributes which are specified in the SET-LOGON-PARAMETERS command of the ENTER file are taken over when the default value is specified implicitly or explicitly for the various attributes in the ENTER-JOB command.

FILE-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / *SECRET
Password with which the ENTER file is protected against writing or execution (see also the DELETE operand). The password specified is ignored for password-protected PLAM elements.
The FILE-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

CRYPTO-PASSWORD = *NONE / <c-string 1..8> / <x-string 1..16> / *SECRET
Password used when encrypting the ENTER file. For an encrypted ENTER file a temporary copy is created which is decrypted with the help of the crypto password.
The CRYPTO-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

DELETE = *NO / *YES
Specifies whether the ENTER file is to be deleted after the batch job has been processed. Deletion is only possible if the job submitter also has write access. If the file is protected against write accesses by a password, this password must be contained in the password table for the job (see note "ENTER-JOB") or in the FILE-PASSWORD operand.

HOST =
Host on which the batch job is to run.
The host can be identified by the host name or the catalog ID (*CATALOG). It must be in the "active" state, otherwise the command is rejected. Operand values other than *STD are available only to users who have the HIPLEX MSCF (multiprocessor systems) software product.

HOST = *STD
The ENTER job is running on the local host.

HOST = <c-string 1..8>
Host name of the host the ENTER job is to run on.

HOST = <filename 1..54 without-gen-vers>
Name of a job variable which has the host's name as its content.

HOST = *ANY
Allowed only on an XCS network. For details see the “HIPLEX MSCF” manual [25].

HOST = *CATALOG(...)

IDENTIFICATION = <c-string 1..4>
Catalog ID of the host on which the batch job is to run.
The catalog must be accessible, otherwise the command is rejected.

IDENTIFICATION = <filename 1..54 without-gen-vers>
Name of a job variable which has the host's catalog ID as its content.

JOB-CLASS = *STD / <name 1..8> / *BY-USER
Job class in which the batch job is to run. The job class must be permitted for batch jobs. The user can ascertain the job classes he/she is allowed to use from his/her user entry for the home pubset (which can be queried using the SHOW-USER-ATTRIBUTES command). This also displays the default job class that is preset with *STD. Users can obtain information about the characteristics of job classes (job class definition) by means of the SHOW-JOB-CLASS command.

JOB-CLASS = *STD
Default job class of the target user ID.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

JOB-CLASS = <name 1..8>
The ENTER job runs on the local computer.

JOB-CLASS = *BY-USER-ID
This specification is only possible with the OPERATING privilege.
The batch job is to run in the default job class of the target user ID.

JOB-NAME = *NO / <name 1..8>
Name for the ENTER job. The ENTER job can be addressed using this name (e.g. with SHOW-JOB-STATUS). The name is also printed on the header page of the printer listing. For the sake of compatibility an attempt is made sequentially to take over one of the following values as the name of the ENTER job:

1. *Not when started from the console:* A job name specified here which is not equal to *NO
2. *Not when started from the console:* A marker located before the ENTER-JOB command (/.<name> ENTER-JOB ...)
3. The job name from the SET-LOGON-PARAMETERS command in the ENTER file
4. A marker located before the SET-LOGON-PARAMETERS command in the ENTER file
5. *Not when started from the console:* The name of the command-submitting job

If none of these values is available, the ENTER job is assigned no name, which is shown in the outputs with *NONE, (NONE) or blanks.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies whether the batch job is to be monitored by a JV.

MONJV = *NONE
The batch job is not monitored.
When the batch job is started by the operator on the console, the specification in the operand of the same name in

the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can use the DEFAULT-FROM-FILE operand to set this default mechanism.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV which is to monitor the batch job. A JV can only be defined if the chargeable subsystem JV is available (see also the “Job Variables” manual [20]).
Job monitoring is only started if the batch job is accepted by the system’s job management (`JOB ACCEPTED`).
The job originator must have write authorization because he instructs the system to write to the JV. If the JV is not accessible at the time of command processing, an error message is output to SYSOUT and the command is rejected. If the specified JV does not yet exist, it is - if the requisite authorization exists - created and made available for all users (ACCESS=*WRITE and USER-ACCESS=*ALL-USERS). The user can address his/her batch job using the specified JV.
The system sets the status display of the JV to appropriate values while the batch job is being processed:

$S	Job on queue
$R	Job running
$T	Job terminated
$A	Job aborted
$M	Job exported with MOVE-JOBS

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> /
<integer -2147483648..2147483647> / *SECRET
Password for the JV.
The operand is only evaluated when job monitoring has been defined (see the MONJV operand).
The operand JV-PASSWORD is defined as “secret”:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

JOB-PRIORITY = *STD / <integer 1..9> / *BY-JOB-CLASS
Job priority to be given to the batch job.
The lower the value, the higher the priority. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

JOB-PRIORITY = *STD
The standard priority specified for the job class applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

JOB-PRIORITY = *BY-JOB-CLASS
This specification is only possible with the OPERATING privilege..
The batch job is to be assigned the default priority specified for the job class.

RERUN-AFTER-CRASH = *STD / *NO / *YES
Specifies whether the batch job is to be restarted during the next system session if processing has been aborted as

the result of a system error or termination of the system session.
The operand is not evaluated if job repetition is enabled in the REPEAT-JOB operand.

RERUN-AFTER-CRASH = *STD
RERUN-AFTER-CRASH=*NO applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

FLUSH-AFTER-SHUTDOWN = *STD / *NO / *YES
Specifies whether the batch job is to be removed from the job queue if it has not been processed by the end of the session.
The operand is not evaluated if job repetition is enabled in the REPEAT-JOB operand. The specification FLUSH-AFTER-SHUTDOWN=*YES with the warning JMS0056 is ignored for calendar jobs.

FLUSH-AFTER-SHUTDOWN = *STD
FLUSH-AFTER-SHUTDOWN =*NO applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

SCHEDULING-TIME = *STD / *PARAMETERS(...) / *BY-CALENDAR(...)
Defines how scheduling times are specified for the batch job.

SCHEDULING-TIME = *STD
The default settings for START and REPEAT-JOB scheduling time specifications for the selected job class apply (see the operands of the SCHEDULING-TIME=*PARAMETERS(...) structure).
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

SCHEDULING-TIME = *PARAMETERS(...)
Defines scheduling time (start time) for the batch job. It is also possible to define job repeats (repeat job).

START =
Starting time for the batch job. Values other than *STD are appropriate only if permitted in accordance with the job class definition (see the SHOW-JOB-CLASS command). Only the value *IMMEDIATELY can also be permitted as an alternative by means of the user properties (see the SHOW-USER-ATTRIBUTES command).

START = *STD
The default value for the chosen job class applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

START = *BY-JOB-CLASS
This specification is only possible with the OPERATING privilege.
The batch job is to be assigned the start time defined for the job class.

START = *SOON
The job is to be started as soon as possible, in accordance with its priority.

START = *IMMEDIATELY
The job is to be started immediately.

START = *AT-STREAM-STARTUP
The job is to be started after the next startup of the job scheduler.

START = *WITHIN(...)
The job is to be started within the specified time period.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

START = *AT(...)
The job is to be started exactly at the time specified in the following.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

START = *EARLIEST(...)
The job is to be started no earlier than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications.
20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

START = *LATEST(...)
The job is to be started no later than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications.
20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

REPEAT-JOB =
Time interval at which the batch job is to be repeated. Values other than *STD are appropriate only if permitted in accordance with the job class definition (see the SHOW-JOB-CLASS command). The time interval for the repetitions depends on the specification in the START operand; see the note in this regard, “Combinations of the START and REPEAT-JOB operands”. For the repetitions, the following applies:

- The i-th repetition (i >= 1) of a job is not started until the (i1)th repetition has ended.
- Cancellation of the currently executing job (i) has no effect on the start of (i+1); (i >= 0).

- Cancellation of the entire job: Both the currently executing job (i) and the subsequent job (i+1) must be canceled, (i >= 0); (CANCEL-JOB command, or make job (i) the last job in the series using the command MODIFY-JOB ...,REPEAT-JOB=*NO).

REPEAT-JOB = *STD
The default value for the chosen job class applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

REPEAT-JOB = *BY-JOB-CLASS
This specification is only possible with the OPERATING privilege.
The batch job is to be assigned the default value defined for the job class.

REPEAT-JOB = *NO
The batch job is not repeated.

REPEAT-JOB = *DAILY
Daily repetition at the time specified with START.

REPEAT-JOB = *WEEKLY
Weekly repetition at the time specified with START.

REPEAT-JOB = *AT-STREAM-STARTUP
Repetition following each startup of the job scheduler.

REPEAT-JOB = *PERIOD(...)
Repetition after the specified time interval.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

SCHEDULING-TIME = *BY-CALENDAR(...)
The batch job scheduling time and any repeat jobs are specified in the form of a symbolic date defined in a calendar file (calendar job). The entries in a calendar file can be listed with the SHOW-CALENDAR command. Creation of calendar files with the CALENDAR utility is described in the “Calendar” manual [4].

CALENDAR-NAME = <filename 1..20 without-cat-user-gen-vers>
Name of the calendar file.

SYMBOLIC-DATE = <filename 1..20 without-cat-user-vers> / <partial-filename 2..20 without-cat-user>
Symbolic date which defines the scheduling time and any repetition cycles within the calendar file. The symbolic date may also be given in partially qualified mode. In this way, several scheduling times can be defined for one calendar day with the appropriate definition of SYSDATs.

Example: Definition of SYMDATs in the calendar file:

- WORK.DAY.1 (every other day at 06:00 hrs)
- WORK.DAY.2 (every other day at 6:00 PM hrs)
- WORK.WEEK.1 (every Friday at 21:00 hrs)

A calendar job considering all three scheduling points is started with `SYMBOLIC-DATE=WORK.`.

LIMIT = *STD / <integer 1..32767> / *BY-DATE(...)
Governs how long a calendar job remains in existence. This limit applies in addition to the limits set by the calendar.

LIMIT = *STD
The duration of the calendar job depends entirely on the symbolic date entry in the calendar.

LIMIT = <integer 1..32767>
This specification is only permitted for calendar jobs.
Maximum number of repetitions of the calendar job.
On termination, a check is performed to determine whether the run counter has reached or exceeded the maximum value. If this is the case, the entire calendar job is terminated. Otherwise the run counter is incremented by 1.

LIMIT = *BY-DATE(...)
This specification is only permitted for calendar jobs.
Entries in the calendar file are only taken into account up to the specified limit. No further repeat job is generated for calendar entries after the limit; the calendar job terminates.
The limit refers solely to the schedule entries in the file, not to the real runtime of the jobs. Repeat jobs with a "permissible" start date are not subject to any further restrictions and are, for example, also started after the specified date if this was not possible earlier because of delays in the job scheduler.
The date specification consists of the day and the time:

DATE = <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day.

RESOURCES = PARAMETERS(...)
Values for run priority, CPU time and maximum number of SYSLST records.

RUN-PRIORITY = *STD / <integer 30..255> / *BY-JOB-CLASS
Run priority the batch job is to be given. The lower the value, the higher the priority. The maximum permissible priority value is the lesser of the two values (i.e. the more favorable of the values) from the user catalog and the job class definition.
If no maximum value is defined for the job class, the following rules apply:

- If the value specified explicitly is numerically lower than the value in the user entry, the message JMS0045 is issued. The batch job is assigned the higher of the two values (i.e. the less favorable value) for the run priority from the user entry and the default run priority for the job class.
- If no value is specified or if *STD or *BY-JOB-CLASS is explicitly specified, the batch job is assigned the standard run priority of the job class.

The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

RUN-PRIORITY = *STD
The standard run priority specified for the job class applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

RUN-PRIORITY = *BY-JOB-CLASS
This specification is only possible with the OPERATING privilege. The batch job is to be assigned the default value defined for the job class.

CPU-LIMIT = *STD / *NO / <integer 1..32767 *seconds* > / *BY-JOB-CLASS
Maximum CPU time, in seconds, that the batch job may consume. The maximum time permitted depends on the job class specified. See also section "Time limits in BS2000" in chapter "Volume 1: General Part ".

CPU-LIMIT = *STD
The default value for the chosen job class applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

CPU-LIMIT = *NO
The ENTER job is to run with no time limit (NTL).
This operand value is permitted only if the requisite authorization exists in the user entry or the job class definition.

CPU-LIMIT = *BY-JOB-CLASS
This specification is only possible with the OPERATING privilege.
The batch job is to be assigned the default value defined for the job class.

SYSLST-LIMIT = *STD / *NO / <integer 0..999999> / *BY-JOB-CLASS
Specifies the maximum number of records the job is allowed to output to the system files SYSLST, SYSLST01, SYSLST02, ..., SYSLST99 and SYSOUT. The records for SYSOUT are counted separately from the records for SYSLST files. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST.
This value must not be above the limit set in the job class definition. This limit may be queried using the SHOW-JOB-CLASS command.
If the limit is exceeded, the ENTER job is terminated abnormally.

SYSLST-LIMIT = *STD
The default value for the chosen job class applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

SYSLST-LIMIT = *NO
Sets no limit on the number of records output.

SYSLST-LIMIT = *BY-JOB-CLASS
This specification is only possible with the OPERATING privilege.
The batch job is to be assigned the default value defined for the job class.

LOGGING = *PARAMETERS(...)
Controls the logging of the job progress.

LISTING = *STD / *NO / *YES
Specifies whether the job run is also to be logged on SYSLST.

LISTING = *STD
LISTING=*NO applies.
When the batch job is started by the operator on the console, the specification in the operand of the same

name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

JOB-PARAMETER =
Specifies additional attributes for the selected job class - assuming that systems support has defined some and made them known.

JOB-PARAMETER = *STD
JOB-PARAMETER=*NO applies.
When the batch job is started by the operator on the console, the specification in the operand of the same name in the SET-LOGON-PARAMETERS command of the ENTER file is evaluated.
Tasks with the OPERATING privilege can set this default mechanism in the DEFAULT-FROM-FILE operand.

JOB-PARAMETER = *NO
No additional attributes.

JOB-PARAMETER = <c-string 1..127>
Arbitrary sequence of characters defined by the system administrator to identify additional job class attributes.

PROTECTION = *NONE / *CANCEL
Specifies whether the batch job is to be protected against accidental termination with the CANCEL-JOB command.

PROTECTION = *NONE
The batch job is not protected against accidental termination.

PROTECTION = *CANCEL
The batch job is protected against unintentional cancellation. In interactive jobs and on consoles which wish to terminate this batch job with the CANCEL-JOB command, the system additionally requests confirmation. Accidental termination of the batch job due to incorrect specification of the job number should thus be prevented.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	CMD0002	Command executed with a warning e.g. DELETE=*YES ignored for repeat job or when a library member is specified
	1	CMD0202	Syntax error in command
	32	CMD0221	system error
	64	JMS0630	Semantic or privilege error, e.g. host, catalog ID, job class unknown; MONJV not accessible, maximum number of jobs reached
	64	JMS0640	ENTER file faulty or not accessible, e.g. missing SET-LOGON-PARAMETERS, not a SAM or ISAM file, file empty, no access right
	64	JMS0670	Error in a remote job
	130	JMS0620	No further storage space or TSN available, or specified MONJV already monitoring a job
	130	JMS0650	MSCF not available or no connection to the specified host or the specified catalog is currently not available

Notes

- Combinations of the START and REPEAT-JOB operands:

START	REPEAT-JOB		
	AT-STREAM-STARTUP	DAILY or WEEKLY	PERIOD
IMMEDIATELY or SOON	a)	c)	c)
AT or EARLIEST	a)	d)	f)
LATEST or WITHIN	a)	c)	g)
AT-STREAM-STARTUP	b)	e)	e)

Table 46: Combination of the START and REPEAT-JOB operands in the ENTER-JOB command

a. The first and all subsequent starts of the job take place as specified.
b. The first start of the job is made with START=*AT-STREAM-STARTUP. All further starts take place after the startup of the job scheduler with START=*SOON.
c. The base time for the repetition cycle is the time the job is accepted.
d. The specified point in time (START=...., TIME=....) is the base time for the repetition cycle.
e. The first start of the job follows startup of the job scheduler. This point in time is the base time for the repetition cycle. Further starts take place with START=*SOON.

f. The specified point in time (START=...., TIME=....) is the base time for the repetition cycle. The second and all further starts take place with START=*SOON.

g. The base time for the repetition cycle is the time the job is accepted. All further starts take place with START=*SOON.

- The following applies to the *WITHIN, *AT and *LATEST entries in the START operand: After the specified point in time or period of time, jobs that have not been started are treated in the same way as jobs started with START=*SOON and highest job priority.

  Example

  A job with START=*LATEST(...) could not be started by the desired time because the job scheduler was not active. It will then be started (within the same session) as soon as possible after the next startup of the job scheduler.

- Determining the scheduling time of a calendar job:

  - In the first version of the calendar job, the symbolic date (SYMDAT) specified in the SYMBOLIC-DATE operand is passed on to the CALENDAR component in the evaluation of the job attributes. The CALENDAR component returns the next point in time (date and time), with regard to the current point in time, specified by the SYMDATs defined in the calendar file.
    In the case of partially qualified SYMDATs, scheduling time is returned for each SYMDAT beginning with the character string, and the calendar job is started at each of these scheduling times.
  - The scheduling times of the following versions are determined according to the same procedure while the previous jobs are processed.

As a consequence, any modifications made to the calendar file only take effect on calendar job versions whose scheduling time is determined after the update of the calendar file. In particular, the number of calendar job versions started by means of a partially qualified SYMDAT can be extended (by defining new SYMDATs) or reduced (by deleting SYMDATs).

- Creation of a temporary copy of the ENTER file (S.IN file):
  A temporary copy of the ENTER file is created in the following cases under a file name with the prefix S.IN (supplemented by partial name for TSN, date and time or library, member and time):
  - if the file is located on private disk.
  - if the file is cataloged under a different user ID.
  - if the file is a temporary file.
  - if the file is a library member.
  - if the file is encrypted.

  Special characteristics of the S.IN file:
  - The S.IN file is protected by a file lock for the duration of the batch job. Note the following: the file lock is set when the pubset on which the files are located is imported. The file locks only consider files to which batch jobs from the current job pool (on the home pubset) refer. If the files are located on a shared pubset, the file locks are coordinated from the master computer.
  - An S.IN file is always unencrypted. It must, therefore, be possible to decrypt the ENTER file when the command is processed, i.e. the crypto password must be specified in the CRYPTO-PASSWORD operand.

- ENTER files can be protected by means of read, write and execute passwords. The execute password or a higher-ranking password must be specified in the FILE-PASSWORD operand if an ENTER-JOB command is issued. The write password must be specified when the file is to be deleted after it has been executed (DELETE=*YES). The passwords are checked for correctness as soon as the ENTER-JOB command is processed. If a user subsequently changes the passwords, the successful check still applies and the file is executed.
- When the ENTER job is started on a remote system (HOST not equal to *STD), all the passwords used (CRYPTO-PASSWORD, FILE-PASSWORD, and JV-PASSWORD) must be specified directly in the ENTER-JOB command. Passwords which were entered in the job submitting task's password list with the ADD-PASSWORD and ADD-CRYPTO-PASSWORD commands apply only when the job is started locally (HOST = *STD).
- ENTER files can be SAM or ISAM files and have a variable record length. 72 characters are interpreted per record. In the case of ISAM files, the key field can occur in any position in the record as it will be hidden.
- Any LOGON operands specified in the ENTER file are ignored if the command is not entered on the console or with DEFAULT-FROM-FILE=*YES specified (see "Privileged functions").
- DELETE operand: Despite DELETE=*YES being entered, the file is not deleted when
  - the job submitter is not the (co-)owner of the file,
  - the file is a library member,
  - the job terminates abnormally,
  - the job is aborted.

  The last two cases do not apply for the following files:
  - files on private disk
  - temporary files
  - files which are cataloged under a different user ID from that under which the ENTER job is to execute

  In these cases the ENTER file is deleted immediately after the S.IN file has been created. This enables, for instance, the private disk to be removed before the ENTER job has executed.
- A batch job which is to run on a remote system can be accessed via a MONJV only when the catalog ID of the partner system’s home pubset is entered in the MRSCAT of the systems concerned.
- In the case of repeat jobs which were started with REPEAT-JOB=*PERIOD(...), compliance with the time interval has priority over compliance with the start time. Consequently, the start time shifts in the event of time changes.
- In nonprivileged job classes, up to 32767 waiting jobs are permissible. Any ENTER jobs in excess of this number are rejected.

3.43 ENTER-PROCEDURE

Start command sequence (procedure file) as batch job

Component:	BS2000
Functional area:	Job processing Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE

Function

Using the ENTER-PROCEDURE command, the user can start a procedure as a batch job. In contrast to the ENTER-JOB command, the user does not have to create a separate ENTER file. The procedure parameters are consequently variable at every asynchronous procedure execution (background procedure). ENTER files can only be started with the ENTER-JOB command.

Method

1. The procedure file is created as a copy under the name `S.PROC.tsn.date.time`, where *date* has the format yyyy-mm-dd and *time* has the format hh.mm.ss.
2. An ENTER file with the name `S.E.tsn.date.time` and the following contents is created:

   ```
   /SET-LOGON-PARAMETERS
   ...
   /CALL-PROCEDURE FROM-FILE=S.PROC.tsn.date.time, -
   /               PROCEDURE-PARAMETERS=( parameter )
   ...
   /EXIT-JOB SYSTEM-OUTPUT= option
   ```

   The value of *parameter* corresponds to the entry in the PROCEDURE-PARAMETERS operand. The value of *option* is set in accordance with the entry in the SYSTEM-OUTPUT operand. After procedure execution, the copy of the procedure file is deleted.
3. The ENTER file is started with ENTER-JOB. Entries for the operands PROCESSING-ADMISSION, JOB-CLASS, JOB-NAME, MONJV, JV-PASSWORD, JOB-PRIORITY, RERUN-AFTER-CRASH, FLUSH-AFTER-SHUTDOWN, SCHEDULING-TIME, START, REPEAT-JOB, LIMIT, RESOURCES, LISTING, and JOB-PARAMETER are transferred to the ENTER-JOB command.

Format

ENTER-PROCEDURE Alias: **ENP**

FROM-FILE = <filename 1..54 without-gen> / ***LIB**RARY**-ELEM**ENT(...)

***LIB**RARY**-ELEM**ENT(...)

| **LIB**RARY = <filename 1..51 without-gen-vers>

| , **ELEM**ENT = <composed-name 1..38>(...)

| <composed-name 1..38>(...)

| | **VERSION** = ***HIGH**EST**-EXIST**ING / <composed-name 1..24>

| , **TYPE** = ***STD** / ***BY-LATEST-MODIFICATION** / <alphanum-name 1..8>

, **PROC**EDURE**-PAR**AMETERS = ***NO** / <text 0..1800 with-low>

, **PROC**ESSING**-ADMIS**SION = ***SAME** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **USER-ID**ENTIFICATION = ***NONE** / <name 1..8>

| , **ACCOUNT** = ***NONE** / <alphanum-name 1..8>

| , **PASS**WORD = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET**

, **PROC**EDURE**-PASS**WORD = ***NONE** / <x-string 1..8> / <c-string 1..4> /

<integer -2147483648..2147483647> / ***SECRET**

, **CRYPTO-PASS**WORD = ***NONE** / <c-string 1..8> / <x-string 1..16> / ***SECRET**

, **HOST** = ***STD** / <c-string 1..8> / ***ANY**

, **JOB-CLASS** = ***STD** / <name 1..8>

, **JOB-NAME** = ***NO** / <name 1..8>

, **MONJV** = ***NONE** / <filename 1..54 without-gen-vers>

, **JV-PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / ***SECRET** /

<integer -2147483648..2147483647>

, **JOB-PRIO**RITY = ***STD** / <integer 1..9>

, **RERUN-AF**TER**-CRASH** = ***NO** / ***Y**ES

, **FLUSH-AF**TER**-SHUTDOWN** = ***NO** / ***Y**ES

, **SCHED**ULING**-TIME** = ***STD** / ***PAR**AMETERS(...) / ***BY-CALENDAR**(...)

***PAR**AMETERS(...)

| **START** = ***STD** / ***SOON** / ***IMMED**IATELY / ***AT-STREAM**-STARTUP / ***WITHIN**(...) / ***AT**(...) /

```
        |                *EARLIEST(...) / *LATEST(...)
        |        *WITHIN(...)
        |            |    HOURS = 0 / <integer 0..23 hours>
        |            |    , MINUTES = 0 / <integer 0..59 minutes>
        |        *AT(...)
        |            |    DATE = *TODAY / <date>
        |            |    , TIME = <time>
        |        *EARLIEST(...)
        |            |    DATE = *TODAY / <date>
        |            |    , TIME = <time>
        |        *LATEST(...)
        |            |    DATE = *TODAY / <date>
        |            |    , TIME = <time>
        |    , REPEAT-JOB = *STD / *NO / *DAILY / *WEEKLY / *AT-STREAM-STARTUP / *PERIOD(...)
        |        *PERIOD(...)
        |            |    HOURS = 0 / <integer 0..23 hours>
        |            |    , MINUTES = 0 / <integer 0..59 minutes>
    *BY-CALENDAR(...)
        |    CALENDAR-NAME = <filename 1..54 without-gen-vers>
        |    , SYMBOLIC-DATE = <filename 1..20 without-cat-user-vers> /
        |                          <partial-filename 2..20 without-cat-user>
, LIMIT = *STD / <integer 1..32767> / *BY-DATE(...)
    *BY-DATE(...)
        |    DATE = <date>
        |    , TIME = <time>
, RESOURCES = *PAR AMETERS (...)
    *PARAMETERS(...)
        |    RUN-PRIORITY = *STD / <integer 30..255>
        |    , CPU-LIMIT = *STD / *NO / <integer 1..32767 seconds>
        |    , SYSLST-LIMIT = *STD / *NO / <integer 0..999999>
, LOGGING = *STD / *YES / *NO
```

, **LIST**ING = ***NO** / ***Y**ES

, **JOB-PAR**AMETER = ***NO** / <c-string 1..127>

, **SYS**TEM-**OUT**PUT = ***STD** / ***STDOUT** / ***PRINT** / ***MAIL** / ***DEL**ETE

, **ASS**IGN-**SYS**TEM-**FILE**S = ***STD** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **SYSLST** = ***STD** / ***PRIM**ARY / ***DUMMY** / <filename 1..54>

| , **SYSOUT** = ***STD** / ***PRIM**ARY / ***DUMMY** / <filename 1..54>

, **PROT**ECTION = ***NONE** / ***CANCEL**

Operands

FROM-FILE = *LIBRARY-ELEMENT(...) / <filename 1..54 without-gen>
Name of the file or PLAM library element which contains the procedure.

> If the file/library name is specified without a catalog/user ID and if it is not cataloged in the user ID, the system tries to access a file or library of the same name in the system default ID. (For information on this “secondary read” function see the “Introductory Guide to DMS” [13].)

The procedure must not begin with the SET-LOGON-PARAMETERS or LOGON command, i.e. it must not be an ENTER file.
If the job submitter is not the file owner (differing user IDs), the file must be accessible (see the operand PROTECTION=PARAMETERS in the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands).
The job submitter must in any case have at least execution privileges if the file is protected by a basic ACL or GUARDS.
If the file has an execute password, the password must be specified in the PROCEDURE-PASSWORD operand.

FROM-FILE = *LIBRARY-ELEMENT(...)
The procedure is stored in a PLAM library.

LIBRARY = <filename 1..51 without-gen-vers>
Name of the library containing the procedure as an element. The specification of a library list (see the “LMS” manual [21]) instead of a library file is not supported.

ELEMENT = <composed-name 1..38>(...)
Name of the element.
The following applies for the sum of the lengths of the library and member names:

- Without catalog and user IDs the sum may amount to at most 39 characters.
- In the case of a multi-character catalog ID, the sum with the full path name of the library including the catalog and user IDs may amount to at most 52 characters.

VERSION = *HIGHEST-EXISTING / <composed-name 1..24>
Version of the library element. The default value is HIGHEST-EXISTING, i.e. the procedure is taken from the element with the highest version.

TYPE = *STD / *BY-LATEST-MODIFICATION / <alphanum-name 1..8>
Designates the element type the procedure is stored under in the PLAM library.

TYPE = *STD
The procedure can be stored as an element of type SYSJ or J. The specified element is first searched for among the type SYSJ elements. If it is not found there, the search proceeds to the type J elements.

A non-S procedure can only be a type J element. An S procedure may be either a text procedure (original text format) or an object procedure (compiled object format). To simplify maintenance of the two formats in a library, text procedures should be stored as type J elements, object procedures as type SYSJ elements. The COMPILE-PROCEDURE command (part of the chargeable SDF-P subsystem) by default generates an object procedure of type SJ from a text procedure of type J. If this convention is followed, specifying TYPE=*STD (the default value) ensures that object procedures will be given precedence over text procedures.

TYPE = *BY-LATEST-MODIFICATION
The procedure can be stored as an element of type SYSJ or J. If the specified element exists both as type SYSJ and as type J, the element most recently modified will be called. If the time stamp is identical, the type SYSJ element will be called. Specifying TYPE=*BY-LATEST-MODIFICATION ensures that the most up-to-date element will be called, typically during the debugging phase when a procedure is being written or modified.

TYPE = <alphanum-name 1..8>
The procedure will be searched among elements of the specified type only.

> Despite the length restrictions specified for the element name, it is possible for the full path name of the library element to exceed 54 characters in length. The SHOW-JOB-STATUS command then displays the name of the original file in abbreviated form. Truncated characters in the names are indicated by a "*". In this case, the SDF-P function PROC-NAME() cannot correctly determine the complete name of the library element.

PROCEDURE-PARAMETERS = *NO / <text 0..1800 with-low>
Parameter values which are to be set instead of the appropriate symbolic parameters. Parameter values must be enclosed in parentheses. Input is carried out as described in the CALL-PROCEDURE command.

PROCESSING-ADMISSION =
Specifies the user ID under which the batch job is to run.

PROCESSING-ADMISSION = *SAME
The batch job should run under the current user ID (i.e. the one under which ENTER-PROCEDURE was specified).

PROCESSING-ADMISSION = *PARAMETERS(...)
Parameters defining the LOGON authorization of the destination user ID.

USER-IDENTIFICATION = *NONE / <name 1..8>
User ID under which the batch job should run.

ACCOUNT = *NONE / <alphanum-name 1..8>
Account number of the user ID.

PASSWORD = *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
Password for the user ID.
The long password mechanism is supported (<c-string 9..32>). A hash algorithm converts the long password to the internal 8-byte representation. See the MODIFY-USER-PROTECTION command for details of the long password mechanism.
The PASSWORD operand has the following special characteristics:

- The password entered is not logged.

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password .

PROCEDURE-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET

Password protecting the procedure file from being executed. The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

CRYPTO-PASSWORD = *NONE / <c-string 1..8> / <x-string 1..16> / *SECRET
Password used when encrypting the procedure file. The copy of the procedure file (S.PROC file) is decrypted with the aid of the crypto password.
The CRYPTO-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

HOST =
Specifies the host the job is to run on. Operand values other than *STD are available only to users who have the HIPLEX MSCF (multiprocessor systems) software product.

HOST = *STD
The job is to run on the local host.

HOST = <c-string 1..8>
Host name of the host the ENTER job is to run on.

HOST = *ANY
Allowed only on an XCS network. For details see the “HIPLEX MSCF” manual [25].

JOB-CLASS = *STD / <name 1..8>
Job class into which the job is to be placed. The SHOW-USER-ATTRIBUTES or SHOW-JOB-CLASS command can be used to query authorization for the various job classes.

JOB-NAME = *NO / <name 1..8>
Name for the ENTER job. The ENTER job can be addressed using this name (e.g. with SHOW-JOB-STATUS). The name is also printed on the header page of the printer listing. If *NO is specified, the ENTER job is assigned the name of the job issuing the command, for reasons of compatibility. Only if this job has no name as well, the ENTER job is assigned no name, which is shown in the outputs with *NONE, (NONE) or blanks.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies whether the batch job is to be monitored by a JV.

MONJV = *NONE
The batch job is not monitored.

MONJV = <filename 1..54 without-gen-vers>
Only possible if the chargeable JV subsystem is loaded (see also the "Job Variables" manual [20]).
Name of the job variable (JV) that is to monitor the batch job. The user can address the batch job via this JV. If the specified JV does not yet exist, it is - if the requisite authorization exists - created and made available for all users (ACCESS=*WRITE and USER-ACCESS=*ALL-USERS).

The system sets the JV to appropriate values while the batch job is being processed:

$S	Job on queue
$R	Job running
$T	Job terminated
$A	Job aborted
$M	Job exported with MOVE-JOBS

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Password for the JV.
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

JOB-PRIORITY = *STD / <integer 1..9>
Job priority to be given to the batch job.
The lower the value, the higher the priority. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

JOB-PRIORITY = *STD
The standard priority specified for the job class applies.

RERUN-AFTER-CRASH = *NO / *YES
Specifies whether the batch job is to be restarted during the next system session if processing has been aborted as the result of a system error or termination of the system session.

Note

The operand is not evaluated if job repetition is enabled in the REPEAT operand.

FLUSH-AFTER-SHUTDOWN = *NO / *YES
Specifies whether the batch job is to be removed from the job queue if it has not been processed by the end of the session.

Note

The operand is not evaluated if job repetition is enabled in the REPEAT operand. The specification FLUSH-AFTER-SHUTDOWN=*YES with the warning JMS0056 is ignored for calendar jobs.

SCHEDULING-TIME = *STD / *PARAMETERS(...) / *BY-CALENDAR(...)
Defines how scheduling times are specified for the batch job.

SCHEDULING-TIME = *STD
The default settings for START and REPEAT-JOB scheduling time specifications for the selected job class apply (see the operands of SCHEDULING-TIME=*PARAMETERS(...)).

SCHEDULING-TIME = *PARAMETERS(...)
Defines scheduling time (start time) for the batch job. It is also possible to define job repeats (repeat job).

START =
Starting time for the batch job. Values other than *STD are ignored unless they are permitted by virtue of the job class definition (see the SHOW-JOB-CLASS command).

START = *STD
The default value for the chosen job class applies.

START = *SOON
The job is to be started as soon as possible, in accordance with its priority.

START = *IMMEDIATELY
The job is to be started immediately.

START = *AT-STREAM-STARTUP
The job is to be started after the next startup of the job scheduler.

START = *WITHIN(...)
The job is to be started within the specified time period.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

START = *AT(...)
The job is to be started exactly at the time specified in the following.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

START = *EARLIEST(...)
The job is to be started no earlier than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

START = *LATEST(...)
The job is to be started no later than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

REPEAT-JOB =
Time interval at which the batch job is to be repeated. Values other than *STD are ignored unless they are permitted by virtue of the job class definition (see the SHOW-JOB-CLASS command). The time interval for the repetitions depends on the specification in the START operand; see the note in this regard, “Combinations of the START and REPEAT-JOB operands”. For the repetitions, the following applies:

- The i-th repetition (i >= 1) of a job is not started until the (i-1)th repetition has ended.
- Cancellation of the currently executing job (i) has no effect on the start of (i+1); (i >= 0).
- Cancellation of the entire job: Both the currently executing job (i) and the subsequent job (i+1) must be canceled, (i >= 0); (CANCEL-JOB command, or make job (i) the last job in the series using the command MODIFY-JOB ...,REPEAT-JOB=*NO).

REPEAT-JOB = *STD
The default value for the chosen job class applies.

REPEAT-JOB = *NO
The batch job is not repeated.

REPEAT-JOB = *DAILY
Daily repetition at the time specified with START.

REPEAT-JOB = *WEEKLY
Weekly repetition at the time specified with START.

REPEAT-JOB = *AT-STREAM-STARTUP
Repetition following each startup of the job scheduler.

REPEAT-JOB = *PERIOD(...)
Repetition after the specified time interval.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

SCHEDULING-TIME = *BY-CALENDAR(...)
The batch job scheduling time and any repeat jobs are specified in the form of a symbolic date defined in a calendar file (calendar job). The entries in a calendar file can be listed with the SHOW-CALENDAR command. Creation of calendar files with the CALENDAR utility is described in the “Calendar” manual [4].

CALENDAR-NAME = <filename 1..54 without-cat-user-gen-vers>
Name of the calendar file.

SYMBOLIC-DATE = <filename 1..20 without-cat-user-vers> /
<partial-filename 2..20 without-cat-user>
Symbolic date which defines the scheduling time and any repetition cycles within the calendar file. The symbolic date may also be given in partially qualified mode. In this way, several scheduling times can be defined for one calendar day with the appropriate definition of SYSDATs.

Example: Definition of SYMDATs in the calendar file:

- WORK.DAY.1 (every other day at 06:00 hrs)
- WORK.DAY.2 (every other day at 6:00 PM hrs)
- WORK.WEEK.1 (every Friday at 21:00 hrs)

A calendar job considering all three scheduling points is started with `SYMBOLIC-DATE=WORK.`.

LIMIT = *STD / <integer 1..32767> / *BY-DATE(...)
Governs how long a calendar job remains in existence. This limit applies in addition to the limits set by the calendar.

LIMIT = *STD
The duration of the calendar job depends entirely on the symbolic date entry in the calendar.

LIMIT = <integer 1..32767>
This specification is only permitted for calendar jobs.
Maximum number of repetitions of the calendar job.
On termination, a check is performed to determine whether the run counter has reached or exceeded the maximum value. If this is the case, the entire calendar job is terminated. Otherwise the run counter is incremented by 1.

LIMIT = *BY-DATE(...)
This specification is only permitted for calendar jobs.
Entries in the calendar file are only taken into account up to the specified limit. No further repeat job is generated for calendar entries after the limit; the calendar job terminates.
The limit refers solely to the schedule entries in the file, not to the real runtime of the jobs. Repeat jobs with a "permissible" start date are not subject to any further restrictions and are, for example, also started after the specified date if this was not possible earlier because of delays in the job scheduler.
The date specification consists of the day and the time:

DATE = <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day.

RESOURCES = *PARAMETERS(...)
Values for run priority, CPU time and maximum number of SYSLST records.

RUN-PRIORITY = *STD / <integer 30..255>
Run priority the batch job is to be given. The lower the value, the higher the priority. The maximum permissible priority value is the lesser of the two values (i.e. the more favorable of the values) from the user catalog and the job class definition.
If no maximum value is defined for the job class, the following rules apply:

- If the value specified explicitly is numerically lower than the value in the user entry, the message JMS0045 is issued. The batch job is assigned the higher of the two values (i.e. the less favorable value) for the run priority from the user entry and the default run priority for the job class.
- If no value is specified or if *STD or *BY-JOB-CLASS is explicitly specified, the batch job is assigned the standard run priority of the job class.

The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

RUN-PRIORITY = *STD
The standard priority specified for the job class applies.

CPU-LIMIT = *STD / *NO / <integer 1..32767 *seconds* >
Maximum CPU time, in seconds, that the batch job may consume. The maximum time permitted depends on the job class specified. See also section "Time limits in BS2000" in chapter "Volume 1: General Part ".

CPU-LIMIT = *STD
The default value for the chosen job class applies.

CPU-LIMIT = *NO
The ENTER job is to run with no time limit (NTL). This operand value is permitted only if the requisite authorization exists in the user entry or the job class definition.

SYSLST-LIMIT = *STD / *NO / <integer 0..999999>
Specifies the maximum number of records the job is allowed to output to the system files SYSLST, SYSLST01, SYSLST02, ..., SYSLST99 and SYSOUT . The records for SYSOUT are counted separately from the records for SYSLST files. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST.
This value must not be above the limit set in the job class definition. This limit may be queried using the SHOW-JOB-CLASS command.

SYSLST-LIMIT = *STD
The default value for the chosen job class applies. If the specified number is exceeded, the batch job is terminated abnormally.

SYSLST-LIMIT = *NO
Sets no limit on the number of records output.

LISTING = *NO / *YES
Specifies whether the job run is also to be logged on SYSLST.

LOGGING =
Controls logging of job execution. For non-S procedures the LOGGING operand is ignored because logging is defined in the BEGIN-PROCEDURE in that instance.

LOGGING = *STD
Logging only takes place if the procedure file is not read-protected.

LOGGING = *YES
Job execution is logged. Execution of a file can only be logged if the correct password has been entered into the password table of the job originator or is specified in the PROCEDURE-PASSWORD operand.

LOGGING = *NO
Job execution is not logged.

JOB-PARAMETER =
Specifies additional attributes for the selected job class - assuming that systems support has defined some and made them known.

JOB-PARAMETER = *NO
No additional attributes.

JOB-PARAMETER = <c-string 1..127>
Arbitrary sequence of characters defined by the system administrator to identify additional job class attributes.

SYSTEM-OUTPUT =
Controls output of the system files SYSLST and SYSOUT on job termination (see also the EXIT-JOB command, SYSTEM-OUTPUT operand).

SYSTEM-OUTPUT = *STD
Outputs the system files SYSLST and SYSOUT to printer or in an email (see *STDOUT) in the event of errored execution.

SYSTEM-OUTPUT = *STDOUT
Depending on the setting of the system parameter SSMOUT, the system files SYSLST and SYSOUT are output to printer (see *PRINT) or sent by email (see *MAIL). In the case of cross-system command processing, the system parameter of the target system is evaluated.

SYSTEM-OUTPUT = *PRINT
Outputs the system files SYSLST and SYSOUT to printer.

SYSTEM-OUTPUT = *MAIL
The system files SYSLST and SYSOUT are sent by email. The receiver address(es) is/are taken over from the user entry of the user ID of the terminated job. How the receiver address is selected from an address list in accordance with the job name is described under the MAIL-FILE command.
If transfer by email is not possible (e.g. no email address in the user ID), the system files are output to printer.

SYSTEM-OUTPUT = *DELETE
Output of the system files SYSLST and SYSOUT is suppressed.

ASSIGN-SYSTEM-FILES =
Specifies which allocation should apply to the system files SYSLST and SYSOUT at the start of the batch job. The operand supports the assignment of cataloged files to the two system files during an asynchronous procedure run. Consequently, the procedure file can, for instance, continue output to SYSOUT in interactive mode while directing output to a cataloged file in batch mode. The assignment to dummy files (*DUMMY) is also supported (see also FILE-NAME=*DUMMY in the ADD-FILE-LINK command).

ASSIGN-SYSTEM-FILES = *STD
The primary allocation for SYSLST and SYSOUT is preset, i.e. output on printer at the end of the task (dependent on SYSTEM-OUTPUT), if there has been no change in allocation within the procedure.

ASSIGN-SYSTEM-FILES = *PARAMETERS(...)
Specifies which allocation should apply to SYSLST and SYSOUT at the start of the batch job.

SYSLST = *STD / *PRIMARY / *DUMMY / <filename 1..54>
Output destination to which the system file SYSLST is to be assigned. The default value is *STD, i.e. the existing assignment is unchanged.

SYSOUT = *STD / *PRIMARY / *DUMMY / <filename 1..54>

Output destination to which the system file SYSOUT is to be assigned. The default value is *STD, i.e. the existing assignment is unchanged.

PROTECTION = *NONE / *CANCEL

Specifies whether the batch job is to be protected against accidental termination with the CANCEL-JOB command.

PROTECTION = *NONE

The batch job is not protected against accidental termination.

PROTECTION = *CANCEL

The batch job is not protected against accidental termination. In interactive jobs and on consoles which wish to terminate this batch job with the CANCEL-JOB command, the system additionally requests confirmation. Accidental termination of the batch job due to incorrect specification of the job number should thus be prevented.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	CMD0002	Command executed with warning, e.g. DELETE=*YES ignored for repeat job or when a library member is specified
	1	CMD0202	Syntax error in command
	32	CMD0221	system error
	64	JMS0630	Semantic or privilege error, e.g. host, catalog ID, job class unknown; MONJV not accessible, maximum number of jobs reached
	64	JMS0640	Error when accessing the procedure file, e.g. not a SAM or ISAM file, file empty, no access right
	64	JMS0670	Error in a remote job
	130	JMS0620	No further storage space or TSN available, or specified MONJV already monitoring a job
	130	JMS0650	MSCF non available or no connection to the specified host

Notes

- Combinations of the START and REPEAT-JOB operands:

START	REPEAT-JOB		
	AT-STREAM-STARTUP	DAILY or WEEKLY	PERIOD
IMMEDIATELY or SOON	a)	c)	c)
AT or EARLIEST	a)	d)	f)
LATEST or WITHIN	a)	c)	g)
AT-STREAM-STARTUP	b)	e)	e)

Table 47: START and REPEAT-JOB operand combinations in the ENTER-PROCEDURE command

a) The first and all subsequent starts of the job take place as specified.

b) The first start of the job is effected with START=*AT-STREAM-STARTUP. All further starts take place after the startup of the job scheduler with START=*SOON.

c) The base time for the repetition cycle is the time the job is accepted.

d) The specified point in time (START=...., TIME=....) is the base time for the repetition cycle.

e) The first start of the job follows startup of the job scheduler. This point in time is the base time for the repetition cycle. All further starts take place with START=*SOON.

f) The specified point in time (START=...., TIME=....) is the base time for the repetition cycle. The second and all further starts take place with START=*SOON.

g) The base time for the repetition cycle is the time the job is accepted. All further starts take place with START=*SOON.

- The following applies to the *WITHIN, *AT and *LATEST entries in the START operand: After the specified point in time or period of time, jobs that have not been started are treated in the same way as jobs started with START=*SOON and highest job priority.

  Example

  A job with START=*LATEST(...) could not be started by the desired time because the job scheduler was not active. It will then be started (within the same session) as soon as possible after the next startup of the job scheduler.

- Determining the scheduling time of a calendar job:

  - In the first version of the calendar job, the symbolic date (SYMDAT) specified in the SYMBOLIC-DATE operand is passed on to the CALENDAR component in the evaluation of the job attributes. The CALENDAR component returns the next point in time (date and time), with regard to the current point in time, specified by the SYMDATs defined in the calendar file. In the case of partially qualified SYMDATs, scheduling time is returned for each SYMDAT beginning with the character string, and the calendar job is started at each of these scheduling times.

- The scheduling times of the following versions are determined according to the same procedure while the previous jobs are processed.

As a consequence, any modifications made to the calendar file only take effect on calendar job versions whose scheduling time is determined after the update of the calendar file. In particular, the number of calendar job versions started by means of a partially qualified SYMDAT can be extended (by defining new SYMDATs) or reduced (by deleting SYMDATs).

- A batch job which is to run on a remote system can be accessed via a MONJV only when the catalog ID of the partner system's home pubset is entered to the MRSCAT of the systems concerned.
- Access to procedure files via RFA is not possible.
- To ensure availability of the procedure file at execution time (start of the batch job), a copy of the file with the prefix S.PROC. is always created.
- Essentially the operands are identical with those of the ENTER-JOB command. Only the following operands of the ENTER-JOB command are not supported:

FILE-PASSWORD	The generated ENTER file is assigned a random password with which the FILE-PASSWORD is supplied.
DELETE	DELETE=*YES always applies

- The ENTER file created is always started with DELETE=*YES. The ENTER file and the copy of the procedure file (S.PROC file) are not automatically deleted if the job is to be repeated (REPEAT operand).
- The copy of the procedure file (S.PROC file) is password-protected, but may be deleted by the owner without entry of the password. The user can thus delete S.PROC files that were not deleted on account of a system error. The user may not delete S.PROC files for repeat jobs. The same applies to password protection on the S.E file.
- The S.PROC and S.E files are set up with DESTROY-BY-DELETE=*YES depending on the system parameter DESTLEV.
- Procedure files can be protected by means of read, write and execute passwords. The execute password or a higher-ranking password must be specified in the PROCEDURE-PASSWORD operand. A read password must be specified if job execution is to be logged. The passwords are validated on processing the ENTER-PROCEDURE command. If the passwords are subsequently changed, the successful validation during ENTER-PROCEDURE processing remains in force and the procedure file can be executed. If the procedure to be executed is a PLAM library element, a password specified in the PROCEDURE-PASSWORD operand is interpreted as a password only for accessing the PLAM library.
- S. files are always unencrypted. It must, therefore, be possible to encrypt the procedure file when the command is processed, i.e. the crypto password must be specified in the CRYPTO-PASSWORD operand.
- When the batch job is started on a remote host (HOST not equal to *STD), all the passwords used (CRYPTO-PASSWORD, PROCEDURE-PASSWORD and JV-PASSWORD) must be specified directly in the ENTER-PROCEDURE command. Passwords which were entered in the job submitting task's password list with the ADD-PASSWORD, and ADD-CRYPTO-PASSWORD commands apply only when the job is started locally (HOST = *STD).
- The S.PROC and the S.E files are protected by a file lock for the duration of the batch job. Note the following: the file locks are set when the pubset is imported on which the files are located. The file locks only consider files to which batch jobs from the current job pool (on the home pubset) refer. If the files are located on a shared pubset, the file locks are coordinated from the master computer.

- In nonprivileged job classes, up to 32767 waiting jobs are permissible. Any ENTER jobs in excess of this number are rejected.

3.44 EOF

Generate EOF condition for SYSDTA system input file

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The EOF command generates an EOF condition for the system input file SYSDTA. In interactive mode, the EOF command in conjunction with the ESCAPE function (e.g. K2 key) terminates the reading in of data at the terminal (SYSDTA = SYSCMD).
In a user program, the EOF command terminates data input (SYSDTA = input file) if the data record that has just been read is equivalent to an EOF command and a corresponding instruction is used in the program. Control then passes to the routine for end-of-file processing.

Format

EOF

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	EXC0041	System error
	130	CMD2282	Command not executed because no program is loaded

3.45 EXECUTE-POSIX-CMD

Call POSIX commands from BS2000

Component:	POSIX-BC
Functional area:	POSIX administration and application
Domain:	PROCEDURE
Privileges:	STD-PROCESSING

Function

The EXECUTE-POSIX-CMD command enables the user to call POSIX commands directly in BS2000 without first calling a POSIX shell explicitly to permit their execution. The user can specify a single command, a list of commands (command sequence) or the name of a BS2000 file which contains a script.
The user must satisfy the requirements for calling a POSIX shell (see the START-POSIX-SHELL command).

The commands specified are forwarded to a POSIX shell without a syntax check being performed and called using the dot command. The environment variable `EXECUTE_POSIX_CMD="YES"` is set in the shell. Querying variables (e.g. in */etc/profile* or *.profile*) enables unwanted outputs to be suppressed when EXECUTE-POSIX-CMD is executed.

Processing of the EXECUTE-POSIX-CMD command ends only when all the commands which have been passed have been processed (i.e. all background processes which have been started are terminated). Processing can be aborted by pressing the K2 key twice.

The POSIX commands specified can optionally be logged in a BS2000 file (INPUT-LOG-FILE operand) and, if required, can be called again from this file.

By default, the command's outputs are directed to SYSOUT (OUTPUT operand), but they can also be written to a file.

Details of permissible inputs (scope of the POSIX commands supported) and general information about working with the POSIX shell are provided in the "POSIX (Commands)" manual [28].

Format

EXECUTE**-POSIX-CMD** Alias: **ECXCMD**

CMD = <filename 1..54> / list-poss(15): <c-string 1..100 with-low>

,**INPUT-LOG-FILE** = ***NONE** / <filename 1..54 without-gen-vers>(...)

<filename 1..54 without-gen-vers>(...)

| **WR**ITE**-MODE** = ***REPLACE** / ***EXTEND**

,**OUTPUT** = ***SYSOUT** / <filename 1..54>

Operands

CMD=
Specifies the commands or scripts to be executed.

CMD = <filename 1..54>
Name of the BS2000 file from which the commands/command sequences are to be read.

CMD = list-poss (15): <c-string 1..100 with-low>
The command is specified explicitly. Multiple commands can be specified within a list in the form of a command sequence.

INPUT-LOG-FILE =
Specifies whether the inputs are to be logged.

INPUT-LOG-FILE = *NONE
The inputs are not logged.

INPUT-LOG-FILE = <filename 1..54 without-gen-vers>(...)
The inputs are logged in the specified BS2000 file.

> **WRITE-MODE = *REPLACE / *EXTEND**
> Specifies whether a file that has already been cataloged is to be overwritten or updated.

OUTPUT =
Specifies the place to which the command outputs are to be directed.

OUTPUT = *SYSOUT
Output is directed to the SYSOUT system file (i.e. in interactive mode, output on the monitor if nothing else is assigned).

OUTPUT = <filename 1..54>
The command outputs are to be written to the specified BS2000 file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
x	64	CCM0999	The shell command, command sequence or script supplies an exit status with the value x (not equal 0) which can be obtained from the SC2.

Notes

- Commands/scripts which are executed using EXECUTE-POSIX-CMD cannot read from the standard input because the latter is closed before a command/script is executed. Consequently, such commands/scripts receive EOF when they attempt to read from the standard input.
  The POSIX commands which may under some circumstances read from the standard input (in the case of queries) are: rm, mv, bs2cp, mailx
- In the case of EXECUTE-POSIX-CMD, *stdout* and *stderr* are not connected to a terminal but to a pipe. Commands/scripts which require *stdout* and *stderr* to be connected to a terminal therefore work either not at all or incorrectly. These commands/scripts use the CRTE functions *isatty()* and *ttyname()* to determine whether or to which terminal *stdout* and *stderr* are connected.
  The POSIX commands which consequently might not work at all or only incorrectly are: tty, tabs, mesg, write, talk, more, patch, pax, nohup, ls, fg, bg
- When the shell command *exec* is executed with EXECUTE-POSIX-CMD, the current shell is unloaded and the mechanisms for forwarding outputs and/or the exit value of forked processes may be disabled.
- The *fc* command is only effective for inputs outside scripts; it is therefore not suitable for use under /EXECUTE-POSIX-CMD.
- The shell commands executed using EXECUTE-POSIX-CMD are not logged in the usual command memory (*$HOME/.sh_history*) but in a separate short command memory (*HISTSIZE=100*) under */tmp/. ecxcmd_sh_history_<user-name>*.
  As a result, the *fc* command only accesses the history of the EXEC-POSIX-CMD calls.
- Under EXECUTE-POSIX-CMD, command substitutions by means of *'command'* or *$(command)* are always executed in a subshell. In the POSIX shell, on the other hand, a number of commands are available which are substituted within the shell itself. Consequently, individual commands can behave differently from in the POSIX shell if the results are process-specific (e.g. *ftyp* and *bs2file* and accesses to variables or functions which have not been exported).
- In the command sequence the definition of alias names using the *alias* command has no effect because the command sequence is executed using the dot command. If alias names are to be defined and used, the co. mmand sequence must be copied to a (temporary) POSIX file. The file must be assigned Execute permission and executed (not using the dot command).
- The command sequence called using EXECUTE-POSIX-CMD is executed in a subshell which is generated internally by means of *fork*. The SYSFILE environment of the calling procedure is not available in this subshell. This can have an influence on BS2000 commands which are called using *bs2cmd* and on the POSIX commands *lp*, *lpstat* and *cancel*.

3.46 EXIT-JOB

Terminate current job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	all privileges
Routing code:	@ (only with NBCONOPI=Y)

Function

The EXIT-JOB command terminates the current job. The virtual memory pages and devices occupied by the job are subsequently released and the system output files are readied for output.
If new file generations have been created during the job, the system outputs the names of the file generations concerned, their base values, and the names of the first and current file generations.

> ¡ Unlike the LOGOFF command, EXIT-JOB does not support output of the system files to tape.

Notes on Operator LOGON

If the “Operator LOGON” function is used (incompatible mode; system parameter NBCONOPI=Y), the EXIT-JOB command can also be issued on a physical operator terminal (console) or from an authorized user program with dynamic authorization names, but operands are not allowed in either case.

On a physical operator terminal the EXIT-JOB command revokes the authorization to enter commands; with an authorized user program it results in disconnection.
In both cases EXIT-JOB also implies the RELEASE-OPERATOR-ROLE command with OPERATOR-ROLE=*ALL, which means that all routing codes are relinquished and message subscription/suppression is canceled.

Operator activities on a physical operator terminal cannot be resumed until authentication has been carried out again using SET-LOGON-PARAMETERS under a user ID with the OPERATING privilege.

Format

EXIT-JOB

```
MODE = *NORMAL / *ABNORMAL

,SYSTEM-OUTPUT = *ALL / *NONE / *STDOUT / *PARAMETERS(...)

        *PARAMETERS(...)

            |       SYSLST-OUTPUT = *NONE / *PRINTER / *MAIL / *STDOUT

            |       SYSOUT-OUTPUT = *NONE / *PRINTER / *MAIL / *STDOUT

,KEEP-CONNECTION = *NO / *YES
```

Operands

MODE =
Specifies whether the job is to be terminated normally or abnormally.

MODE = *NORMAL
The job is terminated normally. The status indicator of a monitoring job variable is set to '$T'.

MODE = *ABNORMAL
The job is terminated abnormally. The status indicator of a monitoring job variable is set to '$A'. Whether a dump is taken depends on the test options defined within the task (see MODIFY-TEST-OPTIONS command, DUMP operand).

SYSTEM-OUTPUT =
Controls output of the system files SYSLST and SYSOPT, and for batch jobs also output of the system file SYSOUT. Empty system files are not output.

SYSTEM-OUTPUT = *ALL
The system files SYSLST and SYSOUT are output to printer (see *PRINTER) or transferred by email (see *MAIL) depending on the settings of the system parameter SSMOUT.

SYSTEM-OUTPUT = *NONE
Output of the system files is suppressed.

SYSTEM-OUTPUT = *STDOUT
Depending on the setting of the system parameter SSMOUT, the system files SYSLST and SYSOUT are output to printer (see *PRINTER) or sent by email (see *MAIL).

SYSTEM-OUTPUT = *PARAMETERS(...)
Controls which of the two system files (SYSLST or SYSOUT) is output.

SYSLST-OUTPUT = *NONE
SYSLST is not output.

SYSLST-OUTPUT = *PRINTER
The system file SYSLST is to be output to printer. However, the output can be suppressed by systems support using the system parameters SSMLOGF1 and SSMLGOF2. The following applies:

- `SSMLGOF1=NO-SPOOL`
  In batch jobs output is suppressed.
  In interactive jobs the output is suppressed if SSMLGOF2=NO. Output takes place when SSMLGOF2=SPOOL and the SPOOL subsystem is available. In all other cases an inquiry is displayed on the terminal.
- `SSMLOGF1=REQ-SPOOL`
  Output is to printer. If SPOOL is not available, the job waits and the status in a job-monitoring MONJV remains $R. Only when SPOOL is available and printout can take place does the job terminate.
- `SSMLOGF1=STA-SPOOL`
  Printout takes place if SPOOL is available, otherwise it is suppressed.

SYSLST-OUTPUT = *MAIL
SYSLST is sent by email. The receiver address(es) is/are taken over from the user entry of the job's user ID. How the receiver address is selected from an address list in accordance with the job name is described under the MAIL-FILE command.
If transfer by email is not possible (e.g. no email address in the user ID), output takes place in accordance with SYSLST-OUTPUT=*PRINTER.

SYSLST-OUTPUT = *STDOUT
Depending on the setting of the system parameter SSMOUT, the system file SYSLST is output to printer (see *PRINT) or sent by email (see *MAIL).

SYSOUT-OUTPUT = *NONE
SYSOUT is not output.

SYSOUT-OUTPUT = *PRINTER
The system file SYSOUT is to be output to printer. However, the output can be suppressed by systems support (see SYSLST-OUTPUT=*PRINTER).

SYSOUT-OUTPUT = *MAIL
SYSOUT is sent by email. The receiver address(es) is/are taken over from the user entry of the job's user ID. How the receiver address is selected from an address list in accordance with the job name is described under the MAIL-FILE command.
If transfer by email is not possible (e.g. no email address in the user ID), output takes place to printer.

SYSOUT-OUTPUT = *STDOUT
Depending on the setting of the system parameter SSMOUT, the system file SYSOUT is output according to SYSOUT-OUTPUT=*PRINTER.

KEEP-CONNECTION =
Specifies whether the processor connection is to be retained, enabling a new job to be started immediately.
This operand is permitted only in interactive mode; it is ignored in batch mode.

KEEP-CONNECTION = *NO
Clears down the processor connection.

KEEP-CONNECTION = *YES
Retains the processor connection. A new job can be started immediately.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed [1)]
	1	CMD0202	Syntax error
	32	CMD0221	System error; no message is sent to SYSOUT

1) Cannot be evaluated since in this case the task is terminated!

Note

If an EXIT-JOB command is issued while a program is loaded, an ABEND-STXIT routine (if defined) will be activated. This does not happen if the EXIT-JOB command is called via the CMD macro (see the “Executive Macros” manual [22]).

Examples

*Example 1: Abnormal job termination and test option DUMP=*STD*

```
/mod-test-opt dump=*std
/exit-job mode=*abnormal,keep-conn=*yes
```

```
%  IDA0N51 PROGRAM INTERRUPT AT LOCATION '00000000 (NONAME), (CDUMP), EC=50'
%  IDA0N45 DUMP DESIRED? REPLY (Y=USER-/AREADUMP TO DISK;
Y,<VOLUMETYPE>=USER-/AREADUMP TO TAPE; Y,SYSTEM=SYSTEMDUMP; N=NO)?n
%  EXC0419 /LOGOFF AT 1621 ON 17-11-26 FOR TSN '9VKP'
%  EXC0421 CPU TIME USED: 0.2166
%  JMS0150 INSTALLATION ' S210-40', BS2000 VERSION 'V200', HOST 'D016ZE07':
PLEASE ENTER '/SET-LOGON-PARAMETERS' OR '?'
```

*Example 2: Abnormal job termination and test option DUMP=*YES*

```
/mod-test-opt dump=*yes
/exit-job mode=*abnormal,keep-connection=*yes
```

```
%  IDA0N51 PROGRAM INTERRUPT AT LOCATION '00000000 (NONAME), (CDUMP), EC=50'
%  IDA0N53 DUMP BEING PROCESSED. PLEASE HOLD ON
%  IDA0N54 'USERDUMP' WRITTEN TO FILE '$USER1.DUMP.9VKP.00001'
%  IDA0N55 TITLE: 'TSN-9VKP UID-USER1  AC#-89001  USERDUMP  PC-00000000  EC-
50  VERS-150  DUMP-TIME  16:21:26 17-11-26'
%  EXC0419 /LOGOFF AT 1621 ON 17-11-26 FOR TSN '9VKP'
%  EXC0421 CPU TIME USED: 0.2166
%  JMS0150 INSTALLATION ' S210-40', BS2000 VERSION 'V200', HOST 'D016ZE07':
PLEASE ENTER '/SET-LOGON-PARAMETERS' OR '?'
```

3.47 EXIT-PROCEDURE

Terminate procedure run (return to caller)

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The EXIT-PROCEDURE command is an SDF-P control flow command. It terminates procedure execution and returns control to the caller, i.e. the procedure level from which the call was made. If EXIT-PROCEDURE terminates the last procedure, control returns to the primary command input (corresponding to procedure level 0):
In interactive mode, command input (SYSCMD) is assigned primarily to the terminal, in batch mode to the ENTER file.
The system files (including TASKLIB) receive the assignment in force at the interrupt point. A file that was assigned by means of ASSIGN-SYSLST in the procedure is closed by EXIT-PROCEDURE.

The ERROR operand can be used to pass a command return code to the caller. This code can be evaluated with SDF-P facilities (see IF-BLOCK-ERROR command).
The RESUME-PROGRAM operand can be used to specify that a loaded program may be continued after termination of the procedure. This function corresponds to the ENDP-RESUME command.

If an EOF condition is encountered (physical end of the procedure file is reached during command processing), the procedure is terminated as if an EXIT-PROCEDURE command had been issued. The caller receives a return code corresponding to the current error status on termination.
The effect of an EXIT-PROCEDURE command in ESCAPE mode is described under the HOLD-PROCEDURE command.

If errors occur in an *S procedure*, the EXIT-PROCEDURE command is *not* recognized.

Format

EXIT-PROCEDURE

ERROR = ***NO** (...) / ***Y**ES(...)

***NO**(...)

| **SUBCODE2** = **0** / <integer 0..255>

| ,**MAIN**CODE = **CMD0001** / <alphanum-name 7..7>

***Y**ES(...)

| **SUBCODE1** = **64** / <integer 0..255>

| ,**SUBCODE2** = **0** / <integer 0..255>

| ,**MAIN**CODE = **SDP0018** / <alphanum-name 7..7>

,**RESU**ME-**PROG**RAM = ***NO** / ***Y**ES

Operands

ERROR =
This specifies which information on procedure execution the caller is to receive.

ERROR = *NO(...)
The caller receives the return code of class “NO-ERROR”. Additional information can be passed via the SUBCODE2 and MAINCODE operands:

SUBCODE2 = 0 / <integer 0..255>
This passes additional information in SUBCODE2. The default value is zero, i.e. there is no additional information.

MAINCODE = CMD0001 / <alphanum-name 7..7>
This passes a message code. The caller can request an explanation of the message by means of the HELP-MSG-INFORMATION command.
The default value is CMD0001, i.e. procedure terminated without errors.

ERROR = *YES(...)
The caller receives a return code indicating an error. The operands SUBCODE1, SUBCODE2, and MAINCODE can be used to identify the error class and any additional information:

SUBCODE1 = 64 / <integer 0..255>
This indicates the error class of the relevant error.

> SUBCODE1=0 is also possible for reasons of compatibility. Because the convention (see "Return codes" in section "Language for SDF output" in chapter "Volume 1: General Part ") specifies that this value stands for “no error”, ERROR=*YES(SUBCODE1=0) is executed like ERROR=*NO.

SUBCODE2 = 0 / <integer 0..255>
This passes additional information in SUBCODE2. The default value is zero, i.e. there is no additional information.

MAINCODE = SDP0018 / <alphanum-name 7..7>
This passes a message code. The caller can request an explanation of the message by means of the HELP-MSG-INFORMATION command.

RESUME-PROGRAM = *NO / *YES
This specifies whether a loaded program is to be resumed when the procedure is terminated. If *YES is specified, the most recently loaded program can be resumed when the procedure is terminated.

Note

If a procedure is called in ESCAPE mode, the following message is issued when control is returned:

```
TASK IS IN ESCAPE-MODE AT LEVEL NUMBER i
```

where i = number of the procedure level to which processing has returned.

When primary command input is reached (level 0), this message is not issued.

Return codes

With the ERROR operand, the EXIT-PROCEDURE command can report any command return code to the caller. From the caller's viewpoint, this is the return code from the CALL-PROCEDURE or INCLUDE-PROCEDURE command. However, if execution of the EXIT-PROCEDURE command itself results in an error, control does not return to the caller but one of the following return codes is supplied and error handling within the procedure is activated.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SSM2039	Error on closing output system file; the SYSOUT message contains the DMS error code as an insert
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SSM1013	No procedure has been called

Examples

See the CANCEL-PROCEDURE and HOLD-PROCEDURE commands.

3.48 EXPORT-FILE

Delete catalog entry of files (file export)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The EXPORT-FILE command deletes the catalog entries for files which are contained on a private volume or Net-Storage volume of type NETSTOR (i.e. exports files). The storage space and data in the files is retained.

By default, the command exports files to private disk. When files on a Net-Storage volume of type NETSTOR are to be exported, either the volume or the storage type *NET-STORAGE must be specified explicitly. Files on a Net-Storage volume of type NETVOL cannot be exported, because there is no file catalog (.bs2fscat) on the Net-Storage volume.

The IMPORT-FILE command allows their catalog entries to be recreated (i.e. the files to be imported).

Privileged functions

System support staff may export files belonging to any user ID. It may ignore the passwords of protected files and also branch to guided dialog whenever the user ID is changed.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can therefore export files under any user ID). When SECOS is used, this co-ownership can be restricted.

Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners. Co-owners of a user ID are then also allowed to export a file.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Identifier of the volume to be exported	VOLUME =	
Name of the file or file generation to be exported	FILE =	
• file name	=*NAME	
• file generation; all older generations are exported	=*GENERATIONS-BEFORE	
• file generation; all younger generations are exported	=*GENERATIONS-AFTER	
Selection criteria for the files to be deleted	SELECT = *BY-ATTRIBUTES(...)	
Date specification		
• creation date		CREATION-DATE =
• Expiration date (implicit retention period)		EXPIRATION-DATE =
• date of last access		LAST-ACCESS-DATE =
• Number of accesses to the file		ACCESS-COUNTER =
• Type of volume ◦ Net-Storage, Private disk, Tape ◦ Private disk ◦ tape		SUPPORT = =*ANY =*PRIVATE-DISK =*TAPE
Storage space		

• Storage type		STORAGE-TYPE =
• File type (on Net-Storage)		STORAGE-TYPE =
• Reserved storage space		SIZE = *ANY
• Number of extents		NUMBER-OF-EXTENTS =
• Size of reserved storage space not yet used		NUMBER-OF-FREE-PAGES=
• Number of the last page used (last page pointer)		HIGHEST-USED-PAGE =
File security/file protection		
• Access		ACCESS =
• Shareability		USER-ACCESS =
• Basic access control list		BASIC-ACL =
• Highest activated access control		PROTECTION-ACTIVE =
• Password protection		PASSWORD =
• BACKUP level		BACKUP-CLASS =
• Type of file ○ Files only ○ PLAM libraries only		TYPE-OF-FILES =
• File format		BLOCK-CONTROL-INFO =

• Access method at creation		FILE-STRUCTURE =
• Status of the file ○ Closed ○ Not closed properly and not yet reconstructed		STATUS =
• Ability to migrate from processing level (S0) to background level (S1 or S2) in conjunction with HSMS		MIGRATE =
Control parameters	DIALOG-CONTROL	
• User intervention not permitted (default setting for procedures and batch mode)	DIALOG-CONTROL = *NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	DIALOG-CONTROL = *MORE- THAN-ONE-FILE	
• Dialog when an error occurs	DIALOG-CONTROL = *ERROR	
• Dialog when catalog ID changes	DIALOG-CONTROL = *CATALOG-CHANGE	
• For each file selected, there will be an interactive dialog with the user to determine whether the current DELETE-FILE command should be processed.	DIALOG-CONTROL = *FILE-CHANGE	
• Dialog when user ID changes	DIALOG-CONTROL = *USER-ID-CHANGE	

Message for successfully exported files	OUTPUT =	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	
Ignore password protection	IGNORE-PROTECTION =	
Ignore password protection provided by the specified passwords	PASSWORDS-TO-IGNORE =	
Suppress error situations	SUPPRESS-ERRORS =	

Format

EXPORT-**FILE**

VOLUME = ***ANY** / <alphanum-name 1..6>

,**FILE** = ***NAME**(...) / ***GEN**ERATIONS-**BEF**ORE(...) / ***GEN**ERATIONS-**AF**TER(...)

***NAME**(...)

| FILE-**NAME** = ***DUMMY** / ***ALL** / <filename 1..54 with-wild(80)>

***GEN**ERATIONS-**BEF**ORE(...)

| **GEN**ERATION-**NAME** = ***DUMMY** / <filename 1..54 with-wild(80)>

***GEN**ERATIONS-**AF**TER(...)

| **GEN**ERATION-**NAME** = ***DUMMY** / <filename 1..54 with-wild(80)>

,**SEL**ECT = ***ALL** / ***BY-ATTR**IBUTES(...)

***BY-ATTR**IBUTES(...)

| **CRE**ATION-**DATE** = ***ANY** / ***NONE** / ***TODAY** / ***YESTERDAY** / <integer -99999..991231> /

| <date> / [***INTERVAL**](...)

| [***INTERVAL**](...)

| | **FROM** = ***EARL** IEST / ***TODAY** / ***YESTERDAY** / <integer -99999..991231> / <date>

| | ,**TO** = ***TODAY** / ***YESTERDAY** / <integer -99999..991231> / <date>

| ,**EXPIR**ATION-DATE = ***ANY** / ***NONE** / ***TOMORROW** / ***TODAY** / ***YESTERDAY** /

| <integer -99999..991231> / <date> / [***INTERVAL**](...)

| [***INTERVAL**](...)

```
|           |       FROM = *EARL IEST / *TOMORROW / *TODAY / *YESTERDAY /
|           |                  <integer -99999..991231> / <date>
|           |       ,TO = *LATEST / TODAY / *TOMORROW / *YESTERDAY /
|           |            <integer -99999..991231> / <date>
|       ,LAST-ACCESS-DATE = *ANY / *NONE / *TODAY / *YESTERDAY / <integer -99999..991231> /
|                           <date> / [*INTERVAL](...)
|           [*INTERVAL](...)
|               |       FROM = *EARL IEST / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
|               |       ,TO = *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
|       ,SUPPORT = *ANY / list-poss(2): *PRIVATE-DISK / *TAPE
|       ,STOR AGE -TYPE = *ANY / *NET-STORAGE(...)
|           *NET-STORAGE(...)
|               |       FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
|       ,SIZE = *ANY / *FREESIZE / <integer 0..2147483647> / [*INTERVAL](...)
|           [*INTERVAL](...)
|               |       FROM = 0 / <integer 0..2147483647>
|               |       ,TO = 2147483647 / <integer 0..2147483647>
|       ,NUMBER-OF-EXTENTS = *ANY / <integer 0..65535> / [*INTERVAL](...)
|           [*INTERVAL](...)
|               |       FROM = 0 / <integer 0..65535>
|               |       ,TO = 65535 / <integer 0..65535>
|       ,NUMBER-OF-FREE-PAGES = *ANY / *SIZE / <integer 0..2147483647> / *ALL-ALLOCATED /
|                               [*INTERVAL](...)
|           [*INTERVAL](...)
|               |       FROM = 0 / <integer 0..2147483647>
|               |       ,TO = 2147483647 / <integer 0..2147483647>
|       ,ACCESS = *ANY / *READ / *WRITE
|       ,PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD /
|                   *EXEC-PASSWORD
|       ,USER-ACCESS = *ANY / list-poss(3): *OWNER-ONLY / *ALL-USERS / *SPECIAL
|       ,FILE-STRUCTURE = *ANY / list-poss(5): *PAM / *SAM / *ISAM / *BTAM / *NONE
```

| ,**BACKUP-CLASS** = ***ANY** / list-poss(5): ***A** / ***B** / ***C** / ***D** / ***E**

| ,**BLOCK-CONTROL-INFO** = ***ANY** / list-poss(9): ***NONE** / ***NO** / ***WITHIN-DATA-BLOCK** /

| ***WITHIN-DATA-2K**-BLOCK / ***WITHIN-DATA-4K**-BLOCK / ***PAMKEY** /

| ***NK** / ***NK2** / ***NK4**

| ,**MIGRATE** = ***ANY** / list-poss(3): ***ALLOWED** / ***INHIBITED** / ***FORBIDDEN**

| ,**STATUS** = ***ANY** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **CLOSED-OUTPUT** = ***ANY** / ***YES** / ***NO**

| | ,**REPAIR-NEEDED** = ***ANY** / ***YES**

| ,**BASIC-ACL** = ***ANY** / ***NONE** / ***YES** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **OWNER** = ***ANY** / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***ANY** / ***NO** / ***YES**

| | | ,**WRITE** = ***ANY** / ***NO** / ***YES**

| | | ,**EXEC** = ***ANY** / ***NO** / ***YES**

| | ,**GROUP** = ***ANY** / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***ANY** / ***NO** / ***YES**

| | | ,**WRITE** = ***ANY** / ***NO** / ***YES**

| | | ,**EXEC** = ***ANY** / ***NO** / ***YES**

| | ,**OTHERS** = ***ANY** / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***ANY** / ***NO** / ***YES**

| | | ,**WRITE** = ***ANY** / ***NO** / ***YES**

| | | ,**EXEC** = ***ANY** / ***NO** / ***YES**

| ,**PROTECTION-ACTIVE** = ***ANY** / list-poss(2): ***LEVEL-0** / ***LEVEL-1**

| ,**ACCESS-COUNTER** = ***ANY** / <integer 0..2147483647> / [***INTERVAL**](...)

| [***INTERVAL**](...)

| | **FROM** = **0** / <integer 0..2147483647>

| | ,**TO** = **2147483647** / <integer 0..2147483647>

```
        |       ,HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / [*INTERVAL](...)
        |           [*INTERVAL](...)
        |               |       FROM = 0 / <integer 0..2147483647>
        |               |       ,TO = 2147483647 / <integer 0..2147483647>
        |       ,TYPE-OF-FILES = *ANY / *FILE / *PLAM-LIBRARY
,DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE /
                              *CATALOG-CHANGE / *USER-ID-CHANGE
,OUTPUT = *STD / *NO / *SYSOUT
,IGNORE-PROTECTION = *NONE / list-poss(3): *WRITE-PASSWORD / *READ-PASSWORD /
                              *EXEC-PASSWORD
,PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> /
                                   <integer -2147483648..2147483647>
,SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
```

Operands

VOLUME = *ANY / <alphanum-name 1..6>
The VSN of the volume on which the file to be exported is stored. From the set of files selected by the FILE operand, only the files which are held on the specified volume will be exported. The VOLUME operand must not be used for file generation groups on tape.
If a file generation is to be exported from a private disk specified in the VOLUME operand, which holds a file generation group including the generation to be exported, but does not hold the group entry, gaps can result in the generation group. This gap will only be in the catalog entry; the file generation group remains complete on the disks.

VOLUME = *ANY
All the files identified by the FILE operand and contained on private volumes or Net-Storage volumes of the NETSTOR type will be exported.

FILE = *NAME(...) / *GENERATIONS-BEFORE(...) / *GENERATIONS-AFTER
Specifies the files or file generation groups to be exported. *DUMMY designates a dummy file, or dummy generations which “always exist” and which satisfy all the selection criteria. Any other operands (except for DIALOG-CONTROL, OUTPUT and SUPPRESS-ERRORS) will be checked for their formal correctness, but otherwise ignored. The main use of *DUMMY is in testing procedures.

FILE = *NAME(...)
From within the volumes identified by VOLUME, the files named as follows will be selected:

> **FILE-NAME = *ALL / <filename 1..54 with-wild(80)> / *DUMMY**
> The name of the file to be exported. Only the user’s own user ID or a user ID for which the user is co-owner may be specified.

FILE = *GENERATIONS-BEFORE(...)
From within the volumes identified by VOLUME, all the file generations which are older than the one whose identification follows will be exported:

GENERATION-NAME = <filename 1..54 with-wild(80)> / *DUMMY
The name of a reference generation. All those file generations which have a number less than the reference generation will be exported.

FILE = *GENERATIONS-AFTER(...)
From within the volumes identified by VOLUME, all the file generations which are younger than the one whose identification follows will be exported:

GENERATION-NAME = <filename 1..54 with-wild(80)> / *DUMMY
The name of a reference generation. All those file generations which have a number greater than the reference generation will be exported.

SELECT = *ALL
All the files in the set specified by the FILE-NAME operand are selected.

SELECT = *BY-ATTRIBUTES(...)
Restricts the files in the set specified in the FILE-NAME operand to files which satisfy the criteria which follow. The default values, *ANY and ANY, each indicates that the file set is not to be restricted to any particular values for the attribute concerned.

CREATION-DATE = *ANY / *NONE / *TODAY / *YESTERDAY / <integer -99999..991231> / <date> / *INTERVAL(...)
The user can select the files to be exported by their creation date. See also the *CRE-DATE* and *CRE-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

CREATION-DATE = *ANY
The creation date is not to be used as a selection criterion.

CREATION-DATE = *NONE
Only those files which have the value NONE entered in the CREATION-DATE field in their catalog entry are exported, i.e. files which have never been opened.

CREATION-DATE = *TODAY
Only those files which have today's date entered in the CREATION-DATE field in their catalog entry are exported.

CREATION-DATE = *YESTERDAY
Only those files which have yesterday's date entered in the CREATION-DATE field in their catalog entry are exported.

CREATION-DATE = <integer -99999..991231>
Only those files which have the specified date entered in the CREATION-DATE field in their catalog entry are exported. Here, the user can specify the creation date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value*: (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

CREATION-DATE = <date>
Only those files which have the specified date entered in the CREATION-DATE field in their catalog entry are exported. The user can specify the creation date in the form [yy]yy-mm-dd.

CREATION-DATE = *INTERVAL(...)
Only those files which were created within the specified time period are exported. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified using <integer> values). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only those files which have been created since the specified date (i.e. CREATION-DATE >= specified date) are exported. If EARLIEST is specified, the system will use the earliest possible date.

FROM = *TODAY
Exports only those files which were created on the current date.

FROM = *YESTERDAY
Exports only those files which were created as of yesterday's date (i.e. files for which CREATION-DATE >= date of preceding day).

FROM = <integer -99999..991231>
Exports only those files which were created after the specified date (i.e. files for which CREATION-DATE >= specified date).

FROM = <date>
Exports only those files which were created after the specified date (i.e. files for which CREATION-DATE >= specified date).

TO = *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Exports only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TO = *TODAY
Exports only those files which were created up to today's date (i.e. files for which CREATION-DATE <= current date).

TO = *YESTERDAY
Exports only those files which were created up to yesterday's date (i.e. files for which CREATION-DATE <= date of preceding day).

TO = <integer -99999..991231>
Exports only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TO = <date>
Exports only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

EXPIRATION-DATE = *ANY / *NONE / *TOMORROW / *TODAY / *YESTERDAY / <integer -99999..991231> /<date> / *INTERVAL(...)
The user can select the files to be exported by their release date (expiration date). See also the *EXPIR-DATE* and *EXPIR-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

EXPIRATION-DATE = *ANY
The expiration date is not to be used as a selection criterion.

EXPIRATION-DATE = *NONE
Only those files which have no expiration date (i.e. the value NONE) entered in the EXPIRATION-DATE field in their catalog entry are exported.

EXPIRATION-DATE = *TOMORROW
Only those files which have tomorrow's date entered as the EXPIRATION-DATE in their catalog entry are exported.

EXPIRATION-DATE = *TODAY
Only those files which have today's date entered as the EXPIRATION-DATE in their catalog entry are exported.

EXPIRATION-DATE = *YESTERDAY
Only those files which have yesterday's date entered as the EXPIRATION-DATE in their catalog entry are exported.

EXPIRATION-DATE = <integer -99999..991231>
Only those files which have the specified date entered as the EXPIRATION-DATE in their catalog entry are exported. Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits with preceding sign), the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

EXPIRATION-DATE = <date>
Only those files which have the specified date entered as the EXPIRATION-DATE in their catalog entry are exported. The user can specify the expiration date in the form [yy]yy-mm-dd.

EXPIRATION-DATE = *INTERVAL(...)
Only those files for which the expiration date lies within the specified time period, i.e. files for which the retention period ends within the specified time period, will be exported. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for EXPIRATION-DATE = <integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TOMORROW / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
If EARLIEST is specified, the system will use the earliest possible date. Only those files for which the retention period expires on or after the specified date (EXPIRATION-DATE >= specified date) are exported.

FROM = *TOMORROW
Exports only those files for which the EXPIRATION-DATE >= the next day.

FROM = *TODAY
Exports only those files for which the EXPIRATION-DATE >= the current date.

FROM = *YESTERDAY
Exports only those files for which the EXPIRATION-DATE >= the specified date.

FROM = <integer -99999..991231>
Exports only those files for which the EXPIRATION-DATE >= the specified date.

FROM = <date>
Exports only those files for which the EXPIRATION-DATE >= the specified date.

TO = *LATEST / *TOMORROW / *TODAY / *YESTERDAY /
<integer -99999..991231> /<date>
Only files for which the retention period expires on or before the specified date (EXPIRATION-DATE <= specified date) will be exported.

TO = *TOMORROW
Exports only those files for which the EXPIRATION-DATE <= the next day.

TO = *TODAY
Exports only those files for which the EXPIRATION-DATE <= the current date.

TO = *YESTERDAY
Exports only those files for which the EXPIRATION-DATE <= yesterday's date.

TO = <integer -99999..991231>
Exports only those files for which the EXPIRATION-DATE <= the specified date.

TO = <date>
Exports only those files for which the EXPIRATION-DATE <= the specified date.

LAST-ACCESS-DATE = *ANY / *NONE / *TODAY / *YESTERDAY /
<integer -99999..991231> /<date> / *INTERVAL(...)
The user can select the files to be exported by the date when they were last accessed. See also the *ACC-DATE* and *ACC-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

LAST-ACCESS-DATE = *ANY
The date of last access is not to be used as a selection criterion.

LAST-ACCESS-DATE = *NONE
Exports only those files which have the value NONE entered in the LADATE field in their catalog entry, i.e. files which have never been opened.

LAST-ACCESS-DATE = *TODAY
Exports only those files for which today's date has been entered as the LAST-ACCESS-DATE in the catalog entry.

LAST-ACCESS-DATE = *YESTERDAY
Exports only those files for which yesterday's date has been entered as the LAST-ACCESS-DATE in the catalog entry.

LAST-ACCESS-DATE = <integer -99999..991231>
Exports only those files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. Here, the user can specify the last access date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

LAST-ACCESS-DATE = <date>
Exports only those files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. The user can specify the creation date in the form [yy]yy-mm-dd.

LAST-ACCESS-DATE = *INTERVAL(...)
Only files which were last accessed within the specified time period will be exported. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified using <integer> values). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For

whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only files which have been accessed since the specified date (i.e. for which LAST-ACCESS-DATE >= specified date) will be exported. If EARLIEST is specified, the system will use the earliest possible date.

FROM = *TODAY
Exports only those files which have been accessed up to the date of the current date.

FROM = *YESTERDAY
Exports only those files which have been accessed up to the date of the preceding day. Returns information on files for which the LAST-ACCESS-DATE >= the specified date.

FROM = <integer -99999..991231>
Exports only those files for which the LAST-ACCESS-DATE >= the specified date.

FROM = <date>
Exports only those files for which the LAST-ACCESS-DATE >= the specified date.

TO = *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only those files which were last accessed on or before the specified date (i.e. files for which LAST-ACCESS-DATE <= the specified date) are exported.

TO = *TODAY
Exports only those files which have been accessed up to the current date.

TO = *YESTERDAY
Exports only those files which have been accessed up to the date of the preceding day.

TO = <integer -99999..991231>
Exports only those files which were most recently accessed up to the specified date.

TO = <date>
Exports only those files which were most recently accessed up to the specified date.

SUPPORT = *ANY / list-poss(2): *PRIVATE-DISK / *TAPE
The user can select which files are to be exported by the EXPORT-FILE command by the type of their volumes.

SUPPORT = *ANY
The volume type is not to be used as a selection criterion.

SUPPORT = *PRIVATE-DISK
Only files on private disks are to be exported.

SUPPORT = *TAPE
Only files on tape or tape cartridge are to be exported.

STORAGE-TYPE =*ANY / *NET-STORAGE(...)
The user can select which files are to be exported with EXPORT-FILE by the type of the storage location of the file.

STORAGE-TYPE = *ANY
The storage type is not a selection criterion.

STORAGE-TYPE = *NET-STORAGE(...)
Only files on a Net-Storage volume of type NETSTOR are exported. Files on a Net-Storage volume of type NETVOL cannot be exported, because there is no file catalog (.bs2fscat) on the Net-Storage volume.

FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
The user can select which files are to be exported with EXPORT-FILE by the file type.

FILE-TYPE = *ANY
The file type is not a selection criterion.

FILE-TYPE = *BS2000
Only BS2000 files on Net-Storage volumes of type NETSTOR are exported.

FILE-TYPE = *NODE-FILE
Only node files on Net-Storage volumes of type NETSTOR are exported.

SIZE = *ANY / *FREESIZE / <integer 0..2147483647> / *INTERVAL(...)
Only for files on disks and Net-Storage volumes: the user can select which files are to be exported by the EXPORT-FILE command on the basis of their size or the size of their reserved storage area (= number of PAM pages).
The value of the SIZE operand specifies the number of PAM pages: the upper and lower limits are both included in the range specified.

SIZE = *ANY
The file size is not to be used as a selection criterion.

SIZE = *FREESIZE
Only files for which storage space has been reserved but which do not yet occupy any of it (*HIGH-US-PA=0*) are to be exported.

SIZE = <integer 0..2147483647>
Only files for which the number of PAM pages reserved is exactly equal to the number specified here are to be exported.

SIZE = *INTERVAL(...)
Only files for which the number of pages lies within the specified range are to be exported. The upper and lower limits are both included in the range specified (see description of SIZE=<integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit. Only files for which the number of PAM pages reserved is at least equal to the FROM value and at most equal to the TO value will be processed (FROM <= SIZE <= TO).

FROM = 0 / <integer 0..2147483647>
Only files for which the number of PAM pages reserved is at least equal to the specified number are to be exported (SIZE >= specified value).

TO = 2147483647 / <integer 0..2147483647>
Only files for which the number of PAM pages reserved is at most equal to the specified number are to be exported (SIZE <= specified value).

NUMBER-OF-EXTENTS = *ANY / <integer 0..65535> / *INTERVAL(...)
Only for disk files: the user can select the files to be processed by EXPORT-FILE by the number of extents into which the file is “split”. An extent is a contiguous area on a disk, occupied by one file; the output field *EXTENTS* shows how many extents the file has.

NUMBER-OF-EXTENTS = *ANY
The number of extents is not to be used as a selection criterion.

NUMBER-OF-EXTENTS = <integer 0..65535>
Only disk files with exactly the specified number of extents (*EXTENDS* = integer) are to be exported.

NUMBER-OF-EXTENTS = *INTERVAL(...)
Selects all the files whose number of extents lies within the specified range. The upper and lower limits are both included in the range specified. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit. Only disk files which have at least as many EXTENTS as specified by the FROM value and at most as many as given by the TO value will be processed (FROM <= *EXTENTS* <= TO).

FROM = 0 / <integer 0..65535>
Only files for which the number of extents is at least equal to the specified number are to be exported (*EXTENTS* >= integer).

TO = 65535 / <integer 0..65535>
Only files for which the number of extents is at most equal to the specified number are to be exported (*EXTENTS* <= integer).

NUMBER-OF-FREE-PAGES = *ANY / *SIZE / <integer 0..2147483647> / *INTERVAL(...)
Only for files on disks and Net-Storage volumes: the user can select the files to be processed according to their number of free PAM pages, i.e. the number of pages reserved for a file but unused.

NUMBER-OF-FREE-PAGES = *ANY
The number of free PAM pages is not to be used as a selection criterion.

NUMBER-OF-FREE-PAGES = *SIZE
Only files which actually occupy no storage space are to be exported (i.e. no PAM page has been written yet).

NUMBER-OF-FREE-PAGES = <integer 0..2147483647>
Only files which have exactly the number of reserved but unused (=free) PAM pages specified by <integer...> are to be exported.

NUMBER-OF-FREE-PAGES = *INTERVAL(...)
Selects all files for which the number of unused PAM pages lies within the specified range. The upper and lower limits are both included in the range specified (see description of NUMBER-OF-FREE-PAGES = <integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.
Only disk files which have at least as many free PAM pages as specified by the FROM value and at most as many as given by the TO value will be exported (FROM <= FREE <= TO).

FROM = 0 / <integer 0..2147483647>
Only files for which the number free PAM pages is at least equal to the specified number are to be exported (FREE >= integer).

TO = 2147483647 / <integer 0..2147483647>
Only files for which the number free PAM pages is at most equal to the specified number are to be exported (FREE <= integer).

ACCESS = *ANY / *READ / *WRITE
The specified access type will be used as a selection criterion (*ACCESS* output field).

ACCESS = *ANY
The ACCESS value is not to be used as a selection criterion.

ACCESS = *READ
Only files for which write access is prevented by ACCESS=READ, i.e. for which only read access is permitted, will be exported.

ACCESS = *WRITE
Only files for which write access is permitted will be exported.

PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD / *EXEC-PASSWORD
The user can select files with specific password types for processing by the EXPORT-FILE command.

PASSWORD = *ANY
Password protection is not to be used as a selection criterion.

PASSWORD = *NONE
Only files for which there is no password protection are to be exported.

PASSWORD = *READ-PASSWORD
Only files which are protected by a read password are to be exported.

PASSWORD = *WRITE-PASSWORD
Only files which are protected by a write password are to be exported.

PASSWORD = *EXEC-PASSWORD
Only files which are protected by an execute password are to be exported.

USER-ACCESS = *ANY / listposs(3): *OWNER-ONLY / *ALL-USERS / *SPECIAL
The user can select files using their access authorizations as a criterion.

USER-ACCESS = *ANY
The access authorization is not to be used as a selection criterion.

USER-ACCESS = *OWNER-ONLY
Only files which the owner alone may access are to be exported.

USER-ACCESS = *ALL-USERS
Only files which can be accessed by all users are to be exported.

USER-ACCESS = *SPECIAL
Only files which can be accessed by all user IDs including the maintenance IDs (i.e. user IDs with HARDWARE-MAINTENANCE privilege) are to be exported.

FILE-STRUCTURE = *ANY / list-poss(5): *PAM / *SAM / *ISAM / *BTAM / *NONE
The user can select files for processing according to their access method (*FILE-STRUC* output field).

FILE-STRUCTURE = *ANY
The access method is not to be used as a selection criterion.

FILE-STRUCTURE = *PAM
Only PAM files should be processed.

FILE-STRUCTURE = *SAM
Only SAM files are to be processed.

FILE-STRUCTURE = *ISAM
Only ISAM files are to be processed.

FILE-STRUCTURE = *BTAM
Only BTAM files are to be processed. BTAM files are tape files.

FILE-STRUCTURE = *NONE
Only files for which FILE-STRUC=NONE, i.e. files which have not yet been opened, are to be exported.

BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
The user can select files for export by their BACKUP-CLASS level.

BACKUP-CLASS = *ANY
The BACKUP-CLASS level is not to be used as a selection criterion.

BACKUP-CLASS = *A
Only the files for which the value A is entered in the catalog as the BACKUP-CLASS (most frequent backup) are exported.

BACKUP-CLASS = *B
Only the files for which the value B is entered in the catalog as the BACKUP-CLASS are exported.

BACKUP-CLASS = *C
Only the files for which the value C is entered in the catalog as the BACKUP-CLASS are exported.

BACKUP-CLASS = *D
Only the files for which the value D is entered in the catalog as the BACKUP-CLASS are exported.

BACKUP-CLASS = *E
Only the files for which the value E is entered in the catalog as the BACKUP-CLASS are exported.

BLOCK-CONTROL-INFO = ANY / list-poss(4): NONE / NO / WITHIN-DATA-BLOCK / WITHIN-DATA-2K-BLOCK / WITHIN-DATA-4K-BLOCK / PAMKEY / NK / NK2 / NK4
The user can select files for export by their file format (*BLK-CONTR* output field).

BLOCK-CONTROL-INFO = *ANY
The BLOCK-CONTROL entry is not to be used as a selection criterion.

BLOCK-CONTROL-INFO = *NONE
Only files for which no BLK-CNTRL value has been defined, i.e. files which have not yet been opened, are to be exported.

BLOCK-CONTROL-INFO = *NO
Only files which contain no block control field are to be exported.

BLOCK-CONTROL-INFO = *WITHIN-DATA-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-BLOCK (i.e. files for which block control information is held in a block control field at the start and within the data block) are to be exported.

BLOCK-CONTROL-INFO = *WITHIN-DATA-2K-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-2K-BLOCK (i.e. files for which block control information is located at the start of each 2K block) are to be exported.

BLOCK-CONTROL-INFO = *WITHIN-DATA-4K-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-4K-BLOCK (i.e. files for which block control information is located at the start of each 4K block) are to be exported.

BLOCK-CONTROL-INFO = *PAMKEY
Only files which use a separate PAM key for the block control field (i.e the block control information is held in a separate key field, outside the PAM block) are to be exported.

BLOCK-CONTROL-INFO = *NK
Only the NK files are to be exported, i.e. files which can also be stored on NK volumes (NK2 and NK4).

BLOCK-CONTROL-INFO = *NK2
Only files which can also be stored on NK2 volumes (but not NK4 volumes) are to be exported.

BLOCK-CONTROL-INFO = *NK4
Only files which can also be stored on NK4 volumes are to be exported.

MIGRATE = *ANY / list-poss(2): *ALLOWED / *INHIBITED / *FORBIDDEN
The user can specify which files are to be processed by the EXPORT-FILE command by the migration entry in the catalog (see the CREATE-FILE command, MIGRATE operand).

MIGRATE = *ANY
The specified files are to be exported, irrespective of the value in the MIGRATE operand in each of their catalog entries.

MIGRATE = *ALLOWED
Only files for which the catalog entry specifies the appropriate operand value, i.e. files which may be migrated to storage levels S1 and S2, are to be exported.

MIGRATE = *INHIBITED
Only files for which the catalog entry specifies the appropriate operand value, i.e. files which may not be migrated, are to be processed.

MIGRATE = *FORBIDDEN
Only files for which the catalog entry specifies the appropriate operand value are to be exported, i.e. files for which an intensified migration lock is declared. The files may not even be migrated for a brief period (e.g. for reorganization purposes).

STATUS = *ANY / *PARAMETERS(...)
The current file status is used as a selection criterion.

STATUS = *ANY
The file status is not to be used as a selection criterion.

STATUS = *PARAMETERS(...)
Only the files which have the specified status are selected for export. The following selection criteria are possible:

> The selection criteria within the *PARAMETERS(...) structure are logically ORed.

CLOSED-OUTPUT = *ANY / *YES / *NO
Specifies whether the “file closed” status is to be used as a selection criterion.

CLOSED-OUTPUT = *YES
Only the files which have already been closed are exported.

CLOSED-OUTPUT = *NO
Only the output files which have been opened in a program (OPEN OUTIN, INOUT or OUTPUT) and files which were not closed in an earlier system run or because a job was aborted are selected for export.

REPAIR-NEEDED = *ANY / *YES
Specifies whether files which were not closed in an earlier system run and not reconstructed with REPAIR-DISK-FILES are to be selected.

REPAIR-NEEDED = *ANY
Exports files regardless of whether they need to be repaired.

REPAIR-NEEDED = *YES
Only the files which were not closed in an earlier system run and which have not yet been reconstructed are selected for export.

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
The BASIC-ACL entry in the file catalog is used as a selection criterion.

BASIC-ACL = *ANY
The BASIC-ACL entry is not to be used as a selection criterion.

BASIC-ACL = *NONE
Only the files that have no BASIC-ACL entry in the catalog are to be exported.

BASIC-ACL = *YES
Only the files which have a BASIC-ACL entry in the catalog are to be exported.

BASIC-ACL = *PARAMETERS(...)
Only the files which have the specified BASIC-ACL entry in the catalog are to be exported. NO-ACCESS means that no access rights were granted.

> ¡ Access rights specified with the OWNER, GROUP, and OTHERS operands within the *PARAMETERS (...) structure are logically ORed.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner’s user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner’s user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1
The highest activated access control method (protection level) is used as a selection criterion. Only the files which have access protection at specified protection level are exported. Protection level 2 cannot be explicitly specified for EXPORT-FILE.
When the file is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 49: Hierarchy of access control methods

All other protection attributes of the file (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

PROTECTION-ACTIVE = *ANY
The access control method is not to be used as a selection criterion.

PROTECTION-ACTIVE = *LEVEL-0
Only the files for which access is controlled via standard access control are to be exported.

PROTECTION-ACTIVE = *LEVEL-1
Only the files for which access is controlled via a basic access control list (BASIC-ACL protection) are to be exported.

ACCESS-COUNTER = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The access counter for the file is used as a selection criterion (see the *ACC-COUNT* output field of the SHOW-FILE-ATTRIBUTES command).

ACCESS-COUNTER = *ANY
The access counter is not to be used as a selection criterion.

ACCESS-COUNTER = <integer 0..2147483647>
Only the files for which the access counter exactly matches the specified value are selected for export.

ACCESS-COUNTER = *INTERVAL(...)
Only the files for which the access counter lies in the specified value range which follows are to be exported.

FROM = 0 / <integer 0..2147483647>
Only those files for which the access counter >= the specified value are exported.

TO = 2147483647 / <integer 0..2147483647>
Only those files for which the access counter <= the specified value are exported.

HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The number of PAM pages used serves as a selection criterion here, i.e. the last page pointer points to the specified page (see also the *HIGH-US-PA* output field of the SHOW-FILE-ATTRIBUTES command).

HIGHEST-USED-PAGE = *ANY
The number of PAM pages used is not used as a selection criterion.

HIGHEST-USED-PAGE = <integer 0..2147483647>
Only the files for which the specified number of PAM pages are used (i.e. files for which the last page pointer points to the specified page) are exported.

HIGHEST-USED-PAGE = *INTERVAL(...)
Exports only those files which use a number of pages that falls within the specified range.

FROM = 0 / <integer 0..2147483647>
Only the files in which the number of used pages >= the specified number are exported.

TO = 2147483647 / <integer 0..2147483647>
Only the files in which the number of used pages <= the specified number are exported.

TYPE-OF-FILES = *ANY / list-poss(2): *FILE / *PLAM-LIBRARY
Specifies whether files are to be selected on the basis of information specific to the file type. The files to be exported can be restricted to normal files or to PLAM libraries.

TYPE-OF-FILES = *ANY
Exports files without taking the file type into account.

TYPE-OF-FILES = *FILE
Only files are exported.

TYPE-OF-FILES = *PLAM-LIBRARY
Only PLAM libraries are exported.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE/ *USER-ID-CHANGE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the export process. A control dialog is only possible in dialog mode but, in this mode, may also be used in procedures. The only operand value that you can specify in batch mode is *STD or *NO.
The user can intervene with the following inputs:

- Y: the specified file or file set will then be exported.
- N: the specified file or file set will not be exported.
- T: processing of the command will be terminated.

- ?: the possible responses will be listed, with an explanation of each.

In addition, the following options can be specified, separated by commas:

- ,CHECK = NO
  The DIALOG-CONTROL mode will be changed to '*NO'.
- ,CHECK = PVS
  The DIALOG-CONTROL mode will be changed to '*CATALOG-CHANGE'.
- ,CHECK = MULTIPLE
  The DIALOG-CONTROL mode will be changed to '*MORE-THAN-ONE-FILE'.
- ,CHECK = SINGLE
  SINGLE The DIALOG-CONTROL mode will be changed to '*FILE-CHANGE'.
- ,CHECK = ERROR
  The DIALOG-CONTROL mode will be changed to '*ERROR'.
- ,IGNORE = list-poss(3): RDPASS / WRPASS / EXPASS *Only privileged users may make this specification.*
  Specifies the type of password protection that is to be ignored on export. The specification only applies to a single file in the control dialog.
- ,PASSWORD = list-poss(3): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
  Enables password-protected files to be exported (maximum of 3 passwords). The specification only applies to a single file in the control dialog.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
The user cannot intervene in EXPORT-FILE processing; all the specified files will be exported (without a verification dialog).

DIALOG-CONTROL = *ERROR
If exporting of the selected files proceeds without error, they will be exported immediately, as when *NO is specified (i.e. no verification dialog). However, if a user-correctable error occurs during export, then a verification dialog takes place as for DIALOG-CONTROL = *FILE-CHANGE. DIALOG-CONTROL = *ERROR applies implicitly if DIALOG-CONTROL = *FILE-CHANGE is set. In the event of an error, the user may acknowledge the error message, abort EXPORT-FILE processing or attempt to rectify the error. If he wishes, he can also change the DIALOG-CONTROL mode (see also the possible forms of intervention listed under the first DIALOG-CONTROL operand).

DIALOG-CONTROL = *FILE-CHANGE
For each file which is to be exported, the user has the intervention options described for the first of the DIALOG-CONTROL operands. For each file which is to be processed, the user can decide interactively whether it should be exported or not (response: YES/NO). If in the verification dialog he specifies protection attributes under "IGNORE", or one or more passwords under "PASSWORD", these will be taken into account for any selected file and, if satisfied, the file will be exported without further queries ("YES" must also be specified). The user can also abort EXPORT-FILE processing, or change the DIALOG-CONTROL mode.
The files which have been exported will be listed in alphanumeric order.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
If exactly one file is specified, this will be exported immediately. If the file is specified in partially qualified form, which means that more than one file is selected, or if the file name contains wildcards, the user can decide, each time the catalog ID changes, whether files from the new catalog are to be exported (see the intervention options

described for the first of the DIALOG-CONTROL operands). He must respond to the question issued by the system with “YES” or “NO”. DIALOG-CONTROL=*MORE-THAN-ONE-FILE is useful if wildcards are specified for “catid” in the FILE-NAME. In the verification dialog, EXPORT-FILE processing can be terminated, or the DIALOG-CONTROL mode can be changed.

DIALOG-CONTROL = *CATALOG-CHANGE
As with DIALOG-CONTROL = *MORE-THAN-ONE-FILE, the EXPORT-FILE processing routine branches to a verification dialog if files in different catalogs (pubsets) are affected. The user can determine whether the files in the current pubset should be exported (YES/NO), EXPORT-FILE processing should be terminated, or the DIALOG-CONTROL mode should be changed.

DIALOG-CONTROL = *USER-ID-CHANGE
Whenever the user ID is changed when deleting the catalog entries, a branch is made to guided dialog.

OUTPUT = *STD / *NO / *SYSOUT
The user can specify whether a message (`DMS0800`) with the name of the exported file is to be output to SYSOUT for each successfully exported file. The default setting *STD is equivalent to OUTPUT=*NO.

OUTPUT = *NO
No messages are output to SYSOUT for successfully exported files.

OUTPUT = *SYSOUT
For each file that is successfully exported, a message with the name of the file is output to SYSOUT.

IGNORE-PROTECTION = *NONE / list-poss(3): *WRITE-PASSWORD / *READ-PASSWORD / *EXEC-PASSWORD
*Only privileged users may enter operand values other than *NONE.* Systems support may specify that password protection is to be ignored. The specification IGNORE-PROTECTION in the EXPORT-FILE command thus makes it unnecessary to issue MODIFY-FILE-ATTRIBUTES commands to reset the protection attributes before the files can be exported.

IGNORE-PROTECTION = *WRITE-PASSWORD
System support staff are authorized to ignore the protection attribute **write password** when deleting the catalog entry.

IGNORE-PROTECTION = *READ-PASSWORD
System support staff are authorized to ignore the protection attribute **read password** when deleting the catalog entry.

IGNORE-PROTECTION = *EXEC-PASSWORD
System support staff are authorized to ignore the protection attribute **execute password** when deleting the catalog entry.

PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
The user can specify one or more passwords, which will permit files protected by these passwords to be exported. The passwords entered here are not recorded in the password table for the job, and are valid only for the current EXPORT-FILE processing. Up to 3 passwords may be specified in the form of a list.
In order to export a password-protected file, the password at the highest access level must be specified (see the ADD-PASSWORD command).
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.

- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

PASSWORDS-TO-IGNORE = *NONE
No passwords are specified.

SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
In procedures, the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified. DMS error code: 7 characters, of which the first three are always “DMS”; the last 4 characters identify the error; the digits 0..9 and letters A..F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.

A detailed list of valid DMS error codes can be found on the manual server (URL: *http://bs2manuals.ts.fujitsu.com*) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS05F7	File generation does not exist, but group entry is updated
2	0	DMS06D6	Error on deleting certain files
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privilege errors
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	Specified file not shareable
	64	DMS055C	The catalog entry could not be found on the assigned volume
	64	DMS057B	Invalid operand for migrated file

	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057D	File has been migrated and cannot be recalled without delay
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS05C9	Only files on private volumes or files on Net-Storage volume of the NETSTOR type can be exported
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	Access to system file not permitted
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available

Examples

For examples of using the EXPORT-FILE command see the IMPORT-FILE command.

Notes

- If a file that is stored on a private disk or a Net-Storage volume is to be exported, then the device on which this disk is mounted will be requested for the job. After deletion of the file, the device will be returned to the system.
- For files stored on private disks, if OPTION=*DESTROY-ALL or MOUNT=*ALL-DISK is specified then all the volumes which hold the file must be already mounted at the time the command is executed. Otherwise, only the first volume which holds the file has to be mounted. The following volumes will not be requested until the command is being executed.

  This rule also applies if a partially qualified file name is specified in the DELETE-FILE command, thus addressing a number of files. In this situation, it is not necessary that all the volumes for all the files are mounted simultaneously. The system will determine which of the files requires the most devices and will request the corresponding number of devices.

3.49 EXPORT-NODE-FILE

Delete catalog entry of node files (export node files)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING
	TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The EXPORT-NODE-FILE command deletes the catalog entries for node files (files of the type NODE-FILE) which are located on a Net-Storage volume. When a node file is exported, the catalog entry is removed from the file catalog (TSOSCAT) and from the catalog of the Net-Storage volume. The node files and their data are retained on the Net-Storage.

The IMPORT-NODE-FILE command enables the catalog entry to be recreated (the node files to be imported).

Privileged functions

System support staff may export files belonging to any user ID. It may ignore the passwords of protected files and also branch to guided dialog whenever the user ID is changed.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can therefore export files under any user ID). When SECOS is used, this co-ownership can be restricted.

Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product, a user can allow other user IDs to act as co-owners. Co-owners of a user ID are then also allowed to export a file.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Identifier of the Net-Storage volume whose node files are to be exported	VOLUME =	
Name of the file to be exported	FILE-NAME =	
Selection criteria for the files to be deleted	SELECT = *BY-ATTRIBUTES(...)	
Date specification		
• creation date		CREATION-DATE =
• Expiration date (implicit retention period)		EXPIRATION-DATE =
• Access method at creation		FILE-STRUCTURE =
• date of last access		LAST-ACCESS-DATE =
• Number of accesses to the file		ACCESS-COUNTER =
• Reserved storage space		SIZE = *ANY
• Size of reserved storage space not yet used		NUMBER-OF-FREE-PAGES =
• Number of the last page used (last page pointer)		HIGHEST-USED-PAGE =
File security/file protection		
• Access		ACCESS =
• Shareability		USER-ACCESS =

• Basic access control list		BASIC-ACL =
• Highest activated access control		PROTECTION-ACTIVE =
• Password protection		PASSWORD =
• BACKUP level		BACKUP-CLASS =
• File format		BLOCK-CONTROL-INFO =
• Status of the file ○ Closed ○ Not closed properly and not yet reconstructed		STATUS =
• Ability to migrate from processing level (S0) to background level (S1 or S2) in conjunction with HSMS		MIGRATE =
Control parameters	DIALOG-CONTROL	
• User intervention not permitted (default setting for procedures and batch mode)	DIALOG-CONTROL = *NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	DIALOG-CONTROL = *MORE-THAN-ONE-FILE	
• Dialog when an error occurs	DIALOG-CONTROL = *ERROR	

• Dialog when catalog ID changes	DIALOG-CONTROL = *CATALOG-CHANGE	
• For each file selected, there will be an interactive dialog with the user to determine whether the current EXPORT-NODE-FILE command should be processed.	DIALOG-CONTROL = *FILE-CHANGE	
• Dialog when user ID changes	DIALOG-CONTROL = *USER-ID-CHANGE	
Message for successfully exported files	OUTPUT =	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	
Ignore protection attributes	IGNORE-PROTECTION =	
• Ignore write protection provided by ACCESS=READ, BASIC-ACL or GUARDS	=*ACCESS	
• Ignore retention periods	=*EXPIRATION-DATE	
• Ignore password protection	=*WRITE-PASSWORD / *READ-PASSWORD / *EXEC-PASSWORD	
Ignore password protection provided by specified passwords	PASSWORDS-TO-IGNORE =	
Suppress error situations	SUPPRESS-ERRORS =	

Table 50: Overview of EXPORT-NODE-FILE command functions

Format

EXPORT-**NODE-FILE**

VOLUME = <vsn 6..6>

FILE-**NAME** = ***ALL** / <filename 1..54 with-wild(80)>

,**SEL**ECT = ***ALL** / ***BY-ATTR**IBUTES(...)

***BY-ATTR**IBUTES(...)

| **CRE**ATION-**DATE** = ***ANY** / ***NONE** / ***TODAY** / ***YESTERDAY** / <integer -99999..991231> /
| <date> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = ***EARL**IEST / ***TODAY** / ***YESTERDAY** / <integer -99999..991231> / <date>
| | ,**TO** = ***TODAY** / ***YESTERDAY** / <integer -99999..991231> / <date>
| ,**EXPIR**ATION-DATE = ***ANY** / ***NONE** / ***TOMORROW** / ***TODAY** / ***YESTERDAY** /
| <integer -99999..991231> / <date> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = ***EARL**IEST / ***TOMORROW** / ***TODAY** / ***YESTERDAY** /
| | <integer -99999..991231> / <date>
| | ,**TO** = ***LATEST** / **TODAY** / ***TOMORROW** / ***YESTERDAY** /
| | <integer -99999..991231> / <date>
| ,**FILE-STRUC**TURE = ***ANY** / list-poss(3): ***PAM** / ***SAM** / ***NONE**
| ,**LAST-ACCESS**-DATE = ***ANY** / ***NONE** / ***TODAY** / ***YESTERDAY** / <integer -99999..991231> /
| <date> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = ***EARL**IEST / ***TODAY** / ***YESTERDAY** / <integer -99999..991231> / <date>
| | ,**TO** = ***TODAY** / ***YESTERDAY** / <integer -99999..991231> / <date>
| ,**SIZE** = ***ANY** / ***FREESIZE** / <integer 0..2147483647> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = **0** / <integer 0..2147483647>
| | ,**TO** = **2147483647** / <integer 0..2147483647>
| ,**NUM**BER-**OF-FREE**-PAGES = ***ANY** / ***SIZE** / <integer 0..2147483647> / ***ALL-ALLOC**ATED /
| [***INTERVAL**](...)

| [***INTERVAL**](...)

| | **FROM** = **0** / <integer 0..2147483647>

| | ,**TO** = **2147483647** / <integer 0..2147483647>

| ,**ACCESS** = ***ANY** / ***READ** / ***WR**ITE

| ,**PASS**WORD = ***ANY** / list-poss(4): ***NONE** / ***READ-PASS**WORD / ***WR**ITE**-PASS**WORD /

***EXEC-PASS**WORD

| ,**USER-ACCESS** = ***ANY** / list-poss(3): ***OWNER-ONLY** / ***ALL-USERS** / ***SPECIAL**

| ,**BACK**UP-**CL**ASS = ***ANY** / list-poss(5): ***A** / ***B** / ***C** / ***D** / ***E**

| ,**BLOCK-CONTR**OL-**INFO** = ***ANY** / list-poss(9): ***NONE** / ***NO** / ***WITHIN-DATA-BLOCK** /

***WITHIN-DATA-2K**-BLOCK / ***WITHIN-DATA-4K**-BLOCK / ***PAMKEY** /

***NK** / ***NK2** / ***NK4**

| ,**MIGRATE** = ***ANY** / list-poss(3): ***ALLOW**ED / ***INHIBITED** / ***FORBIDDEN**

| ,**STA**TUS = ***ANY** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **CLOSED-OUTPUT** = ***ANY** / ***Y**ES / ***NO**

| | ,**REPAIR-NEEDED** = ***ANY** / ***Y**ES

| ,**BASIC-ACL** = ***ANY** / ***NONE** / ***Y**ES / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **OWNER** = ***ANY** / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***ANY** / ***NO** / ***Y**ES

| | | ,**WR**ITE = ***ANY** / ***NO** / ***Y**ES

| | | ,**EXEC** = ***ANY** / ***NO** / ***Y**ES

| | ,**GR**OUP = ***ANY** / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***ANY** / ***NO** / ***Y**ES

| | | , **WR**ITE = ***ANY** / ***NO** / ***Y**ES

| | | , **EXEC** = ***ANY** / ***NO** / ***Y**ES

| | , **OTHERS** = ***ANY** / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***ANY** / ***NO** / ***Y**ES

```
        |           |                   |       ,WRITE = *ANY / *NO / *YES
        |           |                   |       ,EXEC = *ANY / *NO / *YES
        |       ,PROTECTION-ACTIVE = *ANY / list-poss(2): *LEVEL-0 / *LEVEL-1
        |       ,ACCESS-COUNTER = *ANY / <integer 0..2147483647> / [*INTERVAL](...)
        |           [*INTERVAL](...)
        |               |       FROM = 0 / <integer 0..2147483647>
        |               |       ,TO = 2147483647 / <integer 0..2147483647>
        |       ,HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / [*INTERVAL](...)
        |           [*INTERVAL](...)
        |               |       FROM = 0 / <integer 0..2147483647>
        |               |       ,TO = 2147483647 / <integer 0..2147483647>
,DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE /
                  *CATALOG-CHANGE / *USER-ID-CHANGE
,OUTPUT = *STD / *NO / *SYSOUT
,IGNORE-PROTECTION = *NONE / list-poss(5): *ACCESS / *EXPIRATION-DATE / *WRITE-PASSWORD /
                     *READ-PASSWORD / *EXEC-PASSWORD
,PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> /
                           <integer -2147483648..2147483647>
,SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
```

Operands

VOLUME = <vsn 6..6>
The VSN of the Net-Storage volume on which the node files to be exported are located.
From the set of node files selected by the FILE-NAME operand, only those which are located on the specified Net-Storage volume will be exported.

FILE-NAME = *ALL / <filename 1..54 with-wild(80)>
Defines the node files to be exported. The specification *ALL selects all node files which are located on the specified Net-Storage volume.

SELECT = *ALL
All the files in the set specified by the FILE-NAME operand are selected.

SELECT = *BY-ATTRIBUTES(...)
Restricts the node files in the set specified in the FILE-NAME operand to those which satisfy the criteria which follow. The default values, *ANY and ANY, each indicate that the file set is not to be restricted to any particular values for the attribute concerned.

CREATION-DATE = *ANY / *NONE / *TODAY / *YESTERDAY / <integer -99999..991231> / <date> / *INTERVAL(...)
The user can select the files to be exported by their creation date. See also the *CRE-DATE* and *CRE-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

CREATION-DATE = *ANY
The creation date is not to be used as a selection criterion.

CREATION-DATE = *NONE
Only those files which have the value NONE entered in the CREATION-DATE field in their catalog entry are exported, i.e. files which have never been opened.

CREATION-DATE = *TODAY
Only those files which have today's date entered in the CREATION-DATE field in their catalog entry are exported.

CREATION-DATE = *YESTERDAY
Only those files which have yesterday's date entered in the CREATION-DATE field in their catalog entry are exported.

CREATION-DATE = <integer -99999..991231>
Only those files which have the specified date entered in the CREATION-DATE field in their catalog entry are exported. Here, the user can specify the creation date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value*: (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

CREATION-DATE = <date>
Only those files which have the specified date entered in the CREATION-DATE field in their catalog entry are exported. The user can specify the creation date in the form [yy]yy-mm-dd.

CREATION-DATE = *INTERVAL(...)
Only those files which were created within the specified time period are exported.
The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified using <integer> values).
It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only those files which have been created since the specified date (i.e. CREATION-DATE >= specified date) are exported. If EARLIEST is specified, the system will use the earliest possible date.

FROM = *TODAY
Exports only those files which were created on the current date.

FROM = *YESTERDAY
Exports only those files which were created as of yesterday's date (i.e. files for which CREATION-DATE >= date of preceding day).

FROM = <integer -99999..991231>
Exports only those files which were created after the specified date (i.e. files for which CREATION-DATE >= specified date).

FROM = <date>
Exports only those files which were created after the specified date (i.e. files for which CREATION-DATE >= specified date).

TO = *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Exports only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TO = *TODAY
Exports only those files which were created up to today's date (i.e. files for which CREATION-DATE <= current date).

TO = *YESTERDAY
Exports only those files which were created up to yesterday's date (i.e. files for which CREATION-DATE <= date of preceding day).

TO = <integer -99999..991231>
Exports only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

TO = <date>
Exports only those files which were created before the specified date (i.e. files for which CREATION-DATE <= specified date).

EXPIRATION-DATE = *ANY / *NONE / *TOMORROW / *TODAY / *YESTERDAY / <integer -99999..991231> / <date> / *INTERVAL(...)
The user can select the files to be exported by their release date (expiration date). See also the *EXPIR-DATE* and *EXPIR-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

EXPIRATION-DATE = *ANY
The expiration date is not to be used as a selection criterion.

EXPIRATION-DATE = *NONE
Only those files which have no expiration date (i.e. the value NONE) entered in the EXPIRATION-DATE field in their catalog entry are exported.

EXPIRATION-DATE = *TOMORROW
Only those files which have tomorrow's date entered as the EXPIRATION-DATE in their catalog entry are exported.

EXPIRATION-DATE = *TODAY
Only those files which have today's date entered as the EXPIRATION-DATE in their catalog entry are exported.

EXPIRATION-DATE = *YESTERDAY
Only those files which have yesterday's date entered as the EXPIRATION-DATE in their catalog entry are exported.

EXPIRATION-DATE = <integer -99999..991231>
Only those files which have the specified date entered as the EXPIRATION-DATE in their catalog entry are exported. Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value*: (6 digits with preceding sign), the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

EXPIRATION-DATE = <date>
Only those files which have the specified date entered as the EXPIRATION-DATE in their catalog entry are exported. The user can specify the expiration date in the form [yy]yy-mm-dd.

EXPIRATION-DATE = *INTERVAL(...)
Only those files for which the expiration date lies within the specified time period, i.e. files for which the retention period ends within the specified time period, will be exported. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for EXPIRATION-DATE = <integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TOMORROW / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
If EARLIEST is specified, the system will use the earliest possible date. Only those files for which the retention period expires on or after the specified date (EXPIRATION-DATE >= specified date) are exported.

FROM = *TOMORROW
Exports only those files for which the EXPIRATION-DATE >= the next day.

FROM = *TODAY
Exports only those files for which the EXPIRATION-DATE >= the current date.

FROM = *YESTERDAY
Exports only those files for which the EXPIRATION-DATE >= the specified date.

FROM = <integer -99999..991231>
Exports only those files for which the EXPIRATION-DATE >= the specified date.

FROM = <date>
Exports only those files for which the EXPIRATION-DATE >= the specified date.

TO = *LATEST / *TOMORROW / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only files for which the retention period expires on or before the specified date (EXPIRATION-DATE <= specified date) will be exported.

TO = *TOMORROW
Exports only those files for which the EXPIRATION-DATE <= the next day.

TO = *TODAY
Exports only those files for which the EXPIRATION-DATE <= the current date.

TO = *YESTERDAY
Exports only those files for which the EXPIRATION-DATE <= the specified date.

TO = <integer -99999..991231>
Exports only those files for which the EXPIRATION-DATE <= the specified date.

TO = <date>
Exports only those files for which the EXPIRATION-DATE <= the specified date.

FILE-STRUCTURE = *ANY / list-poss(3): *PAM / *SAM / *NONE
The user can select files for exporting according to the access method with which the file is to be created.

FILE-STRUCTURE = *ANY
The access method is not to be used as a selection criterion.

FILE-STRUCTURE = *PAM
Only PAM files are to be processed.

FILE-STRUCTURE = *SAM
Only SAM files are to be processed.

FILE-STRUCTURE = *NONE
Only those files will be imported which have been cataloged, but which contain no data, i.e. files which have not yet been opened or files whose storage space has been released (logically deleted) by using the OPTION=*DATA operand in a DELETE-FILE command.

LAST-ACCESS-DATE = *ANY / *NONE / *TODAY / *YESTERDAY / <integer -99999..991231> / <date> / *INTERVAL(...)
The user can select the files to be exported by the date when they were last accessed. See also the *ACC-DATE* and *ACC-TIME* output fields in the SHOW-FILE-ATTRIBUTES command.

LAST-ACCESS-DATE = *ANY
The date of last access is not to be used as a selection criterion.

LAST-ACCESS-DATE = *NONE
Exports only those files which have the value NONE entered in the LADATE field in their catalog entry, i.e. files which have never been opened.

LAST-ACCESS-DATE = *TODAY
Exports only those files for which today's date has been entered as the LAST-ACCESS-DATE in the catalog entry.

LAST-ACCESS-DATE = *YESTERDAY
Exports only those files for which yesterday's date has been entered as the LAST-ACCESS-DATE in the catalog entry.

LAST-ACCESS-DATE = <integer -99999..991231>
Exports only those files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. Here, the user can specify the last access date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value*: (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

LAST-ACCESS-DATE = <date>
Exports only those files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. The user can specify the creation date in the form [yy]yy-mm-dd.

LAST-ACCESS-DATE = *INTERVAL(...)
Only files which were last accessed within the specified time period will be exported. The range of dates

covered by the specification includes the two end dates (see also the explanation of how dates are specified using <integer> values). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.

FROM = *EARLIEST / *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only files which have been accessed since the specified date (i.e. for which LAST-ACCESS-DATE >= specified date) will be exported. If EARLIEST is specified, the system will use the earliest possible date.

FROM = *TODAY
Exports only those files which have been accessed up to the date of the current date.

FROM = *YESTERDAY
Exports only those files which have been accessed up to the date of the preceding day. Returns information on files for which the LAST-ACCESS-DATE >= the specified date.

FROM = <integer -99999..991231>
Exports only those files for which the LAST-ACCESS-DATE >= the specified date.

FROM = <date>
Exports only those files for which the LAST-ACCESS-DATE >= the specified date.

TO = *TODAY / *YESTERDAY / <integer -99999..991231> / <date>
Only those files which were last accessed on or before the specified date (i.e. files for which LAST-ACCESS-DATE <= the specified date) are exported.

TO = *TODAY
Exports only those files which have been accessed up to the date of the current date.

TO = *YESTERDAY
Exports only those files for which the LAST-ACCESS-DATE <= the date of preceding day.

TO = <integer -99999..991231>
Exports only those files for which the LAST-ACCESS-DATE <= the specified date.

TO = <date>
Exports only those files for which the LAST-ACCESS-DATE <= the specified date.

SIZE = *ANY / *FREESIZE / <integer 0..2147483647> / *INTERVAL(...)
The user can select which files are to be exported by the EXPORT-NODE-FILE command on the basis of their size or the size of their reserved storage area (= number of PAM pages).
The value of the SIZE operand specifies the number of PAM pages: the upper and lower limits are both included in the range specified.

SIZE = *ANY
The file size is not to be used as a selection criterion.

SIZE = *FREESIZE
Only files for which storage space has been reserved but which do not yet occupy any of it (*HIGH-US-PA=0*) are to be exported.

SIZE = <integer 0..2147483647>
Only files for which the number of PAM pages reserved is exactly equal to the number specified here are to be exported.

SIZE = *INTERVAL(...)
Only files for which the number of pages lies within the specified range are to be exported. The upper and lower limits are both included in the range specified (see description of SIZE=<integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit. Only files for which the number of PAM pages reserved is at least equal to the FROM value and at most equal to the TO value will be processed (FROM <= SIZE <= TO).

FROM = 0 / <integer 0..2147483647>
Only files for which the number of PAM pages reserved is at least equal to the specified number are to be exported (SIZE >= specified value).

TO = 2147483647 / <integer 0..2147483647>
Only files for which the number of PAM pages reserved is at most equal to the specified number are to be exported (SIZE <= specified value).

NUMBER-OF-FREE-PAGES = *ANY / *SIZE / <integer 0..2147483647> / *INTERVAL(...)
The user can select the files to be processed according to their number of free PAM pages, i.e. the number of pages reserved but unused.

NUMBER-OF-FREE-PAGES = *ANY
The number of free PAM pages is not to be used as a selection criterion.

NUMBER-OF-FREE-PAGES = *SIZE
Only files which actually occupy no storage space are to be exported (i.e. no PAM page has been written yet).

NUMBER-OF-FREE-PAGES = <integer 0..2147483647>
Only files which have exactly the number of reserved but unused (=free) PAM pages specified by <integer...> are to be exported.

NUMBER-OF-FREE-PAGES = *INTERVAL(...)
Selects all files for which the number of unused PAM pages lies within the specified range. The upper and lower limits are both included in the range specified (see description of NUMBER-OF-FREE-PAGES = <integer...>). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for export can only be meaningful if the chosen lower limit <= the upper limit.
Only disk files which have at least as many free PAM pages as specified by the FROM value and at most as many as given by the TO value will be exported (FROM <= FREE <= TO).

FROM = 0 / <integer 0..2147483647>
Only files for which the number free PAM pages is at least equal to the specified number are to be exported (FREE >= integer).

TO = 2147483647 / <integer 0..2147483647>
Only files for which the number free PAM pages is at most equal to the specified number are to be exported (FREE <= integer).

ACCESS = *ANY / *READ / *WRITE
The specified access type will be used as a selection criterion (*ACCESS* output field).

ACCESS = *ANY
The ACCESS value is not to be used as a selection criterion.

ACCESS = *READ
Only files for which write access is prevented by ACCESS=READ, i.e. for which only read access is permitted, will be exported.

ACCESS = *WRITE
Only files for which write access is permitted will be exported.

PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD / *EXEC-PASSWORD
The user can select files with specific password types for processing by the EXPORT-NODE-FILE command.

PASSWORD = *ANY
Password protection is not to be used as a selection criterion.

PASSWORD = *NONE
Only files for which there is no password protection are to be exported.

PASSWORD = *READ-PASSWORD
Only files which are protected by a read password are to be exported.

PASSWORD = *WRITE-PASSWORD
Only files which are protected by a write password are to be exported.

PASSWORD = *EXEC-PASSWORD
Only files which are protected by an execute password are to be exported.

USER-ACCESS = *ANY / listposs(3): *OWNER-ONLY / *ALL-USERS / *SPECIAL
The user can select files using their access authorizations as a criterion.

USER-ACCESS = *ANY
The access authorization is not to be used as a selection criterion.

USER-ACCESS = *OWNER-ONLY
Only files which the owner alone may access are to be exported.

USER-ACCESS = *ALL-USERS
Only files which can be accessed by all users are to be exported.

USER-ACCESS = *SPECIAL
Only files which can be accessed by all user IDs including the maintenance IDs (i.e. user IDs with HARDWARE-MAINTENANCE privilege) are to be exported.

BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
The user can select files for export by their BACKUP-CLASS level.

BACKUP-CLASS = *ANY
The BACKUP-CLASS level is not to be used as a selection criterion.

BACKUP-CLASS = *A
Only the files for which the value A is entered in the catalog as the BACKUP-CLASS (most frequent backup) are exported.

BACKUP-CLASS = *B
Only the files for which the value B is entered in the catalog as the BACKUP-CLASS are exported.

BACKUP-CLASS = *C
Only the files for which the value C is entered in the catalog as the BACKUP-CLASS are exported.

BACKUP-CLASS = *D
Only the files for which the value D is entered in the catalog as the BACKUP-CLASS are exported.

BACKUP-CLASS = *E
Only the files for which the value E is entered in the catalog as the BACKUP-CLASS are exported.

BLOCK-CONTROL-INFO = ANY / list-poss(4): NONE / NO / WITHIN-DATA-BLOCK / WITHIN-DATA-2K-BLOCK / WITHIN-DATA-4K-BLOCK / PAMKEY / NK / NK2 / NK4

The user can select files for export by their file format (*BLK-CONTR* output field).

BLOCK-CONTROL-INFO = *ANY
The BLOCK-CONTROL entry is not to be used as a selection criterion.

BLOCK-CONTROL-INFO = *NONE
Only files for which no BLK-CNTRL value has been defined, i.e. files which have not yet been opened, are to be exported.

BLOCK-CONTROL-INFO = *NO
Only files which contain no block control field are to be exported.

BLOCK-CONTROL-INFO = *WITHIN-DATA-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-BLOCK (i.e. files for which block control information is held in a block control field at the start and within the data block) are to be exported.

BLOCK-CONTROL-INFO = *WITHIN-DATA-2K-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-2K-BLOCK (i.e. files for which block control information is located at the start of each 2K block) are to be exported.

BLOCK-CONTROL-INFO = *WITHIN-DATA-4K-BLOCK
Only files which were created with BLOCK-CONTROL-INFO=WITHIN-DATA-4K-BLOCK (i.e. files for which block control information is located at the start of each 4K block) are to be exported.

BLOCK-CONTROL-INFO = *PAMKEY
Only files which use a separate PAM key for the block control field (i.e the block control information is held in a separate key field, outside the PAM block) are to be exported.

BLOCK-CONTROL-INFO = *NK
Only the NK files are to be exported, i.e. files which can also be stored on NK volumes (NK2 and NK4).

BLOCK-CONTROL-INFO = *NK2
Only files which can also be stored on NK2 volumes (but not NK4 volumes) are to be exported.

BLOCK-CONTROL-INFO = *NK4
Only files which can also be stored on NK4 volumes are to be exported.

MIGRATE = *ANY / list-poss(2): *ALLOWED / *INHIBITED / *FORBIDDEN
The user can specify which files are to be processed by the EXPORT-NODE-FILE command by the migration entry in the catalog (see the CREATE-FILE command, MIGRATE operand).

MIGRATE = *ANY
The specified files are to be exported, irrespective of the value in the MIGRATE operand in each of their catalog entries.

MIGRATE = *ALLOWED
Only files for which the catalog entry specifies the appropriate operand value, i.e. files which may be migrated to storage levels S1 and S2, are to be exported.

MIGRATE = *INHIBITED
Only files for which the catalog entry specifies the appropriate operand value, i.e. files which may not be migrated, are to be processed.

MIGRATE = *FORBIDDEN
Only files for which the catalog entry specifies the appropriate operand value are to be exported, i.e. files for which an intensified migration lock is declared. The files may not even be migrated for a brief period (e.g. for reorganization purposes).

STATUS = *ANY / *PARAMETERS(...)
The current file status is used as a selection criterion.

STATUS = *ANY
The file status is not to be used as a selection criterion.

STATUS = *PARAMETERS(...)
Only the files which have the specified status are selected for export. The following selection criteria are possible:

> The selection criteria within the *PARAMETERS(...) structure are logically ORed.

CLOSED-OUTPUT = *ANY / *YES / *NO

Specifies whether the “file closed” status is to be used as a selection criterion.

CLOSED-OUTPUT = *YES
Only the files which have already been closed are exported.

CLOSED-OUTPUT = *NO
Only the output files which have been opened in a program (OPEN OUTIN, INOUT or OUTPUT) and files which were not closed in an earlier system run or because a job was aborted are selected for export.

REPAIR-NEEDED = *ANY / *YES
Specifies whether files which were not closed in an earlier system run and not reconstructed with REPAIR-DISK-FILES are to be selected.

REPAIR-NEEDED = *ANY
Exports files regardless of whether or not they need to be repaired.

REPAIR-NEEDED = *YES
Only the files which were not closed in an earlier system run and which have not yet been reconstructed are selected for export.

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
The BASIC-ACL entry in the file catalog is used as a selection criterion.

BASIC-ACL = *ANY
The BASIC-ACL entry is not to be used as a selection criterion.

BASIC-ACL = *NONE
Only the files that have no BASIC-ACL entry in the catalog are to be exported.

BASIC-ACL = *YES
Only the files which have a BASIC-ACL entry in the catalog are to be exported.

BASIC-ACL = *PARAMETERS(...)
Only the files which have the specified BASIC-ACL entry in the catalog are to be exported. NO-ACCESS means that no access rights were granted.

> Access rights specified with the OWNER, GROUP and OTHERS operands within the *PARAMETERS(...) structure are logically ORed.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner's user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner's user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1
The highest activated access control method (protection level) is used as a selection criterion. Only the files which have access protection at specified protection level are exported. Protection level 2 cannot be explicitly specified for EXPORT-NODE-FILE. When the file is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 51: Hierarchy of access control methods

All other protection attributes of the file (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

PROTECTION-ACTIVE = *ANY
The access control method is not to be used as a selection criterion.

PROTECTION-ACTIVE = *LEVEL-0
Only the files for which access is controlled via standard access control are to be exported.

PROTECTION-ACTIVE = *LEVEL-1
Only the files for which access is controlled via a basic access control list (BASIC-ACL protection) are to be exported.

ACCESS-COUNTER = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The access counter for the file is used as a selection criterion (see the *ACC-COUNT* output field of the SHOW-FILE-ATTRIBUTES command).

ACCESS-COUNTER = *ANY
The access counter is not to be used as a selection criterion.

ACCESS-COUNTER = <integer 0..2147483647>
Only the files for which the access counter exactly matches the specified value are selected for export.

ACCESS-COUNTER = *INTERVAL(...)
Only the files for which the access counter lies in the specified value range which follows are to be exported.

FROM = 0 / <integer 0..2147483647>
Only those files for which the access counter >= the specified value are exported.

TO = 2147483647 / <integer 0..2147483647>
Only those files for which the access counter <= the specified value are exported.

HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / *INTERVAL(...)
The number of PAM pages used serves as a selection criterion here, i.e. the last page pointer points to the specified page (see also the *HIGH-US-PA* output field of the SHOW-FILE-ATTRIBUTES command).

HIGHEST-USED-PAGE = *ANY
The number of PAM pages used is not used as a selection criterion.

HIGHEST-USED-PAGE = <integer 0..2147483647>
Only the files for which the specified number of PAM pages are used (i.e. files for which the last page pointer points to the specified page) are exported.

HIGHEST-USED-PAGE = *INTERVAL(...)
Exports only those files which use a number of pages that falls within the specified range.

FROM = 0 / <integer 0..2147483647>
Only the files in which the number of used pages >= the specified number are exported.

TO = 2147483647 / <integer 0..2147483647>
Only the files in which the number of used pages <= the specified number are exported.

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE/ *USER-ID-CHANGE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during the export process. A control dialog is only possible in dialog mode but, in this mode, may also be used in procedures. The only operand value that you can specify in batch mode is *STD or *NO.
The user can intervene with the following inputs:

- Y: the specified file or file set will then be exported.
- N: the specified file or file set will not be exported.
- T: processing of the command will be terminated.
- ?: the possible responses will be listed, with an explanation of each.

In addition, the following options can be specified, separated by commas:

- ,CHECK = NOT
  The DIALOG-CONTROL mode will be changed to ‘*NO’.
- ,CHECK = PVSThe DIALOG-CONTROL mode will be changed to ‘*CATALOG-CHANGE’.
- ,CHECK = MULTIPLE
  The DIALOG-CONTROL mode will be changed to ‘*MORE-THAN-ONE-FILE’.
- ,CHECK = SINGLE
  SINGLE The DIALOG-CONTROL mode will be changed to ‘*FILE-CHANGE’.
- ,CHECK = ERROR
  The DIALOG-CONTROL mode will be changed to ‘*ERROR’.
- ,IGNORE = list-poss(3): RDPASS / WRPASS / EXPASS
  Only privileged users may make this specification. Specifies the type of password protection that is to be ignored on export. The specification only applies to a single file in the control dialog.
- ,PASSWORD = list-poss(3): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
  Enables password-protected files to be exported (maximum of 3 passwords). The specification only applies to a single file in the control dialog.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
The user cannot intervene in EXPORT-NODE-FILE processing; all the specified files will be exported (without a verification dialog).

DIALOG-CONTROL = *ERROR
If exporting of the selected files proceeds without error, they will be exported immediately, as when *NO is specified (i.e. no verification dialog). However, if a user-correctable error occurs during export, then a verification dialog takes place as for DIALOG-CONTROL = *FILE-CHANGE. DIALOG-CONTROL = *ERROR applies implicitly if DIALOG-CONTROL = *FILE-CHANGE is set. In the event of an error, the user may acknowledge the error message, abort EXPORT-NODE-FILE processing or attempt to rectify the error. If he wishes, he can also change the DIALOG-CONTROL mode (see also the possible forms of intervention listed under the first DIALOG-CONTROL operand).

DIALOG-CONTROL = *FILE-CHANGE
For each file which is to be exported, the user has the intervention options described for the first of the DIALOG-CONTROL operands. For each file which is to be processed, the user can decide interactively whether it should be exported (response: YES/NO). If in the verification dialog he specifies protection attributes under “IGNORE”, or one or more passwords under “PASSWORD”, these will be taken into account for any selected file and, if satisfied, the file will be exported without further queries (“YES” must also be specified). The user can also abort EXPORT-NODE-FILE processing, or change the DIALOG-CONTROL mode.
The files which have been exported will be listed in alphanumeric order.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
If exactly one file is specified, this will be exported immediately. If the file is specified in partially qualified form, which means that more than one file is selected, or if the file name contains wildcards, the user can decide, each time the catalog ID changes, whether or not files from the new catalog are to be exported (see the intervention options described for the first of the DIALOG-CONTROL operands). He must respond to the question issued by the system with “YES” or “NO”. DIALOG-CONTROL=*MORE-THAN-ONE-FILE is useful if wildcards are specified for “catid” in the FILE-NAME. In the verification dialog, EXPORT-NODE-FILE processing can be terminated, or the DIALOG-CONTROL mode can be changed.

DIALOG-CONTROL = *CATALOG-CHANGE
As with DIALOG-CONTROL = *MORE-THAN-ONE-FILE, the EXPORT-NODE-FILE processing routine branches to a verification dialog if files in different catalogs (pubsets) are affected. The user determines whether the files in the current pubset should be exported (YES/NO), EXPORT-NODE-FILE processing should be terminated, or the DIALOG-CONTROL mode should be changed.

DIALOG-CONTROL = *USER-ID-CHANGE
Whenever the user ID is changed when deleting the catalog entries, a branch is made to guided dialog.

OUTPUT = *STD / *NO / *SYSOUT
The user can specify whether a message (`DMS0800`) with the name of the exported file is to be output to SYSOUT for each successfully exported file. The default setting *STD is equivalent to OUTPUT=*NO.

OUTPUT = *NO
No messages are output to SYSOUT for successfully exported files.

OUTPUT = *SYSOUT
For each file that is successfully exported, a message with the name of the file is output to SYSOUT.

IGNORE-PROTECTION = *NONE / list-poss(5): *ACCESS / *EXPIRATION-DATE / *WRITE-PASSWORD / *READ-PASSWORD / *EXEC-PASSWORD
The user can specify whether any defined file protection against write access or any defined retention period is to be ignored. Systems support staff can also ignore password protection.
The specification IGNORE-PROTECTION in the EXPORT-NODE-FILE command thus makes it unnecessary to issue the MODIFY-FILE-ATTRIBUTES command to reset the protection attributes before the files can be deleted.

IGNORE-PROTECTION = *NONE
The protection attributes “read-only” (ACCESS=READ or no write access with BASIC-ACL or GUARDS protection) and “retention period” (EXPIRATION-DATE) will be observed during export.

IGNORE-PROTECTION = *ACCESS
Files for which write access by the owner is not allowed at the highest activated protection level may still be exported (see the selection criterion PROTECTION-ACTIVE, ACCESS, BASIC-ACL or GUARDS).

IGNORE-PROTECTION = *EXPIRATION-DATE
Files which are still within their retention period (*EXPIR-DATE* > current date) may also be exported.

IGNORE-PROTECTION = *WRITE-PASSWORD
System support staff are authorized to ignore the protection attribute **write password** when deleting the catalog entry.

IGNORE-PROTECTION = *READ-PASSWORD
System support staff are authorized to ignore the protection attribute **read password** when deleting the catalog entry.

IGNORE-PROTECTION = *EXEC-PASSWORD
System support staff are authorized to ignore the protection attribute **execute password** when deleting the catalog entry.

PASSWORDS-TO-IGNORE = *NONE / *SECRET / list-poss(3): <x-string 1..8> / <c-string 1..4> / <integer -2147483648..2147483647>
The user can specify one or more passwords, which will permit files protected by these passwords to be exported. The passwords entered here are not recorded in the password table for the job, and are valid only for the current EXPORT-NODE-FILE processing. Up to 3 passwords may be specified in the form of a list.
In order to export a password-protected file, the password at the highest access level must be specified (see the ADD-PASSWORD command).
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

PASSWORDS-TO-IGNORE = *NONE
No passwords are specified.

SUPPRESS-ERRORS = *NONE / list-poss(3): <alphanum-name 7..7>
In procedures the user can specify whether the spin-off mechanism or SDF-P error handling is to be triggered every time an error occurs (apart from syntax errors), or whether specific error conditions are to be ignored.

SUPPRESS-ERRORS = *NONE
All errors will trigger the spin-off mechanism or SDF-P error handling.

SUPPRESS-ERRORS = list-poss(3): <alphanum-name 7..7>
The user can define which errors are to be ignored by means of their DMS error codes (alphanum-name 7..7). If the specified error occurs, the spin-off mechanism will not be triggered. A maximum of 3 error codes may be specified.
DMS error code: 7 characters, of which the first three are always “DMS”; the last
4 characters identify the error; the digits 0...9 and letters A...F are permitted. When error codes are entered, no check is made to verify that valid error codes have been specified.

A detailed list of valid DMS error codes can be found on the manual server (URL: *http://bs2manuals.ts.fujitsu.com*) by means of an HTML application and on the “BS2000 SoftBooks” DVD.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS06D6	Error on exporting certain files Guaranteed messages: DMS0800, DMS0801, DMS06D5, DMS0666, DMS05C6, DMS05BF, DMS05C3, DMS053F
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privilege errors
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0535	Specified file not shareable
	64	DMS055C	The catalog entry could not be found on the assigned volume
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS05FC	Specified user ID not in home pubset
	64	DMS0609	No access to system file
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system

	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available

3.50 EXPORT-PUBSET

Export previously imported pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The EXPORT-PUBSET command enables systems support personnel to remove a pubset as a resource from the local system. In a shared pubset network based on HIPLEX MSCF, a choice can be made as to whether exporting the shared pubset on the master system also entails exporting it on the slave systems, or whether the master function should pass to one of the slave systems.
Under control of the calling task, the command generates its own (new) task. This task performs EXPORT processing **asynchronously** to the calling task.
Successful generation of the EXPORT task and its messages are logged at the operator terminal.

During the export phase, the number of tasks that are still using the pubset is output. The TSN of the tasks involved can be determined using the SHOW-PUBSET-OCCUPATION command (and also the SHOW-PUBSET-PARAMETERS command) and used to force the tasks to terminate their activities.
The user catalog (SYSSRPM file) is closed. The information currently stored in the main memory regarding user IDs and disk storage occupancy is transferred. If this information cannot be transferred, reconstruction of the F5 label is initiated the next time the IMPORT-PUBSET command is issued.

The home pubset may not be exported using this command. The home pubset is exported automatically at system termination.

Format

EXPORT**-PUBSET**

PUBSET = <cat-id 1..4>

,**USE** = ***STD** / ***BY-REMOTE**

,**SHARER-TYPE** = ***STD** / ***SLAVE** / ***MASTER**(...)

***MASTER**(...)

| **MASTER-CHANGE** = ***NO** / ***Y**ES

,**TERM**INATE**-JOBS** = ***NO** / **Y**ES

,**MONJV** = ***NONE** / <filename 1..54 without-gen-vers>

,**JV-PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483639..2147483639>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset to be exported.

USE = *STD / *BY-REMOTE
Specifies the status that the pubset being exported has to have.

USE = *STD
The pubset cannot be exported unless it is in “imported” or “remote imported” status.
If the local system has imported the pubset as master in a shared pubset network, then exporting it with the setting “MASTER-CHANGE=*NO” causes all slave systems to export it as well.

USE =*BY-REMOTE
The pubset cannot be exported unless it is in “remote-imported” status (i.e., only catalog accesses are possible).

SHARER-TYPE = *STD / *SLAVE / *MASTER(...)
Specifies which type of sharer as defined on pubset import will be accepted on pubset export.

SHARER-TYPE = *STD
The pubset will be exported regardless of sharer type.

SHARER-TYPE = *SLAVE
The pubset will be exported only if the local system imported the pubset as a slave sharer.

SHARER-TYPE = *MASTER(...)
The pubset will be exported only if the local system is a temporary owner of the pubset (master).

MASTER-CHANGE = *NO
Exporting the pubset implies a request to all slave sharers to export the pubset as well.

MASTER-CHANGE = *YES
An automatic change of master is to be initiated. The system defined as the backup master is to take over the role of master. The slave sharers are not forced to export the pubset. If no backup master is defined, or if the system defined as backup master is not active, pubset export is rejected.

TERMINATE-JOBS = *NO / *YES
Terminates the tasks that are using the pubset or waits until their allocations are cleared.

TERMINATE-JOBS = *NO
The pubset is made inaccessible. If the pubset is still allocated when this command is entered, the command does not take effect until all active allocations are cleared. New allocations are rejected.

TERMINATE-JOBS = *YES
Export processing cancels all tasks that are using the pubset. Note however that system tasks which are using the pubset cannot be terminated. That means that the system administration must ensure that all such allocations are cleared before EXPORT-PUBSET is called. Otherwise, export processing cannot be completed.
Processing is continued once all allocations are cleared. This must be preceded by an EXPORT-PUBSET command with TERMINATE-JOBS=NO. The wait state of an export job previously initiated with the TERMINATE-JOBS=NO operand is also canceled once all allocations have been cleared.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies whether a monitoring job variable is set. This operand should only be specified if the JV software product is used. The job variable is set to the following values:

$E	during export processing
$T	after successful completion of export processing
$A	if export processing was terminated with /CANCEL-PUBSET-EXPORT or because of an error.

The job variable must already be cataloged, otherwise it is not set. However, EXPORT processing is continued even if no job variables have been defined.

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> /<integer -2147483639..2147483639>
Password of the monitoring job variable.
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	DMS0355	Same export already active
1	0	DMS0364	Pubset currently unavailable
	1	CMD0202	Syntax error
	32	DMS035C	Invalid operands
	32	DMS0363	MRSCAT access error
	64	DMS035C	IMPORT-PUBSET required
	64	DMS0360	No authorization for command
	64	DMS0366	Export attempt for home pubset
	64	DMS036D	Invalid operand sequence
	130	DMS0351	Other import/export task active
	130	DMS035C	Maximum number of tasks reached
	130	DMS0362	Class 4 memory error

Notes

During system termination, all imported pubsets are always exported, in the following order:

1. During termination of HIPLEX MSCF, all shared imported pubsets are exported. A pubset imported as master is imported with the MASTER-CHANGE option set to *YES.
2. Export all nonshared imported pubsets (except the home pubset):
   - EXPORT-PUBSET with TERMINATE-JOBS=*YES
   - wait until all pubsets have been exported (maximum approx. 1 minute)
   - FORCE-PUBSET-EXPORT for the pubsets that have not yet been exported
   - wait until all pubsets have been exported (maximum 1 minute)
3. Export the home pubset:
   - EXPORT-PUBSET with the TERMINATE-JOBS=*YES
   - wait until the pubset has been exported (maximum 1 minute)
   - FORCE-PUBSET-EXPORT if the home pubset has not yet been exported
   - wait until the home pubset has been exported (maximum 1 minute)

The generated task executes in 2 phases:

Phase 1: Wait until all files of the pubset are closed.

This state only occurs if, in addition to the open system files (e.g. the user catalog, the guards catalog, the syntax file or the message file), other files of this pubset are open. This also implicitly involves the private files that are addressed via this pubset.
If only the system files whose associated components are informed by the export processing (such as the user administration or the guards administration) are opened, the wait state does not occur. The system files are open for each imported pubset and are not closed until the pubset is actually exported. If the wait state occurs, the number of tasks that are still using the pubset is output. The tasks involved can be displayed by means of the SHOW-PUBSET-OCCUPATION command (and also the SHOW-PUBSET-PARAMETERS command) and be forced to terminate their activities. By default, the wait state is canceled once all files (except the system files) are closed and Phase 2, the export phase proper, is initiated. In addition, the following events may cause the wait state to be canceled:

- CANCEL-PUBSET-EXPORT command
  The wait state is canceled immediately. The EXPORT task terminates with an error message and the pubset remains available.
- EXPORT-PUBSET command with the TERMINATE-JOBS=*YES operand
  An attempt is made to terminate all jobs that are still using the pubset. Once all allocations are cleared, the wait state is canceled and the second phase - the export phase - is initiated. The EXPORT task acknowledges the command.
- FORCE-PUBSET-EXPORT command
  The wait state is canceled. The export task acknowledges the command and Phase 2 - the export phase - is initiated, even though not all the files of this pubset are closed.

Phase 2: Export pubset

The pubset is made inaccessible. SPOOL is informed and all spoolout jobs whose files to be output are cataloged on the pubset involved are moved from TYPE5/AC to TYPE5/KP. The system files are closed and all resources are released.

Although wait states may occur during this phase, they are limited to approximately 10 minutes. The FORCE-PUBSET-EXPORT command reduces the wait state to 1 minute.

If an export job, with options for terminating occupying tasks or waiting for their allocations to be cleared, is issued at the master processor in shared pubset mode in a multiprocessor network, it is also effective at all the slave processors in the network. FORCE-PUBSET-EXPORT commands, however, are only effective at the local processor, i.e. they are not passed on to all the slave processors in the network.

If a shared imported pubset is exported at the master without a master change, the master notifies the slaves that the pubset must be exported and waits for them to finish (i.e. phases 1 and 2 run at the slave). Only then does the master also start with phase 1.

3.51 EXTEND-PAGING-AREA

Extend paging area

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	TSOS OPERATING
Routing code:	R

Function

The EXTEND-PAGING AREA command enables systems support to extend the paging area to a maximum size of 4 Tbytes by adding one or more paging files (paging areas).

A paging file is either specified directly via the volume on which it is located or via the catalog ID of the pubset to which the volume belongs. The specification via pubset is only possible for SF pubsets. The specification refers to all paging files on the volumes of the respective SF pubset.

Format

EXTEND**-PAG**ING**-AREA**

VOLUME = ***ALL** / ***PUBSET**(...) / list-poss(256): <vsn 1..6>

***PUBSET**(...)

| **PUBSET =** list-poss(256): <cat-id 1..4>

,**UTILIZATION** = ***MED**IUM / ***HIGH** / ***LOW**

,**LATER-REDU**CTION = ***NOT-REQ**UESTED / **REQ**UESTED

Operands

VOLUME = *ALL / *PUBSET(...) / list-poss(256): <vsn 1..6>
Specifies the paging files to be attached.

VOLUME = *ALL
All unused paging files that belong to the imported, exclusively occupied pubsets are attached.

VOLUME = *PUBSET(...)
Specifies one or more SF pubsets. All paging files on the volumes of the specified SF pubsets are attached.

PUBSET = list-poss(256): <cat-id 1..4>
Specifies the SF pubsets via their catalog ID.

VOLUME = list-poss(256): <vsn 1..6>
Specifies the volume serial number (VSN) of the disk on which the paging file being added is located. Up to 256 disks can be specified.

UTILIZATION = *MEDIUM / *HIGH / *LOW
Specifies how a paging file is to be utilized. This affects both use of the paging file and the duration and I/O rate of a reduction of the paging files.
Paging management takes this specification into account as far as possible, but it cannot guarantee that a paging file will be utilized in the desired manner. This ultimately depends on the actual paging rate and on the behavior of the paging load over time.

UTILIZATION = *MEDIUM
This default setting should be changed only in exceptional circumstances.
The paging file is to be used in accordance with the paging strategy, which means that paging files will be utilized evenly in proportion with their size.

UTILIZATION = *HIGH
This setting should be selected only in exceptional circumstances.
The paging file is to be utilized more intensively than envisaged in the paging strategy (the paging file will hold pages more frequently). This is typically helpful with small paging files, as it is a way to reduce the load on disks with large files, allowing the paging files to be utilized evenly, irrespective of size. It is also possible to cut the time required for the reduction of large paging files.

UTILIZATION = *LOW
This setting should be selected only in exceptional circumstances.
The paging file is to be utilized less intensively than envisaged in the paging strategy (the paging file will hold pages less frequently). This setting is particularly advisable if the paging file is intended to be removed from the paging area (reduction) or if frequent DMS I/O is to be expected on a paging disk in addition to the paging I/O (primarily applies to paging files in the home pubset).

UTILIZATION=*LOW applies to the paging files in the home pubset if they are added to the paging area at system startup. Paging files that are not on the home pubset and that are added to the paging area via the paging parameter service are covered by UTILIZATION=*MEDIUM.

LATER-REDUCTION = *NOT-REQUESTED / *REQUESTED
This operand specifies how likely it is that the paging area will subsequently be reduced by removal of the paging files. This specification is evaluated when the paging files attached by this command are detached.

LATER-REDUCTION = *NOT-REQUESTED
This default setting should be changed only in exceptional circumstances.
Subsequent reduction of the paging area by removal of the paging files is not intended. If reduction is carried out nonetheless, the acceleration mechanism will not be used (no additional resources will be requested).

LATER-REDUCTION = *REQUESTED
This setting should be selected only in exceptional circumstances.
It is possible that the paging area will later be reduced by removal of the paging files attached by this command. When assigning this operand value you should bear in mind that main memory utilization will be greater the whole time that the paging file is in the paging area if later reduction of the paging area is envisaged (performance accelerated by requesting additional resources) and that this is very likely to result in a higher paging rate, which in turn may have a negative impact on the overall performance of the system. Consequently, it is possible that extension of the paging area will have to be rejected. So *REQUESTED should be used with caution.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed successfully
1		CMD0001	The paging area on the specified magnetic disk is already in use Guaranteed messages: EMM2830
	32	EMM2800	The function cannot be executed because of an internal error. Guaranteed messages: EMM2818, EMM2828
	64	EMM2802	The specified magnetic disk is unknown, the paging file does not have the required file attributes or the paging file is larger than 2048 GB..... Guaranteed messages: EMM2817, EMM2837, EMM2316, EMM2841
	64	EMM2803	The pubset is a shared pubset. Guaranteed message: EMM2834, EM2816
	64	EMM2804	There is no paging file on the volume or pubset Guaranteed messages: EMM2832
	64	EMM2805	The pubset has not been imported, the SM pubset has not been imported completely, the pubset's MRSCAT entry is missing, the disk cannot be occupied, a disk error occurred or the paging file cannot be processed because of an input /output error Guaranteed messages: EMM2820, EMM2824, EMM2825, EMM2836, EMM2838, EMM2839
	64	EMM2806	The paging file specified means that the size of the paging area exceeds the 4 TB limit or the maximum permitted number of 4096 paging files has been reached Guaranteed messages: EMM2840, EMM2842
	128	EMM2807	The function cannot be executed because of a lack of resources Guaranteed messages: EMM2819, EMM2829

i If a list is specified command processing is aborted in the event of an error with a return code of EMM2800, EMM2806 or EMM2807. In all other cases, processing continues.

Notes

Message EMM2301 is issued for each paging file added. On completion of command processing, message EMM2850 is issued. This message indicates the current availability of paging space and the current paging space requirements.

The pubset to which the disk containing the paging file belongs must have been imported. It may not be a shared pubset.

Example

Adding the paging file on the disk with the volume serial number 2OSW.0 to the paging area:

```
/EXTEND-PAGING-AREA VOLUME=2OSW.0
```

3.52 EXTEND-TAPE-SET

Extend volume serial number set (tape set)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The EXTEND-TAPE-SET command allows a set of VSNs, which can be used for the creation of tape files, to be extended by the user. The use of this command implies that all the files which are linked to the same TAPE-SET-NAME use the same tape set. The set of VSNs is recorded in the tape set table (TST). Within the TST, the TAPE-SET-NAME has the same function as the file link name within the TFT.
A TST entry can hold no more than 5455 VSNs.

Format

EXTEND**-TAPE-SET**

TAPE-SET-NAME = <alphanum-name 1..4>

,**VOL**UME = [***ANY**](...) / list-poss(255): <alphanum-name 1..6>

[***ANY**](...)

| **NUM**BER**-OF-DEV**ICES = **1** / <integer 1..9>

,**DEV**ICE**-TYPE** = ***TAPE** / <device>

Operands

TAPE-SET-NAME = <alphanum-name 1..4>
The name of the tape set.

> The tape set name may not be used simultaneously as a file link name within the same task.

VOLUME = *ANY(...) / list-poss(255): <alphanum-name 1..6>
The VSNs of the additional tapes which are to be allocated to the existing tape set.

VOLUME = *ANY(...)
Allows the operator, or MAREN if available, to mount any tape on the specified device type (no particular VSN is required).

NUMBER-OF-DEVICES = 1 / <integer 1..9>
Number of tapes required.

DEVICE-TYPE = *TAPE / <structured-name 1..8>
The device type to which the tapes are assigned.
The value to be specified is the “volume type” of the tapes, from which the Device Management System determines the device type which is to be made available for the tape processing.
Only device types or volume types known in the system are accepted. In interactive mode, DEVICE-TYPE=? calls up a list of the available device and volume types.
The default value is TAPE, i.e. for tape processing the devices to be used should support a recording density of 6250 bpi (bytes per inch). Other permissible specifications can be found in section "Device types for DMS tape processing".

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS06DD	Tape set not found
	64	DMS06FF	BCAM connection severed
	130	DMS0524	System address space exhausted
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available

3.53 FIND-CMD-OUTPUT

Filter command outputs specifically by a string

Component:	FIND-CMD-OUTPUT
Functional area:	Command processing
Domain:	UTILITIES
Privileges:	STD-PROCESSING
	TSOS
	HARDWARE-MAINTENANCE
	SAT-FILE-EVALUATION
	SAT-FILE-MANAGEMENT
	SECURITY-ADMINISTRATION

Function

With the command FIND-CMD-OUTPUT, the output of BS2000 commands can be filtered specifically by a string, so that only the relevant lines of the output are displayed. The commands whose outputs are to be searched can be specified directly or via a command file. All SHOW* and LIST* SDF commands that can be executed under the current privileges and the ISP command BCSHOW are valid. All SHOW-BCAM-INFO* commands and the commands SHOW-FILE and SHOW-SYSEVENT-LOG are excluded.
In order to find the command name for a desired output, FIND-CMD-OUTPUT offers the possibility to filter the output of a large number of system selected commands by a string. For this purpose, the system selects SHOW* and LIST* commands and their parameters, so that a lot of information can be searched under the current privileges and without the user's intervention (i.e. without explicit parameter specification).

> If SYSOUT is set to a variable when executing the command FIND-CMD-OUTPUT, the command cannot be executed correctly. Instead, it will be written to the set SYSOUT variable that the command FIND-CMD-OUTPUT cannot output to a variable.

Format

FIND-CMD-OUTPUT	Alias: **FCMDO**

CMD = ***SYSTEM**(...) / ***FROM-FILE**(...) / <c-string 1..1800>

***SYSTEM**(...)

| **INFORMATION** = ***MEDIUM** / ***MINIMUM** / ***MAXIMUM**

***FROM-FILE**(...)

| **FILE-NAME =** list-possible(50): <filename 1..54 without-gen-vers with-wild>

| **,INFORMATION** = ***MEDIUM** / ***MINIMUM** / ***MAXIMUM**

,**UPDATE-CMDS** = ***STD** / ***YES**

,**PATTERN** = <c-string 0..1800 with-low>

,**PATTERN-TYPE** = ***STRING**/ ***REGULAR-EXPRESSION**

,**OUTPUT** = ***SYSOUT** / <filename 1..54 >

Operands

CMD = *SYSTEM(...) / *FROM-FILE / <c-string_1..1800>
Determines the set of commands whose output is to be searched.

CMD= *SYSTEM(...)
Specifies that the outputs of system selected commands are searched. These are all SHOW* and LIST* SDF commands with parameter combinations, which can be executed successfully without explicit parameter specifications under the current privileges. If possible, the parameter *ALL, *MAXIMUM or *ANY is set for the operands. As exceptions, the outputs of the SHOW-BCAM-INFO* commands and the commands SHOW-INPUT-HISTORY, SHOW-FILE, SHOW-FILE-ATTRIBUTES, SHOW-FTP-TELNET-STATUS, SHOW-NET-STATISTICS, SHOW-POSIX-STATUS, SHOW-SYSEVENT-LOG and SHOW-VARIABLE-ATTRIBUTES are not searched.

INFORMATION = *MEDIUM / *MINIMUM / *MAXIMUM
Determines whether the lines with matches and commands without matches are displayed.

INFORMATION = *MEDIUM
Specifies that the names and lines with matches of the commands with matches in their output are displayed.

INFORMATION = *MINIMUM
Specifies that the names of the commands with matches in their output are displayed.

INFORMATION = *MAXIMUM
Specifies that the names and lines with matches of all commands are displayed, i.e. also the names of commands in whose output nothing was found.

CMD= *FROM-FILE(...)
Specifies that the output of all commands from one or more command files should be searched. The following syntax rules for command files apply.

Syntax of a command file

If a line begins with the string ' /&* ', it is a comment line and will be ignored. Every other line is interpreted as a complete command by FIND-CMD-OUTPUT and the resulting output of the execution of the command in this form is filtered by the search string.
The commands can be given with or without a leading slash, with or without a leading space, as well as in a short form. Parameters for the command can be specified and be separated from each other by any number of spaces. The general SDF rules for line continuation apply.
If the command file contains an erroneous command, the error message is displayed with the corresponding command name when filtering the outputs of the commands from this file. The outputs of all correctly executable commands are still searched normally.
The command GENERATE-FIND-CMD-TEMPLATE (BS2000 V21C Commands, #221.5) creates a template of a command file.

FILE-NAME= list-possible(50): <filename_1..54_without-generation-version_with-wildcards>
Specifies the file with the commands whose outputs are filtered by the search string.

INFORMATION = *MEDIUM / *MINIMUM / *MAXIMUM
Determines whether the lines with matches and commands without matches are displayed.

INFORMATION = *MEDIUM
Specifies that the names and lines with matches of the commands with matches in their output are displayed.

INFORMATION = *MINIMUM
Specifies that the names of the commands with matches in their output are displayed.

INFORMATION = *MAXIMUM
Specifies that the names and lines with matches of all commands are displayed, i.e. also the names of commands in whose output nothing was found.

CMD= <c-string_1..1800>
Specifies the command whose output is to be filtered by the search string. Short forms of the command and wildcards are recognized. When using wildcards, all matching commands are searched in alphabetical order.

UPDATE-CMDS = *STD/ *YES
CMD=* SYSTEM: Determines whether the selection of commands whose output is searched is updated.
CMD = <c-string_1..1800> or CMD=*FROM-FILE: Determines whether the compilation of valid commands is updated.

UPDATE-CMDS = *STD
Specifies that the compilation of commands is only done if it has not yet been created since LOGON.

UPDATE-CMDS = *YES
Determines that the command selection is renewed in any case.

PATTERN= <c-string_1..1800 with-low>
Specifies the search string to filter by.

PATTERN-TYPE = *STRING/ *REGULAR-EXPRESSION
Determines how the search string is evaluated.

PATTERN-TYPE = *STRING
The command output is filtered by the specified string.

PATTERN-TYPE = *REGULAR-EXPRESSION
The command output is filtered by the string specified as a regular expression according to POSIX rules (see “POSIX Commands” manual [29], chapter 5.2).

OUTPUT = *SYSOUT/ <filename_1..54>
Specifies where to output the information.

OUTPUT = *SYSOUT
The output is written to the SYSOUT system file.

OUTPUT = <filename_1..54>
The output is written to a file with the specified name. If a file with the specified name already exists, it will be overwritten.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed

	1	CMD0202	Syntax error in command
	32	FND0001	Internal error
	01	FND1001	Command &00 unknown / not allowed / terminated with error (&01)
	01	FND1002	Parameter error. Operand FILE-NAME is incorrect.
	64	FND0002	SYSOUT was set to a variable when the command was called.

Examples

Example 1: Filtering the output of a specific command by a string

/FIND-CMD-OUTPUT CMD='SHOW-LINE-ATTRIBUTES',PATTERN='LINE-NAME'

```
command: SHOW-LINE-ATTRIBUTES (SHLNA)
search string: LINE-NAME

 LINE-NAME           : L#MANLO1
 LINE-NAME           : L#MANLO2
```

Only the lines of the output of SHOW-LINE-ATTRIBUTES *that contain the string* 'LINE-NAME' *are displayed.*

Example 2: Search for a command to output a desired string

/FIND-CMD-OUTPUT CMD=*SYSTEM(INFORMATION=*MINIMUM),PATTERN='LANGUAGE'

```
search string: LANGUAGE

command: SHOW-MSG-FILE-ASSIGNMENT *ALL , INFORMATION= *ALL

command: SHOW-USER-ATTRIBUTES , SELECT= *ALL
```

Only the names of the commands that contain the string 'LANGUAGE' *in their output are displayed.*

/FIND-CMD-OUTPUT CMD=*SYSTEM(INFORMATION=*MEDIUM),PATTERN='LANGUAGE'

```
search string: LANGUAGE

command: SHOW-MSG-FILE-ASSIGNMENT *ALL , INFORMATION= *ALL

 SYSTEM LANGUAGES : ED
 TASK LANGUAGE  : D   TASK SEARCH : *ALL

command: SHOW-USER-ATTRIBUTES , SELECT= *ALL

 DEFAULT-MSG-LANGUAGE                        TEMP-SPACE-LIMIT       2147483547
```

The names and the lines with matches of the commands that contain the string 'LANGUAGE' *in their output are displayed.*

3.54 FIND-FILE

Search one or more BS2000 files for a string pattern.

Component:	FIND-FILE
Functional area:	Command processing
Domain:	UTILITIES
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function description

The FIND-FILE command searches for C-strings and hexadecimal strings in a set of files. You can choose to output either the filenames containing the matches (SHOW-RESULT=*MATCHES, the default) or only the filenames where the search pattern was found (SHOW-RESULT=*FILE-NAMES).

All file types except tape files are supported. SAM and ISAM files are searched record by record, and PAM files are searched page by page. The output of the found data reflects this: for SAM and ISAM files, the record number and byte position within the record are displayed; for PAM files, the page number is given. The page number of the match is also provided for PLAM libraries. The specific element must be identified using LMS tools (e.g., FIND-ELEMENT).

To select the files to be searched, the operand `SELECT=*BY-ATTRIBUTES(...)` can be used. Since the selection criteria are limited, in addition to this operand, it is possible to specify a file list within a file (`FILE-NAME=*FROM-FILE(LIST-FILE-NAME=...)`). This file list can be created, among other methods, using the `SHOW-FILE-ATTRIBUTES` command. See Example 11.

The command supports output to an S variable.

Format

FIND-FILE	Kurzname: **FNF**

FILE-NAME = list_poss(100:<filename_1..54_without-gen_without-vers_with-wild(80)> / ***FROM-FILE(...)**

***FROM-FILE(....)**

| **LIST-FILE-NAME** = <filename_1..54_without_gen-vers>

, **PATTERN** = <c-string_1..256_with-lower-case>(...) / <x-string_1..256>

<c-string_1..256_with-lower-case>(...)

| **CASE-SENSITIVE** = ***NO** / *YES

| , **TYPE** = ***FIXED-STRING**

SELECT = ***ALL** / ***BY-ATTRIBUTES(...)**

*BY-ATTRIBUTES(...)

| FILE-STRUCTURE = ***ANY** / list-poss(3): ***SAM / *PAM / *ISAM**

| , SIZE = ***ANY** / ***INTERVAL(...)**

| *INTERVAL(...)

| | FROM = **1** / <integer_1..2147483647>

| | , TO = **2147483647** / <integer_1..2147483647>

| , CODED-CHARACTER-SET = ***ANY** / list-poss(10): <name_1..8> / *EBCDIC / *ISO

, SEARCH-OPTIONS = ***PARAMETERS(...)**

*PARAMETERS(...)

| MATCH-LIMIT = ***NO-LIMIT** / <integer_1..255>

, OUTPUT-OPTIONS = ***PARAMETERS(...)**

*PARAMETERS(...)

| SHOW-RESULT = ***MATCHES(...)** / ***FILE-NAMES(...)**

| *MATCHES(...)

| | LINES-BEFORE = **0** / <integer_0..10>

| | , LINES-AFTER = **0** / <integer_0..10>

| | , MAX-LINE-LENGTH = ***STD** / <integer_30..132>

| | , POSITION = ***NO** / ***YES(...)**

| | *YES(...)

| | | SHOW-LABEL = ***NO** / *YES

| *FILE-NAMES(...)

| | LIST-FILES = ***WITH-MATCHES** / ***WITHOUT-MATCHES / *BOTH**

| | , MATCH-COUNTER = ***NO** / ***YES**

, OUTPUT = ***SYSOUT** / ***SYSLST** / <filename_1..54_without-generation> / ***NONE**

Operand description

FILE-NAME = list-poss(100): <filename 1..54_without-gen_with-wild(80)> / *FROM-FILE(...)
Files searched by FIND-FILE.

FILE-NAME = list-poss(100): <filename 1..54_without-gen_with-wild(80)>
The file names can be specified using wildcards. A list of up to 100 file names can be specified.

FILE-NAME = *FROM-FILE(...)
The path names of the files to be searched are taken from a file.

LIST-FILE-NAME = <filename_1..54_without_gen>

The specified file must be a variable-length SAM file containing a list of path names. Such a file can be created, for example, using the SHOW-FILE-ATTRIBUTES command (with OUTPUT=SH.OUT(FORM-NAME=*FILE-NAME)), which allows for more detailed selection criteria.

The file must contain one file name per record or line. Spaces before and after the file name are ignored.

PATTERN = <c-string 1..256_with-lower-case>(...) / <x-string 1...256>(...)
The pattern searched for in the specified files.

PATTERN = <c-string 1..256_with-lower-case>(...)
String of the pattern searched for in the files. The search pattern is interpreted as an EBCDIC character string. Therefore, when searching files whose CCS is not an EBCDIC character set, the search pattern must be specified as an x-string.

CASE-SENSITIVE = *NO / *YES
Specifies whether the pattern must match exactly, including upper and lower case letters.

CASE-SENSITIVE = *NO
The pattern's upper and lower case letters are ignored, and all variants are searched for.

CASE-SENSITIVE = *YES
The pattern is case-sensitive and only searched for accordingly.

TYPE = *FIXED-STRING
Specifies the type of the entered pattern.

TYPE = *FIXED-STRING
The pattern type is a string of fixed length and without placeholders. The pattern is searched for exactly as specified, with the exception of upper and lower case letters.

PATTERN = <x-string 1...256>
Hexadecimal search string that is searched for in the files.

SELECT = *ALL / *BY-ATTRIBUTES(...)
Selection of which files are searched when executing the command.

SELECT = *ALL
All files specified with FILE-NAME are searched.

SELECT = *BY-ATTRIBUTES(...)
Only files with the selected attributes will be searched.

FILE-STRUCTURE = *ANY / list-poss(3): *SAM / *PAM / *ISAM
Only files with the selected file structure are searched. Multiple file structures can be transferred in a list.

FILE-STRUCTURE = *ANY
Searches all files with SAM, PAM, and ISAM structures.

FILE-STRUCTURE = list-poss(3): *SAM / *PAM / *ISAM
The file structure of the files to be searched must correspond to SAM, PAM, or ISAM. A list can also be specified.

SIZE = *ANY / *INTERVAL(...)
Only files with the selected memory allocation are searched.

SIZE = *ANY
The size of the files is not taken into account.

SIZE = *INTERVAL(...)
The size of the files must be within this range.

FROM = 1 / <integer 1..2147483647 pam pages>
'From' Indication of the size interval.

TO = 2147483647 / <integer 1..2147483647 pam pages>
'Up to' specification of the size range.

CODED-CHARACTER-SET = *ANY / list-poss(10): <name 1..8> / *EBCDIC /*ISO
Specifies which CODED CHARACTER SET (CCS) the files to be searched have.
The user must ensure that a meaningful search pattern is specified under PATTERN. See the notes on the PATTERN operand for further information.

CODED-CHARACTER-SET = *ANY
The CCS of the files is not taken into account.

CODED-CHARACTER-SET = list-poss(10): <name 1..8>
Only files with the specified CCS are searched. A list of multiple CCS can be specified.

CODED-CHARACTER-SET = *EBCDIC
All files with an EBCDIC character set are searched. Specifically, these are all CCS files with an ‘EDF’ prefix.

CODED-CHARACTER-SET = *ISO
All files with an ISO character set are searched. Specifically, these are all CCS files with an ‘ISO’ prefix.

SEARCH-OPTIONS = *PARAMETERS(...)
Options to influence the search behavior of the FIND-FILE command.

MATCH-LIMIT = *NO-LIMIT / <integer 1..255>
Specifies the number of hits in a file after which the search is no longer continued in that file.

MATCH-LIMIT = *NO-LIMIT
All matches found are displayed.

MATCH-LIMIT = <integer 1..255>
Only hits up to this point are displayed; after that, the search in a file is terminated.

OUTPUT-OPTIONS = *PARAMETERS(...)
Output options of the command.

SHOW-RESULT = *MATCHES(...) / *FILE-NAMES(...)
Specifies whether the hits found or only file names are displayed.

SHOW-RESULT = *MATCHES(...)
Specifies that the hits found are to be output.

LINES-BEFORE = 0 / <integer 0..10>
How many lines are output before a line with a hit.

LINES-AFTER = 0 / <integer 0..10>
How many lines are output after a line with a hit.

MAX-LINE-LENGTH = *STD / <integer 30..132>
Specifies the maximum length of an output line.

MAX-LINE-LENGTH = *STD
The maximum value depends on the output value (OUTPUT). The following variants exist:

- SYSOUT: 80 characters
- SYSLST: 132 characters
- File: MAX-LINE-LENGTH has no effect

MAX-LINE-LENGTH = <integer 30..132>
The specified value is limited by the output medium and must be less than this value. A higher value has no effect on the program.

POSITION = *NO / *YES(...)
Inserts the position of the found pattern before the output line.

Dateityp	Prefix	Erklärung
SAM	REC#:BYTE#:	Specified using the record number (counted from the start of the file) and the byte position within the record.
ISAM	PRIMARY-KEY:BYTE#:	Specified via the primary ISAM key and the byte position within the record.
	shortened: ..PRIMARY-KEY:BYTE#:	Since the ISAMKEY can be up to 255 bytes in size and there is not enough space available on the output, it is truncated if necessary. The truncation is indicated by two dots before the key. The maximum displayed length is then 9 characters. The beginning of the key is truncated.
PAM	HP#:BYTE#:	For files without a record structure, the position is defined by the PAM page and the byte position within that page.

POSITION = *NO
The position of the hit is not displayed.

POSITION = *YES(...)
As indicated above, the position is displayed before the expenditure line.

SHOW-LABEL = *NO / *YES
In addition to the numerical position information, a label describing the value is also output.

- SAM: REC=1:BYTE=5:
- ISAM: ISAMKEY=00010OUT:BYTE=5:
- PAM: HP=5:BYTE=10:

SHOW-LABEL = *NO
By default, the labels for the position information are not displayed.

SHOW-LABEL = *YES
With SHOW-LABEL = *YES, the labels for the position information can also be output.

SHOW-RESULT = *FILE-NAMES(...)
This option outputs only file names.

LIST-FILES = *WITH-MATCHES / *WITHOUT-MATCHES / *BOTH
Selects which file names are displayed.

LIST-FILES = *WITH-MATCHES
Only output file names that contain the specified pattern.

LIST-FILES = *WITHOUT-MATCHES
Only output file names that do not contain the pattern.

LIST-FILES = *BOTH
Display all files that are searched.

MATCH-COUNTER = *NO / *YES
Specifies whether the number of hits is displayed before the file name in addition to the file names.

MATCH-COUNTER = *NO
The number of hits is not displayed.

MATCH-COUNTER = *YES
The number of hits is displayed before the file name.

OUTPUT = *SYSOUT / *SYSLST / <filename_1..54_without-generation_without-wildcards(80)> / *NONE
Specifies the output location of the command.

OUTPUT = *SYSOUT
The output is performed via SYSOUT. The maximum output length is 80 characters.

OUTPUT = *SYSLST
The output is generated via SYSLST. The maximum output length is 132 characters.

OUTPUT = <filename_1..54_without-generation>
The output is written to the specified file. For record-based files (SAM and ISAM), the complete records are written to the output file.
For PAM files, the limit is 132 characters, as with *SYSLST.

OUTPUT = *NONE
Output is completely suppressed.

Command-Returncodes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
2	0	CMD0002	Command executed, pattern not found anywhere
	32	FNF0001	Unexpected internal error in FIND-FILE
	64	FNF0002	Unable to close file
	64	FNF0003	The command was executed, no file was searched
	64	FNF0004	At least one of the specified operands was invalid
	64	FNF0005	Could not process the LIST-FILE-NAME file

Messages

Maincode	Message
FNF0001	Unexpected internal error (&00) in FIND-FILE
FNF0002	DMS error (&00). Unable to close file (&01)
FNF0003	The command was executed, no file was searched
FNF0004	Syntax error
FNF0101	DMS error (DMS0533). Specified file (&00) does not exist
FNF0102	DMS error (&00). File (&01) could not be resolved
FNF0103	DMS error (&00). Unable to open file (&01) for searching
FNF0104	No valid filename could be found in the specified LIST-FILE-NAME file
FNF0105	The filename wildcard could only be partially resolved

Output in S-Variable

The SHOW-RESULT operand of the command determines which S-variables are generated. The following specifications are possible for SHOW-RESULT:

Spelling in the command	Abbreviated notation in table
SHOW-RESULT = *MATCH(POSITION=*YES)	1
SHOW-RESULT = *MATCH(POSITION=*NO)	2
SHOW-RESULT = *FILE-NAMES	3

Output information	Name of the S-Variable	Content	Condition
Name of the searched file	var(*LIST).F-NAME	<filename_1..54>	1,2,3
File structure	var(*LIST).F-STRUCT	SAM ISAM PAM	1,2,3
Number of hits found (also the length of the MATCHES list)	var(*LIST).MATCH-COUNT	<integer>	1,2,3
SAM: Logical block in which a hit was found	var(*LIST).RECORD(*LIST).POSITION(*LIST).BLK	<integer>	1
PAM: Logical block in which a hit was found	var(*LIST).DATA(*LIST).POSITION(*LIST).BLK	<integer>	1
		<integer>	1

SAM: Record number in which a match was found	var(*LIST).RECORD(*LIST).POSITION (*LIST).REC		
ISAM: ISAM KEY at the location where a match was found	var(*LIST).RECORD(*LIST).POSITION (*LIST).ISAM-KEY	<xstring_1..256>	1
SAM, ISAM: Byte number of the hit within the logical block	var(*LIST).RECORD(*LIST).POSITION (*LIST).BYTE	<integer>	1
PAM: Byte number of the hit within the logical block	var(*LIST).DATA(*LIST).POSITION (*LIST).BYTE	<integer>	1
SAM, ISAM: Length of the hit	var(*LIST).RECORD(*LIST).POSITION (*LIST).LEN	<integer>	1
PAM: Length of the hit	var(*LIST).DATA(*LIST).POSITION (*LIST).LEN	<integer>	1
PAM: The data containing the hit	var(*LIST).DATA(*LIST).DATA	<cstring_1..256>	1,2
SAM, ISAM: The record containing the hit	var(*LIST).RECORD(*LIST).RECORD	<cstring_1..256>	1,2

Examples

The following examples assume these files:

:X:$Y.TEST.SAM	:X:$Y.TEST.ISAM	:X:$Y.TEST.PAM
BEISPIEL TEST BEISPIEL	00001000BEISPIEL TEST BEISPIEL	F0F0F0F0 F1D6E4E3 C9D54040

Example 1: Standard search across all files

/FIND-FILE TEST*,'test'

```
:X:$Y.TEST.ISAM:
00001000BEISPIEL TEST BEISPIEL
:X:$Y.TEST.SAM:
BEISPIEL TEST BEISPIEL
```

Example 2: Search with position specification

/FIND-FILE TEST*,'test',POSITION=*YES

```
:X:$Y.TEST.ISAM:
00001000:17:00001000BEISPIEL TEST BEISPIEL
:X:$Y.TEST.SAM:
1:9:BEISPIEL TEST BEISPIEL
```

Example 3: Search with position specification and label - SAM and ISAM

/FIND-FILE TEST*,'test',POSITION=*YES(SHOW-LABEL=*YES)

```
:X:$Y.TEST.ISAM:
ISAMKEY=00001000:BYTE=17:00001000BEISPIEL TEST BEISPIEL
:X:$Y.TEST.SAM:
REC=1:BYTE=9:BEISPIEL TEST BEISPIEL
```

Example 4: Search with position specification and label - PAM

/FIND-FILE TEST.PAM,'outin',POSITION=*YES(SHOW-LABEL=*YES)

```
:X:$Y.TEST.PAM:
HP=1:BYTE=5:00001OUTIN
```

*Example 5: Search with SHOW-RESULT=*FILE-NAMES and MATCH-COUNTER*

/FIND-FILE TEST*,'test',SHOW-RESULT=*FILE-NAMES(LIST-FILES=*BOTH, MATCH-COUNTER=*YES)

```
1: :X:$Y.TEST.ISAM
0: :X:$Y.TEST.PAM
1: :X:$Y.TEST.SAM
```

Example 6: ISAM/SAM: S variable with position specification

```
/DECLARE-VARIABLE OPS(TYPE=*STRUCTURE),MULTIPLE-ELEMENTS=*LIST
/EXEC-CMD (FIND-FILE TEST*,’TEST’,OUTPUT-OPTIONS=*PARAMETERS(SHOW-RESULT=*MATCHES
(POSITION=*YES))),STRUCTURE-OUTPUT=OPS
/SHOW-VARIABLE OPS,INFORMATION=*PARAMETERS(NAME=*FULL-NAME(LIST-INDEX-NUMBER=*YES))
OPS#1.F-NAME = :X:$Y.TEST.SAM
OPS#1.F-STRUCT = SAM
OPS#1.RECORD#1.POSITION#1.BLK = 1
OPS#1.RECORD#1.POSITION#1.REC = 1
OPS#1.RECORD#1.POSITION#1.BYTE = 7
OPS#1.RECORD#1.POSITION#1.LEN = 4
OPS#1.MATCH-COUNT = 1
OPS#2.F-NAME = :X:$Y.TEST.ISAM
OPS#2.F-STRUCT = ISAM
OPS#2.RECORD#1.POSITION#1.ISAM-KEY = 00001000
OPS#2.RECORD#1.POSITION#1.BYTE = 15
OPS#2.RECORD#1.POSITION#1.LEN = 4
OPS#2.MATCH-COUNT = 1
```

Example 7: PAM: S variable with position specification

```
/DECLARE-VARIABLE OPS(TYPE=*STRUCTURE),MULTIPLE-ELEMENTS=*LIST
/EXEC-CMD (FIND-FILE TEST*,X’F1D6E4E3’,OUTPUT-OPTIONS=*PARAMETERS(SHOW-RESULT=*MATCHES
(POSITION=*YES))),STRUCTURE-OUTPUT=OPS
/SHOW-VARIABLE OPS,INFORMATION=*PARAMETERS(NAME=*FULL-NAME(LIST-INDEX-NUMBER=*YES))
OPS#1.F-NAME = :X:$Y.TEST.PAM
OPS#1.F-STRUCT = PAM
OPS#1.DATA#1.POSITION#1.BLK = 1
OPS#1.DATA#1.POSITION#1.BYTE = 4
OPS#1.DATA#1.POSITION#1.LEN = 4
OPS#1.MATCH-COUNT = 1
```

Example 8: ISAM/SAM: S variable without position specification

```
/DECLARE-VARIABLE OPS(TYPE=*STRUCTURE),MULTIPLE-ELEMENTS=*LIST
/EXEC-CMD (FIND-FILE TEST*,'TEST',OUTPUT-OPTIONS=*PARAMETERS(SHOW-RESULT=*MATCHES
(POSITION=*NO))),STRUCTURE-OUTPUT=OPS
/SHOW-VARIABLE OPS,INFORMATION=*PARAMETERS(NAME=*FULL-NAME(LIST-INDEX-NUMBER=*YES))
OPS#1.F-NAME = :X:$Y.TEST.SAM
OPS#1.F-STRUCT = SAM
OPS#1.MATCH-COUNT = 1
OPS#2.F-NAME = :X:$Y.TEST.ISAM
OPS#2.F-STRUCT = ISAM
OPS#2.MATCH-COUNT =
1
```

Example 9: PAM: S variable without position specification

```
/DECLARE-VARIABLE OPS(TYPE=*STRUCTURE),MULTIPLE-ELEMENTS=*LIST
/EXEC-CMD (FIND-FILE TEST*,X'F1D6E4E3',OUTPUT-OPTIONS=*PARAMETERS(SHOW-RESULT=*MATCHES
(POSITION=*NO))),STRUCTURE-OUTPUT=OPS
/SHOW-VARIABLE OPS,INFORMATION=*PARAMETERS(NAME=*FULL-NAME(LIST-INDEX-NUMBER=*YES))
OPS#1.F-NAME = :X:$Y.TEST.PAM
OPS#1.F-STRUCT = PAM
OPS#1.MATCH-COUNT = 1
```

*Example 10: S variable with SHOW-RESULT=*FILE-NAMES*

```
/DECLARE-VARIABLE OPS(TYPE=*STRUCTURE),MULTIPLE-ELEMENTS=*LIST
/EXEC-CMD (FIND-FILE TEST*,'TEST',OUTPUT-OPTIONS=*PARAMETERS(SHOW-RESULT=*FILE-NAMES(MATCH-
COUNTER=*YES))),STRUCTURE-OUTPUT=OPS
/SHOW-VARIABLE OPS,INFORMATION=*PARAMETERS(NAME=*FULL-NAME(LIST-INDEX-NUMBER=*YES))
OPS#1.F-NAME = :X:$Y.TEST.SAM
OPS#1.F-STRUCT = SAM
OPS#1.MATCH-COUNT = 1
OPS#2.F-NAME = :X:$Y.TEST.ISAM
OPS#2.F-STRUCT = ISAM
OPS#2.MATCH-COUNT = 1
```

Example 11: Entering a file list

```
/&* The parameter 'FORM-NAME=*FILE-NAME' is important!
/SHOW-FILE-ATTRIBUTES SELECT=*BY-ATTRIBUTES(FILE-STRUCTURE=*ISAM),OUTPUT=SH.OUT(FORM-
NAME=*FILE-NAME)
/FIND-FILE FILE-NAME=*FROM-FILE(LIST-FILE-NAME=SH.OUT),PATTERN='ISAM'
```

3.55 FORCE-JOB-CANCEL

Cancel user job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	P

Function

The FORCE-JOB-CANCEL command forces a user job to terminate. The user job addressable by its TSN or a monitoring job variable is immediately canceled, without waiting for privileged system routines being used to run to completion. This procedure may in some circumstances lead to inconsistencies in some system tables. Hence, it is advisable to use the FORCE-JOB-CANCEL command only if the CANCEL-JOB command is unsuccessful and continuation of the session depends on cancellation of the job. Please note the following:

- Use FORCE-JOB-CANCEL only as a last resort (if there is the risk of a deadlock).
- Leave at least 10 minutes between CANCEL-JOB and FORCE-CANCEL-JOB.
- Run SHOW-JOB-STATUS beforehand to check the status of the job.
- Answer all unanswered messages at the console.
- FORCE-JOB-CANCEL may also be applied to jobs in a PASS-LOOP (Q13, Pendcode 04). However, this should be preceded by a thorough check that the correct job is being aborted: Waiting jobs usually do not cause but are affected by lock conflicts.

Execution of the command leads to termination of the task with the message

```
CAN0KIL: ABNORMAL TASK TERMINATION ENFORCED BY COMMAND
```

and, in the case of privileged applications, possibly to a system dump which is generated without any prior query to the operator.

> Use of the command by the operator can be forbidden by means of the system parameter NRTKILL.

Format

FORCE-JOB-CANCEL

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**TEXT** = **_*NO_** / <c-string 1..72>

,**DUMP** = **_*YES_** / ***NO**

Operands

JOB-IDENTIFICATION = *TSN(...) / *MONJV(...)
Selection of the job identification.

JOB-IDENTIFICATION = *TSN(...)
The job is addressed by its TSN.

TSN = <alphanum-name 1..4>
The TSN of the job in question.

JOB-IDENTIFICATION = *MONJV(...)
The job is not addressed by its TSN but via a monitoring job variable.

MONJV = <filename 1..54 without gen-vers>
Monitoring job variable of the job in question.

TEXT = _*NO_ / <c-string 1..72>
Specifies whether a text should be output to SYSOUT, and if so which text, before the job is terminated. The specified string may be up to 72 characters in length. If the job which is to be terminated is monitored by a monitoring job variable, the first 51 characters are embedded in it (see the CANCEL-JOB command).

DUMP =
Defines whether a system dump is to be output for the job to be canceled.

DUMP = _*YES_
A system dump is generated.

DUMP = *NO

No system dump.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	CMD0002	Command executed with a warning
	1	CMD0202	Syntax error
	64	JMS0630	Semantic error
	64	JMS0640	MONJV error, illegal access or invalid time of call
	130	JMS0660	Repeat command later

3.56 FORCE-PUBSET-EXPORT

Force pubset export

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The FORCE-PUBSET-EXPORT command forces a pubset to be exported.
The specified pubset is exported without taking into account open files that cannot be restored until the next session. This command should therefore be used only in exceptional cases, since it cannot be guaranteed that the pubset involved can be imported again. This command cannot cancel the wait states for termination of the occupying tasks; it simply limits the wait time involved.

The command is logged with the message DMS0379 on the console.

The command is rejected if it was not preceded by an EXPORT-PUBSET command with the operand TERMINATE-JOBS=*YES.

Format

FORCE-PUBSET**-EXP**ORT
PUBSET = <cat-id 1..4>
,**MONJV** = ***NONE** / <filename 1..54 without-gen-vers>
,**JV-PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483639..2147483639>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset to be exported.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies whether a monitoring job variable is set.
This operand should only be specified if the JV software product is used.

Note

The job variable must already be cataloged, otherwise it is not set. However, EXPORT processing is continued even if the job variable is not set.

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483639..2147483639>
Password of the monitoring job variable, if this variable is protected by a write password. The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password .

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	DMS0355	Same export already active
1	0	DMS0364	Pubset already unavailable
	1	CMD0202	Syntax error
	32	DMS035C	Invalid operands
	32	DMS0363	MRSCAT access error
	64	DMS035C	IMPORT-PUBSET required
	64	DMS0360	No authorization for command
	64	DMS0366	Export attempt for home pubset
	64	DMS036D	Invalid operand sequence
	64	DMS036E	FORCE attempt without TERMINATE
	130	DMS0351	Other import/export task active
	130	DMS035C	Maximum number of tasks reached
	130	DMS0362	Class 4 memory error

3.57 GENERATE-FIND-CMD-TEMPLATE

Creating a template of a command file for the command FIND-CMD-OUTPUT

Component:	FIND-CMD-OUTPUT
Functional area:	Command processing
Domain:	UTILITIES
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The command GENERATE-FIND-CMD-TEMPLATE creates a template of a command file for the command FIND-CMD-OUTPUT. This file can then be adjusted as required and used as an input file (operand CMD=*FROM-FILE (...)) for the command FIND-CMD-OUTPUT.
All SHOW* and LIST* SDF commands (with their default parameters) allowed under the current privileges are included in the template. If a command cannot be executed successfully with its default parameters, the command is only added as a comment. In this case, the reason for the error is given next to the corresponding command in the template file.

GENERATE-FIND-CMD-TEMPLATE
TEMPLATE-NAME = <filename_1..54 >

Operands

TEMPLATE-NAME = <filename_1..54 >
Specifies the name of the template command file. If a file with this name already exists, it will be overwritten.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal error

Example

Create a template command file with the name FIND-CMD-OUTPUT. TEMPLATE:

```
/GENERATE-FIND-CMD-TEMPLATE FIND-CMD-OUTPUT.TEMPLATE
```

Part of the generated template:

```
 1.00 /&* command file template: FIND-CMD-OUTPUT.TEMPLATE
 2.00 /&*
 3.00 /&* ------------------------------------------------------------------------------------------
 4.00 /&* command                          remark / error message
 5.00 /&* ------------------------------------------------------------------------------------------
 6.00 /&*
 7.00 /&* SHOW-ACCESS-ADMISSION             (operand has to be specified)
 8.00 /&* SHOW-ACCESS-CONDITIONS            (operand has to be specified)
 9.00 SHOW-ACCOUNTING-STATUS
10.00 SHOW-ACS-OPTIONS
11.00 /&* SHOW-ACS-SYSTEM-FILES             (ACS0012 SPECIFIED ACS SYSTEM FILE DOES NOT EXIST)
12.00 /&* SHOW-ACTIVE-SPOOL-DEVICES         (SPA0003 SPOOL NOT LOADED OR NOT READY. COMMAND TERMINATED)
13.00 SHOW-ADDRESS-ASSIGNMENT
14.00 SHOW-ADDRESS-SPACE-STATUS
15.00 SHOW-AEC-OPTIONS
16.00 /&* SHOW-ALIAS-CATALOG-ENTRY           (ACSD01B ACS SUBSYSTEM NOT AVAILABLE. TRY AGAIN LATER)
17.00 SHOW-APACHE-STATUS
18.00 SHOW-APPLICATION
19.00 SHOW-APPLICATION-BASICS
20.00 /&* SHOW-ASE-ELEMENT                  (CMD2241 SUBSYSTEM ASE NOT LOADED: COMMAND NOT PROCESSED)
21.00 /&* SHOW-ASE-LOGGING                  (CMD2241 SUBSYSTEM ASE NOT LOADED: COMMAND NOT PROCESSED)
22.00 /&* SHOW-ASE-PARAMETERS               (CMD2241 SUBSYSTEM ASE NOT LOADED: COMMAND NOT PROCESSED)
23.00 /&* SHOW-ASE-STATUS                   (CMD2241 SUBSYSTEM ASE NOT LOADED: COMMAND NOT PROCESSED)
24.00 SHOW-AUDIT-STATUS
25.00 SHOW-BCAM-ADDRESS
26.00 SHOW-BCAM-DEVICE-VALUES
```

3.58 GET-JOB-FROM-VIRTUAL-DEVICE

Request print job from virtual printer

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION

Function

The GET-JOB-FROM-VIRTUAL-DEVICE command requests a new print job from the virtual device. It is executed in batch mode only.

By default, the original user file is copied into the calling task's user ID, and a definition of the print job is generated in a metadata file. Both files are created with a default name which contains the identification number of the print job as a name component. This identification number is stored in the specified S variable.

Optionally a user-specific file name prefix can be defined for each of the files. Creation of the files and S variable can also be suppressed.

The command is part of a set of four commands which enable an application to be created in the form of an S procedure (for an example, see the OPEN-VIRTUAL-DEVICE-DIALOG command). These commands manage the dialog between a virtual device and the application which was started in batch mode as an S procedure:

- OPEN-VIRTUAL-DEVICE-DIALOG
- GET-JOB-FROM-VIRTUAL-DEVICE
- RETURN-JOB-TO-VIRTUAL-DEVICE
- CLOSE-VIRTUAL-DEVICE-DIALOG

Format

GET-JOB-FROM-VIRTUAL-DEVICE

FILE-PREFIX = **<u>*STD</u> / *NONE /** <partial-filename 1..25>

,**METADATA-PREFIX** = **<u>*STD</u> / *NONE /** <partial-filename 1..25>

,**OUTPUT-DOC-ID** = **<u>*STD</u> / *NONE /** <structured-name 1..20>

Operands

FILE-PREFIX = <u>*STD</u> / *NONE / <partial-filename 1..25>
Specifies whether the original user file is to be copied and which prefix should be assigned to the name of the copy.

FILE-PREFIX = <u>*STD</u>
The original user file is copied under the following file name:

$<userid>.S.VIRTUAL.DOC.<document-id>.000
where <userid> is the user ID of the calling task and <document-id> is the identification number of the print job (see the OUTPUT-DOC-ID operand).

FILE-PREFIX = *NONE
The original user file is not to be copied.

FILE-PREFIX = <partial-filename 1..25>
The original user file is copied with a prefix under the following file name:
$<userid>.<file-prefix>.<document-ID>.000
where <userid> is the user ID of the calling task and <document-id> is the identification number of the print job (see the OUTPUT-DOC-ID operand).

METADATA-PREFIX = *STD / *NONE / <partial-filename 1..25>
Specifies whether metadata of the print job is to be created and which prefix should be assigned to the metadata file.

METADATA-PREFIX = *STD
The metadata of the print job is to be created in a file with the following name: $<userid>.<metadata.prefix>.<document-id>
where <userid> is the user ID of the calling task and <document-id> is the identification number of the print job (see the OUTPUT-DOC-ID operand).

METADATA-PREFIX = *NONE
No file containing the metadata of the print job is to be created.

METADATA-PREFIX = <partial-filename 1..25>
The metadata of the print job is to be created in a file with the specified prefix in the name: $<userid>.<metadata-prefix>.<document-id>
where <userid> is the user ID of the calling task and <document-id> is the identification number of the print job (see the OUTPUT-DOC-ID operand).

OUTPUT-DOC-ID = *STD / *NONE / <structured-name 1..20>
Specifies whether the identification number of the print job is to be output in an S variable.

OUTPUT-DOC-ID = *STD
The identification number of the print job is generated in the DOC-ID variable.

OUTPUT-DOC-ID = *NONE
The identification number of the print job is not generated.

OUTPUT-DOC-ID = <structured-name 1..20>
The identification number of the print job is generated in the specified S variable.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error; command successfully processed
	32	SCP0974	Unexpected command
5	32	SCP0974	Memory request error

Notes

1. If the original user file was copied (value of the FILE-PREFIX operand not equal to *NONE), normalization of this file takes place in the target file. This means that the original user file is copied into a SAM file (conversion, library member is extracted, etc.). This file is stored as not shareable under the calling task's user ID.
2. The user ID assigned to the application (i.e. the user ID under which the calling application task is executed) corresponds to the user ID (default: SYSSPOOL) specified for the device record (PROGRAM-NAME operand).
3. The metadata file is created as an ISAM file with the file attributes KEY-POS=5, KEY-LEN=64, BUF-LEN=STD (2) and USER-ACC=OWNER-ONLY. The ISAM key (64 characters) corresponds to the attribute name and the field (consisting of 1024 characters) corresponds to the attribute value.
4. If the dialog cannot be initialized, the command is rejected and a return code is set.
5. If no initialization took place (OPEN-VIRTUAL-DEVICE-DIALOG command), the command is rejected and a return code is set.
6. If the print job has already been returned (RETURN-JOB-TO-VIRTUAL-DEVICE command), the command is rejected and a return code is set.
7. This command can only be used in batch mode.
8. Spin-off processing is activated each time an error is detected.

Output in S variable

Output information	Name of the S variable	T	Contents	Condition
Identification number of the associated print job	var(*LIST).DOC-ID	S	<document-id>	

3.59 GOTO

Branch to specified destination (S procedure)

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

GOTO is an SDF-P control flow command.

A GOTO command within an *S procedure* causes a branch to a specified destination. Command processing resumes with the command introduced by the specified label, which may only occur once within the relevant procedure. Only labels in SDF-P format (S labels) may be used.
Branches are only possible within the same command block or, in the case of block nesting, in a command block on a lower nesting level.
The GOTO command corresponds to the SKIP-COMMANDS command (without conditions) in a *non-S procedure*.

Restrictions

The command can only be used within procedures.

Format

GOTO
LABEL = <structured-name 1..255>

Operands

LABEL = <structured-name 1..255>
This defines the branch destination. Specification takes the form of a label in SDF-P format (S label). Command processing resumes with the command line introduced by this label.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	1	SDP0223	Incorrect environment
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

3.60 HELP-MSG-INFORMATION

Display text of system message

Component:	MIP
Functional area:	Job processing Message processing
Domain:	JOB MESSAGE-PROCESSING
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	@

Function

The HELP-MSG-INFORMATION command displays the text of a system message on SYSOUT. In addition, the user can request explanations of messages and specify the language in which message texts should be issued.

Format

HELP-MSG-INFORMATION	Alias: **HP** / **HPMSGI**
MSG-IDENTIFICATION = ***LAST** / <alphanum-name 4..7>	
,**INF**ORMATION-**LEV**EL = ***MAX**IMUM / ***MED**IUM / ***MIN**IMUM	
,**LANG**UAGE = ***STD** / <name 1..1>	

Operands

MSG-IDENTIFICATION = *LAST / <alphanum-name 4..7>
Number of the system message to be displayed.
Both 4-digit and 7-digit message numbers are permitted.
See "Note".

MSG-IDENTIFICATION = *LAST
Repeats the system message last issued by the system during the current job. This does not include system messages previously requested with HELP-MSG-INFORMATION.

INFORMATION-LEVEL =
Amount of information to be displayed.

INFORMATION-LEVEL = *MAXIMUM
Displays the system message in unabbreviated form; in addition, an explanation of the message text is given.

INFORMATION-LEVEL = *MEDIUM
Displays the system message in unabbreviated form.

INFORMATION-LEVEL = *MINIMUM
Displays the system message in coded form.

LANGUAGE = *STD / <name 1..1>
Language identifier. The system message is to be given in the language assigned to the language identifier (D = German, E = English).

LANGUAGE = *STD
The default language defined user attributes applies (see commands ADD-USER und MODIFY-USER-ATTRIBUTES, operand DEFAULT-MESSAGE-LANGUAGE). If a different value has been set using the MODIFY-MSG-ATTRIBUTES command, then this value applies.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed message: NMH1120
2	0	NMH9006	Warning Guaranteed messages: NMH1165, NMH1166
	1	NMH1174	Syntax error Guaranteed message: NMH1155
	32	NMH1121	Internal error
	64	CMD0216	Semantic error
	64	NMH1155	Semantic error Guaranteed message: NMH1155
	64	NMH1199	Semantic error

Note

If MIP itself sent the message to SYSOUT, any inserts in the message will have been replaced by current values. If it was some other system component, not MIP, that sent the message to SYSOUT, the insert texts in the message are those that MIP placed in the message when the other system component requested the message text. These values may also be internal labels set by the requester for future processing.

Example

/cpf xx.dummy,aaaaa ——————————————————————————————— (1)

```
%  DMS0812 '0533' DMS ERROR CODE OCCURRED DURING EXECUTION OF THE JOB FOR THE FI
LE NAME ':2OSG:$USER1.XX.DUMMY' WITH THE FILE NAME ':2OSG:$USER1.AAAAA'. FURTHER
 INFORMATION: /HELP-MSG DMS0533
```

/help-msg-information language=d ——————————————————————— (2)

```
%  DMS0812 DMS-FEHLERCODE '0533' BEI AUFTRAGSAUSFUEHRUNG FUER DEN DATEINAMEN ':2
OSG:$USER1.XX.DUMMY' MIT DATEINAME ':2OSG:$USER1.AAAAA' AUFGETRETEN. WEITER INFO
RMATION: /HELP-MSG DMS0533
%  ? Fuer das vorausgegangene Kommando wurde ein Fehler-Protokoll angefordert.
%    (&00): DMS-Returncode von der Funktionsausfuehrung.
%    (&01): Ausgewaehlter, vollqualifizierter Dateiname.
%    (&02): Zweiter bzw. neuer, ggf. konstruierter Dateiname.
%  ! Siehe Massnahme-Text zum Fehlercode DMS(&00).
```

/help-msg-information msg-id=dms0533,language=d ——————————— (3)

```
%  DMS0533 ANGEGEBENE DATEI IN PUBSET '(&00)' NICHT GEFUNDEN. KOMMANDO BEENDET
%  ? Diese Meldung wird von DVS-Kommandos ausgegeben. Die angeforderte Datei
%    ist im gewuenschten Pubset nicht katalogisiert.
%  MASSNAHME : KEINE
```

/help-msg-info info-level=*medium,language=d ——————————— (4)

```
%  DMS0812 DMS-FEHLERCODE '0533' BEI AUFTRAGSAUSFUEHRUNG FUER DEN DATEINAMEN ':2
OSG:$USER1.XX.DUMMY' MIT DATEINAME ':2OSG:$USER1.AAAAA' AUFGETRETEN. WEITER INFO
RMATION: /HELP-MSG DMS0533
```

(1) The system issues message DMS0812 in response to an invalid COPY-FILE command.

(2) The message last issued by the system is to be displayed together with an explanation in German. The message text is output in unabbreviated form.

(3) The German message text of message DMS0533 is to be displayed. Here, the command does not refer to the message last issued by the system and therefore may be entered at any point in the job.

(4) The message last issued by the system is requested in its German form: DMS0812. Message DMS0533 is not considered since the other message was explicitly requested.

3.61 HELP-SDF

Provide information on SDF

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The HELP-SDF command displays information regarding SDF.

The information available is subdivided into sections that can be accessed via the individual operands of the command.

When the user enters HELP-SDF without operands or only with the preset operand values, a brief introduction to SDF is displayed (for a description see "HELP-SDF with preset operand values").

Entering /HELP-SDF? displays the operand form for the command (temporarily guided dialog), and the information required can be selected.

Format

HELP-SDF Alias: **HPSDF**

GUIDANCE-**MODE** = ***NO** / ***Y**ES

,**SDF-COM**MANDS = ***NO** / ***Y**ES

,**ABBR**EVIATION-**RULES** = ***NO** / ***Y**ES

,**GUID**ED-**DIA**LOG = ***Y**ES (...)

***Y**ES(...)

| **SCREEN-STEPS** = ***NO** / ***Y**ES

| ,**SPEC**IAL-**FUNC**TIONS = ***NO** / ***Y**ES

| ,**FUNC**TION-**KEYS** = ***NO** / ***Y**ES

| ,**NEXT-FIELD** = ***NO** / ***Y**ES

,**UNGUID**ED-**DIA**LOG = ***Y**ES (...) / ***NO**

***Y**ES(...)

| **SPEC**IAL-**FUNC**TIONS = ***NO** / ***Y**ES

| ,**FUNC**TION-**KEYS** = ***NO** / ***Y**ES

Operands

GUIDANCE-MODE = *NO / *YES
Type of dialog guidance (output see *"HELP-SDF with GUIDANCE-MODE=*YES"*).

SDF-COMMANDS = *NO / *YES
SDF-specific commands (output see *"HELP-SDF with SDF-COMMANDS=*YES"*).

ABBREVIATION-RULES = *NO / *YES
Abbreviation rules for the command syntax (output see *"HELP-SDF with ABBREVIATION-RULES=*YES"*).

GUIDED-DIALOG = *YES(...) / *NO
Use of guided dialog (output see *"HELP-SDF with GUIDED-DIALOG=*YES(SCREEN-STEPS=*YES)"*).

GUIDED-DIALOG = *YES(...)
The description of guided dialog is subdivided into 4 blocks of information which can be accessed individually as follows:

SCREEN-STEPS = *NO / *YES
Sequence and contents of the menus (application domain menu, command menu, operand form, subform; output see *"HELP-SDF with GUIDED-DIALOG=*YES(SCREEN-STEPS=*YES)"*).

SPECIAL-FUNCTIONS = *NO / *YES
Special functions within the menu (output see *"HELP-SDF with GUIDED-DIALOG=*YES(SPECIAL-FUNCTIONS=*YES)"*).

FUNCTION-KEYS = *NO / *YES
Function keys for menu control (output see *"HELP-SDF with GUIDED-DIALOG=*YES(FUNCTION-KEYS=*YES)"*).

NEXT-FIELD = *NO / *YES
Input in the NEXT line for menu control (output see *"HELP-SDF with GUIDED-DIALOG=*YES(NEXT-FIELD=*YES)"*).

UNGUIDED-DIALOG = *NO / *YES(...)
Use of unguided dialog (output see *"HELP-SDF with UNGUIDED-DIALOG=*YES(SPECIAL-FUNCTIONS=*YES)"*).

UNGUIDED-DIALOG = *YES(...)
The description of unguided dialog is subdivided into 2 blocks of information which can be accessed individually as follows:

SPECIAL-FUNCTIONS = *NO / *YES
Special functions within the unguided dialog menu (output see *"HELP-SDF with UNGUIDED-DIALOG=*YES (SPECIAL-FUNCTIONS=*YES)"*).

FUNCTION-KEYS = *NO / *YES
Function keys for controlling the unguided dialog menu (output see *"HELP-SDF with UNGUIDED-DIALOG=*YES(FUNCTION-KEY=*YES)"*).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	32	CMD0500	Syntax description in current syntax file invalid
1	64	CMD0810	Error during execution. Guaranteed messages: CMD0500, CMD0810

Information displayed with HELP-SDF:

HELP-SDF with preset operand values

```
%
% Introduction
%
% SDF is a convenient command interpreter and dialogue manager
% If the user desires, input can be entered as before.
% But the user can also utilize the advantages of SDF:
%  - Abbreviation mechanism
%  - Block input
%  - Guided dialogue
%  - Command bufferization (history)
%  - Definition of task-specific default values
%
% In addition, a more comprehensible command language has
% has been developed:
% The names of commands, operands and constant operand
% values were chosen so as to indicate clearly their function.
% Similar features (for example, the name of a file) are
% named accordingly similar naming rules (for example, FILE-NAME=
% or FROM-FILE= or TO-FILE=).
% Incorrect input is presented for correction along with
% a message.
% Commands which are part of the old commando language (ISP)
% can be input in the form "<old cmd>?". The new SDF-command
% is then displayed with its new syntax, i.e. a menu driven
% dialog allows to set the appropriate operand values.
% For further information, the user may enter "HELP-SDF?".
% The operand form for the command will then be displayed.
% Further information for an operand may then be obtained
% by setting that operand to "YES".
%
```

*HELP-SDF with GUIDANCE-MODE=*YES*

```
%
% Types of dialogue:
%
% 1. Guided dialogue
% Guided dialogue : supplies menus in the following order :
% Domain menu, Command menu, Operand form menu, sub-form menu.
% The extent of information offered in a menu can be controlled via
% the GUIDANCE operand of the MODIFY-SDF-OPTIONS command :
% - GUIDANCE=*MAXIMUM  all operand values with options (limit
%                      values etc.); help texts for commands
%                      and operands
% - GUIDANCE=*MEDIUM   all operand values;
%                      help texts only for commands
% - GUIDANCE=*MINIMUM  only default values for operands;
%                      no options; no help texts.
%
%
% 2. Unguided dialogue
% Unguided dialogue : no menus. There are 2 types of unguided
% dialogue, which can be controlled via the GUIDANCE operand
% of the MODIFY-SDF-OPTIONS cmd :
% - GUIDANCE=*NO:   the system requests command input with
%                  "%CMD:"; syntax error dialogue : correction
%                  of incorrect input without repetition
%                  of the entire command, detailed error
%                  messages; grouped command input :
%                  several commands, separated by logical
%                  end-of-line characters (LZE), can be issued
%                  at one time.
% - GUIDANCE=*EXPERT: the system requests command input with "/",
%                    no syntax error dialogue, detailed error
%                    messages; grouped command input.ch.
%
```

*HELP-SDF with SDF-COMMANDS=*YES*

```
%
% SDF-specific commands:
%
% - HELP-SDF
%     Displays information about SDF.
% - MODIFY-SDF-OPTIONS
%     Changes the task-specific SDF options.
% - REMARK
%     Inserts remarks into the command files.
% - RESET-INPUT-DEFAULTS
%     Deletes task-specific default values.
% - RESTORE-SDF-INPUT
%     Reprompts a previous input.
% - SHOW-CMD
%     Displays the syntax description of a command to SYSOUT/SYSLST.
% - SHOW-SDF-OPTIONS
%     Displays the task-specific information for the SDF options.
% - SHOW-INPUT-DEFAULTS
%     Outputs the task-specific default values.
% -  SHOW-INPUT-HISTORY
%     Displays the list of the latest inputs.
% - SHOW-SYNTAX-VERSIONS
%     Displays information about the contents of the active
%     syntax files.
% - WRITE-TEXT
%     Writes text to SYSOUT/SYSLST.
```

*HELP-SDF with ABBREVIATION-RULES=*YES*

```
%
% Abbreviation rules for the command syntax:
%
% -  Command name, operand name and constant operand values
%   (not basic data types) may be abbreviated as follows:
%   - Characters may be dropped from right to left
%     e.g.: TRANSFER-FILE abbreviated to TRANS
%   - Characters may be dropped from right to left
%     within the name elements.
%     e.g.: TRANSFER-FILE abbreviated to T-F
%           Restriction : Abbreviations must be unambiguous;
%           e.g.: CREATE as an abbreviation is ambiguous
%           between CREATE-FILE,CREATE-FILE-GENERATION,
%           CREATE-FILE-GROUP and CREATE-JV.
%
% - Operand values may also be specified without the
%   corresponding operand names (positional operands).
%   Here the following must be observed:
%   - A comma must be given for each omitted operand
%     preceding the positional operand.
%   - If, in the series of operands for a command,
%     an operand is specified completely (operand name and
%     operand value), subsequent operands may no longer be
%     specified as positional operands.
%
% - Guided dialogue: Operands for a structure need not be
%   in a sub-form, but may instead be entered in the operand
%   form. They must be enclosed in parentheses and must directly
%   follow the operand value introducing the structure.
%
% - Guided dialogue: In the NEXT line of the menu, complete
%   commands can also be entered. If a command name ends with
%   a question mark (<command>?), the operand form for the
%   specified command appears. It lists the operand values that
%   have already been specified (temporary guided dialogue).
%   If the specified command has no operands, the command help
%   text is displayed.
%
% - Ambiguity menus: entering a command name containing wildcards
%   and ending with a question mark causes SDF to display a menu
%   listing the commands which match the wildcard pattern.
%
```

*HELP-SDF with GUIDED-DIALOG=*YES(SCREEN-STEPS=*YES)*

```
%
% Guided dialogue: Order and content of the menus
%
% Domain menu    : Lists all domains (commands are assigned
%                  to particular domains according to their
%                  function). A domain can be selected by
%                  number or name. The domain *ALL-COMMANDS lists all
%                  the commands.
% Command menu   : Lists all commands of the selected domain.
%                  A command can be selected by number or name
%                  A command followed by ! has no operands.
% Operand form   : Lists the operands of the selected command.
%                  The operand values desired are to be
%                  specified.
% Sub-form       : Lists the operands of a structure
%                  If an operand value introducing a structure
%                  is specified in an operand form, a sub-form
%                  for the corresponding structure is
%                  displayed.
% Command menu   : If a command has been executed or aborted,
%                  the current command menu appears again.
%
```

*HELP-SDF with GUIDED-DIALOG=*YES(SPECIAL-FUNCTIONS=*YES)*

```
%
% ? as operand value:
%          Supplies help text and options (limit values, etc.)
%          for the operand; in addition, detailed error
%          messages in the case of incorrect input.
% ?? as operand value:
%          calls up a help text, a display of the range of
%          values for the relevant operand and an help text
%          giving information about the data types associated
%          with the operand.
% !  as operand value:
%          Enters the default value for the operand.

% (  following an operand value introducing a structure:
%          Displays the sub-form for the structure associated
%          with the operand value.
% () following an operand value introducing a structure:
%          Suppresses the sub-form and enters the default
%          values for the operands of the structure.
%  -   as the last character in an input line:
%          A continuation line is displayed.
% LZF key :
%          Deletes all characters in the input line, starting
%          at the cursor.
%
```

*HELP-SDF with GUIDED-DIALOG=*YES(FUNCTION-KEYS=*YES)*

```
%
% Guided dialogue: Function keys
%
% The effect of the function keys depends on the FUNCTION-KEYS
% option (MODIFY-SDF-OPTIONS command/statement).
% 2 modes are possible : the *OLD-MODE and the *STYLE-GUIDE-MODE
% which offers a richer functionality.
%
% *OLD-MODE
%
% K1  EXIT function
%     Equivalent to *EXIT in NEXT line.
%     Equivalent to F3 in *STYLE-GUIDE-MODE (see below).
% K2  INTERRUPT function.
%     Interrupts the program or procedure which is currently
%     running or interrupt of command output.
% K3  REFRESH function
%     Screen refresh function.
%     Equivalent to *REFRESH in NEXT line.
%     Equivalent to F5 in *STYLE-GUIDE-MODE.
% F1  EXIT-ALL function
%     Equivalent to *EXIT-ALL in NEXT line.
%     Equivalent to F6 in *STYLE-GUIDE-MODE (see below).
% F2  TEST function
%     Checks inputs for syntax errors. Equivalent to *TEST in the
%     NEXT line.
% F3  EXECUTE function
%     Executes the current operation. Equivalent to *EXECUTE in
%     the NEXT line.
%     Equivalent to F11 in *STYLE-GUIDE-MODE (see below).
%

% *STYLE-GUIDE-MODE
%
% K2  INTERRUPT function.
%     Interrupts the program or procedure which is currently
%     running or interrupt of command output.
% F1  HELP function.
%     Causes the display of a guided screen.
%     Equivalent to entering "?" in the NEXT line.
% F3  EXIT function.
%     Exits the current menu or form and switches to the
%     higher-ranking menu.
%     Equivalent to *EXIT in NEXT line.
%     Equivalent to K1 in *OLD-MODE.
% F5  REFRESH
%     Screen refresh function.
%     Equivalent to *REFRESH in NEXT line.
%     Equivalent to K3 in *OLD-MODE.
% F6  EXIT-ALL function
%     Exits the current menu or form and switches
%     to the highest-ranking menu.
%     Equivalent to *EXIT-ALL in NEXT line.
%     Equivalent to F1 in *OLD-MODE.
% F7  BACKWARD paging function
%     Pages backward in the menu or form.
```

```
%     Equivalent to "-" in NEXT line.
% F8  FORWARD paging function
%     Pages forward in the menu or form.
%     Equivalent to "+" in NEXT line.
% F9  REST-SDF-IN function.
%     Causes the last command / statement to be restored.
%     Equivalent to RESTORE-SDF-INPUT.
% F11 EXECUTE function
%     Executes the current operation. Equivalent to *EXECUTE in
%     the NEXT line.
%     Equivalent to F3 in *OLD-MODE.
% F12 Cancel function.
%     Exits the current menu or form and switches
%PLEASE ACKNOWLEDGE
%     to the higher-ranking menu or form.
%     Equivalent to *CANCEL in NEXT line.
%
```

*HELP-SDF with GUIDED-DIALOG=*YES(NEXT-FIELD=*YES)*

```
%
% Guided dialogue: NEXT line
%
% +,++,-,--  : Pages forward and back in the menu.
%              + and - equivalent to F8 and F7 respectively
%              in *STYLE-GUIDE-MODE.
% *EXECUTE   : Executes the current command. Equivalent
%              to the F3 key in *OLD-MODE and F11 in
%              *STYLE-GUIDE-MODE.
% *CONTINUE  : Combination of + or *EXECUTE depending of the
%              value given in the actual questionnaire.
% *TEST      : Checks input for syntax errors. Equivalent
%              to the F2 key in *OLD-MODE.
% *EXIT      : exits the current menu or form and switches
%              to the higher-ranking menu. Equivalent
%              to the K1 key in *OLD-MODE and F3 key in
%              *STYLE-GUIDE-MODE.
% *EXIT-ALL  : exits the current menu or form and switches
%              to the highest-ranking menu. Equivalent
%PLEASE ACKNOWLEDGE
%              to the F1 key in *OLD-MODE and F6 key in
%              *STYLE-GUIDE-MODE.
% *CANCEL    : exits the current menu or form and switches
%              to the higher-ranking menu or form. Equivalent
%              to the F12 key in *STYLE-GUIDE-MODE.
% *REFRESH   : Repeats the last menu displayed. Equivalent
%              to the K3 key in *OLD-MODE and F5 in
%              *STYLE-GUIDE-MODE.
% *DOM-MENU  : Switches to the domain menu.
% (<domain>) : Displays the command menu of the domain <domain>.
% <command>? : Executes the current operation and displays
%              the operand form for the command <command>.
%              Operand values that have already been specified
%              are entered in the form.
% <command>  : Executes the current operation and then,
%              in addition, the specified command <command>.
% !<command> : Executes the current operation and defines the
%             specified operand values as task-specific
```

```
%             default values of the command. When used in
%             combination with <command>? allows the default
%             values to be entered in the operand form.
% *DOWN(<operand>) : Displays the sub-form for the operand
%              value <operand>.
% *UP        : Switches from the sub-form back to the
%              operand form.

% ?          : Increases the guidance level.
% ??         : Further increases the guidance level.
%
```

*HELP-SDF with UNGUIDED-DIALOG=*YES(SPECIAL-FUNCTIONS=*YES)*

```
%
% Unguided dialogue: Special functions
%
%  ?  as operand value :
%       Supplies help text and options
%       (limit values, etc.)
% ?  as command :
%       Displays the domain menu.
%       (temporary guided dialogue)
% ?? as operand value :
%       calls up a help text, a display of the range of
%       values for the relevant operand and an help text
%       giving information about the data types associated
%       with the operand.
% <command>?  as command :
%       Displays the operand form for the command
%       <command> (temporary guided dialogue).
%       Operand values that have already been
%       specified are filled in.
%       If there are no operands, the help text of the
%       command is displayed.
% !<command> as command :
%       Defines the specified operand values as task-specific
%       default values of the command. When used in
%       combination with <command>? allows the default
%       values to be entered in temporarily unguided dialog.
% ^ or *SECRET as operand value (only for passwords):
%       Causes the input field for the password to
%       be kept blank.
% LZF key :
%       Deletes all characters in the input line, starting
%       at the cursor.
% LZE key :    enables blocked input. Several commands can be
%       given separated by LZEs and executed at the same time
%       by a terminating DUE
%
```

*HELP-SDF with UNGUIDED-DIALOG=*YES(FUNCTION-KEY=*YES)*

```
%
% Unguided dialogue: Function keys
%
% The effect of the function keys depends on the FUNCTION-KEYS
% option (MODIFY-SDF-OPTIONS command/statement).
% 2 modes are possible : the *OLD-MODE and the *STYLE-GUIDE-MODE
% which offers a richer functionality.
%
% *OLD-MODE
%
% K1  EXIT function.
%     Terminates the program which is currently running.
%     A message is issued asking the user whether or not
%     he wants to terminate.
%     Equivalent to F3 in *STYLE-GUIDE-MODE.
% K2  INTERRUPT function.
%     Interrupts the program or procedure which is currently
%     running or interrupts the command output.
% F1  EXIT-ALL function.
%     Terminates the program which is currently running.
%     A message is issued asking the user whether or not
%     he wants to terminate.
%     Equivalent to F6 in *STYLE-GUIDE-MODE.
%
% *STYLE-GUIDE-MODE
%
% K2  INTERRUPT function.
%     Interrupts the program or procedure which is currently
%     running or interrupt of command output.
% F1  HELP function.
%     Causes the display of a guided screen.
%     Equivalent to entering "?".
%
%
% F3  EXIT function.
%     Terminates the program which is currently running.
%     A message is issued asking the user whether or not
%     he wants to terminate.
%     Equivalent to K1 in *OLD-MODE.
% F6  EXIT-ALL function.
%     Terminates the program which is currently running.
%     A message is issued asking the user whether or not
%     he wants to terminate.
%     Equivalent to F1 in *OLD-MODE.
% F9  RESTORE-SDF-INPUT function.
%     Causes the last command / statement to be restored.
%     Equivalent to RESTORE-SDF-INPUT.
% F12 CANCEL function.
%     Terminates the program which is currently running.
%     A message is issued asking the user whether or not
%     he wants to terminate.
%
```

3.62 HOLD-ALIAS-SUBSTITUTION

Suspend substitution functions of alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The HOLD-ALIAS-SUBSTITUTION command halts alias substitutions for the current task. The prefix insertion and SPOOL-FILE-PUBSET functions of ACS are not affected by this command.
The user can cancel the effect of this command and resume alias substitution with the RESUME-ALIAS-SUBSTITUTION command.
The HOLD-ALIAS-SUBSTITUTION command can be specified several times in sequence, but each HOLD-ALIAS-SUBSTITUTION command must be canceled with a separate RESUME-ALIAS-SUBSTITUTION command.

Format

HOLD-ALIAS-SUBSTITUTION

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
2	0	ACS0042	Command has no effect: HOLD counter overflow
	128	ACS0018	ACS is not available
	130	ACS0036	Resource bottleneck

Example

Interrupting the replacement function, preventing replacement

/show-alias-cat ——————————————————————————— (1)

```
%       ALIAS FILE NAME         ->     FILE NAME
%UB : ASS                       -> $.ASSEMBH
%UB : BSP                       -> LST.BSP.2
%SF : COB85                     -> $RZ.COBOL85
%SF : FORTRAN                   -> $RZ.FOR1
%UF : SF.SDF                    -> $TSOS.SYS.SDF.SYSTEM.SYNTAX
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 5 (FOR SYSTEM: 2, FOR USER: 3)
```

/hold-alias-substitution ——————————————————————— (2)

```
%  ACS0007 /HOLD-ALIAS-SUBSTITUTION PROCESSED
```

/show-acs-opt ——————————————————————————————— (3)

```
%
% ALIAS CATALOG SYSTEM V20.0
% ============================
%
% STATUS: IN HOLD
%
% ACTIVATED ALIAS CATALOG FILE(S):
%  ID                   U-INFO   DESCR    DATE       FILE NAME
% ACS-FOR-USER1        SYSADM04 ACS0193  2012-02-09 :2OST:$TSOS.OTTY.XY
% ENTRIES ADDED/MODIFIED BY INDIVIDUAL COMMANDS:       3
%
% LOGGING: ALIAS-SUBSTITUTION=STD, PREFIX-INSERTION=NO
% SUCCESS-MSG OPTIONS: USER-FILE=YES, SYSTEM-FILE=YES
% COMPLETE-ALIAS-NAMES=NOT-ALLOWED (USER-MODIF=NOT-ALLOWED)
% ALIAS-USERID        =NOT-ALLOWED (USER-MODIF=NOT-ALLOWED)
% STANDARD-RANGE=BOTH
```

/show-file-attr sf.sdf ——————————————————————————— (4)

```
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OS2'. COMMAND TERMINATED
```

/copy-file sf.robar,sf.sdf ——————————————————————— (5)
show-file-attr sf.sdf ——————————————————————————— (6)

```
%       48 :2OS2:$USER1.SF.SDF
%:2OS2: PUBLIC:      1 FILE  RES=        48 FRE=         7 REL=         0 PAGES
```

/resume-alias-substitution ——————————————————————————— (7)

```
%  ACS0008 /RESUME-ALIAS-SUBSTITUTION PROCESSED
%  ACS0009 ALIAS CATALOG OPERATION CONTINUES
```

/show-file-attr sf.sdf ——————————————————————————— (8)

```
%      5328 :2OST:$TSOS.SYS.SDF.SYSTEM.SYNTAX
%:2OST: PUBLIC:      1 FILE  RES=      5328 FRE=         1 REL=         0 PAGES
```

/show-file-attr $USER1.sf.sdf ——————————————————————————— (9)

```
%        48 :2OS2:$USER1.SF.SDF
%:2OS2: PUBLIC:      1 FILE  RES=        48 FRE=         7 REL=         0 PAGES
```

(1) The SHOW-ALIAS-CATALOG-ENTRY command displays all entries of the task-local alias catalog.

(2) The HOLD-ALIAS-SUBSTITUTION command is used to halt the ACS substitution function.

(3) The SHOW-ACS-OPTIONS command shows the current ACS settings for the task. The output field *STATUS* has the value *IN HOLD*, which means that the ACS substitution function has been interrupted.

(4) The specified file name *SF.SDF* in the SHOW-FILE-ATTRIBUTES command is not replaced, despite the fact that it matches a defined alias. A file with the actual name *SF.SDF* does not exist.

(5) The COPY-FILE command copies the contents of the file *SF.ROBAR* to the file *SF.SDF*. The alias *SF.SDF* is not replaced in this case either, but a file with the actual name *SF.SDF* is created.

(6) In the SHOW-FILE-ATTRIBUTES command is used the specified file name *SF.SDF.*

(7) The interrupted ACS substitution function is resumed with the RESUME-ALIAS-SUBSTITUTION command.

(8) The defined actual file name *$TSOS.SYS.SDF.SYSTEM.SYNTAX* is now substituted for the alias *SF.SDF* in the SHOW-FILE-ATTRIBUTES command before that command is executed.

(9) In order to retrieve the catalog entry for the file *SF.SDF*, the file name is specified along with the user ID (*$USER1.SF.SDF*). No substitution takes place in this case since the specified name differs from that of the alias due to the user ID. Such differentiation can also be achieved by specifying the catalog ID or the complete path name.

For further examples see the commands ADD-ALIAS-CATALOG-ENTRY, LOAD-ALIAS-CATALOG, and SET-FILE-NAME-PREFIX.

3.63 HOLD-HARDWARE-AUDIT

Suspend AUDIT mode

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The HOLD-HARDWARE-AUDIT command suspends AUDIT mode, which was switched on using the START-HARDWARE-AUDIT command. The hold function always acts on the user's own job, i.e. the AUDIT mode was switched on with SCOPE=*OWN-JOB.
The AUDIT tables are retained.
AUDIT mode may be resumed by entering the RESUME-HARDWARE-AUDIT command.

Privileged functions

Systems support personnel (TSOS privilege) can suspend hardware AUDIT mode for the privileged processor state TPR (STATE=*SYSTEM).

Format

HOLD-HARDWARE**-AUDIT**
STATE = ***USER** / ***SYS**TEM

Operands

STATE =
Processor state for which the AUDIT mode is to be suspended.
If the hardware AUDIT mode is to be deactivated for both processor states, the command has to be issued twice.

STATE = *USER
The hardware AUDIT mode is to be suspended for the nonprivileged processor state TU. The hardware AUDIT table and the backup table, if there is one, are retained.

STATE = *SYSTEM
This operand value is reserved for privileged users.
The hardware AUDIT mode is to be suspended for the privileged processor state TPR. The hardware AUDIT table is retained.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	CMD0216	User does not have authorization
	64	IDA0001	Hardware is not active
	64	IDA0011	Privilege error
	64	IDA0023	Hardware AUDIT is not available because of missing authorization in the user entry
	64	IDA0024	Hardware AUDIT is not available because of the test options currently set for the active task

3.64 HOLD-JOB

Put user job on hold

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

This command places a user job that has not yet been started in the wait state HELD-BY-COMMAND.
The specified job, identified by its TSN or a defined job variable, is skipped by the job scheduler when it selects the jobs to be started. This wait state can only be revoked by the RESUME-JOB command or by changing the start attributes to START=*IMMEDIATE (MODIFY-JOB command). Information on the jobs in wait state can be retrieved using the SHOW-JOB-STATUS command. In this case, the wait state HELD-BY-COMMAND is displayed as TYPE1 /HO.
Successful processing of the HOLD-JOB command is indicated at the console. The command is rejected in the following situations:

- The job scheduler has already released the job for starting; jobs which have already started can be placed in the wait state by means of the HOLD-TASK command.
- The job to be placed in the wait state is an interactive or transaction job (category DIA or TP).
- The job to be placed in the wait state has the START=*IMMEDIATE attribute.

Format

HOLD-JOB

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...) / <alphanum-name 1..4>

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

Operands

JOB-IDENTIFICATION =
The batch job can be identified by means of either its TSN or a defined monitoring job variable.

JOB-IDENTIFICATION = *TSN(...)
The job is identified by means of its TSN.

TSN = <alphanum-name 1..4>
TSN of the job to be placed in the wait state.

JOB-IDENTIFICATION = *MONJV(...)
The job to be suspended is addressed by means of a monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>
Defined job variable for the job to be placed in the wait state.

JOB-IDENTIFICATION = <alphanum-name 1..4>
The job number of the job to be suspended.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	system error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

Notes

Calendar and repeat jobs should not be placed in the wait state. If it is still unavoidable, note the following:

- In case of calendar jobs, the complete execution is put in the wait state. If further execution dates are reached while in the HOLD state, these will be omitted.
- In the case of repeat jobs, the command only applies to the directly following repetition.
- If the start time of the suspended repetition is reached, its successor will still be created.
- The successor does not adopt the HOLD attribute. It will, however, only be started once the current job is terminated, that is only after the HOLD state is terminated via /RESUME-JOB or /CANCEL-JOB.
- If the system is started anew, the whole repeat job is reconstructed from its successor. This may cause the HOLD state to be lost.

3.65 HOLD-JOB-CLASS

Put job class on hold

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The HOLD-JOB-CLASS command puts a job class on hold.
Batch jobs for the suspended job class are placed in the job queue of the responsible job scheduler but are not released for starting. The command affects only job classes in which batch jobs are assembled; the system job class $SYSJC is also permitted.

The HOLD status is temporary and can be canceled by means of the RESUME-JOB-CLASS command. Successful execution of the command is acknowledged in a message issued at the console. The SHOW-SYSTEM-STATUS provides an overview of the job classes currently on hold.

Format

HOLD-JOB-CLASS
CLASS-NAME = <name 1..8>

Operands

CLASS-NAME = <name 1..8>
Name of the job class to be placed on hold.
The system administration defines the name using the JMU statement DEFINE-JOB-CLASS.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

Notes

- The command is also accepted for system job class $SYSJC.
- If the particular job scheduler is inactive at the time the command is issued, the command is rejected with an error message.
- Batch jobs submitted for a suspended job class are entered to the job queue of the appropriate job scheduler. These jobs are not released for starting.

3.66 HOLD-JOB-STREAM

Put job stream on hold

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The HOLD-JOB-STREAM command places a job stream on hold. The job scheduler that was active in the suspended job stream cannot carry out its function until the HOLD state has been canceled by means of the RESUME-JOB-STREAM command. During this time user jobs for the job classes assigned to the job stream continue to be accepted but are not released for starting.
The HOLD-JOB-STREAM command is also permitted for the system job stream $SYSJS, for which a total of 16 job streams can be managed.

The job stream is terminated normally if it takes place during the HOLD phase, and a message to this effect is issued at the operator terminal (see the STOP operand of the JMU statement DEFINE-JOB-STREAM in the “Utility Routines” manual [9]).

If a job stream cannot be placed in the wait state, a message to that effect is issued at the operator terminal.

The SHOW-SYSTEM-STATUS command can be used to show which job streams are in the HOLD state (INFORMATION operand, value *JOB-STREAM).

Format

HOLD-JOB-STREAM
STREAM-NAME = <name 1..8>

Operands

STREAM-NAME = <name 1..8>
Name of the job stream to be placed on hold.
The system administration defines the name using the JMU statement DEFINE-JOB-STREAM.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

3.67 HOLD-LINKAGE-AUDIT

Suspend linkage AUDIT mode

Component:	BS2000
Functional area:	AUDIT mode controln
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The HOLD-LINKAGE-AUDIT command suspends the linkage AUDIT mode which had earlier been activated by a START-LINKAGE-AUDIT command. The hold function always relates to its own job, i.e. the linkage AUDIT mode was activated with SCOPE=OWN-JOB. The linkage AUDIT table and the backup table if there is one are retained.

The linkage AUDIT mode can be resumed with the RESUME-LINKAGE-AUDIT command.

Privileged functions

Systems support personnel (TSOS privilege) can suspend linkage AUDIT mode for the privileged processor state TPR (STATE=*SYSTEM).

Format

HOLD-LINKAGE-AUDIT
STATE = ***USER** / ***SYS**TEM

Operands

STATE =
Processor state for which the linkage AUDIT mode is to be suspended.
If the linkage AUDIT mode is to be suspended for both processor states at the same time, the command has to be issued twice.

STATE = *USER
The linkage AUDIT mode is to be suspended for the nonprivileged processor state TU. The linkage AUDIT table is retained.

STATE = *SYSTEM
This operand value is reserved for privileged users.
The linkage AUDIT mode is to be suspended for the privileged TPR processor state. The linkage AUDIT table and, if appropriate, the backup table are retained.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	CMD0216	User does not have authorization
	64	IDA0052	Linkage AUDIT is not available because of missing authorization in the user entry
	64	IDA0053	Linkage AUDIT is not available because of the test options currently set for the active task
	64	IDA0060	AUDIT functions are not available on the entire system in this session

3.68 HOLD-PRINT-JOB

Suspend active spoolout job

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION SECURITY-ADMINISTRATION
Routing code:	O

Function

The HOLD-PRINT-JOB command suspends or resumes an active spoolout job.

The following comments apply to replay jobs assigned with START-TAPE-REPLAY and the operand value OUTPUT-MODE=*DIRECT:

- The tape containing the output file is positioned at the desired point, and output is resumed immediately via the specified device.
- Current output is stopped. All the spoolout jobs are written back to the SR.vsn file and provided with information relevant for resuming interrupted output. Resumption may then only be initiated by means of the START-TAPE-REPLAY command.

> ¡ Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
> This forwarding cannot be put on hold by /HOLD-PRINT-JOB. The command may therefore now only be used for RSO printers and virtual devices.

Privileged functions

RSO device administrators and spool and cluster administrators can suspend or resume any print job scheduled for printing on any device that they manage. For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “Dprint” [10].

Format

HOLD-PRINT-JOB

DEVICE-**NAME** = <alphanum-name 1..8> / <alphanum-name 2..2>

,**RES**UME-**COND**ITION = ***IMMED**IATE / ***BY-PRIO**RITY(...) / ***BY-OPER**ATOR

BY-PRIORITY(...)

| **PRIO**RITY = ***UNCHA**NGED / <integer 30..255>

,**REST**ART-**POS**ITION = ***BEG**IN-**OF-SP**OOLOUT / ***CURR**ENT-**PAGE** / ***LAST-CHECKP**OINT /

***PREV**IOUS-**CHECKP**OINT / ***PAGE**(...) / ***BACK**(...)

***PAGE**(...)

| **PAGE-NUM**BER = <integer 1..10000000>

***BACK**(...)

| **PAGE**S = <integer 1..10000000>

Operands

DEVICE-NAME = <alphanum-name 1..8>
RSO device name of the printer on which the SPOOLOUT job is to be suspended.

DEVICE-NAME = <alphanum-name 2..2>
This specification can no longer be used from BS000 OSD/BC V11.0 onwards.

RESUME-CONDITION = *IMMEDIATE / *BY-PRIORITY(...) / *BY-OPERATOR
The spoolout job is to be resumed immediately, resumed after a delay or suspended.

RESUME-CONDITION = *IMMEDIATE
The spoolout job is to be resumed immediately.

RESUME-CONDITION = *BY-PRIORITY(...)
The spoolout job is to be resumed after a delay.

PRIORITY = <integer 30..255>
Priority for the delayed resumption of the spoolout job.

PRIORITY = *UNCHANGED
The spoolout job is placed in the job queue with its original priority (TYPE 4).

RESUME-CONDITION = BY-OPERATOR
The spoolout job is to be suspended until a RESUME-SPOOLOUT command is issued.

RESTART-POSITION =
Determines the point from which the file is to be output in the event of a restart. The restart point for a particular printer after a printer fault must not be confused with the CHECKPOINT-INTERVAL value from the SPOOL parameter file (M-S-P) which is the restart point after a SPOOL or system crash.

RESTART-POSITION = *BEGIN-OF-SPOOLOUT
The spoolout job is to be repeated from the file start.

RESTART-POSITION = *CURRENT-PAGE
The spoolout job is to be restarted from the page which was being output at the time of the interruption.

RESTART-POSITION = *LAST-CHECKPOINT
The spoolout job is to be restarted from the last checkpoint. System administration uses the MODIFY-SPOOL-PARAMETERS statement in the SPSERVE utility routine to define the number of print pages after which a checkpoint is to be set.

RESTART-POSITION = *PREVIOUS-CHECKPOINT
The spoolout job is to be restarted from the last checkpoint but one.

RESTART-POSITION = *PAGE(...)
The spoolout job is to be restarted from a particular page; all print pages preceding this one are skipped.

PAGE-NUMBER = <integer 1..10000000>
Number of the page.

RESTART-POSITION = BACK (...)
The spoolout job is to be restarted from the specified number of pages back from the current page.

PAGES = <integer 1..10000000>
Number of pages.

Note

With SPS jobs it is not permissible to specify the operand values *PAGE(...) and *BACK(...).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value

3.69 HOLD-PROCEDURE

Suspend procedure run to allow command input

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The HOLD-PROCEDURE command suspends a procedure and issues a message:

```
TASK IS IN ESCAPE MODE AT LEVEL NUMBER i
```

where i = number of the current procedure level

The user can then enter commands at the terminal. This interrupt state is called ESCAPE mode. ESCAPE mode is maintained until it is terminated with a CANCEL-PROCEDURE or RESUME-PROCEDURE command.
The HOLD-PROCEDURE command is not permitted in batch mode. In interactive mode, it may be given only in procedure files, and so does not appear in the menu.

Format

HOLD-PROCEDURE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	SSM2015	Command not permitted in batch mode
2	0	SSM2016	Command cannot be entered from the interactive terminal
	32	SSM1013	System error during command execution

Notes

- Nested interrupts are allowed (see Examples). A procedure called in ESCAPE mode can also be interrupted with HOLD-PROCEDURE. In this case, the first interrupt is not lost (see Example 3 on section "HOLD-PROCEDURE").

- In ESCAPE mode the symbolic operands that were defined in the interrupted procedure are available to the user and can be used from the terminal. However, a command with a symbolic operand that was replaced by the corresponding value is logged only if logging was requested for the interrupted procedure (see Example 4 on section "HOLD-PROCEDURE").

Examples

Example 1: Execution of an EXIT-PROCEDURE command in ESCAPE mode

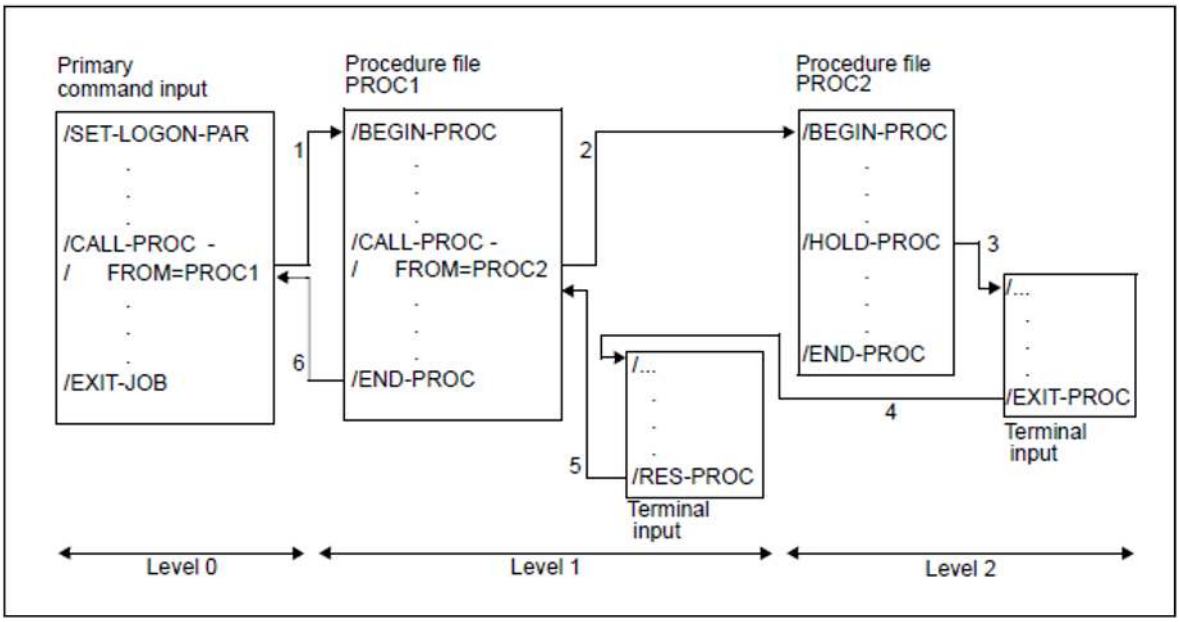


Figure 5: EXIT-PROCEDURE command in ESCAPE mode

The arrows indicate the sequence in which commands are processed (SYSCMD):

1. The command `/CALL-PROC FROM=PROC1` assigns SYSCMD to the procedure file PROC1.
2. The command `/CALL-PROC FROM=PROC2` assigns SYSCMD to the procedure file PROC2.
3. The command `/HOLD-PROC` activates ESCAPE mode: SYSCMD is assigned to the terminal. ESCAPE mode can also be activated by pressing [K2] if this is allowed in the procedure. However, in this case it is not possible to precisely determine the interrupt point in advance.
4. EXIT-PROCEDURE causes a shift from procedure level 2 to procedure level 1; ESCAPE mode is maintained. (Note: If an RESUME-PROCEDURE command were entered instead of the EXIT-PROCEDURE command, PROC2 would be continued from the point of interruption.)
5. The RESUME-PROCEDURE command cancels ESCAPE mode. SYSCMD is again assigned to the procedure file PROC1.
6. SYSCMD is again assigned to primary command input.

Example 2: Execution of a CALL-PROCEDURE command in ESCAPE mode

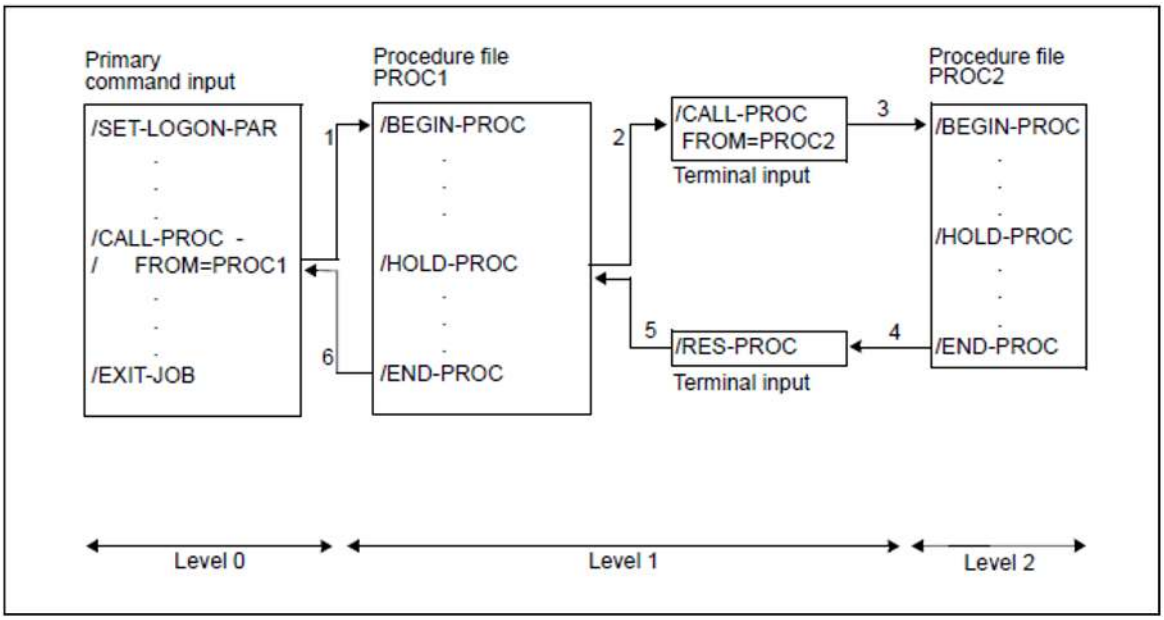


Figure 6: CALL-PROCEDURE command in ESCAPE mode

The arrows indicate the sequence in which commands are processed (SYSCMD):

1. The command `/CALL-PROC FROM=PROC1` assigns SYSCMD to the procedure file PROC1.
2. The command `/HOLD-PROC` activates ESCAPE mode: SYSCMD is assigned to the terminal. ESCAPE mode can also be activated by pressing [K2] if this is allowed in the procedure. However, in this case it is not possible to precisely determine the interrupt point in advance.
3. The command `/CALL-PROC FROM=PROC2` assigns SYSCMD to the procedure file PROC2.
4. END-PROC causes a shift from procedure level 2 to procedure level 1; ESCAPE mode is still activated, i.e. SYSCMD is assigned to the terminal.
5. The RESUME-PROCEDURE command cancels ESCAPE mode. SYSCMD is again assigned to the procedure file PROC1.
6. SYSCMD is again assigned to primary command input.

Example 3: Nesting of ESCAPE levels

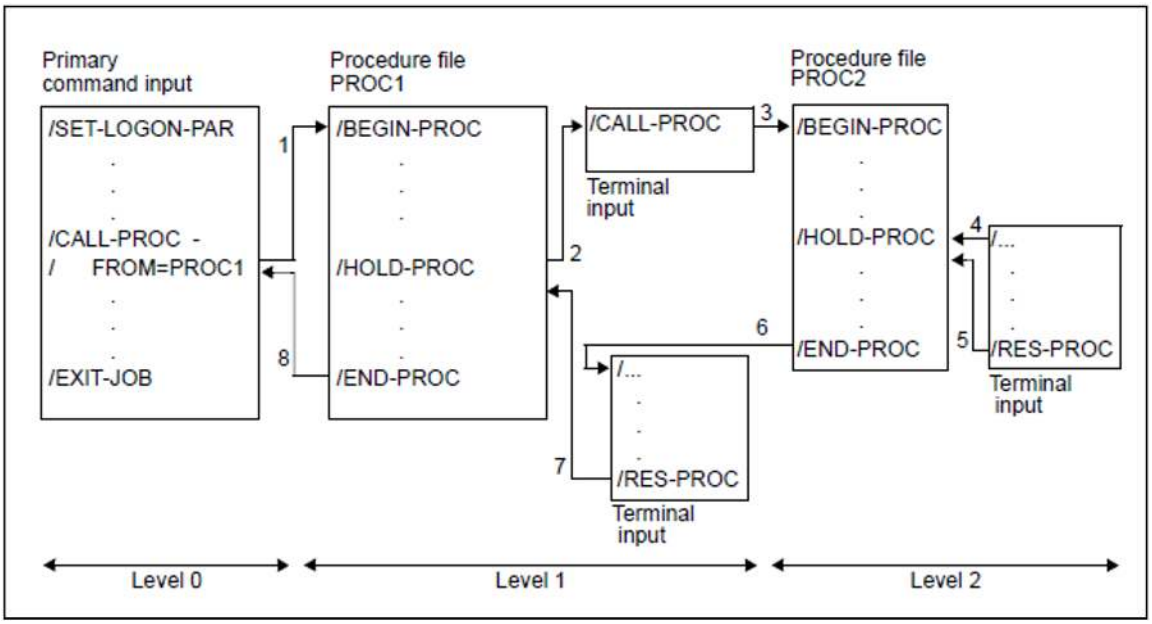


Figure 7: Nesting of ESCAPE levels

The arrows indicate the sequence in which commands are processed (SYSCMD):

1. The command `/CALL-PROC FROM=PROC1` assigns SYSCMD to the procedure file PROC1.
2. The command `/HOLD-PROC` activates ESCAPE mode: SYSCMD is assigned to the terminal. ESCAPE mode can also be activated by pressing [K2] if this is allowed in the procedure. However, in this case it is not possible to precisely determine the interrupt point in advance.
3. The command `/CALL-PROC FROM=PROC2` assigns SYSCMD to the procedure file PROC2.
4. The command `/HOLD-PROC` activates ESCAPE mode: SYSCMD is assigned to the terminal. ESCAPE mode can also be activated by pressing [K2] if this is allowed in the procedure. However, in this case it is not possible to precisely determine the interrupt point in advance.
5. SYSCMD is assigned to the procedure file PROC2.
6. SYSCMD is assigned to the terminal (ESCAPE mode is still activated at level 1).
7. The RESUME-PROCEDURE command causes SYSCMD to again be assigned to the procedure file PROC1.
8. SYSCMD is assigned to primary command input.

Example 4: Use of symbolic operands in ESCAPE mode

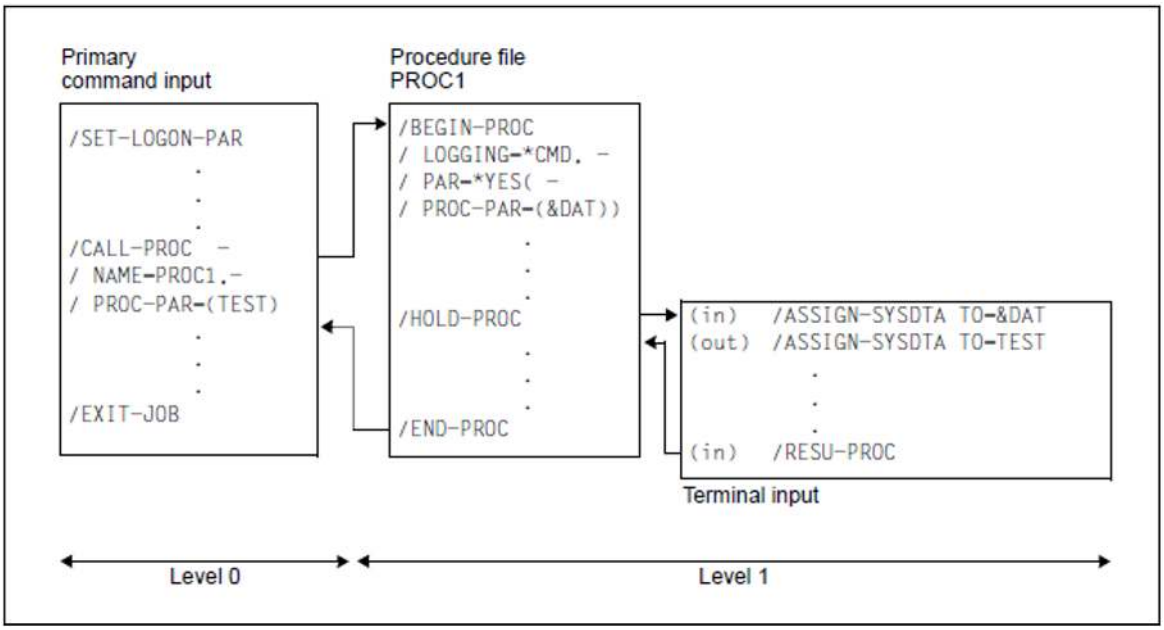


Figure 8: Input of symbolic operands in ESCAPE mode

The arrows indicate the sequence in which commands are processed (SYSCMD).

The file name TEST is entered for the symbolic operand “&DAT” when the procedure PROC1 is called with the CALL-PROCEDURE command. After leaving procedure mode with the HOLD-PROC command, an ASSIGN-SYSDTA command is issued at the terminal using the symbolic operand “&DAT”. Since logging of commands on SYSOUT was requested for the procedure file PROC1 (the operand LOGGING=*CMD specified in the BEGIN-PROCEDURE command), this command (supplied with the appropriate value TEST) is also logged on SYSOUT in ESCAPE mode.

3.70 HOLD-PROGRAM

Suspend program to allow command input

Component:	SYSFILE
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The HOLD-PROGRAM command suspends a program waiting for input data and permits the input of commands. This is only possible within a procedure or a batch job. In an interactive dialog the command will be rejected.
The command RESUME-PROGRAM terminates command input and effects a return to program mode.

Format

HOLD-PROGRAM

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	64	EXC0100	HOLD-PROGRAM or BREAK command in SYSDTA data stream

3.71 HOLD-SUBSYSTEM

Put subsystem on hold

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING SUBSYSTEM-MANAGEMENT
Routing code:	R

Function

The HOLD-SUBSYSTEM command enables any required subsystem to be put on hold.
No new connection is permitted to the specified subsystem; the required resources (holder task, address space) remain available. In addition, the FORCED operand enables the system to wait for all the connected tasks to be disconnected or the subsystem to be put on hold immediately. Once the deinitialization phase is complete, the subsystem is on hold; this status can be canceled using the RESUME-SUBSYSTEM command.

The HOLD-SUBSYSTEM command is rejected if SUBSYSTEM-HOLD=*FORBIDDEN was specified when the subsystem was defined.

> In order to ensure a high degree of parallelism and data integrity, time-consuming administration tasks are not performed under control of the calling task; instead, they are transferred to a DSSM task. As a rule, only the check of the requested function is carried out **synchronously** (i.e. contingent upon a wait state for the calling task). DSSM carries out the actual processing **asynchronously** and independent of the calling task.

Format

HOLD-SUBSYSTEM

SUBSYSTEM-NAME = <structured-name 1..8>

,**VERSION** = ***STD** / <product-version mandatory-man-corr> / <product-version without-man-corr> / ***HIGHEST**

,**SUBSYS**TEM-**PAR**AMETER = ***NONE** / <c-string 1..254>

,**FORCED** = ***NO** / ***Y**ES

,**SYNCH**RONOUS = ***NO** / ***Y**ES

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Name of the subsystem to be put on hold.

**VERSION = *STD / <product-version mandatory-man-corr> /
<product-version without-man-corr> / *HIGHEST**
Specifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see the description of the data type "product-version" in section "SDF syntax representation" in chapter "Volume 1: General Part").

VERSION = *STD
If there is only **one** loaded version of the subsystem, this version is selected. If there are **several** suitable versions, the version must be specified.

VERSION = *HIGHEST
Selects the highest version of the subsystem.

SUBSYSTEM-PARAMETER = *NONE / <c-string 1..254>
Specifies whether special parameters, which can be evaluated only by the specified subsystem, are to be processed.

FORCED =
Determines the mode and urgency of command processing.

FORCED = *NO
The system waits for all tasks connected to the subsystem to be disconnected. When a task releases its connection depends on the subsystem. A connection to a nonprivileged subsystem (e.g. EDT) is released as soon as the program terminates.
Processing and hence normal termination of all the tasks accessing this subsystem is allowed to take its normal course.

FORCED = *YES
The subsystem is halted immediately.
In the case of a privileged subsystem, this can lead to system dumps of the tasks which are still connected; in the case of a nonprivileged subsystem, this can lead to user dumps or to the execution of the STXIT error handling routine which is offered by DSSM. Tasks that are connected to a nonprivileged subsystem can exit by means of the STXIT error handling routine which is offered by DSSM.

SYNCHRONOUS =
Enables synchronous or asynchronous processing to be selected.

SYNCHRONOUS = *NO
The command is to be processed asynchronously, i.e. there is no need to wait for it to execute before making another entry. Once the syntax of the command has been checked, the calling task is sent message ESM0216. No error messages relating to execution of the command will be output.

SYNCHRONOUS = *YES
The command must first be executed before another entry can be made. Accompanying error messages are output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No action necessary
	1	ESM0414	Syntax error: invalid version specified
	32	ESM0224	Command not processed
	32	ESM0228	Command terminated abnormally

3.72 HOLD-TASK

Put active batch task on hold

Component:	BS2000
Functional area:	Job processing
Domain:	SYSTEM-TUNING
Privileges:	TSOS OPERATING
Routing code:	J

Function

The HOLD-TASK command puts a batch job that has already been started on hold. During this time, the devices reserved by the task remain allocated.
The task remains on hold until it is released explicitly using the RESUME-TASK command. Only after this release the job can be terminated with the CANCEL-JOB command if desired. The HOLD-TASK command is rejected in the case of interactive jobs, spoolout, ARCHIVE or transaction tasks.
The HOLD-TASK command refers exclusively to batch jobs which have already been started; jobs which have not yet been started can be managed by a HOLD-JOB command.

Format

HOLD-TASK

JOB-IDENTIFICATION = ***TSN** (...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

Operands

JOB-IDENTIFICATION =
The batch job which is to be put on hold can be identified by either its task sequence number (TSN) or a declared monitoring job variable (MONJV), as preferred.

JOB-IDENTIFICATION = *TSN(...)
Preset value: the job is identified by its task sequence number.

TSN = <alphanum-name 1..4>
Task sequence number of the batch task to be placed in the wait state.

JOB-IDENTIFICATION = *MONJV(...)
The job is identified by its monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>

Specifies the monitoring job variable for the batch job which is to be put into the wait state.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	EXC0708	HOLD-TASK command already being processed
12	64	EXC0707	Task is in process of LOGOFF (EXIT-JOB)
12	64	EXC0710	Task is a transaction task (TP)
12	64	EXC0711	Specified job number (TSN) not found
12	64	EXC0715	Command not allowed for this type of task

3.73 IF

Start IF block

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

IF is an SDF-P control flow command.

The IF command initiates an IF block within an *S procedure*. Depending on the value of a logical expression (see section "SDF-P-BASYS"), the IF block makes it possible to execute alternative command sequences. The IF block is terminated by the END-IF command.
If the logical expression is true, all subsequent commands until the associated ELSE-IF, ELSE or END-IF command are processed.
If the logical expression is false, the associated ELSE-IF conditions are checked. If they are also false, processing resumes with the ELSE command.
If the IF block does not contain an ELSE-IF command block, control branches to the ELSE command block. If there is no ELSE command block either, the IF block is exited, i.e. processing resumes with the command following the END-IF command.

The ELSE-IF command is only available with the chargeable SDF-P subsystem.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Format

IF
CONDITION = <text 0..1800 with-low *bool-expr*>

Operands

CONDITION = <text 0..1800 with-low *bool-expr*>
Logical expression whose value determines processing in the IF block. The rules governing the formation of logical expressions are described in “SDF-P-BASYS” [34].

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	1	SDP0223	Incorrect environment
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	SDP0091	Semantic error
	130	SDP0099	No further address space available

Example

```
/COND-1:     IF ( A = B )
/               commandsequence1     "executed if condition true"
/                .
/                .
/                .
/          ELSE
/             commandsequence2  "executed if condition false"
/                .
/                .
/                .
/          END-IF
```

Command sequence 1 is executed if variable A equals variable B. Otherwise command sequence 2 is executed.

3.74 IF-BLOCK-ERROR

Start IF-BLOCK-ERROR block

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

IF-BLOCK-ERROR is an SDF-P control flow command.

The IF-BLOCK-ERROR command initiates block-specific error handling within an *S procedure*. The command block initiated in this way must be terminated by an END-IF command.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Type of error handling

The type of error handling in an S procedure depends on the setting of the ERROR-MECHANISM operand of the SET-PROCEDURE-OPTIONS command.

If nothing is specified in the procedure with regard to ERROR-MECHANISM or ERROR-MECHANISM=*SPIN-OFF-COMPATIBLE is defined, SDF-P activates error handling if a command supplies spin-off. Error handling in this instance does **not** on the command return code.
This error mechanism is the default case and means that S procedures do not change their behavior in the event of errors if commands contained in such procedures supply a command-specific command return code for the first time in a future version (whereas previously this was formed by SDF by analogy with spin-off).

If ERROR-MECHANISM=*BY-RETURNCODE is defined, SDF-P activates error handling when a command returns a command return code with a nonzero subcode 1. Error handling is in this case **not** dependent on the spin-off behavior of the command.
This error mechanism must be defined explicitly.

SDF-P Error handling

Command processing resumes with the *next* IF-BLOCK-ERROR command; only the current command block, or in the case of nested blocks also the higher-level command blocks, is/are searched in the direction of the end of the file. If no IF-BLOCK-ERROR block is found, the procedure terminates when the end of the procedure file is reached. The error is passed on to the caller. The error situation is terminated when an IF-BLOCK-ERROR block or procedure level 0 is reached.

For compatibility reasons the error situation is also terminated when a SET-JOB-STEP command is encountered.

Note

Error handling can be performed for the command currently being terminated with the aid of the IF-CMD-ERROR command (contained in the chargeable SDF-P subsystem).

In *non-S procedures*, error handling continues to be controlled by the spin-off (see error handling using the SET-JOB-STEP command).

Format

IF-BLOCK-ERROR

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	1	SDP0223	Incorrect environment
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

Example

Error recovery in an S procedure is illustrated using the *PROC.SORT2* procedure.

Contents of procedure PROC.SORT2:

```
/BEG-PAR-DECL
/    DECL-PAR   INPUT-FILE-1  (INIT = *PROMPT)
/    DECL-PAR   OUTPUT-FILE-1 (INIT = *PROMPT)
/END-PAR-DECL
/INPUT-FILE-EXIST:   SHOW-FILE-ATTRIBUTES  &(INPUT-FILE-1)
/COND-1:    IF  ( INPUT-FILE-1 = OUTPUT-FILE-1 )
/               WRITE-TEXT 'Input file = output file !!!'
/               WRITE-TEXT 'Output file with suffix COPY.<tsn>'
/               SET-VAR  OUTPUT-FILE-1 = '&(OUTPUT-FILE-1).COPY.&(TSN())'
/               CREATE-FILE &(OUTPUT-FILE-1)
/ERR-1:         IF-BLOCK-ERROR
/                  WRITE-TEXT 'New output file not possible'
/                  HELP-MSG  &(MC)
/                  EXIT-PROC  ERROR=*YES
/               ELSE
/                  WRITE-TEXT 'New output file &(OUTPUT-FILE-1) generated'
/ERR-1-END:     END-IF
/           ELSE   "Input file unequal output file"
/               SHOW-FILE-ATTRIBUTES  &(OUTPUT-FILE-1)
/ERR-2:         IF-BLOCK-ERROR
/                  WRITE-TEXT 'Output file being regenerated'
/                  CREATE-FILE &(OUTPUT-FILE-1)
/               ELSE
/                  WRITE-TEXT 'Output file already exists. Cancel'
/                  EXIT-PROC  ERROR=*YES
/ERR-2-END:     END-IF
/COND-1-END: END-IF
/WORK-1:        "Sorting file 1"
/           ADD-FILE-LINK  LINK=SORTIN, -
/                          FILE-NAME= &(INPUT-FILE-1)
/           ADD-FILE-LINK  LINK=SORTOUT, -
/                          FILE-NAME= &(OUTPUT-FILE-1)
/           SORT-FILE
/WORK-1-ERROR:  IF-BLOCK-ERROR
/                  WRITE-TEXT 'Input file does not exist or'
/                  WRITE-TEXT 'Error in WORK-1:  SC1 = &(SC1)'
/                  HELP-MSG  &(MC)
/                 ELSE
/                  WRITE-TEXT 'WORK-1 terminated without errors'
/                 END-IF
```

Case 1:

/call-proc alf.proc.sort2,log=*yes

```
%          1  1 /BEG-PAR-DECL
%          2  1 /DECL-PAR   INPUT-FILE-1  (INIT = *PROMPT)
%          3  1 /DECL-PAR   OUTPUT-FILE-1 (INIT = *PROMPT)
%          4  1 /END-PAR-DECL
%INPUT-FILE-1: abk.v110
%          5  1 /INPUT-FILE-EXIST:
%          5  1 /   SHOW-FILE-ATTRIBUTES  ABK.V110
%        99 :2OSG:$USER1.ABK.V110
%:2OSG: PUBLIC:      1 FILE  RES=        99 FRE=         1 REL=         0 PAGES
%          6  1 /COND-1:
%          6  1 /    IF  ( INPUT-FILE-1 = OUTPUT-FILE-1 )
%OUTPUT-FILE-1: abk.v110
%          7  1 /WRITE-TEXT 'Input file = output file !!!'
Input file = output file !!!
%          8  1 /WRITE-TEXT 'Output file with suffix COPY.<tsn>'
Output file with suffix COPY.<tsn>
%          9  1 /SET-VAR  OUTPUT-FILE-1 = 'ABK.V110.COPY.3ZAA'
%         10  1 /CREATE-FILE ABK.V110.COPY.3ZAA
%         11  1 /ERR-1:
%         11  1 /         IF-BLOCK-ERROR
%         15  1 /ELSE
%         16  1 /WRITE-TEXT 'New output file ABK.V110.COPY.3ZAA generated'
New output file ABK.V110.COPY.3ZAA generated
%         17  1 /ERR-1-END:
%         17  1 /     END-IF
%         27  1 /COND-1-END:
%         27  1 / END-IF
%         28  1 /WORK-1:
%         29  1 /ADD-FILE-LINK  LINK=SORTIN,                          FILE-NAME
= ABK.V110
%         31  1 /ADD-FILE-LINK  LINK=SORTOUT,                          FILE-NAM
E= ABK.V110.COPY.3ZAA
%         33  1 /SORT-FILE
%  BLS0523 ELEMENT 'SRT80', VERSION '079', TYPE 'L' FROM LIBRARY ':1OSH:$TSOS.SY
SLNK.SORT.079' IN PROCESS
%  BLS0524 LLM 'SRT80', VERSION '079' OF '2009-03-09 15:55:15' LOADED
%  BLS0551 COPYRIGHT (C) FUJITSU TECHNOLOGY SOLUTIONS 2009. ALL RIGHTS RESERVED
%  SRT1001  2012-04-28/17:59:44/000000.00 SORT/MERGE STARTED, VERSION 07.9C00/BS
2000V19.0
%  SRT1130  PLEASE ENTER SORT STATEMENTS
%  SRT1016  SORT/MERGE INPUT RECORDS:.........................2.924 (FROM 01)
%  SRT1030  SORT/MERGE OUTPUT RECORDS:........................2.924
%  SRT1002 2012-04-28/17:59:45/000000.43 SORT/MERGE COMPLETED
%         34  1 /WORK-1-ERROR:
%         34  1 /  IF-BLOCK-ERROR
%         38  1 /ELSE
%         39  1 /WRITE-TEXT 'WORK-1 terminated without errors!'
WORK-1 terminated without errors!
%         40  1 /END-IF
%             1 /EXIT-PROCEDURE ERROR=*NO
```

A new output file is generated because the input file was also specified as the output file. Processing is error-free, i. e. when an error handling block is reached, the ELSE branch is processed.

Case 2:

/call-proc proc.sort2,log=*yes

```
%          1  1 /BEG-PAR-DECL
%          2  1 /DECL-PAR   INPUT-FILE-1  (INIT = *PROMPT)
%          3  1 /DECL-PAR   OUTPUT-FILE-1 (INIT = *PROMPT)
%          4  1 /END-PAR-DECL
%INPUT-FILE-1: abk.v111
%          5  1 /INPUT-FILE-EXIST:
%          5  1 /   SHOW-FILE-ATTRIBUTES  ABK.V111
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OSG'. COMMAND TERMINATED
%  SDP0004 ERROR DETECTED AT COMMAND LINE:           5 IN PROCEDURE ':2OSG:$USER
1.ALF.PROC.SORT2'
%         34  1 /WORK-1-ERROR:
%         34  1 /  IF-BLOCK-ERROR
%         35  1 /WRITE-TEXT 'Input file does not exist or'
Input file does not exist or
%         36  1 /WRITE-TEXT 'Error in WORK-1:  SC1 = 64'
Error in WORK-1:  SC1 = 64
%         37  1 /HELP-MSG  DMS0533
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '(&00)'. COMMAND TERMINATED
%  ? This message is issued by DMS commands. The requested file is not
%    cataloged in the requested pubset.
%  RESPONSE : NONE
%         40  1 /END-IF
%             1 /EXIT-PROCEDURE ERROR=*NO
```

The input file *ABK.V111* does not exist and leads to an error upon SHOW-FILE-ATTRIBUTES. A branch is made to the next error handling block, in this case the command block initiated with the tag *WORK-1-ERROR*. The error handling blocks in the subordinate IF block (IF and ELSE-branches) are **not** taken into account. Since the error was “handled” the procedure is implicitly terminated with ERROR=*NO.

Case 3:

/call-proc proc.sort2,log=*yes

```
%          1  1 /BEG-PAR-DECL
%          2  1 /DECL-PAR   INPUT-FILE-1  (INIT = *PROMPT)
%          3  1 /DECL-PAR   OUTPUT-FILE-1 (INIT = *PROMPT)
%          4  1 /END-PAR-DECL
%INPUT-FILE-1: abk.v110
%          5  1 /INPUT-FILE-EXIST:
%          5  1 /   SHOW-FILE-ATTRIBUTES  ABK.V110
%        99 :2OSG:$USER1.ABK.V110
%:2OSG: PUBLIC:      1 FILE  RES=        99 FRE=         1 REL=         0 PAGES
%          6  1 /COND-1:
%          6  1 /    IF  ( INPUT-FILE-1 = OUTPUT-FILE-1 )
%OUTPUT-FILE-1: abk.v110.sort
%         18  1 /ELSE   "Input file unequal output file"
%         19  1 /SHOW-FILE-ATTRIBUTES  ABK.V110.SORT
%       138 :2OSG:$USER1.ABK.V110.SORT
%:2OSG: PUBLIC:      1 FILE  RES=       138 FRE=        40 REL=        39 PAGES
%         20  1 /ERR-2:
%         20  1 /         IF-BLOCK-ERROR
%         23  1 /ELSE
%         24  1 /WRITE-TEXT 'Output file already exists. Cancel'
Output file already exists. Cancel
%         25  1 /EXIT-PROC  ERROR=*YES
```

The output file exists already. The SHOW-FILE-ATTRIBUTES command for file *ABK.V110.SORT* does not lead to an error. Consequently, the ELSE branch in the subsequent error handling block (at *ERR-2*) is processed (explicit EXIT-PROCEDURE with ERROR=*YES).

3.75 IMPORT-FILE

Create catalog entry for files (file import)

Component:	BS2000
Functional area:	File processing
Domain:	FILE FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The IMPORT-FILE command creates the catalog entries for files which are contained on private volumes or Net-Storage volumes of the NETSTOR type (i.e. imports them). The catalog entries for files held on private volumes or Net-Storage volumes of the NETSTOR type can be deleted (i.e. they can be exported) using the EXPORT-FILE command. If there is already a catalog entry for a file on private disk or on Net-Storage volume of the NETSTOR type, it can be updated on the basis of the F1 label of the private disk or the file catalog of the Net-Storage volume (SUPPORT=*BY-FILENAME(...)).
Files on a Net-Storage volume of the NETVOL type cannot be imported because there is no file catalog on a Net-Storage volume of the NETVOL type.

When importing file generation groups with generations stored on different disks, it should be noted that generations will be cataloged only if the group entry already exists in the system catalog or is kept on the first disk to be imported. Otherwise, the catalog entries for the generations imported before the group entry will be missing. These generations must then be cataloged afterwards using an IMPORT-FILE command.

Privileged functions

For catalog entries on private volumes or Net-Storage volumes systems support (TSOS privilege) can use the NEW-USER operand to specify a user ID under which the files are to be cataloged.

> i If the IMPORT-FILE command with SUPPORT=*DISK is entered without a file name being explicitly specified (this corresponds to FILE-NAME=*ALL), unlike with nonprivileged users the entire F1 label of the private disk or the entire catalog of the Net-Storage volume is imported.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, create files under all user logons). When SECOS is used, this co-ownership can be restricted for permanent files.

Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners. Co-owners of a user ID are then also allowed to import files under that ID.

Notes

- The functions of the commands IMPORT-FILE and EXPORT-FILE are not exact opposites: When a volume is exported, DMS deletes the catalog entries for all files which occupy storage space on this volume.
- If the same volume is re-imported, DMS creates catalog entries only for those files which begin on the volume (i. e. files which were given space on this volume by their primary allocation).

The IMPORT-FILE command can be used, for example, to catalog files which were created under the user ID of the calling job and which are contained on private disks or Net-Storage volumes. DMS copies the file attributes from the F1 label of the private disk or the catalog of the Net-Storage volume into the catalog entry. Partially qualified file names can be processed, so that one command can be used to import a number of files.

- Locked entries can be imported from the F1 label or from the catalog of the Net-Storage volume. However, if entries in the user catalog have to be replaced (REPLACE-OLD-FILES=*YES/*ABS), the entries must not be locked and write access must be permitted.
- When importing or exporting file generation groups which are stored on private disks, the following must be noted:
  - An IMPORT-FILE command will only catalog generations for which there is a group entry, either on the designated disk or already present in the system catalog. For a file generation group which is split across several disks and is not yet cataloged, this has the following consequences: If the first disk which is imported is not the one containing the group entry, and this latter is only subsequently imported, then the catalog entries for the generations held on the first disk will be missing. Remedy: issue an IMPORT-FILE command for each of the volumes affected, or for the uncataloged generations.
  - If a private disk only holds individual generations from a file generation group, but not the group entry, then when this volume is exported, “gaps” can result in the file generation group (i.e. if the VOLUME operand specifies a private disk which contains the file generation but not its group entry). This gap affects only the catalog entry, the file generation group remains complete on the disk.

Format

IMPORT**-FILE**

SUPPORT = ***DISK**(...) / ***TAPE**(...) / ***BY-FILE**-NAME(...)

***DISK**(...)

| **VOL**UME = <alphanum-name 1..6>

| ,**DEV**ICE**-TYPE** = **<u>*BY-VOL</u>**UME**<u>-CATALOG</u>** / <device>

| ,**F**ILE**-NAME** = **<u>*ALL</u>** / <partial-filename 2..50 without-cat-id> / <filename 1..51 without-cat-id>

| ,**TYPE-OF-F**ILE = [**<u>*ANY</u>**] (...)

| [**<u>*ANY</u>**](...)

| | **GEN**ERATIONS = **<u>*Y</u>**ES / ***NO**

| ,**REPL**ACE**-OLD-F**ILES = **<u>*NO</u>** / ***Y**ES / ***ABS**

| ,**OUTPUT** = **<u>*SYSLST</u>** / ***SYSOUT** / ***ALL** / ***NO**

| ,**NEW-USER** = **<u>*NONE</u>** / <name 1..8>

```
    |   ,PUBSET = *STD / <cat-id 1..4>
*TAPE(...)
    |   VOLUME = *ANY / list-poss(255): <alphanum-name 1..6>
    |   ,DEVICE-TYPE = *BY-VOLUME-CATALOG / <device>
    |   ,FILE-NAME = <filename 1..54>
    |   ,PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
*BY-FILE-NAME(...)
    |   FILE-NAME = <filename 1..54 without-vers>
    |   ,INFORMATION = *NAME-AND-SPACE / *SPACE-SUMMARY / *ALL-ATTRIBUTES /
    |                      [*PARAMETERS](...) / *STATISTICS / *MINIMUM
    |       [*PARAMETERS](...)
    |           |   STANDARD = *NO / *YES
    |           |   ,PROTECTION = *NO / *YES
    |           |   ,FILE = *NO / *YES / *FILE
    |           |   ,PASSWORDS = *NO / *YES
    |           |   ,ALLOCATION = *NO / *YES
    |           |   ,BACKUP = *NO / *YES
    |           |   ,HISTORY = *NO / *YES
    |           |   ,ORGANIZATION = *NO / *YES
    |           |   ,SECURITY = *NO / *YES
    |   ,OUTPUT = *SYSOUT / *NONE / *SYSLST(...) / *PRINTER(...) /
    |                      <filename 1..54 without-gen-vers>(...)
    |       *SYSLST(...)
    |           |   FORM-NAME = *STD / *FILE-NAME
    |       *PRINTER(...)
    |           |   FORM-NAME = *STD / *FILE-NAME
    |       <filename>(...)
    |           |   FORM-NAME = *STD / *FILE-NAME
```

Operands

SUPPORT = *DISK(...) / *TAPE(...) / *BY-FILE-NAME(...)
Specifies whether the files are to be imported from disk or from tape, or whether the catalog entries of the files on private disk or Net-Storage volumes are to be updated using the catalog entry.

SUPPORT = *DISK(...)
The files to be imported are stored on private disk or on a Net-Storage volume.

VOLUME = <alphanum-name 1..6>
Volume serial number (VSN) of the volume on which the files to be imported are stored.

DEVICE-TYPE = *BY-VOLUME-CATALOG / <device>
Identifies the type of device on which the volume is to be mounted.
Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?.
The volume type NETSTOR must be specified for Net-Storage volumes.
Every specification of a disk device type is known in the system is handled like the STDDISK specification.
The permissible specifications for DEVICE-TYPE can also be found in the device table in section "Device type table" (device type column). The devices available on the system can be listed with the SHOW-DEVICE-CONFIGURATION command.

DEVICE-TYPE = *BY-VOLUME-CATALOG
The device type is determined via the MAREN device substitution function if the MAREN subsystem is available.

FILE-NAME = *ALL / <partial-filename 2..50 without-cat-id> / <filename 1..51 without-cat-id>
Specifies the files, file generation groups or file generations which are to be cataloged. When the default FILE-NAME=*ALL is specified, DMS catalogs all files, etc. which are stored under the user ID of the current job on the volume specified in the VOLUME operand. For privileged users, see "Privileged functions".

> For file generations/file generation groups, create the group entry before cataloging the generations!

Only files contained on the volume specified in VOLUME will be imported.

FILE-NAME = *ALL
All the files contained on the volume specified in VOLUME will be imported.

TYPE-OF-FILE = *ANY(...)
Specifies whether the file generations from the specified file generation group are to be imported also. It is only meaningful to use this operand if no file generation is to be imported (GENERATIONS=*NO).

GENERATIONS = *YES / *NO
For file generation groups GENERATIONS specifies whether only the group entry is to be cataloged, or the file generations stored on the same private disk are also to be cataloged.

GENERATIONS = *YES
If the group entry is on the private disk, DMS will catalog the FGG and all its generations which begin on this disk. If there is no group entry on the disk or in the user catalog, no file generations will be cataloged.

GENERATIONS = *NO
DMS transfers just the group entry for the FGG to the catalog.

REPLACE-OLD-FILES = *NO / *YES / *ABS

Specifies whether an existing “old” catalog entry is to be overwritten.

REPLACE-OLD-FILES = *NO

DMS does not overwrite the existing catalog entry.

REPLACE-OLD-FILES = *YES

The old catalog entry will be deleted if it does not match the details specified in the IMPORT-FILE command.

The following situations should be distinguished:

- The cataloged file is stored on a public disk: the catalog entry is overwritten, which means that the public file is deleted (providing the protection attributes permit this and the file is not locked; otherwise, the old catalog entry is left unchanged).
- The cataloged file is stored on a Net-Storage volume. A file with the same name on the same Net-Storage volume is not imported and the catalog entry is not deleted.
- The cataloged file is stored on a Net-Storage volume. A file on private disk, on a different Net-Storage volume or on the same Net-Storage volume but with a different name (not a node file) is imported. The catalog entry is overwritten and the file therefore deleted (providing the protection attributes permit this and the file is not locked; otherwise, the old entry remains unchanged). In this case, deleting the file means:
  - A BS2000 file on Net-Storage is also deleted on the Net-Storage volume.
  - A node file on the Net-Storage volume is retained.

  > ¡ In contrast to BS2000 files, node files cannot be imported to another user ID as the owner of a node file may not be changed.

- The cataloged file is on private disk, but begins on a volume other than the one specified in the VOLUME operand: the catalog entry is overwritten (exported) (providing the protection attributes permit this and the file is not locked; otherwise, the old entry remains unchanged).
- The cataloged file is on private disk, and begins on the disk specified in the VOLUME operand: The catalog entry will *not* be deleted (exported). A file with the same name will *not* be imported.

REPLACE-OLD-FILES = *ABS
The old catalog entry is overwritten even if the catalog entry and the specifications in the IMPORT-FILE command match. Special return codes show whether the entry was overwritten (special return code 8) or whether a file lock prevented overwriting (special return code 3).

The following situations should be distinguished:

- The cataloged file is stored on a public disk: the catalog entry is overwritten, which means that the public file is deleted (providing the protection attributes permit this and the file is not locked; otherwise, the old catalog entry is left unchanged).
- The cataloged file is stored on a Net-Storage volume. Difference to the operand value *YES: A file with the same name on the Net-Storage volume is imported. The catalog entry is overwritten. If a file lock or the protection attributes prevent this, the old entry is retained.
- The cataloged file is stored on a Net-Storage volume. A file on private disk, on another Net-Storage volume or with a different name on the same Net-Storage volume (not a node file) is imported: the catalog entry is overwritten and the file is consequently deleted. If a file lock or the protection attributes prevent this, the old entry is retained.

  > ¡ In contrast to BS2000 files, node files cannot be imported to another user ID as the owner of a node file may not be changed.

- The cataloged file is on private disk, but begins on a volume other than the one specified in the VOLUME operand: the catalog entry is overwritten (providing the protection attributes permit this and the file is not locked; otherwise, the old entry remains unchanged).

- The cataloged file is on private disk, and begins on the disk specified in the VOLUME operand. Difference to the operand value *YES:The catalog entry is overwritten (providing the protection attributes permit this and the file is not locked; otherwise the old catalog entry remains unchanged). Even if there is a file with the same name, the file will be imported.

OUTPUT = *SYSLST / *SYSOUT / *ALL / *NO
Specifies how the execution of the command is to be logged.

OUTPUT = *SYSLST
The execution of commands will be logged on SYSLST; this log contains the special return codes and message texts (see table "Special return codes and messages for SUPPORT=*DISK").

OUTPUT = *SYSOUT
The execution of commands will be logged on SYSOUT; only the special return codes and file names are output in this log (see table "Special return codes and messages for SUPPORT=*DISK").

OUTPUT = *ALL
The execution of commands will be logged on SYSLST and SYSOUT (see the OUTPUT=*SYSLST and OUTPUT=*SYSOUT operands).

OUTPUT = *NO
No return information on the execution of the command will be output.

NEW-USER = *NONE / <name 1..8>
User ID under which the file is to be cataloged.
A new user ID is assigned to a file on a private disk both in the file catalog and in the F1 label of the disk. The new user ID is assigned to a BS2000 file on a Net-Storage volume both in the file catalog and in the catalog of the Net-Storage volume. A node file, on the other hand, cannot be cataloged under the new user ID as the owner of a node file may not be changed. In this case, t he import is rejected with return code D.

PUBSET = *STD / <cat-id 1..4>
Specifies the pubset on which the files are to be cataloged. If none is specified, the catalog entries are created in the file catalog of the default pubset for the user’s ID.
If a Net-Storage volume is specified in the VOLUME operand, the Net-Storage volume must be assigned to the pubset specified here. Only in this case is the file catalog of the specified pubset updated on the basis of the catalog entries of the Net-Storage volume.

PUBSET = *STD
The default setting is *STD, i.e. the catalog entries are set up under the file catalog of the default pubset of the user ID (see the output field DEFAULT-PUBSET in the SHOW-USER-ATTRIBUTES command).

PUBSET = <cat-id 1..4>
Specifies the pubset on which the files are to be cataloged.

SUPPORT = *TAPE(...)
Specifies that the file to be imported is located on a tape or tape cartridge.

VOLUME = list-poss(255): <alphanum-name 1..6> / *ANY
The VSN of the tape on which the file to be imported is stored.

VOLUME = *ANY
The volume is determined via the MAREN volume substitution function if the MAREN subsystem is available.

DEVICE-TYPE = *BY-VOLUME-CATALOG / <device>
The device type to which the required tape is assigned. Only device types or volume types known within the

system are accepted. In interactive mode, the possible device and volume types are displayed with DEVICE-TYPE=?.

DEVICE-TYPE = *BY-VOLUME-CATALOG
The device type is determined via the MAREN device substitution function if the MAREN subsystem is available.

FILE-NAME = <filename 1..54>
The file will only be imported if it is held on the specified tape.

PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
The tape sequence number of the tape to be mounted.

PREMOUNT-LIST = *NONE
The first of the volumes specified in the VOLUME operand will be requested.

PREMOUNT-LIST = list-poss(255): <integer 0..255>
Issues a MOUNT message on the console requesting the mounting of tapes or suppresses the request. The tape sequence numbers specified here relate to the VSNs listed in the VOLUME operand. Specifying PREMOUNT-LIST=0 has the effect that no tapes will be requested. Otherwise, use: PREMOUNT-LIST=(n[, n+1][,n+2]...) with n=1.

SUPPORT = *BY-FILE-NAME(...)
Specifies for which files on private disk or Net-Storage volumes the catalog entry in the TSOSCAT is to be updated on the basis of the entry on the volume (F1 label or catalog of the Net-Storage volume).

FILE-NAME = <filename 1..54 without-vers>
The name of the file whose catalog attributes are to be copied from the F1 label of a private disk or the catalog of the Net-Storage volume. If the entry in the F1 label of the private disk or the catalog of the Net-Storage volume no longer exists, the catalog entry is deleted.
Only the catalog entry is output for a file on public disk.

INFORMATION = *NAME-AND-SPACE / *SPACE-SUMMARY / *ALL-ATTRIBUTES / *PARAMETERS(...) / *STATISTICS / *MINIMUM
Type of information to be displayed.

INFORMATION = *NAME-AND-SPACE
For the selected files, the number of PAM pages used will be output with the file name, in alphabetical order of file name. This is the only possible operand value if the output is **not** routed to SYSOUT (see the OUTPUT operand).

INFORMATION = *SPACE-SUMMARY
Provides information on the storage space allocation of the files and file generations identified in the current command.

INFORMATION = *ALL-ATTRIBUTES
Returns all the information that is contained in the catalog (NAME-AND-SPACE, PARAMETERS) for the selected files. The output fields are listed in alphabetical order with a further explanation of their possible values in the table “Meaning of the output fields” at the end of the operand description section.

INFORMATION = *PARAMETERS(...)
Returns only the selected information for the files in question. The information from the catalog is logically arranged into information blocks. Only those information blocks which are explicitly selected by the user are output. Total lines with the overall storage space allocation for each selected file are shown at the end of the returned information (see INFORMATION=SPACE-SUMMARY).

STANDARD = *NO / *YES
Specifies whether standard information is to be output.

> The STANDARD operand is only supported for compatibility reasons. It is not offered in guided dialog. STANDARD=*YES is equivalent to `INFORMATION=*PAR(ORGANIZATION=*YES, ALLOCATION=*YES)`.

PROTECTION = *NO / *YES
Specifies whether information concerning the file protection and expiration date is to be output.

> The PROTECTION operand is only supported for compatibility reasons. It is not offered in guided dialog. PROTECTION=*YES is equivalent to
> `INFORMATION=*PAR(ORGANIZATION=*YES,SECURITY=*YES, BACKUP=*YES)`.

FILE = *NO / *YES
Output: storage space used in PAM pages, and file attributes.

> The FILE operand is only supported for compatibility reasons. It is not offered in guided dialog. FILE=*YES is equivalent to `INFORMATION=*PAR(ORGANIZATION=*YES, ALLOCATION=*YES)`.

PASSWORDS = *NO / *YES
Specifies whether the information on passwords is to be output. A header line with the title “PASSWORDS” and a line with the information on file passwords (which corresponds to the first information line of the security block) are output.

PASSWORDS = *NO
No PASSWORD information is to be output.

PASSWORDS = *YES
The first line of the security block is output.
This line provides information on the types of passwords which protect a file or file generation group. The passwords themselves are not shown. If a user forgets a file password, only the system administrator can help him. The following attributes are output:

Header line with the word “PASSWORDS”

EXEC-PASS	protection with execution password
READ-PASS	protection with read password
WRITE-PASS	protection with write password

ALLOCATION = *NO / *YES
Outputs the allocation block for the selected files, i.e. all file attributes that affect the allocation of storage space. The allocation block contains the following attributes:
Header line with the word “ALLOCATION”

DEVICE-TYPE	device type for volume

EXTENTS	total number of extents for the file
HIGH-US-PA	highest used PAM page
NUM-OF-EXT	Number of extents
S-ALLOC	secondary allocation for file extension
SUPPORT	type of volume
VOLUME	volume serial number

BACKUP = *NO / *YES
Outputs the backup block for the selected files, i.e. all file attributes that affect backups. The backup block contains the following attributes:
Header line with the word “BACKUP”

BACK-CLASS	backup level for ARCHIVE or HSMS
MIGRATE	indicates whether the file may be migrated
SAVED-PAG	indicates whether the file must always be fully saved
VERSION	internal attribute for incremental saving with the ARCHIVE or HSMS utility routine.

HISTORY = *NO / *YES
Outputs the history block for the selected files, i.e. all file attributes related to the file history. The history block contains the following attributes:
Header line with the word “HISTORY”

ACC-COUNT	access counter
ACC-DATE	date of last access
ACC-TIME	time of last access
CHANG-DATE	date the file was last changed (written to)
CHANG-TIME	time the file was last changed (written to)
CRE-DATE	creation date
CRE-TIME	time of creation
S-ALLO-NUM	number of secondary allocations

ORGANIZATION = *NO / *YES
Outputs the organization block for the selected files, i.e. all file attributes related to the structure of the file. The organization block contains the following attributes:

AVAIL	availability
BLK-CONTR	Block control information
BUF-LEN	block type (standard or nonstandard block)

COD-CH-SET	coded character set (CCS) with XHCS support
FILE-STRUC	access method when the file was created
KEY-LEN	Length of ISAM key
KEY-POS	position of ISAM key
LOG-FL-LEN	length of logical ISAM flag
PROPA-VAL	propagation of ISAM flag
REC-FORM	Record format
REC-SIZE	Record length
VAL-FL-LEN	length of ISAM value flag

The information block for file generation groups begins with the header line `GENERATION-INFO` and contains the following attributes:

BASE-NUM	base value for relative generation numbers
DEVICE-TYPE	device type for volume
FIRST-GEN	most recent or last cataloged file generation
LAST-GEN	oldest existing file generation
MAXIMUM	maximum number of simultaneously cataloged generations
OVERFL-OPT	overflow option when maximum number is reached
VOLUME	volume serial number

SECURITY = *NO / *YES

Outputs the security block for the selected files, i.e. all file attributes related to the file security. The security block contains the following attributes:
Header line with the word “SECURITY”

ACCESS	type of access (standard access control)
ACL	file protection with ACL (only supported for reasons of compatibility)
AUDIT	file monitoring
DESTROY	data automatically destroyed on deletion
ENCRYPTION	encryption method
EXEC-PASS	protection with execution password
EXPIR-DATE	date on which the file may be changed again
EXPIR-TIME	time relative to *EXPIR-DATE*

FREE-DEL-D	free-for-deletion date
FREE-DEL-T	time relative to free-for-deletion date
GUARD-READ	read protection using a guard
GUARD-WRIT	write protection using a guard
GUARD-EXEC	protection with execute guard
GROUP	access rights of user class “group” (BASIC-ACL)
OTHERS	access rights of user class “others” (BASIC-ACL)
OWNER	access rights of file owner (BASIC-ACL)
READ-PASS	protection with read password
SP-REL-LOCK	type of access (standard access control)
USER-ACC	file protection with ACL (only supported for reasons of compatibility)
WRITE-PASS	file monitoring

INFORMATION = *STATISTICS
Returns information on storage space allocation for all selected files. The storage space allocations for files and file generation groups are output separately and include additional information for each type of volume (public disks, private disks, and tapes). Files for which no entry has been made in the volume list are indicated in the output for public disks (NO VSN).

INFORMATION = *MINIMUM
Outputs a line of information with the most important file attributes in summarized form for each selected file. This line contains brief information on the FILE-STRUCTURE, passwords, highest activated access protection level, the number of reserved PAM pages, and the file name. The brief information is indicated as follows:

- the access method with which the file was created: indicated by the first letter in the value of FILE-STRUCTURE;
- information for read, write, and execute passwords: shown in each case with “Y” or “N” to indicate whether the corresponding password was assigned;
- information on the highest activated access control method: see the PROTECTION-ACTIVE operand.
- When standard access control is the highest protection:
  - USER-ACCESS with “Y” for ALL-USERS or SPECIAL, or with “N” for OWNER-ONLY
  - ACCESS with “W” for write access or “R” for read access only.
- When the basic access control list (BASIC-ACL) is the highest protection: the access rights assigned for each of the user groups OWNER, GROUP and OTHERS are shown (“RWX” or “-” for an access right that has not been set).
- When access control using GUARDS is the highest protection: the value “GUARDS” and the protected access mode (“RWX” or “-” for an access mode not granted) are shown.

OUTPUT = *SYSOUT / *NONE / *SYSLST(...) / *PRINTER(...) / <filename 1..54 without-gen-vers>(...)
Defines the destination to which the information is output.

OUTPUT = *NONE
Suppresses the output of information. This specification is typically useful when only the command return code is to be evaluated in a procedure.

OUTPUT = *SYSOUT
The information will be presented in tabular form on SYSOUT.

OUTPUT = *SYSLST(...)
The information will be presented in tabular form on SYSLST. SYSLST will automatically be output on a printer at the end of the job. The format of the output will be determined as follows:

FORM-NAME = *STD / *FILE-NAME
The default value is *STD, i.e. the information will be presented in tabular form. If *FILE-NAME is specified, then a simple list of file names will be output.

OUTPUT = *PRINTER(...)
The information will be presented in tabular format and output to printer (as an immediate SPOOL job, which will be output with CONTROL-CHARACTERS= *EBCDIC).

FORM-NAME = *STD / *FILE-NAME
The default value is *STD, i.e. the information will be presented in tabular form. If *FILE-NAME is specified, then a simple list of file names will be output.

OUTPUT = <filename 1..54 without-gen-vers>(...)
The information will be written to the specified file; the format of the output can be determined as follows.

FORM-NAME = *STD / *FILE-NAME
The default value is *STD, i.e. the information will be presented in tabular form. If *FILE-NAME is specified, then a simple list of file names will be output.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS051E	Inconsistency in private disk pool or operand error detected
2	0	DMS054A	Insufficient disk space or access to disk not possible
2	0	DMS05B6	Invalid time conversion from UTC to LT
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privilege errors
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B

	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0533	Requested file not cataloged in pubset Guaranteed message: DMS0533
	64	DMS0535	Specified file not shareable
	64	DMS053E	File already cataloged on private volume
	64	DMS0555	Specified file name already cataloged
	64	DMS055C	Catalog entry not found on the specified private disk or Net-Storage volume
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS05F8	DMS error reported
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS05FE	Requested file(s) not found
	64	DMS0653	File on Net-Storage volume of the NETVOL type cannot be imported
	64	DMS06C4	File generation group not yet cataloged
	64	DMS06CC	No file corresponding to specified operands
	64	DMS06D0	Specified file generation does not exist
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space exhausted
	130	DMS053C	Insufficient space for catalog file on pubset
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system Guaranteed message: DMS053C
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Special return codes and messages for SUPPORT=*DISK

The following codes (SYSOUT) or messages (SYSLST) can be output :

Code on SYSOUT	Message on SYSLST	Meaning
0	FILE DID NOT EXIST	There was no file with the same name and a new catalog entry has been created.
1	FILE HAS BEEN ERASED	A file of the same name already existed and has been overwritten.
2	FILE EXISTS / REPLACE-OLD-FILES=*NO	A file of the same name existed but was not overwritten; the REPLACE-OLD-FILES operand had the value *NO.
3	FILE IS PROTECTED (ERASE ERROR OR FILE IS IN USE)	A file of the same name existed and could not be deleted because of active protection functions (ACCESS=READ, password protection etc.) or the file is locked because it is being processed.
4	ERROR ON CATALOG ACCESS	System error during catalog access.
5	FILE ALREADY ON PRIVATE	The file is already cataloged and is stored on the volume specified in the VOLUME operand.
6	ERROR ON VTOC ACCESS	System error when accessing the F1 label of the private disk or the catalog of the Net-Storage volume.
7	GENERATION OUT OF RANGE	Invalid attempts to import a file generation: the absolute generation number of the generation to be imported conflicts with the limits defined in the group entry.
8	C.E. HAS BEEN REPLACED	A catalog entry already existed for the specified disk and has been replaced.
A	INVALID FILENAME	The path name for the file to be imported (including pvsid and userid) is more than 54 characters long. Pathname = :catid:$.userid:filename It should be noted that the pathname is made up from details taken from two *different* operands in the command. The file name is specified in the FILE-NAME operand, the catalog ID in the PUBLIC-VOLUME-SET operand. For a 1-character catalog ID, the file name must not be longer than 51 characters. For a 4-character catalog ID, the file name may be up to 48 characters long.

T	ERROR ON NET-STORAGE ACCESS	System error during Net-Storage access.
C	LARGE FILE NOT ALLOWED	The file to be imported is larger than 32 GB, but the pubset specified does not permit files larger than 32 GB.
D	RENAME OF NODE-FILES NOT ALLOWED	The importing of node files to a foreign user ID is not permitted.

Table 52: IMPORT-FILE: Special return codes and messages

Examples

Example 1: Importing files from private disks

```
/imp-file sup=disk(vol=work01,dev-type=d3435,file-name=*all,
                   output=*sysout)                          ————————————————————————  (1)
```

```
%  0 :2OS2:$USER1.MAX.LIB
%  0 :2OS2:$USER1.MAX.PRIV-FILE.1
%  0 :2OS2:$USER1.MAX.PRIV-FILE.2
%  0 :2OS2:$USER1.MAX.PRIV-FILE.3
```

```
/show-file-attr max.,select=(support=*priv)     ————————————————————————  (2)
```

```
%       210*:2OS2:$USER1.MAX.LIB
%         3*:2OS2:$USER1.MAX.PRIV-FILE.1
%         3*:2OS2:$USER1.MAX.PRIV-FILE.2
%         3*:2OS2:$USER1.MAX.PRIV-FILE.3
%:2OS2: PRDISC:      4 FILES RES=       219 FRE=        29 REL=        21 PAGES
```

(1) All files of the user *USER1* on the private disk *WORK01* (device type *D3435*) are to be imported. The messages output during the process are to be sent to SYSOUT.

(2) The output indicates that four files were successfully imported (as is evident from the return code *0* in each case). The command causes the catalog entries for files which have names beginning with *MAX.* and which are stored on private disk to be shown (the files which were previously imported).

Example 2: Exporting and importing tape files

/show-file-attr support=*tape,inf=(alloc=*yes,org=*yes) **———————————** **(1)**

```
% :2OS2:$USER1.MAX.TAPE-FILE.1
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = SAM BUF-LEN = STD(1) BLK-CONTR = PAMKEY
% REC-FORM = (V,N) REC-SIZE = 2044
% CODE = EBCDIC LABEL = (STD,1) FILE-SEQ = 1
% BLK-OFFSET = 4
% ------------------------------ ALLOCATION ------------------------------
% SUPPORT = PVT BLK-COUNT = 1
% EXTENTS VOLUME DEVICE-TYPE EXTENTS VOLUME DEVICE-TYPE
% D2326K TAPE-C4
% :2OS2:$USER1.MAX.TAPE-FILE.2
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = SAM BUF-LEN = STD(1) BLK-CONTR = PAMKEY
% REC-FORM = (V,N) REC-SIZE = 2044
% CODE = EBCDIC LABEL = (STD,1) FILE-SEQ = 2
% BLK-OFFSET = 4
% ------------------------------ ALLOCATION ------------------------------
% SUPPORT = PVT BLK-COUNT = 1
% EXTENTS VOLUME DEVICE-TYPE EXTENTS VOLUME DEVICE-TYPE
% D2326K TAPE-C4
%:2OS2: TAPE : 2 FILES
```

/export-file vol=d2326k,file=name(*all),output=*sysout **———————————** **(2)**

```
% DMS0516 DELETE FILE(S) ':2OS2:$USER1.' ? REPLY (Y=YES; N=NO; T=TERMINATE COM
MAND; ?=EXPLAIN ADDITIONAL OPTIONS)?y ——————————————————————————— (3)
% DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.TAPE-FILE.1' DELETED
% DMS0800 SPECIFIED FILE ':2OS2:$USER1.MAX.TAPE-FILE.2' DELETED
```

/show-file-attr support=tape **———————————** **(4)**

```
% DMS06CC NO FILE CORRESPONDING TO SPECIFIED OPERANDS
```

/import-file sup=*tape(vol=d2326k,dev-type=tape-c4,
file-name=max.tape-file.1) **———————————** **(5)**
/import-file sup=*tape(vol=d2326k,dev-type=tape-c4,
file-name=max.tape-file.2) **———————————** **(6)**

/show-file-attr support=*tape,inf=(org=*yes,alloc=*yes) **——————————** **(7)**

```
% :2OS2:$USER1.MAX.TAPE-FILE.1
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = NONE BUF-LEN = NONE BLK-CONTR = NONE
% REC-FORM = NONE REC-SIZE = 0
% CODE = NONE LABEL = NONE FILE-SEQ = NONE
% BLK-OFFSET = 0
% ------------------------------ ALLOCATION ------------------------------
% SUPPORT = PVT BLK-COUNT = 0
% EXTENTS VOLUME DEVICE-TYPE EXTENTS VOLUME DEVICE-TYPE
% ( D2326K TAPE-C4 )
% :2OS2:$USER1.MAX.TAPE-FILE.2
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = NONE BUF-LEN = NONE BLK-CONTR = NONE
% REC-FORM = NONE REC-SIZE = 0
% CODE = NONE LABEL = NONE FILE-SEQ = NONE
% BLK-OFFSET = 0
% ------------------------------ ALLOCATION ------------------------------
% SUPPORT = PVT BLK-COUNT = 0
% EXTENTS VOLUME DEVICE-TYPE EXTENTS VOLUME DEVICE-TYPE
% ( D2326K TAPE-C4 )
%:2OS2: TAPE : 2 FILES
```

/copy-file from=max.tape-file.1,to=#copy.tape-1 **——————————** **(8)**
/show-file-attr max.tape-file.1,inf=(org=*yes) **——————————** **(9)**

```
% :2OS2:$USER1.MAX.TAPE-FILE.1
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = SAM BUF-LEN = STD(1) BLK-CONTR = PAMKEY
% REC-FORM = (V,N) REC-SIZE = 2044
% CODE = EBCDIC LABEL = (STD,1) FILE-SEQ = 1
% BLK-OFFSET = 4
%:2OS2: TAPE : 1 FILE
```

/add-file-link link=dmcopy11,file-name=max.tape-file.2,sup=*tape(f-seq=2) **——(10)**
/copy-file from=max.tape-file.2,to=#copy.tape-2 **——————————** **(11)**
/show-file-attr max.tape-file.2,inf=(org=*yes) **——————————** **(12)**

```
% :2OS2:$USER1.MAX.TAPE-FILE.2
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = SAM BUF-LEN = STD(1) BLK-CONTR = PAMKEY
% REC-FORM = (V,N) REC-SIZE = 2044
% CODE = EBCDIC LABEL = (STD,1) FILE-SEQ = 2
% BLK-OFFSET = 4
%:2OS2: TAPE : 1 FILE
```

(1) Output of all catalog entries for tape files of the user ID *USER1* showing information on the file organization and volume allocation. Two tape files exist on the magnetic tape cartridge *D2326K*. The file *MAX.TAPE-FILE.2* follows the file *MAX.TAPE-FILE.1* (see the *FILE-SEQ* output fields).

(2) The tape files on the tape cartridge *D2326K* are exported. Messages are output to SYSOUT.

(3) Since more than one file is involved here, a prompt is issued to request confirmation. When this prompt is confirmed with *Y*, the catalog entries for the tape files *MAX.TAPE-FILE.1* and *MAX.TAPE-FILE.2* are deleted.

(4) No catalog entries for tape files exist at this point.

(5) Imports the tape file *MAX.TAPE-FILE.1* from the tape cartridge *D2326K*.

(6) Imports the tape file *MAX.TAPE-FILE.2* from the tape cartridge *D2326K*.

(7) Output of the catalog entries for the tape files showing information on the file organization and volumes. Only the catalog entries have been created so far (as if with CREATE-FILE). The file attributes have not yet been entered (value NONE or 0). The volume *D2326K* has only been registered (the value is still in parentheses). See also the output under step.

(8) The tape file *MAX.TAPE-FILE.1* is now accessed with the COPY-FILE command. The file is read and its contents are copied into the temporary file *#COPY.TAPE-1*.

(9) The catalog entry for the tape file *MAX.TAPE-FILE.1*

(10) A TFT entry with the default link name *DMCOPY11* is created for the tape file *MAX.TAPE-FILE.2*. This file is then opened by COPY-FILE as the input file. Since *MAX.TAPE-FILE.2* is the second file on the tape cartridge *D2326K*, FILE-SEQUENCE=2 was defined in the TFT entry. Without this specification, FILE-SEQUENCE=1 would have been assumed as in the case of *MAX.TAPE-FILE.1*.

(11) The tape file *MAX.TAPE-FILE.2* is now accessed with the COPY-FILE command. The file is read and its contents are copied into the temporary file *#COPY.TAPE-2*.

(12) The catalog entry for the tape file *MAX.TAPE-FILE.2*

Example 3: Updating catalog entries for files on private disk

/show-file-attr select=(sup=*priv,gen=*yes),inf=*all ———————————— (1)

```
%0000000000*:2OS2:$USER1.MAX.GROUP.1 (FGG)
% ------------------------------ HISTORY ------------------------------
% CRE-DATE = 2012-01-18 ACC-DATE = NONE CHANG-DATE = 2012-01-18
% CRE-TIME = 00:00:00 ACC-TIME = NONE CHANG-TIME = 00:00:00
% ACC-COUNT = 0 S-ALLO-NUM = 0
% ------------------------------ SECURITY ------------------------------
% READ-PASS = NONE WRITE-PASS = NONE EXEC-PASS = NONE
% USER-ACC = OWNER-ONLY ACCESS = WRITE ACL = NO
% AUDIT = NONE FREE-DEL-D = *NONE EXPIR-DATE = 2012-01-18
% DESTROY = NO FREE-DEL-T = *NONE EXPIR-TIME = 00:00:00
% SP-REL-LOCK = NO ENCRYPTION = *NONE
% ------------------------------ BACKUP ------------------------------
% BACK-CLASS = A SAVED-PAG = COMPL-FILE VERSION = 0
% MIGRATE = ALLOWED
% #BACK-VERS = 0
% ------------------------------ GENERATION-INFO ---------------------------
% MAXIMUM = 3 BASE-NUM = 0 OVERFL-OPT = DELETE-ALL
% FIRST-GEN = 4 LAST-GEN = 4
% EXTENTS VOLUME DEVICE-TYPE
% WORK01 D3435
%0000000003*:2OS2:$USER1.MAX.GROUP.1(*0004)
% ------------------------------ HISTORY ------------------------------
% CRE-DATE = NONE ACC-DATE = NONE CHANG-DATE = NONE
% CRE-TIME = NONE ACC-TIME = NONE CHANG-TIME = NONE
% ACC-COUNT = 0 S-ALLO-NUM = 0
% ------------------------------ SECURITY ------------------------------
% READ-PASS = NONE WRITE-PASS = NONE EXEC-PASS = NONE
% USER-ACC = OWNER-ONLY ACCESS = WRITE ACL = NO
% AUDIT = NONE FREE-DEL-D = *NONE EXPIR-DATE = NONE
% DESTROY = NO FREE-DEL-T = *NONE EXPIR-TIME = NONE
% SP-REL-LOCK= NO ENCRYPTION = *NONE
% ------------------------------ BACKUP ------------------------------
% BACK-CLASS = A SAVED-PAG = COMPL-FILE VERSION = 0
% MIGRATE = ALLOWED
% #BACK-VERS = 0
% ------------------------------ ORGANIZATION ------------------------------
% FILE-STRUC = NONE BUF-LEN = NONE BLK-CONTR = NONE
% IO(USAGE) = READ-WRITE IO(PERF) = STD DISK-WRITE = IMMEDIATE
% REC-FORM = NONE REC-SIZE = 0
% AVAIL = *STD
% ------------------------------ ALLOCATION ------------------------------
% SUPPORT = PVT S-ALLOC = 9 HIGH-US-PA = 0
% EXTENTS VOLUME DEVICE-TYPE EXTENTS VOLUME DEVICE-TYPE
% 1 WORK01 D3435
% NUM-OF-EXT = 1
%:2OS2: PRDISC: 2 FILES RES= 3 FRE= 3 REL= 0 PAGES
```

/write-text '* Datum: &(DATE(FORMAT=*GERMAN)) ***' ———————————— (2)**

```
*** Datum: 18.03.2012 ***
```

```
/import-file sup=*by-file-name(file-name=max.group(*4)),inf=*all ————————   (3)
```

```
% DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OS2'. COMMAND TERMINATED
```

```
/import-file sup=*by-file-name(file-name=max.group.1),inf=*all    ————————   (4)
```

```
% DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OS2'. COMMAND TERMINATED
```

```
/show-file-attr max.group*,select=(sup=*priv)              ————————————————   (5)
```

```
% DMS06CC NO FILE CORRESPONDING TO SPECIFIED OPERANDS
```

(1) Returns information on all catalog entries for files on private disk. The private disk *WORK01* contains the file generation group *MAX.GROUP.1* with generation *0004. The group entry was created on 18.01.2012. Generation *0004 is merely cataloged. It has not yet been opened with OPEN=*OUTPUT.

(2) Output of the current date using WRITE-TEXT to replace an expression in the output text of the builtin DATE ( ) function (a component of the software product SDF-P) in order to indicate the date in German. The date is 18.03.2012.

(3) The private disk *WORK01* was made available to the user by the system administration only for the month of January. At the start of February, all the data on this disk was deleted in an VOLIN run, but the entry in the file catalog was not updated. The entry in the catalog file was not updated in the process. The IMPORT-FILE command is now used in order to update the entry for generation *0004 of the file generation group *MAX.FILE.GROUP.1* from the VTOC of the private disk. Since the VTOC of the private disk *WORK01* does not contain an entry for this generation, the catalog entry is also deleted, and message *DMS0533* is output.

(4) The IMPORT-FILE command updates the group entry of the file generation group *MAX.FILE.GROUP.1* from the VTOC of the private disk: Since the VTOC of the private disk *WORK01* does not contain an entry for this generation, the catalog entry is also deleted, and message *DMS0533* is output.

(5) The output shows that there are no catalog entries for files whose name starts with *MAX.GROUP.*

3.76 IMPORT-NODE-FILE

Create catalog entry for node files (import node files)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING
	TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The IMPORT-NODE-FILE command creates the catalog entries for node files (files of the type NODE-FILE) which are located on a Net-Storage volume (import). DMS creates the catalog entry for a node file in TSOSCAT and in the file catalog of the Net-Storage volume on the basis of the Node attributes on the NFS server.

Optionally the catalog entries of already imported node files can be updated on the basis of the node attributes on the NFS server (REPLACE=*NODE-FILE-UPDATE operand).

Catalog entries of node files can be deleted again with the EXPORT-NODE-FILE command (export).

Privileged functions

System support staff may export files belonging to any user ID. It may ignore the passwords of protected files and also branch to guided dialog whenever the user ID is changed.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can therefore export files under any user ID). When SECOS is used, this co-ownership can be restricted.

Systems support can generate files under any user ID (TSOS privilege). In conjunction with the SECOS software product a user can allow other user IDs to act as co-owners. Co-owners of a user ID are then also allowed to export a file.

Format

IMPORT-NODE-FILE
VOLUME = <vsn 6..6>
,**FILE-NAME** = <filename 1..54 without-cat-gen with-wild(80)>
,**FILE-STRUC**TURE = ***STD** / ***PAM** / ***SAM**
,**REPL**ACE = ***NO** / ***Y**ES / ***NODE-FILE-UPDATE**
,**IGNORE-PROT**ECTION = ***NO** / ***Y**ES
,**REPORTING** = ***ERROR** / ***FULL**
,**OUTPUT** = list-poss(2): ***NONE** / ***SYSLST** / ***SYSOUT**
,**PUBSET** = ***STD** / <cat-id 1..4>

VOLUME = <vsn 6..6>
Volume serial number (VSN) of the Net-Storage volume on which the node files to be imported are stored.

FILE-NAME = <filename 1..54 without-cat-gen with-wild(80)>
Specifies the node files which are to be cataloged.
For privileged users, see "Privileged functions".

FILE-STRUCTURE = *STD / *PAM / *SAM
Specifies the FILE-STRUCTURE attribute of the node file which is entered in the file catalog in accordance with the REPLACE operand.

FILE-STRUCTURE = *STD
The following applies when REPLACE=*NO/*YES: A node file is imported into BS2000 as a PAM file if the file size on the NFS file system is not equal to zero. If the file size on the NFS file system is equal to zero, the imported file is assigned the default attributes of a file generated with CREATE-FILE.
The following applies when REPLACE=*NODE-FILE-UPDATE: The catalog entries are updated on the basis of the node attributes. Both the catalog entries of PAM and SAM files are updated.

FILE-STRUCTURE = *PAM
The following applies when REPLACE=*NO/*YES: A node file is imported into BS2000 as a PAM file irrespective of the file size on the NFS file system.
The following applies when REPLACE=*NODE-FILE-UPDATE: The catalog entries are updated on the basis of the node attributes. Only the catalog entries of PAM files are updated.

FILE-STRUCTURE = *SAM
For REPLACE=*NO/*YES the following applies: a node file will be imported into BS200 as a SAM file, irrespective of the file size on the NFS file system.
If REPLACE=*NODE-FILE-UPDATE, the catalog entries of SAM node files are updated in BS2000.

> When accessing a SAM node file in BS2000, the NET-CODED-CHAR-SET file attribute determines whether and, if yes, how the characters of the file have to be converted for display and processing in BS2000.

REPLACE = *NO / *YES / *NODE-FILE-UPDATE
Specifies whether files which already exist in BS2000 are replaced or whether only the catalog entry is updated on the basis of the node attributes on the NFS server.

REPLACE = *NO
Files which already exist are not replaced, nor are their catalog entries updated.

REPLACE = *YES
Files which already exist on the pubset are replaced by the specified node files. Files on public space and on Net-Storage are deleted and files are exported to private disk. When the node files are imported, the entries in TSOSCAT and in the file catalog of the Net-Storage volume are created again.

REPLACE = *NODE-FILE-UPDATE
In the case of files which already exist, the entries in TSOSCAT and in the file catalog of the Net-Storage volume are updated on the basis of the node attributes on the NFS server. The FILE-STRUCTURE operand determines that only catalog entries for files with the specified file structure are updated. FILE-STRUCTURE= *STD specifies that both PAM and SAM files are updated.

IGNORE-PROTECTION = *NO / *YES
*The operand value *YES is reserved for privileged users.* Systems support can determine whether the protection attributes should be ignored for existing files when REPLACE=*YES is specified.

REPORTING = *ERROR / *FULL
Determines the scope of the processing log which can be requested in the OUTPUT operand.

REPORTING = *ERROR
Only files which could not be imported are listed. The reason is displayed by means of a message code.

REPORTING = *FULL
All files are listed. In the case of files which could not be imported, the reason is displayed with a message code.

OUTPUT = *NONE / list-poss(2): *SYSOUT / *SYSLST
Specifies whether a processing log is to be output.

OUTPUT = *NONE
No processing log is output.

OUTPUT = *SYSOUT
A processing log is output to SYSOUT.

OUTPUT = *SYSLST
A processing log is output to SYSLST.

PUBSET = *STD / <cat-id 1..4>
Specifies the catalog ID of the pubset in which the files are to be cataloged. The Net-Storage volume specified in the VOLUME operand must be assigned to the pubset specified here.
The default setting is *STD, i.e. the catalog entries are set up under the file catalog of the default pubset of the user ID (see the output field DEFAULT-PUBSET in the SHOW-USER-ATTRIBUTES command).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD05EE	Path name too long after completion
	1	CMD0624	File name invalid
	32	DMS0578	Internal error in file protection check
	32	DMS05C7	DMS internal error
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privilege error
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	No access authorization on the catalog entry of the file
	64	DMS0594	Not enough virtual memory available
	64	DMS05FC	Specified user ID not in home pubset
	64	DMS0610	Function execution supplied a return code for at least one of the selected file names
	64	DMS0640	Access to Net-Storage is rejected by the ONETSTOR subsystem because of communication problems with the net client
	64	DMS0642	Large files not permitted on pubset
	64	DMS0643	Net client reports access error
	64	DMS0644	Net client reports internal error
	64	DMS0645	File does not exist on Net-Storage
	64	DMS0649	Net server reports POSIX-ACL error
	64	DMS064A	Net client reports that access to files is forbidden on the Net-Storage volume
	64	DMS064B	Access to node files not supported by the net client
	64	DMS064C	Directory of the specified user ID does not exist on Net-Server
	64	DMS064D	File is not a node file
	64	DMS064E	Node file is not located on the specified Net-Storage volume

	64	DMS064F	FCB type of the file and specified file structure do not match
	64	DMS0650	No node file found to import
	64	DMS0651	File exists, import not possible
	64	DMS06CC	No file matches selection criteria

3.77 IMPORT-PUBSET

Import pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	R

Function

This command creates a separate task under the control of the calling task. This task performs IMPORT processing asynchronously to the calling task. This task requests all the resources.
Each volume set of an SM pubset is imported separately.

The F5 labels are read in and reconstructed if necessary. The mnemonic names of the disks belonging to the pubset are entered or updated in the SVL of the system disk (pubres). The name of the system disk is stored in the pubset's MRSCAT entry. The user catalog is opened and the specified pubset is set to "accessible". The user tables that contain the current user information are set up in the memory. Access to this pubset is then permitted. Depending on the specifications made by system support staff in the ADD-MASTER-CATALOG-ENTRY command, automatic start of SPEEDCAT with or without task switching is supported. SPOOL is notified and the spoolout jobs are transferred to TYPE5/KP or TYPE4. User jobs in the wait state HELD-BY-CALENDAR or HELD-BY-PUBSET because the imported pubset was previously unavailable are released.
When a pubset is imported with ACTUAL-JOIN=*FIRST all files and job variables of the user ID TSOS are retained. Files and job variables of all other users are deleted.

The change in the availability of a pubset is notified to all active processors in the network.

A number of different pubsets can be imported to a processor.

Format

IMPORT-**PUB**SET

PUBSET = <cat-id 1..4>

,**ACT**UAL-**JOIN** = ***STD** / ***ZIP** / ***FIRST**

,**MONJV** = ***NONE** / <filename 1..54 without-gen-vers>

,**JV-PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483639..2147483639>

,**RESID**ENT-**BUFFERS** = ***STD** / ***NO** / ***Y**ES

,**NUM**BER-**OF-BUFFERS** = ***STD** / <integer 1..255>

,**USE** = ***STD** / ***SHARE** / ***EXCL**USIVE(...) / ***FROM-REMOTE**(...)

***EXCL**USIVE(...)

| **CONVERT-VOL**UME-**SET** = ***NO** / ***Y**ES

***FROM-REMOTE**(...)

| **HOST-NAME** = ***NONE** / <alphanum-name 1..8>

,**SHARER-TYPE** = ***STD** / ***SLAVE** / ***MASTER**(...)

***MASTER**(...)

| **MASTER-CHANGE** = ***NO** / ***Y**ES

,**SESSION-CHECK-MSG** = ***Y**ES / ***NO**

,**RECONSTRUCT-USERCAT** = ***NO** / ***RESET** / ***BY-BACKUP**(...)

***BY-BACKUP**(...)

| **SCOPE** = ***ALL** / ***BACKUP** / ***TSOSCAT**

,**RECONSTRUCT-F5-LABEL** = ***NO** / ***YES**

,**DEFECT-VOL**UME-**SET** = ***NONE** / list-poss(256): <cat-id 1..4>

,**IN-HOLD-VOL**UME-**SET** = ***NONE** / list-poss(256): <cat-id 1..4>

,**REPAIR-TSOSCAT** = ***NO** / ***YES**

,**CHECK-PUBSET-MIRRORS** = ***NO** / ***YES**

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset to be imported.

ACTUAL-JOIN = *STD / *ZIP / *FIRST
Specifies handling of the user catalog during import.

ACTUAL-JOIN = *STD
The effect of this operand is governed by the RECONSTRUCT-USERCAT operand. With RECONSTRUCT-USERCAT=*NO, the existing user catalog ($TSOS.SYSSRPM) is opened. The effect of the *RESET and *BACKUP operand values is described under the RECONSTRUCT-USERCAT operand.

ACTUAL-JOIN = *ZIP
This operand value may only be specified in the event of disk storage space bottlenecks to prevent a log file and the BACKUP file for the user catalog being generated by user administration. Apart from that, this operand value is treated in exactly the same way as *STD, in other words, processing is governed by the value of the RECONSTRUCT-USERCAT operand.

ACTUAL-JOIN = *FIRST
Creates a new user catalog containing only the system user IDs. The TSOS user IDs remain intact. The RECONSTRUCT-USERCAT operand is ignored.

> This operand value may only be specified when a pubset is imported for the first time after generation. If the pubset already exists, the files and job variables of all users except TSOS will be lost!

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies whether a monitoring job variable is set. This variable is set to the following values during import:

$I	at the start of import
$R	at the end of import if the entire pubset has been successfully imported
$A	import was terminated due to an error
$W	if a shared pubset has been imported and the availability of the master processor has not yet been confirmed

This operand should only be specified if the JV software product is used.

Notes

- The specified job variable only becomes the monitoring job variable if the pubset has not been imported.
- The job variable must already be cataloged, otherwise it is not set. However, IMPORT processing continues even if the job variable is not defined.

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483639..2147483639>
Password of the job variable if this is write-protected.
The operand JV-PASSWORD is defined as “secret”:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

RESIDENT-BUFFERS = *STD / *NO / *YES
Specifies whether resident or nonresident buffers are to be created (also see "Notes").

RESIDENT-BUFFERS = *STD
The value specified in the MRSCAT entry applies.

RESIDENT-BUFFERS = *NO
A nonresident buffer is created.

RESIDENT-BUFFERS = *YES
A resident buffer is created.

NUMBER-OF-BUFFERS = *STD / <integer 1..255>
Defines the number of buffers.

NUMBER-OF-BUFFERS = *STD
The value specified in the MRSCAT entry applies.

NUMBER-OF-BUFFERS = <integer 1..255>
The specified number of buffers (minimum 6; see "Notes") is created.

USE = *STD / *SHARE / *EXCLUSIVE(...) / *FROM-REMOTE(...)
Defines the mode of access to the imported pubset. Please observe the relevant conditions and requirements.

USE = *STD
The value specified in the MRSCAT entry applies.

USE = *SHARE
Specifying this operand only makes sense if the MRSCAT is configured for shareability. The pubset is to be imported as a shared pubset.

USE = *EXCLUSIVE(...)
The pubset is to be imported as an exclusive pubset. A volume set can also be imported in order to perform recovery.

CONVERT-VOLUME-SET = *NO / *YES
Specifies whether a normal import is to be performed or whether the volume set of a destroyed SM pubset is to be converted into an SF pubset.

CONVERT-VOLUME-SET = *NO
A normal import is to be performed.

CONVERT-VOLUME-SET = *YES
A volume set that is to be converted into an SF pubset was specified in the PUBSET operand. This function can be used to re-establish the accessibility of data in the volume sets of an SM pubset whose control volume set has become inoperative. Please take account of the notes on "IMPORT-PUBSET".

USE = *FROM-REMOTE(...)
Makes the catalog of a “remote-imported” pubset available if MRSCAT entries were defined after HIPLEX MSCF network startup.

HOST-NAME = *NONE / <alphanum-name 1..8>
BCAM name of the partner host owning the pubset. There has to be an MSCF link to the computer.

SHARER-TYPE = *STD / *SLAVE / *MASTER(...)
*Specifying this operand only makes sense if the MRSCAT is configured for shareability or if the USE operand is set to *SHARE.* Defines the ownership of the pubset. Please observe the relevant conditions and requirements.

SHARER-TYPE = *STD
The system selects the system automatically on the basis of the pubset’s attributes:

- If the shared pubset already has a master or another system is explicitly predefined as the master (with /SET-PUBSET-ATTRIBUTES), the system selects SHARER-TYPE=*SLAVE.
- In all other cases it selects SHARER-TYPE=*MASTER.

SHARER-TYPE = *SLAVE
The home system is to be a slave sharer.

SHARER-TYPE = *MASTER(...)
The home system is to take over the as yet unassigned ownership of the pubset being imported.

MASTER-CHANGE = *NO
The home system is to take over the as yet unassigned ownership of the pubset being imported. The command is rejected if the pubset has already been imported.

MASTER-CHANGE = *YES
Systems support can initiate an explicit master change from a slave system following the failure of the master or after the EXPORT-PUBSET command was issued with MASTER-CHANGE=*YES from the master.

An explicit master change is not possible in the case of BACKUP-MASTER=*NONE and ALTERNATE-BACKUP=*NONE (see the SET-PUBSET-ATTRIBUTES command). An explicit master change can be used in the following situations:

- The master change initiated automatically by watchdog at a specified backup master was rejected with an error.
- An automatic master change is hindered by BACKUP-MASTER=*NONE and ALTERNATE-BACKUP=*BY-OPERATOR.

SESSION-CHECK-MSG = *YES / *NO
Specifies whether a message is to be output if, during import processing, a check reveals that the pubset involved has already been imported on another system or that the last session was terminated abnormally.

SESSION-CHECK-MSG = *YES
If the check reveals that the pubset has already been imported on another system or that the last session was terminated abnormally, message `DMS038C` is output.

SESSION-CHECK-MSG = *NO
The check is deactivated during an import job for a data pubset; output of message DMS038C is suppressed. System support staff should only use this option, however, if the system was loaded with automatic startup.

RECONSTRUCT-USERCAT = *NO / *RESET / *BY-BACKUP(...)
This operand enables the caller to reconstruct the user catalog, either in full on the basis of a backup copy or from scratch on the basis of the user IDs included in TSOSCAT. The operand is evaluated only in conjunction with the settings ACTUAL-JOIN=*STD/*ZIP; it is ignored with ACTUAL-JOIN=*FIRST.

RECONSTRUCT-USERCAT = *NO
No reconstruction is performed.

RECONSTRUCT-USERCAT = *RESET
The user catalog is reconstructed. The user IDs are taken from the current TSOSCAT. The entries are reset.

RECONSTRUCT-USERCAT = *BY-BACKUP(...)
The user catalog is reconstructed on the basis of a backup user catalog

($TSOS.SYSSRPM.BACKUP) saved earlier with ARCHIVE and restored to the system.

SCOPE = *ALL / BACKUP / *TSOSCAT
These specifications define how to deal with user IDs which are included only in the backup or only in TSOSCAT.

SCOPE = *ALL
All the entries are copied from the backup. Any additional entries included in TSOSCAT are recreated.

SCOPE = BACKUP
The entries in the backup determine which user IDs are set up. Files belonging to user IDs not included in the backup are deleted.

SCOPE = *TSOSCAT
The entries in TSOSCAT determine which user IDs are set up. Only the user IDs which are included in it are copied from the backup or recreated.

RECONSTRUCT-F5-LABEL = *NO / *YES
Specifies whether the reconstruction of the F5 label is to be initiated explicitly.

RECONSTRUCT-F5-LABEL = *NO
Reconstruction of the F5 label is not initiated explicitly. However, the system can initiate a reconstruction internally, regardless of this (e.g. following a system crash). Reconstruction will also take place if a check of the TSOSCAT user chain is requested (operand REPAIR-TSOSCAT=*YES).

RECONSTRUCT-F5-LABEL = *YES
Reconstruction of the F5 label is performed in any case. This covers all volume set belonging to an SM pubset.

DEFECT-VOLUME-SET = *NONE / list-poss(256): <cat-id 1..4>
This operand is only evaluated for SM (System-Managed) pubsets which are imported exclusively or as master.
The operand defines which volume sets are defective and are to be removed from the SM pubset. These volume sets are also to be removed from the pubset configuration file and from MRSCAT. The control volume set cannot be removed.

DEFECT-VOLUME-SET = *NONE
All the volume sets listed in the pubset configuration file are imported. If one or more volume sets are found to be defective, the import process aborts. The catalog name of each volume set found to be defective is displayed. The import process must then be repeated, naming all the defective volume sets.

DEFECT-VOLUME-SET = list-poss(256): <cat-id 1..4>
Specifies the catalog names of those volume sets which are no longer to be part of the SM pubset and are to be removed from the pubset configuration file and from MRSCAT. All the files in a defective volume set are removed from the file index of the SM pubset in question and added to a file named $TSOS.SYS.PUBSET.DEFECT.<volset-id>.<date>.<time>, where <date> is in yyyy-mm-dd format and <time> is in hhmmss format. The file names added to this file form the basis for subsequent reconstruction using the HSMS utility.

IN-HOLD-VOLUME-SET = *NONE / list-poss(256): <cat-id 1..4>
This operand is only evaluated for SM (System-Managed) pubsets which are imported exclusively or as master.
The operand defines which volume sets are to be placed in the IN-HOLD status when they are imported, i.e. these volume sets are temporarily flagged as not operable. They can be activated again with the MODIFY-PUBSET-RESTRICTIONS command. A volume set that is exported while IN-HOLD, is implicitly reactivated when imported if it was not named explicitly in the IN-HOLD-VOLUME-SET operand.

IN-HOLD-VOLUME-SET = *NONE
None of the volume sets is put IN-HOLD.

IN-HOLD-VOLUME-SET = list-poss(256): <cat-id 1..4>
Specifies the volume sets that are put IN-HOLD while being imported.

REPAIR-TSOSCAT = *NO / *YES
Specifies whether the TSOSCAT user chains are repaired during the CMS start phase of the import.

REPAIR-TSOSCAT = *NO
TSOSCAT user chains are not repaired.

REPAIR-TSOSCAT = *YES
This specification should only be entered if the import was not possible because of a defective TSOSCAT. Catalog entries can be lost when the repair process takes place.
TSOSCAT user chains are analyzed in the CMS start phase of the import, and they are repaired, if necessary. Defective blocks are removed. If a file's catalog entry was on a defective block, that file is no longer accessible. For further information on the reconstruction of file catalogs, see the "Introduction to System Administration" [14]. An F5 label reconstruction for the entire pubset is performed.

CHECK-PUBSET-MIRRORS = *NO / *YES
Determines whether the homogeneity of the pubset is to be checked. In the case of a pubset which is not mirrored a check is also made to see whether only individual disks are mirrored. A pubset is homogeneous when all volumes of the pubset have the same mirroring properties.
The homogeneity check is performed for the currently supported full replication forms (see the respective manual "SHC-OSD" [37)]).

CHECK-PUBSET-MIRRORS = *NO
No homogeneity check is performed.

CHECK-PUBSET-MIRRORS = *YES
A homogeneity check is performed.

Return codes

(SC2)	SC1	Maincode	Bedeutung
	0	CMD0001	Command executed without error
1	0	DMS0350	Pubset already available
	1	CMD0202	Syntax error
	32	DMS0352	Error while accessing MRSCAT entry
	64	DMS0360	No authorization for command
	64	DMS036B	Missing MRSCAT entry, wrong type
	64	DMS037B	Import as shared PVS not possible
	64	DMS13C9	Pubset has already been remotely imported; import mode cannot be changed
	130	DMS0351	Other import/export task active
	130	DMS035A	Maximum task number reached
	130	DMS0362	Class-4 memory error

Notes

- The home pubset cannot be imported explicitly. The home pubset is imported automatically during system initialization (startup phase).
- The IMPORT-PUBSET command generates a new task, the IMPORT task, and starts it. Actual importing is performed by this IMPORT task asynchronously with the calling task. After successful generation of the IMPORT task, the following message is output on the console:

  `DMS035B IMPORT PUBSET TASK WITH TSN '(&00)' FOR PUBSET WITH PUBSET ID '(&01)' HAS BEEN CREATED AND STARTED.`

  All messages output by the IMPORT job are sent to the console.
- Specifications made via `RESIDENT-BUFFERS` and `NUMBER-OF-BUFFERS` can indirectly influence the working set or paging rate of the system. If, for example, a large number of resident buffers are created on a small system, the cataloging operations will be faster but the paging rate for all other applications will increase.If no buffer specifications are made, the system's default values are used. The following 3-level hierarchy applies:

  1. Explicit parameter specifications in the IMPORT-PUBSET command.
  2. Specifications via the ADD- OR MODIFY-MASTER-CATALOG-ENTRY command.

     If only one of the parameters RESIDENT-BUFFERS or NUMBER-OF-BUFFERS is specified, the default value applies to the other one (RESIDENT-BUFFERS= *NO, NUMBER-OF-BUFFERS=32).
  3. Specification via class 2 system parameters CATBUFR and BMTNUM

- For reasons of performance and reliability, a minimum number of CMS buffers is defined by the system. If a smaller number is specified explicitly in the NUMBER-OF-BUFFERS operand, the minimum number defined by the system is set.
- If the pubset to be imported is still locked due to a previous system crash, the operator can cancel this lock by means of the UNLOCK-DISK command. However, the operator must first ensure that the pubset is not being used by another system which is currently active.
- The MRSCAT of the pubset must contain a static definition of how import processing is to react in the event of an error during a new reservation of a cache area (see also the MODIFY-PUBSET-CACHE-ATTRIBUTES command) because the cache area cannot be made available in the required size:
  1. Import processing continues using the remaining buffer available.
  2. Import processing is aborted.

Whenever a new MRSCAT entry is added, the default value, i.e. cancelation in the event of an error, applies.

Notes on importing a volume set with conversion to an SF pubset

The function “import and convert volume set” (see the USE=*EXCLUSIVE(CONVERT-VOLUME-SET=*YES) operand on "IMPORT-PUBSET") is a basic function for the recovery of SM pubsets whose control volume set has failed: converting the remaining intact volume sets into SF pubsets makes the data present on them available again and it is then possible to recover the SM pubset using SMPGEN (see also the “System Managed Storage” User Guide [45]).
The conversion of volume sets results in operable SF pubsets. Consequently, this function should not be used for anything other than the recovery of SM pubsets without very careful consideration. The specific problem of the maximum length of file names will be examined in the following. In all cases, it is necessary to remember that in an SM pubset, the files processed by an application are not necessarily all located in the same volume set. Following the subdivision of an SM pubset into SF pubsets by means of the import/convert function it is therefore no longer possible to address the files belonging to an application uniquely via defcat or a **single** catalog ID. The corresponding metadata is also no longer available in full.

The procedure described in the chapter “SMPGEN” of the “Utility Routines” User Guide [9] largely applies to the preparation of an SMPGEN run performed in order to recover an
SM pubset. However, the FDDRL backup of the volumes in question should be performed within a recovery scenario **before** the “conversion import” step in order to ensure that this step is also protected by a physical backup.

When performing conversion, the following points relating to the control volume set, the length of file names, file generations and DAB caches should be considered:

Control volume set

It is not possible to convert control volume sets, and such an operation would also have no point, since the function “import and convert” is used for recovery purposes on the failure of a control volume set. The metadata stored on the failed control volume set must be recovered from a backup or other source following restoration of the SM pubset by SMPGEN.

File name length

On conversion, the catalog ID of the volume set is taken over as the catalog ID of the resulting SF pubset. If the length of this catalog ID is greater than the length of the (previously valid) catalog ID of the SM pubset then it is necessary to ensure that the maximum possible file name length (54 characters) is not exceeded. To this end,

when conversion is performed, any files whose names would exceed the maximum permitted length are renamed. A message, which requests operator confirmation, is issued at the console in order to query whether renaming should be performed. The names of the renamed files have the following structure:

```
:<catid>:$<userid>.S.RENAME.<timestamp>.<tempfile_indicator>.<counter>
```

The name sections have the following meanings:

<catid>	Catalog ID of the SF pubset
<userid>	user ID
<timestamp>	Time stamp in ISO4 format
<tempfile_indicator>	Displays whether a temporary file is concerned:
	T: temporary file
	N: "normal" file

Any file renaming operations that are performed are logged in an ISAM file on the home pubset. The name of the file is:

```
:<catid_home>:$TSOS.TSOSCAT.CONV.<catid>.<timestamp>
```

where <catid_home> indicates the catalog ID of the home pubset, <catid> the catalog ID of the SF pubset created as a result of the conversion and <timestamp> the time stamp in ISO4 format.

The log records indicate the allocation of the file names generated during conversion to the original file names. It is particularly important to ensure that file generations which have excessively long file names are also renamed. When they are renamed, they are also assigned the default name as described above and lose the “file generation” property.

Example

The SM pubset K contains a volume set F64K. Following an error in the control volume set, the remaining volume sets, including F64K, are initially converted into SF pubsets. This requires certain files to be renamed. The log file is located on the home pubset A:

```
:A:$TSOS.TSOSCAT.CONV.F64K.2011-10-05.112950
```

Contents of the log file:

```
:F64K:$USER1234.S.RENAME.2011-12-06-090300.N.000002
,:F64K:$USER1234.FILEA90123456789012345678901234567890123456789012345678901234
:F64K:$USER1234.S.RENAME.2011-12-06-090300.N.000004
,:F64K:$USER1234.FILEGROUP3456789012345678901234567(*0001)
:F64K:$USER1234.S.RENAME.2011-12-06-090300.N.000005
,:F64K:$USER1234.FILEGROUP3456789012345678901234567(*0003)
:F64K:$USER1234.S.RENAME.2011-12-06-090300.T.000003
,:F64K:$USER1234.FILEXXX12345678901234567890123456789012345678901234
:F64K:$USER1234.S.RENAME.2011-12-06-090300.N.000001
,:F64K:$USER1234.FILE890123456789012345678901234567890123456789012345678901234

,:F64K:$USER1234.FGG1(*0002)
```

Following restoration of the SM pubset, the renamed files can be given their original names again with the help of the logging file. How to proceed in the case of file generation groups is described in the next paragraph ("File generation groups"). **Once recovery has been performed successfully and the original file names have been restored it is essential to delete the log files**, after backing them up if necessary. If this is not done, name conflicts may occur when importing and converting volume sets with the same name and, in some cases, may result in faulty operation.

File generation groups

In the case of SM pubsets, the file group's catalog entry is located on the control volume set while the catalog entries for the individual file generations can be distributed across the volume sets as required. Consequently, after the volume sets have been converted into SF pubsets, the individual file generations and associated catalog entries are present whereas group entries are not. The question of renaming file generations with "excessively long" file names during the conversion process has already been addressed.The names of the remaining file generations are logged without being renamed. When this is done, the log file contains spaces in place of the new file name (see example, "IMPORT-PUBSET").

New catalog entries must be created for the file generation groups before these can be accessed. The following procedure is recommended:

The group entry is created for each corresponding individual generation with the number <n>:

```
/CREATE-FILE-GROUP  <filename>,*GENERATION-PARAMETER(MAXIMUM=1,
                    FIRST-GENERATION=<n>, LAST-GENERATION=<n>)
```

The content of the file generation is then copied to a file for which any required file name can be specified. The name of the file generation and the target file are logged. This file generation group is then deleted.

Once the SM pubset has been restored, it is possible to recover the file generation groups: The group entry is recreated. After this, the files that were created during conversion or manually from file generations are again added to the group as file generations by means of the MODIFY-FILE-ATTRIBUTES command. It should be noted that file generations that were stored on the control volume set of the original SM pubset are lost. This may result in discontinuities in the version numbers of the generation. This consideration should be borne in mind when performing the recovery.

DAB caches

When caching is performed with DAB (see also the "DAB" User Guide [5]) it is necessary to distinguish between ADM-PFA caching and (user) PFA caching. In both cases, synchronization with any existing cache data is performed as part of pubset import involving volume set conversion.

1. ADM-PFA caching
   ADM-PFA caching can be set for entire SM or SF pubsets, volume sets or individual files as required. When this is done, DAB uses the volumes in question and the names of the buffered files as the metadata. It is necessary to distinguish between the following three scenarios when an SM pubset's control volume set fails:
   a. Export of the intact volume set is possible and is performed
      In this case, the data from the volume sets is written back. Only control volume set data may be present in the cache. In order to prepare for pubset recovery it is necessary to terminate DAB caching for the objects in question using /STOP-DAB-CACHING and also, if the cache contains data belonging to the defective control volume set, /FORCE-STOP-DAB-CACHING. When this is done, a list of the "pinned" files is created.
   b. Import with conversion and cache present in the current session
      This is the situation that occurs if the cache is not cleared in case a). However, in this situation the cache contains no data. Caching of the data ranges in question is prohibited due to the import/conversion of the

volume set. Due to the fact that after import and conversion, the file names administered by DAB no longer correspond to the data present in the pubset, it is essential to clear the cache areas in question with /STOP-DAB-CACHING.

2. User PFA
   In the case of user PFA, a cache area is always assigned to one volume set (for SM pubsets). It will probably not be possible to clear the cache area for the defective control volume set and this will have to be terminated with the /FORCE-DESTROY-CACHE command. In the case of all other volume sets, the assigned cache area is cleared correctly following an export due to a failed control volume set. No new cache area is set up when the volume sets are subsequently imported and converted.

Using the "Import with homogeneity check" function

The homogeneity check with regard to SRDF and/or BCV mirroring for a pubset which is to be imported is executed by specifying the CHECK-PUBSET-MIRRORS = *YES operand.

If in the course of an import a volume is detected which has different mirroring properties from volumes which have already been processed, the answerable message `DMS1369` is output on the console. Depending on the operator's answer, one of the following procedures is selected:

- Pubset import is aborted.
- Import processing is continued despite the fact that the volume of the pubset which has just been processed has been recognized as inhomogeneous. In this case the message `DMS136B` is issued on the console for every further volume which has different mirroring properties.

3.78 INCLUDE-DEVICE-CONNECTION

Attach virtual connections

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

This command enables the operator to attach virtual connections between the hardware units (CHN, CTL, DVC), i. e. permit the operating system to use these connections.

Effect of the INCLUDE-DEVICE-CONNECTION command:

1. If the connections specified were in the state “removed explicitly”, they assume the state “included”. The connections can be used again.
2. If the outer units associated with this connection were in the state “detached implicitly”, they assume the state “attached”. These hardware units can be used again.
3. In the outer hardware units which have assumed the state “attached” as per point 2, the outward connections are checked: if the connections were in the state “removed implicitly”, they assume the state “included”. These connections can be used again.
4. In the case of disk and tape devices which are capable of forming path groups, the newly attached paths are included in the path group.
5. Open NKR0150 messages for the specified connections are answered automatically by the system.

Format

INCLUDE**-DEV**ICE**-CONN**ECTION

FROM = ***CHANNEL**(...) / ***CONTR**OLLER(...) / list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

***CHANNEL**(...)

| CHANNEL-PATH-ID = list-poss(8): <x-text 2..2>

***CONTR**OLLER(...)

| CONTROLLER-UNIT = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

,TO = ***CHANNEL**(...) / ***CONTR**OLLER(...) / list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

***CHANNEL**(...)

| CHANNEL-PATH-ID = list-poss(8): <x-text 2..2>

***CONTR**OLLER(...)

| CONTROLLER-UNIT = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

,SCOPE = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

Operands

FROM =
Defines the virtual connection to be attached in terms of one of the delimiting hardware units. The direction in which the virtual connection is attached is not prescribed. FROM therefore does not have to be the inner and TO the outer unit.

FROM = *CHANNEL(...)
Defines the virtual connection to be attached in terms of a specific channel.

CHANNEL-PATH-ID = list-poss(8): <x-text 2..2>
Specifies the channel path ID of the channel that delimits the virtual connection. A maximum of 8 channels can be specified.

FROM = *CONTROLLER(...)
Defines the virtual connection to be attached in terms of a specific controller.

CONTROLLER-UNIT = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) of the controller that delimits the virtual connection. A maximum of 8 controllers can be specified.

FROM = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>
Defines the virtual connection to be attached in terms of a specific device. A maximum of 8 devices (mnemonic device codes) can be specified.

TO = *CHANNEL(...) / *CONTROLLER(...) / list-poss(8): <alphanum-name 2..2> / <x-text 4..4>
Defines the virtual connection to be attached in terms of the other delimiting hardware unit. This unit represents the second element of the pair and is specified according to the FROM operand. A maximum of 8 units can be specified.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the VM Monitor System (VM1) the command is executed in all the guest systems.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
4	64	NKR0...	Path already attached
12	64	NKR0...	Internal check negative
16	64	NKR0...	Caller error
20	64	NKR0...	Software error

Note

If there is an error in command termination, the maincode contains the message code of the message output during command processing.

Example

Attach the connection between device L1 and channel 12:

```
/INCLUDE-DEVICE-CONNECTION FROM=L1,TO=*CHANNEL(12) or
/INCL-DEV-CONN FROM=L1,TO=*CH(12)
```

3.79 INFORM-ALL-JOBS

Send message to all active user tasks

Component:	BS2000
Functional area:	Operator terminal control
Domain:	JOB
Privileges:	OPERATING TSOS
Routing code:	E

Function

The INFORM-ALL-JOBS command enables systems support to send a message to all interactive users currently connected to the system. The system adds the date and time of day to the message.

Note

To send a message to a specific interactive user, systems support must use the INFORM-JOB command.

Format

INFORM**-ALL-JOBS**
MSG = <c-string 1..72 with-low>

Operands

MSG = <c-string 1..72 with-low>
A text string up to 72 characters long is sent to all active user tasks.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	NBR0725	Warning: The message could not be sent to all interactive tasks
2	32	NBR0727	Internal error: Error in $PSTMS call (incorrect UNIT, FUNCTION or VERSION)
	64	CMD0216	User does not have the required privilege
	130	EXC0061	Class 4 memory request failed; command processing aborted

Example

Systems support input:

```
/inform-all-jobs msg = ???'Attention SHUTDOWN in 15 minutes.'
```

Output on terminals of interactive users:

```
% BCST Attention SHUTDOWN in 15 minutes. :14:53:38 :12-01-26026
```

3.80 INFORM-JOB

Send message to specific user task

Component:	BS2000
Functional area:	Operator terminal control
Domain:	JOB
Privileges:	OPERATING TSOS
Routing code:	E

Function

The INFORM-JOB command enables systems support to send a message to a specific batch or interactive job. The system adds the date and time of day to the message. The message is written to SYSOUT.

If the job has not yet been started (queue type 1) or has already terminated, the INFORM-JOB command will not be executed and the command submitter will be informed.

Note

The precise output format of the message is controlled by the NBMESLG system parameter.

Format

INFORM**-JOB**

MSG = <c-string 1..151 with-low>

,**JOB-ID**ENTIFICATION = ***TSN** (...) / ***TERMINAL**(...)

***TSN** (...)

| **TSN** = <alphanum-name 1..4>

***TERMINAL**(...)

| **PROCESS**OR = <name 1..8>

| ,**STAT**ION = <name 1..8>

Operands

MSG = <c-string 1..151 with-low>
This operand represents the message to be transmitted.
Its maximum length is 151 characters. This length limitation does not apply to the date and time of day, which are added by the system.

JOB-IDENTIFICATION = *TSN(...) / *TERMINAL(...)
Specifies where the message is to be sent. The message can be sent either to a job identified by its task sequence number (TSN) or to an interactive task identified by processor and station name.

JOB-IDENTIFICATION = *TSN(...)
The message is to be sent to a job identified by its TSN.

TSN = <alphanum-name 1..4>
TSN (up to 4 alphanumeric characters) of the job to which the message is to be sent.

JOB-IDENTIFICATION = *TERMINAL(...)
The message is to be sent to an interactive task on a terminal.

PROCESSOR = <name 1..8>
BCAM name of the processor to which the terminal is connected.

STATION = <name 1..8>
BCAM name of the terminal to which the message is to be sent.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	EXC0064	Warning. Specified task has temporarily suppressed message function
1	1	EXC0240	Syntax error
2	64	EXC0080	Specified task does not exist
3	64	EXC0062	Specified task cannot receive message
4	64	EXC0081	Invalid task type
5	64	EXC0109	Semantic error; command ignored
	130	EXC0061	Not enough class 4 memory; command aborted

Example

Systems support input:

```
/inform-job msg = '*** Please release reserved tape devices?***' ,
            tsn = 0FC3
```

Output on terminal of interactive task 0FC3:

```
%MESS *** Please release reserved tape devices‘ *** :14:53:38 :12-01-26026
```

3.81 INFORM-OPERATOR

Send message to operator terminal

Component:	BS2000
Functional area:	Job processing
Domain:	JOB PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The INFORM-OPERATOR command sends a message to the operator terminal. The message is by default sent to the recipient defined by the MSGDEST system parameter.

If the message text starts with the “<“ character, the next character is checked. If this character is a valid authorization code (no distinction is made between uppercase/lowercase) then the message is sent to all the terminals to which this authorization code is assigned. If the next character is not defined as an authorization code, the message is also sent in accordance with the MSGDEST system parameter.

The user can also request a response from the operator (WAIT-RESPONSE operand). The task is put on hold until the response arrives.

Format

INFORM-**OPER**ATOR
MSG = <c-string 1..230 with-low> ,**WAIT-RESP**ONSE = ***NO** / ***Y**ES

Operands

MSG = <c-string 1..230 with-low>
Text of the message which is to be sent to the operator terminal.
If the first character in the message is the character “<”, the next character is interpreted as a routing code to which the message is to be sent.

WAIT-RESPONSE = *NO / *YES
Specifies whether the task is to wait for a response from the operator.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	64	EXC0090	Out of space

3.82 INFORM-PROGRAM

Send message to program (STXIT routine)

Component:	BS2000
Functional area:	Job processing Program control
Domain:	JOB PROGRAM
Privileges:	STD-PROCESSING OPERATING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The INFORM-PROGRAM command enables a nonprivileged user to send a message to an interrupted program in the user's own task.

The interrupted program is continued at the address defined in the STXIT macro for the event: "message to the program". If the program does not contain a STXIT routine for this event, the INFORM-PROGRAM command is rejected and an error message is issued. The occurrence of the "message to the program" event is independent of a message that the user can additionally specify in the MSG operand.
A message specified in the MSG operand will, if specified in the STXIT macro, be transferred to an area in the program defined expressly for that purpose.

The STXIT mechanism is described in the "Executive Macros" manual [22].

Privileged functions

Systems support (TSOS or OPERATING privilege) can also use the command to send a message to a loaded program in a noninteractive task.
If the program does not have an STXIT routine for this event, the command is accepted but has no effect. If there is no program loaded in the task, the command is rejected.

Using this privileged function, systems support can among other things terminate specific database applications gracefully before system shutdown by informing them that the "message to the program" event has occurred. If the database has been programmed to process the event, it can take steps to shut itself down.

Format

INFORM-**PROG**RAM Alias: **IFPG**

MSG = ***NO** / <c-string 1..64 with-low>

,**JOB-ID**ENTIFICATION = ***OWN** / ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| TSN = <alphanum-name 1..4>

***MONJV**(...)

| MONJV = <filename 1..54 without-gen-vers>

Operands

MSG = *NO / <c-string 1..64 with-low>
Text of the message to be sent to the program.
The default is *NO, which means that no message will be sent.
The length of the message is limited to 64 characters. Shorter messages have a null byte appended to the right to indicate end-of-text in the receive area. If no area for message transfer was defined in the STXIT macro, the specified message is ignored. If no message is specified although an area has been defined, a null byte is transferred.

JOB-IDENTIFICATION = *OWN / *TSN(...) / *MONJV(...)
Indicates the form of identification used for the task in which the target program is running. An interrupted program in the user's task (*OWN) or in some other nonnteractive task (*TSN or *MONJV) is to be informed that the "message to the program" event has occurred. Additionally, the user can send a message comprising up to 64 characters to the program (see MSG operand).

JOB-IDENTIFICATION = *OWN
The user informs an interrupted program running in his own task.

JOB-IDENTIFICATION = *TSN(...)
Only privileged users (OPERATING or TSOS privilege) are allowed to select this value.
The task in which the target program is running is identified by its TSN. The target must not be an interactive task.

TSN = <alphanum-name 1..4>
Task sequence number.

JOB-IDENTIFICATION = *MONJV(...)
Only privileged users (OPERATING or TSOS privilege) are allowed to select this value.
The task in which the target program is running is identified by its monitoring JV. The target must not be an interactive task.

MONJV = <filename 1..54>
Name of the job variable monitoring the job.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	64	EXC0920	Specified job ID invalid
	64	EXC0921	Command not permitted for interactive tasks
	64	EXC0922	No program loaded
	64	EXC0923	No STXIT interface defined for this event in specified program
	64	EXC0924	No STXIT routine defined for this event in specified program
	64	EXC0925	STXIT routine already activated
	64	EXC0090	Insufficient storage space

3.83 LIST-CATALOG-ENTRY

Write catalog entry to file

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MANAGEMENT
Privileges:	TSOS

Function

The LIST-CATALOG-ENTRY command is designed to facilitate diagnosis of errors in a catalog entry. Systems support can have the entire catalog entry, including the extents, written to file for a particular file or job variable.

The command can be entered from any system in the network for shared pubsets.

Format

LIST-CATALOG-ENTRY
NAME = <filename 1..54>
,**OBJECT** = ***FILE** / ***JV**
,**OUTPUT** = <filename 1..54>

Operands

NAME = <filename 1..54>
Name of the file or job variable whose catalog entry is to be output. The name must contain the catalog and user IDs.

OBJECT = *FILE / *JV
Specifies whether the command is to be executed for the catalog entry of a file or job variable.

OUTPUT = <filename 1..54>
Name of the file to which the catalog entry is to be written.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	32	CMD0221	Internal error
	64	DMS0501	Catalog is not available in the system
	64	DMS0505	Error in computer communication
	64	DMS0512	Catalog is not known in the system
	64	DMS1343	A change of master is currently running for the pubset
	64	DMS0333	File not cataloged
	64	JVS0433	JV not cataloged

Format of the output

A header contains the fully qualified file name, a flag for the file or job variable, the pubset type and the catalog name (important for SM pubset).
Subsequently, the catalog entry is output in hexadecimal, printable form together with its extents, contiguous parts being output contiguously.

3.84 LIST-FILE-FROM-SNAPSET

Provide information about files on a Snapset

Component:	BS2000
Functional area:	File processing
Domain:	FILE SNAPSET
Privileges:	STD-PROCESSING TSOS

Function

The LIST-FILE-FROM-SNAPSET command enables the user to obtain information about files which were saved on a Snapset when a pubset was backed up. The information relates to whether files can be restored (using the RESTORE-FILE-FROM-SNAPSET command). The associated pubset must be imported.

Nonprivileged users can obtain information about all files which they can access (as with SHOW-FILE-ATTRIBUTES, which supplies information from the current file catalog).

The Snapsets are temporarily not available if the SHC-OSD subsystem was not active when the pubset was imported. In this case, the command is aborted with DMS0622. As soon as SHC-OSD is active, the Snapsets are subsequently activated when the SHOW-SNAPSET-CONFIGURATION command is called.

Privileged functions

Systems support (TSOS privilege) can obtain information on the files of all user IDs. Wildcards are not permitted in the user ID here.

Format

LIST-FILE-FROM-SNAPSET

FILE-NAME = <filename 1..54 with-wild(80)>

,**SNAPSET** = ***LATEST** / ***ALL** / <name 1..1 with-low> / <integer -52..-1> / ***INTERVAL**(...)

***INTERVAL**(...)

| **OLD**EST = **-52** / <integer -52..-1>

| ,**NEW**EST = **-1** / <integer -52..-1>

,**INF**ORMATION = ***NAME-AND-SPACE** / ***ALL**

,**OUTPUT** = list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

FILE-NAME = <filename 1..54 with-wild(80)>
Selects the files which are to be listed. The files must satisfy the following requirements:

- They must be cataloged when the Snapset is created.
- The pubset on which they are cataloged must be imported locally.

Aliases may be specified. Individual file generations can be specified. When a file generation group is specified, the file generations are also output.

SNAPSET = *LATEST / *ALL / <name 1..1 with-low> / <integer -52..-1> / *INTERVAL(...)
Specifies the Snapset from which the file information is to be output.
Information about all existing Snapsets for a pubset can be obtained using the SHOW-SNAPSET-CONFIGURATION command.

SNAPSET = *LATEST
The information is to be output from the latest Snapset (i.e. from the most up-to-date pubset backup).

SNAPSET = *ALL
The information from all existing Snapsets is output.

SNAPSET = <name 1..1 with-low>
Specifies the Snapset explicitly by means of the Snapset ID. The maximum of 52 pubsets are distinguished by means of Snapset IDs specified which comprise letters from the 26 lowercase letters a to z and the 26 uppercase letters A to Z.

SNAPSET = <integer -52..-1>
Specifies the Snapset explicitly by means of the relative age. The value -1 specifies the latest Snapset.

SNAPSET = *INTERVAL(...)
Information on all Snapsets which lie in the specified age range is output:

OLDEST = -52 / <integer -52..-1>
Specifies the oldest Snapset; the range begins with this Snapset.

NEWEST = -1 / <integer -52..-1>
Specifies the newest Snapset; the range ends with this Snapset.

INFORMATION = *NAME-AND-SPACE / *ALL
Determines the type and scope of the information to be output.

INFORMATION = *NAME-AND-SPACE
For each cataloged file name, one line is output which contains the file size in PAM pages and the file name. Work files (WORK-FILE=*YES) and migrated files as well as files on Net-Storage or on private disk are also flagged. Tape files are listed without file size or identification.

INFORMATION = *ALL
Two lines are output for each cataloged file name. The first line has the same format as with INFORMATION=*NAME-AND-SPACE. The second line contains the creation date, date of modification and the file status. The file status indicates whether the file was open in write mode when the backup took place (STATE=OPENED or CLOSED). In the case of files which cannot be restored (e.g. files with the backup frequency BACKUP-CLASS=E or special system files, work files, files on Net-Storage or on private disk), STATE=NOREST is displayed.

OUTPUT = list-poss(2): *SYSOUT / *SYSLST
Specifies whether the information is to be directed to SYSOUT (default) and/or SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	0	CMD0001	Interrupt the output with the K2 key
2	0	DMS05B6	Incorrect conversion of UTC to LT
2	0	DMS0616	Volume set in SM pubset might not be available
	1	CMD0202	Too many operands, syntax error Guaranteed message: DMS0598
	1	CMD0202	Syntax error in Snapset specification Guaranteed message: DMS06F7
	1	CMD0202	Path name too long Guaranteed message: DMS05EE
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Specified user ID not in home pubset Guaranteed message: DMS051B
	64	DMS051C	User does not have permission to access pubset Guaranteed message: DMS051C
	64	DMS051D	Logon and pubset passwords different
	64	DMS0535	Catalog entry not accessible
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS05FC	Specified user ID not in home pubset
	64	DMS0616	Volume set not accessible in SM pubset
	64	DMS0622	Snapset not available
	64	DMS0684	File does not exist
	64	DMS06CC	No file name corresponds to specified wildcard string
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0594	Not enough virtual memory available

Examples

/list-file-from-snapset :kh:sysa*

```
---------------------------SNAPSET a--------------------------------------
         4 :KH:$TSOS.SYSACF.EDT.170
         4 :KH:$TSOS.SYSACF.LMS.034
         4 :KH:$TSOS.SYSACF.PMLOG.035
        12 :KH:$TSOS.SYSACF.SORT.079
        20 :KH:$TSOS.SYSAFR
```

/list-file-from-snapset :kh:sys.serslog*,inf=all

```
---------------------------SNAPSET a--------------------------------------
56 :KH:$TSOS.SYS.SERSLOG.2011-08-25.001.01
CRE-DATE=2011-08-25 11:56:55 CHANG-DATE=2011-08-25 12:04:52 STATE=CLOSED
56 :KH:$TSOS.SYS.SERSLOG.2011-08-25.002.01
CRE-DATE=2011-08-25 12:17:51 CHANG-DATE=2011-08-25 12:33:32 STATE=CLOSED
56 :KH:$TSOS.SYS.SERSLOG.2011-08-25.003.01
CRE-DATE=2011-08-25 13:15:38 CHANG-DATE=2011-08-25 14:01:39 STATE=CLOSED
56 :KH:$TSOS.SYS.SERSLOG.2011-08-28.004.01
CRE-DATE=2011-08-28 08:14:34 CHANG-DATE=2011-08-28 08:37:57 STATE=CLOSED
64 :KH:$TSOS.SYS.SERSLOG.2011-08-28.005.01
CRE-DATE=2011-08-28 08:44:31 CHANG-DATE=2011-08-28 08:44:31 STATE=OPENED
56 :KH:$TSOS.SYS.SERSLOG.2011-08-28.006.01
CRE-DATE=2011-08-28 09:49:23 CHANG-DATE=2011-08-28 10:17:44 STATE=CLOSED
```

/list-file-from-snapset :kh:ca*,snap=-2,inf=*all

```
---------------------------SNAPSET b--------------------------------------
8 :KH:$TSOS.CAP
CRE-DATE=2011-08-25 10:58:40 CHANG-DATE=2011-08-25 10:58:40 STATE=CLOSED
4 :KH:$TSOS.CAT.SHC-OSD.060
CRE-DATE=2011-08-25 13:47:36 CHANG-DATE=2011-08-25 13:47:36 STATE=CLOSED
4 :KH:$TSOS.CAT.SYMAPI-D.062
CRE-DATE=2011-08-25 13:26:29 CHANG-DATE=2011-08-25 13:26:29 STATE=CLOSED
```

/list-file-from-snapset :x:s*,inf=all

```
--------------------------SNAPSET a--------------------------------------
33 :X:$TSOS.SYSCAT.SNAPSET
CRE-DATE=2011-09-14 08:32:23 CHANG-DATE=2011-09-14 08:32:24 STATE=OPENED
33 :X:$TSOS.SYSDAT.APUB-PUBX00
CRE-DATE=NONE CHANG-DATE=NONE STATE=NOREST
24 :X:$TSOS.SYSSRPM
CRE-DATE=2011-09-14 08:31:23 CHANG-DATE=2011-09-14 08:31:23 STATE=NOREST
30 :X:$TSOS.SYSSRPM.BACKUP
CRE-DATE=2011-09-14 08:32:25 CHANG-DATE=2011-09-14 08:32:25 STATE=CLOSED
```

/list-file-from-snapset :kh:$ulr.,snapset=*all

```
---------------------------SNAPSET c---------------------------------------
0 :KH:$ULR.FGG (FGG)
8 :KH:$ULR.FGG(*0001)
8 :KH:$ULR.FGG(*0002)
12 :KH:$ULR.SAM.EDT
64 :KH:$ULR.SAM.WORK
---------------------------SNAPSET b---------------------------------------
0 :KH:$ULR.FGG (FGG)
8 :KH:$ULR.FGG(*0001)
8 :KH:$ULR.FGG(*0002)
8 :KH:$ULR.T.1
8 :KH:$ULR.T.2
```

/list-file-from-snapset :kh:t.,snapset=*all

```
---------------------------SNAPSET c---------------------------------------
%  DMS06CC NO FILE CORRESPONDING TO SPECIFIED OPERANDS
---------------------------SNAPSET b---------------------------------------
         8 :KH:$ULR.T.1
         8 :KH:$ULR.T.
```

3.85 LIST-JV-FROM-SNAPSET

Provide information about job variables on a Snapset

Component:	BS2000
Functional area:	Job variables
Domain:	JOB-VARIABLES SNAPSET
Privileges:	STD-PROCESSING TSOS

Function

The LIST-JV-FROM-SNAPSET command enables the user to obtain information about job variables which were saved on a Snapset when a pubset was backed up. The information relates to whether job variables can be restored (using the RESTORE-JV-FROM-
SNAPSET command). The associated pubset must be imported.

Nonprivileged users can obtain information about all job variables which they can access (as with SHOW-JV-ATTRIBUTES, which supplies information from the current file catalog).

The Snapsets are temporarily not available if the SHC-OSD subsystem was not active when the pubset was imported. In this case the command is aborted with DMS0622. As soon as SHC-OSD is active, the Snapsets are subsequently activated when the SHOW-SNAPSET-CONFIGURATION command is called.

Privileged functions

Systems support (TSOS privilege) can obtain information on the job variables of all user IDs. Wildcards are not permitted in the user ID here.

Format

LIST-JV-FROM-SNAPSET

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>

,**SNAPSET** = **_*LATEST_** / ***ALL** / <name 1..1 with-low> / <integer -52..-1> / ***INTERVAL**(...)

***INTERVAL**(...)

| **OLD**EST = **_-52_** / <integer -52..-1>

| ,**NEW**EST = **_-1_** / <integer -52..-1>

,**INF**ORMATION = **_*NAME-AND-SIZE_** / ***ALL**

,**OUTPUT** = list-poss(2): **_*SYSOUT_** / ***SYSLST**

Operands

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>
Selects the job variables which are to be listed. The job variables must satisfy the following requirements:

- They must be cataloged when the Snapset is created.
- The pubset on which they are cataloged must be imported locally.

Aliases may be specified.

SNAPSET = *LATEST / *ALL / <name 1..1 with-low> / <integer -52..-1> / *INTERVAL(...)
Specifies the Snapset from which the file information is to be output.
Information about all existing Snapsets for a pubset can be obtained using the SHOW-SNAPSET-CONFIGURATION command.

SNAPSET = *LATEST
The information is to be output from the latest Snapset (i.e. from the most up-to-date pubset backup).

SNAPSET = *ALL
The information from all existing Snapsets is output.

SNAPSET = <name 1..1 with-low>
Specifies the Snapset explicitly by means of the Snapset ID. The maximum of 52 Snapsets for a pubset are distinguished by means of Snapset IDs specified which comprise letters from the 26 lowercase letters a to z and the 26 uppercase letters A to Z.

SNAPSET = <integer -52..-1>
Specifies the Snapset explicitly by means of the relative age. The value -1 specifies the latest Snapset.

SNAPSET = *INTERVAL(...)
Information on all Snapsets which lie in the specified age range is output:

OLDEST = -52 / <integer -52..-1>
Specifies the oldest Snapset; the range begins with this Snapset.

NEWEST = -1 / <integer -52..-1>
Specifies the newest Snapset; the range ends with this Snapset.

INFORMATION = *NAME-AND-SIZE / *ALL
Determines the type and scope of the information to be output.

INFORMATION = *NAME-AND-SIZE
For each cataloged job variable one line is output which contains the length of its value and its name.

INFORMATION = *ALL
Two lines are output for each cataloged job variable. The first line has the same format as with INFORMATION=*NAME-AND-SPACE. The second line contains the creation date and release date.

OUTPUT = list-poss(2): *SYSOUT / *SYSLST
Specifies whether the information is to be directed to SYSOUT (default) and/or SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	0	CMD0001	Interrupt the output with the K2 key
2	0	DMS05B6	Incorrect conversion of UTC to LT
2	0	DMS0616	Volume set in SM pubset might not be available
	1	CMD0202	Syntax or semantic error Guaranteed messages: DMS0598, DMS06F7, DMS05DE, DMS05EE
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Specified user ID not in home pubset Guaranteed message: DMS051B
	64	DMS051C	User does not have permission to access pubset
	64	DMS051D	Logon and pubset passwords different
	64	DMS0535	Catalog entry not accessible
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS05FC	User ID does not exist
	64	DMS0616	Volume set not accessible in SM pubset
	64	DMS0622	Snapset not available
	64	DMS0682	Error while accessing job variable (e.g. it does not exist); for more detailed information on the cause of the error, see the insert of the SYSOUT message Guaranteed message: DMS0682
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0594	Not enough virtual memory available

Example

/list-jv-from-snapset :x:,inf=*all

```
----------------------------SNAPSET b------------------------
         0 :X:$TSOS.JV.#AAA
  CRE-DATE=2011-09-14 09:23:40  EXPIR-DATE=2011-09-14 00:00:00
         0 :X:$TSOS.JV.TTT
  CRE-DATE=2011-09-14 09:23:35  EXPIR-DATE=2011-09-14 00:00:00
         0 :X:$TSOS.JV.1
  CRE-DATE=2011-09-14 09:23:24  EXPIR-DATE=2011-09-14 00:00:00
         0 :X:$TSOS.JV.2
  CRE-DATE=2011-09-14 09:23:28  EXPIR-DATE=2011-09-14 00:00:00
```

3.86 LIST-NET-DIRECTORIES

Display directories released for Net-Storage

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	DEVICE STORAGE-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	G

Function

The LIST-NET-DIRECTORIES command provides information on all directories of a net server which are released for use as Net-Storage. The listed directories or also the directories beneath them can be connected to BS2000 as Net-Storage (see the MOUNT-NET-STORAGE command).

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the "Introductory Guide to DMS" [13].

Format

LIST-NET-DIRECTORIES

SERVER = <composed-name 1..256 with-under> / <c-string 1..256 with-low> / ***IP-ADDR**ESS(...)

***IP-ADDRESS**(...)

| IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>

,CLIENT = <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) / ***IP-ADDR**ESS(...)

***DNS**(...)

| DNS-NAME = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>

,SELECT = ***ALL** / ***MOUNTED / *NOT-MOUNTED**

Operands

SERVER =
Determines the Net-Server whose released directories are to be listed.

SERVER = <composed-name 1..256 with-under> / <c-string 1..256 with-low>
Host name or fully qualified domain name of a net server.

SERVER = *IP-ADDRESS(...)
IP address of the net server.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net server in IPv4 or IPv6 format.

CLIENT =
Specifies the Net-Client that is to be used to determine the released directories of the net server. The directories can be mounted via the net client, using the MOUNT-NET-STORAGE command.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

SELECT = *ALL / *MOUNTED / *NOT-MOUNTED
Determines which of the released directories are displayed.

SELECT = *ALL
All directories are displayed which are released for the specified net client and are thus available for use as Net-Storage.

SELECT = *MOUNTED
All directories are displayed which are already mounted on the specified net client and connected to BS2000.

SELECT = *NOT-MOUNTED
All directories are displayed which have been released for the specified net client but have not yet been mounted and connected to BS2000.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	1	NKAN003	Syntax error in the input
	32	NKAN004	Error in command execution
	64	NKAN015	No relevant information available

Output format

Sample output

/list-net-directories server=*ip(172.17.65.103)),client=*ip(192.168.138.12)

```
-   NET-SERVER:  IPV4: 172.17.65.103 ———————————————————————————  (1)
-   NET-CLIENT:  IPV4: 192.168.138.12 ——————————————————————————  (2)
**********************************************************************
- NET-DIRECTORY: /nas/100/fgqa/SQ200/test    (MOUNT-ID = 1) ————————  (3)
**********************************************************************
- NET-DIRECTORY: /nas/100/fgqa/HNC42    (MOUNT-ID = 2)
**********************************************************************
- NET-DIRECTORY: /export/nas/100/fgqa    (NOT MOUNTED)
**********************************************************************
- NET-DIRECTORY: /nas/100/fgqa    (NOT MOUNTED)
**********************************************************************
- NET-DIRECTORY: /export    (NOT MOUNTED)
**********************************************************************
```

(1) `NET-SERVER` displays the name or IP address of the net server as specified in the command. For an IP address, the `IPV4` or `IPV6` format is also displayed.

(2) `NET-CLIENT` displays the name or IP address of the net client as specified in the command. For an IP address, the `IPV4` or `IPV6` format is also displayed.

The following information is output in a separate information block for each released directory:

(3) `NET-DIRECTORY` displays the path name of the released directory and the status. The status can assume the following values:

- `(NOT MOUNTED)` The directory is not connected.
- `(MOUNT-ID = <n>)` If the directory is connected, the mount ID is displayed.

Output in S variable

Output information	Name of the S variable	T	Contents	Condition
Directory name of the Net-Storage released on the net server	var(*LIST).DIR(*LIST).NAME	S	<name 1..64> ''	
Mount ID of the Net-Storage (0: volume not connected)	var(*LIST).DIR(*LIST).MOUNT-ID	I	<integer>	
Name of the net server	var(*LIST).DIR(*LIST).SERVER.NAME[1]	S	<name 1..256> ''	
IP address of the net server in IPv4 format	var(*LIST).DIR(*LIST).SERVER.IPV4[1]	S	<name 7..15> ''	
IP address of the net server in IPv6 format	var(*LIST).DIR(*LIST).SERVER.IPV6[1]	S	<name 15..39> ''	
Name of the net client	var(*LIST).DIR(*LIST).CLIENT.NAME[1]	S	<name 1..256> ''	
DNS name of the net client	var(*LIST).DIR(*LIST).CLIENT.DNS[1]	S	<name 1..256> ''	
IP address of the net client in IPv4 format	var(*LIST).DIR(*LIST).CLIENT.IPV4[1]	S	<name 7..15> ''	
IP address of the net client in IPv6 format	var(*LIST).DIR(*LIST).CLIENT.IPV6[1]	S	<name 15..39> ''	

[1] Status-dependent output: empty string if the information is unavailable.

3.87 LIST-NODE-FILES

List node files on Net-Storage volume

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS
Routing code:	@ (bei NBCONOPI=N) bzw. E (bei NBCONOPI=Y)

Function

The LIST-NODE-FILES command lists node files (files of the type NODE-FILE) which are located on a Net-Storage volume and can be imported with the IMPORT-NODE-FILE command. This comprises all node files with a BS2000-compliant name which are stored directly in the user-specific directory on the Net-Storage volume. Directories and files located below it are not taken into account.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Systems support (TSOS privilege) can have node files from all user-specific directories listed.

Format

LIST-NODE-FILES

VOLUME = <vsn 6..6>

,**USER-DIR**ECTORY = ***OWN** / ***ALL** / <name 1..8>

,**NODE-FILE-NAME** = ***** / <filename 1..54 without-cat-gen-vers with-wild(80)>

,**INF**ORMATION = ***STD** / ***SUM**MARY

,**OUTPUT** = ***SYSOUT** / list-poss(2): ***SYSOUT** / ***SYSLST**

,**SELECT = *ALL / *NOT-IMPORTED / IMPORTED(...)**

***IMPORTED**(...)

| **FILE-STRUCTURE** = ***ANY** / ***SAM** / ***PAM** / ***NONE**

Operands

VOLUME = <vsn 6..6>
VSN of the Net-Storage volumes whose node files are to be listed.

USER-DIRECTORY = *OWN / *ALL / <name 1..8 >
Directory of the user ID from which the node files are listed. The directory name is the same as the user ID. Only those files are listed which reside directly below this directory on the Net-Storage volume. Directories contained in the directory are ignored. Nonprivileged users can only obtain information on node files for their own user ID.

USER-DIRECTORY = *OWN
Lists node files from the directory of the user's own user ID.

USER-DIRECTORY = *ALL
This operand value is reserved for privileged users. Lists node files from all user directories of the Net-Storage volume.

USER-DIRECTORY = <name 1..8 >
Lists node files from the specified user directory. The name of the directory corresponds to the user ID. Nonprivileged users can only specify their own user ID.

NODE-FILE-NAME = * / <filename 1..54 without-cat-gen-vers with-wild(80)>
File names of the node files which are to be listed. Only files with BS2000-compliant file names are listed, i.e. node files which can be imported.

INFORMATION = *STD / *SUMMARY
Controls the scope of the information to be output.

INFORMATION = *STD
Outputs a line of information with the most important file attributes in summarized form for each node file. The line of information contains brief information about the file access rights, file size, change date and file name. Up to 74 characters are displayed.

INFORMATION = *SUMMARY
For each specified user directory, outputs the number of node files and the total number of bytes which these occupy in this directory.

OUTPUT =
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The output is directed to SYSOUT.

OUTPUT = *SYSLST
Output is written to SYSLST.

SELECT = *ALL / *NOT-IMPORTED / *IMPORTED(…)
Select which files should be displayed.

SELECT = *ALL
All files will be displayed.

SELECT= *NOT-IMPORTED
All files that are not imported are displayed.

SELECT = *IMPORTED(...)
Specifies that only imported files should be displayed.

FILE-STRUCTURE = *ANY / *SAM / *PAM / *NONE

Specifies the file type of the files to be displayed.

FILE-STRUCTURE = *ANY
All files that are imported are displayed regardless of the file type.

FILE-STRUCTURE = *SAM
All imported files with the FCB type SAM are displayed.

FILE-STRUCTURE = *PAM
All imported files with the FCB type PAM are displayed.

FILE-STRUCTURE = *NONE
All imported files that do not have an FCB type are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privilege errors
	64	DMS051B	Requested user ID not in pubset
	64	DMS0594	Not enough virtual memory available
	64	DMS0586	It is not possible to access or reserve a volume at present
	32	DMS05C7	DMS internal error
	64	DMS0607	Error when generating S variables
	64	DMS0640	ONETSTOR reports communication problem with net client
	64	DMS0643	Net client reports access error
	64	DMS0644	Net client reports internal error
	64	DMS06CC	No file matches selection criteria

Output format

Sample output

```
/list-node-files volume=ck68@0,user-dir=*own,node-file-name=*
 CK68@0/USER1/ ————————————————————————————————————————————————————————  (1)
 -rw-------   10k Sep 12 14:27 IMP SAM NNDF1 ——————————————————————————  (2)
 -rw-------    2M May 21 01:10 IMP PAM NNDF2
 -rw-------     0 May 21 01:15 IMP NON NNDF3
 -rw-------    2M May 21 01:20 NOT     NNDF4
 -rw-------    3k May 21 01:20 NOT *   NNDF5
USER1    : NOT=    1 SAM=    1 PAM=    1 NON=    2 SUM=    5 ——————————  (3)
SUM      : NOT=    1 SAM=    1 PAM=    1 NON=    2 SUM=    5 ——————————  (4)
```

Explanation of the output

The following information is output for each specified user-specific directory:

(1) Path name of the user-specific directory containing the displayed node files.

(2) The following file attributes are displayed for each file of the user-specific directory:

- The read, write and execute access rights for the file owner, the user's group and the other users in UNIX format: r=read permission, w=write permission, x=execute permission and “-” when no authorization isavailable.

- The file size in bytes (without suffix), in KB (suffix “k”), in MB (suffix “M”) or in GB (suffix “G”).
- Date and time of the last change.
- Name of the file.
- File Status: Imported (IMP) or Not Imported (NOT).
- File type of the file.
  - IMP SAM : Imported as a SAM file
  - IMP PAM : Imported as a PAM file
  - IMP NON : Imported, but no FCB Typ defined
  - NOT : Not imported
  - NOT * : Not imported, file with the same name exists in BS2000

Output in S variable

The INFORMATION operand identifies the S variables which are to be created.

Output information	Name of the S variable	T	Contents	Condition
Name of the file	var(*LIST).F-NAME	S	'' <filename>	INF=*STD
FCB type of the imported file	var(*LIST).F-STRUCTURE	S	'' PAM / SAM / NON	INF=*STD
File is not imported, file with the same name exists in BS2000	var(*LIST).FILE-EXISTS	S	'' NO / YES	INF=*STD
File size, depending on size in bytes (without suffix), in KB (suffix “k”), in MB (suffix “M”) or in GB (suffix “G”)	var(*LIST).F-SIZE	I	'' <integer 0.. 1023> <integer 0.. 1023>k <integer 0.. 1023>M <integer 0.. 1023>G	INF=*STD
Execute permission for GROUP	var(*LIST).GROUP.EXEC	S	'' NO / YES	INF=*STD
Read permission for GROUP	var(*LIST).GROUP.READ	S	'' NO / YES	INF=*STD
Write permission for GROUP	var(*LIST).GROUP.WRITE	S	'' NO / YES	INF=*STD
File is imported	var(*LIST).IMPORTED	S	'' NO / YES	INF=*STD

Date of last file modification	var(*LIST).LAST-CHA-DATE	S	'' <yyyy-mm-dd>	INF=*STD
Time of last file modification	var(*LIST).LAST-CHA-TIME	S	'' <hh:mm>	INF=*STD
Number of node files in the directory	var(*LIST).NUM-OF-F	I	'' <integer 0..1023>	INF=*SUM
Execute permission for OTHERS	var(*LIST).OTHERS.EXEC	S	'' NO / YES	INF=*STD
Read permission for OTHERS	var(*LIST).OTHERS.READ	S	'' NO / YES	INF=*STD
Write permission for OTHERS	var(*LIST).OTHERS.WRITE	S	'' NO / YES	INF=*STD
Execute permission for OWNER	var(*LIST).OWNER.EXEC	S	'' NO / YES	INF=*STD
Read permission for OWNER	var(*LIST).OWNER.READ	S	'' NO / YES	INF=*STD
Write permission for OWNER	var(*LIST).OWNER.WRITE	S	'' NO / YES	INF=*STD
UNIX file type	var(*LIST).UNIX-F-TYPE	S	'' FILE	INF=*STD
UNIX path name: directory of the node file	var(*LIST).UNIX-PATHNAME	S	'' <filename>	INF=*STD/*SUM
Sum of the storage space of the node files in the directory	var(*LIST).USED-BYTES	I	'' <integer 0..1023> <integer 0..1023>k <integer 0..1023>M <integer 0..1023>G	INF=*SUM
user ID	var(*LIST).USER-ID	S	'' <userid>	INF=*STD

3.88 LOAD-ALIAS-CATALOG

Load entries from file into alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The LOAD-ALIAS-CATALOG command enables the user to load an alias catalog file (also called an AC file) into the task-local alias catalog. If no alias catalog exists for the task, an alias catalog is created for it automatically the first time an AC file is loaded.
The AC file contains the assignments of aliases to actual file or job variable names. When the alias substitution function is active, ACS substitutes the actual file or job variable name for the aliases that are specified by the user in commands. The alias substitution function has priority over the prefix insertion function and prevents the insertion of prefixes.
The ACS administrator can provide the user with one or more AC system files containing predefined alias definitions for specific software configurations (e.g. compilers, utilities, etc.). The names of the available AC system files can be displayed by means of the SHOW-ACS-SYSTEM-FILES command. The name of the default AC system file is identified by the character “>” in the output of this command.
If desired, the user may also load a personally created AC file containing user-specific alias definitions (see also the STORE-ALIAS-CATALOG command).
The alias catalog that is local to the task can be extended by loading additional AC files (see the MODE=*MERGE operand) or by adding individual alias definitions to it with the ADD-ALIAS-CATALOG-ENTRY command.
Entries in the alias catalog that is local to the task can be displayed by the user with the SHOW-ALIAS-CATALOG-ENTRY command.
The commands HOLD-ALIAS-CATALOG and RESUME-ALIAS-CATALOG can be used to halt and resume alias substitution, respectively.
The user can save the current alias catalog in an AC file by using the STORE-ALIAS-CATALOG command (only the user entries are saved), or delete it with the PURGE-ALIAS-CATALOG command.
The alias catalog is automatically deleted at the end of the task.

Loading errors

Syntactically incorrect or invalid AC entries cannot be loaded into the alias catalog and are not logged, but message ACS0003 is output. **Five** such errors will cause the load operation to abort.
The existing alias catalog, if any, will be restored to its original state if loading is aborted.

Format

LOAD-ALIAS-CATALOG	Alias: **LDAC**

ALIAS-CATALOG-**ID** = ***STD** / <composed-name 1..20> / ***OWN**(...)

***OWN**(...)

| **FROM-FILE** = <filename 1..54 without-gen-vers>

,**MODE** = ***MERGE** / ***REPLACE**

,**SEL**ECT = ***ALL-ENTRIES** / ***BY-ALIAS-NAME**(...)

***BY-ALIAS-NAME**(...)

| **USER-ID**ENTIFICATION = ***ANY** / ***OWN** / ***NONE** / ***DEF**AULT-**USERID**

,**SUCC**ESS-**MSG** = ***STD** / ***Y**ES / ***NO**

Operands

ALIAS-CATALOG-ID =*STD / <composed-name 1..20> / *OWN(...)
Names the AC file from which the alias catalog is to be loaded. The user must have execution rights for the AC file.

ALIAS-CATALOG-ID = *STD
The alias catalog is loaded from the default AC system file. This file is identified in the output of the SHOW-AC-SYSTEM-FILES command by the character “>”.

ALIAS-CATALOG-ID = <composed-name 1..20>
Identification of an AC system file. The available AC system files can be determined by the user with the SHOW-AC-SYSTEM-FILES command.

ALIAS-CATALOG-ID = *OWN(...)
The alias catalog is loaded from the AC file that is specified by the user.

FROM-FILE = <filename 1..54 without-gen-vers>
File name of the AC file.

MODE = *MERGE / *REPLACE
Specifies whether the alias catalog to be generated is to overwrite or extend an existing alias catalog.

MODE = *MERGE
The existing alias catalog, if any, is retained, and entries from the specified AC system file or the user-specific AC file are appended to it. Existing entries with the same alias are overwritten.

MODE = *REPLACE
Previous entries in the alias catalog are deleted. The new alias catalog will only have the entries contained in the AC system file or AC file.

SELECT = *ALL-ENTRIES / *BY-ALIAS-NAME(...)
Determines whether all entries in the specified AC system file or AC file are to be loaded into the task-specific alias catalog.

SELECT = *ALL-ENTRIES
All entries are loaded into the alias catalog of the task.

SELECT = *BY-ALIAS-NAME(...)
Only the entries specified in the selection which follows are loaded into the task-local alias catalog. The selection criterion used is the name of the alias.

USER-IDENTIFICATION =
The entries to be loaded are selected on the basis of the user ID that was specified in the alias.

USER-IDENTIFICATION = *ANY
The user ID does not serve as a selection criterion (equivalent to SELECT=*ALL-ENTRIES).

USER-IDENTIFICATION = *OWN
Only the entries which have the user's own user ID in the alias are loaded.

USER-IDENTIFICATION = *NONE
Only the entries without a user ID in the alias are loaded.

USER-IDENTIFICATION = *DEFAULT-USERID
Only the entries with the system default ID in the alias are loaded. The alias *$file* is equivalent to *$.file* if *file* does not contain a period.

SUCCESS-MSG = *STD / *YES / *NO
Specifies whether a message is to be output after the AC system file or AC file is successfully loaded.

SUCCESS-MSG = *STD
The success message depends on the global settings or the setting which are local to the task (see the MODIFY-ACS-OPTIONS command). The currently applicable settings can be determined from the output of the SHOW-ACS-OPTIONS command.

SUCCESS-MSG = *YES
Message ACS0001 is output after successful loading.

SUCCESS-MSG = *NO
Message ACS0001 is suppressed.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed normally Guaranteed message: ACS0001 (if logging is enabled; see SUCCESS-MSG operand)
1	0	CMD0001	No action (e.g. no default ACSF)
2	0	ACS0003	Warning: invalid record in ACF ignored
	32	CMD0221	Internal error
	64	ACS0004	Aborted due to invalid records in ACF
	64	ACS0011	Error when accessing file
	64	ACS0012	ACSF not found
	64	ACS0029	Command not permitted
	128	ACS0018	ACS is not available
	130	ACS0036	Resource bottleneck

Example

Creating the alias catalog and loading entries from the AC file

```
/add-alias-cat alias=bsp,file=max.file.3 ————————————————————————   (1)
```

```
% ACS0020 ALIAS CATALOG ACTIVATED
```

```
/add-alias-cat alias=max,file=max.file.3          ————————————————————   (2)
/add-alias-cat alias=sf.sdf,file=$tsos.sys.sdf.system.syntax,range=*file – (3)
/show-alias                                       ————————————————————   (4)
```

```
% ALIAS FILE NAME -> FILE NAME
%UB : BSP -> MAX.FILE.3
%UB : MAX -> MAX.FILE.3
%UF : SF.SDF -> $TSOS.SYS.SDF.SYSTEM.SYNTAX
% ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 0, FOR USER: 3)
```

```
/load-alias-cat alias-cat=*own(acs.a1),mode=*replace————————————————   (5)
```

```
% ACS0001 ALIAS CATALOG 'USER1AC' LOADED (DESCRIPTOR='V0001A', DATE=2014-02-11, NUMBER
OF ENTRIES=3)
```

/show-alias **(6)**

```
% ALIAS FILE NAME -> FILE NAME
%UF : ASS -> $.ASSEMBH
%UB : BSP -> LST.BSP.2
%UF : SF.SDF -> $TSOS.SYS.SDF.SYSTEM.SYNTAX
% ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 0, FOR USER: 3)
```

/>rem-alias alias=ass **(7)**

/add-alias alias=max,file=max.file.3 **(8)**

/show-alias **(9)**

```
% ALIAS FILE NAME -> FILE NAME
%UB : BSP -> LST.BSP.2
%UB : MAX -> MAX.FILE.3
%UF : SF.SDF -> $TSOS.SYS.SDF.SYSTEM.SYNTAX
% ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 3 (FOR SYSTEM: 0, FOR USER: 3)
```

/load-alias-cat alias=*own(acs.a1),mode=*merge **(10)**

```
% ACS0001 ALIAS CATALOG 'USER1AC' LOADED (DESCRIPTOR='V0001A', DATE=2014-02-11, NUMBER
OF ENTRIES=3)
```

/show-alias **(11)**

```
% ALIAS FILE NAME -> FILE NAME
%UF : ASS -> $.ASSEMBH
%UB : BSP -> LST.BSP.2
%UB : MAX -> MAX.FILE.3
%UF : SF.SDF -> $TSOS.SYS.SDF.SYSTEM.SYNTAX
% ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 4 (FOR SYSTEM: 0, FOR USER: 4)
```

/purge-alias-cat **(12)**

/show-alias **(13)**

```
% ACS0017 ALIAS CATALOG NOT AVAILABLE. COMMAND REJECTED
```

(1) The command ADD-ALIAS-CATALOG-ENTRY creates an entry in the task-local alias catalog to define the alias *EXP* for the file *MAX.FILE.3*. Since no alias catalog had been activated for the task, the alias catalog in question is activated in the process.

(2) The command ADD-ALIAS-CATALOG-ENTRY creates an entry in the task-local alias catalog to define the alias *MAX* for the file *MAX.FILE.3* (thus defining a second alias).

(3) The command ADD-ALIAS-CATALOG-ENTRY creates an entry in the task-local alias catalog to define the alias *SF.SDF* for the file *$TSOS.SYS.SDF.SYSTEM.SYNTAX* (because RANGE=*FILE the entry here applies only for files).

(4) Output of the entries contained in the alias catalog.

(5) The entries of the AC file *ACS.A1* are loaded into the alias catalog, and all previously existing entries are removed (`MODE=REPLACE`) in the process.

(6) The output of the SHOW-ALIAS-CATALOG-ENTRY command shows the three user entries that were saved in the AC file *ACS.A1* by means of the STORE-ALIAS-CATALOG-ENTRY command. All entries made earlier were removed or replaced by new entries for the same alias. For example, the alias *EXP* now addresses the file *LST.EXP.2*.

(7) Deletes the entry with the alias *ASS*.

(8) Adds an entry with the alias *MAX* for the file *MAX.FILE.3*.

(9) Output of the current entries in the alias catalog.

(10) The entries of the AC file *ACS.A1* are loaded into the alias catalog. All previously made entries are to be retained in this case (`MODE=MERGE`), but entries with the same alias are to be overwritten. The same result could be obtained by the user with the ADD-ALIAS-CATALOG-ENTRY commands for all entries of the alias catalog.

(11) Output of the current entries in the alias catalog.

(12) The task-local alias catalog is deleted by using the PURGE-ALIAS-CATALOG command. This also ends the ACS substitution function.

(13) The command SHOW-ALIAS-CATALOG-ENTY indicates that no task-local alias catalog is loaded.

For further examples, see the ADD-ALIAS-CATALOG-ENTRY and HOLD-ALIAS-SUBSTITUTION commands.

3.89 LOAD-EXECUTABLE-PROGRAM

Load executable program (LLM, load, object module)

Component:	BLSSERV
Functional area:	Program control System control and optimization
Domain:	PROGRAM
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The LOAD-EXECUTABLE-PROGRAM command has two functions:

- It calls the dynamic binder loader DBL and defines the primary input. DBL links LLMs or OMs into a load unit, which it then loads into main memory. The DBL loads an LLM which has already been linked by the BINDER into a load unit and stored in a PAM file (PAM-LLM) only in main memory.
- It calls the static loader ELDE. A program (load module) previously linked by the TSOSLNK linkage editor is loaded by ELDE into main memory.

The loaded load unit or program is not started until a RESUME-PROGRAM command is executed.

If the user wants to load *and* start the load unit or program, the START-EXECUTABLE-PROGRAM command can be used instead of the LOAD-EXECUTABLE-PROGRAM and RESUME-PROGRAM commands.

In the case of operands which have *DBL-PARAMETERS as their default value, the MODIFY-DBL-DEFAULTS command can be used to modify the default DBL parameters which apply when the task is started. The parameters can be configured separately for calls to the LOAD- and START-EXECUTABLE-PROGRAM commands on the one hand and for the BIND macro call on the other. The SHOW-DBL-DEFAULTS command lists the values which are currently set. The RESET-DBL-DEFAULTS command can be used to return the settings to the DBL defaults.

> **i** Structure-implicit notation is guaranteed for the PROGRAM-MODE, REP-FILE and ALTERNATE-LIBRARIES operands (see section "Abbreviation of names").

Restrictions

Users with SAT-FILE-EVALUATION, SAT-FILE-MANAGEMENT and SECURITY-ADMINISTRATION privileges can only use the command in procedures.

Format

LOAD-EXECUTABLE-PROGRAM Alias: **LDX**

FROM-FILE = <filename 1..54 without-gen> / ***OMF** / [***LIB**RARY**-ELEM**ENT](...)

[***LIB**RARY**-ELEM**ENT](...)

| **LIB**RARY = ***DBL-DEFAULT** / ***BLSLIB** / <filename 1..54 without-gen> / ***LINK**(...)

| ***LINK**(...)

| | **LINK**-NAME = <structured-name 1..8>

| ,**ELEM**ENT**-OR-SYM**BOL = <composed-name 1..64 with-under>(...) / <c-string 1..32 with-low *symbol*>

| <composed-name 1..64 with-under>(...)

| | **VERSION** = ***HIGH**EST**-EXIST** ING / <composed-name 1..24 with-under>

| | ,**NAME-SCOPE** = ***ELEM**ENT / ***STD** / ***SYMBOL**

,**TYPE** = **(L,C,R)** / list-poss(3): **L** / **C** / **R**

,**PROG**RAM**-PAR**AMETERS = ***NONE** / <c-string 1..1800 with-low>

,**DBL-PAR**AMETERS = ***STD** / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **LOAD**ING = [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **PROG**RAM**-MODE** = ***DBL-DEFAULT** / ***ANY** / ***24**

| | ,**LOAD-INF**ORMATION = ***DBL-DEFAULT** / ***DEFI**NITIONS / ***MAP** / ***NONE** /

| | ***REF**ERENCES

| | ,**REP-FILE** = ***DBL-DEFAULT** / ***NONE** / <filename 1..54 without-gen>

| | ,**IGNORE-ATTR**IBUTES = ***DBL-DEFAULT** / ***NONE** / ***READ-ONLY**

| | ,**AMODE-CHECK** = ***DBL-DEFAULT** / ***STD** / ***ADVANCED**

| ,**RESOLUTION** = [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **SHARE-SCOPE** = ***DBL-DEFAULT** / ***SYS**TEM**-MEMORY** / ***NONE** / ***ALL** /

| | ***MEMORY-POOL**(...)

| | ***MEMORY-POOL**(...)

| | | **SCOPE** = ***ALL** / ***USER-ID** / ***USER-GROUP** / ***HOST-SYS**TEM

| | ,**PROG**RAM**-VERS**ION = ***DBL-DEFAULT** / ***STD** / ***BLANK** /

| | <composed-name 1..24 with-under>

| | ,**ALTER**NATE-**LIB**RARIES = ***DBL-DEFAULT** / ***NONE** / list-poss(2): ***TASKLIB** / ***BLSLIB##**

| | ,**AUTOLINK** = ***DBL-DEFAULT** / ***Y**ES / ***NO** / ***ALTER**NATE-**LIB**RARIES

| ,**ERROR-PROC**ESSING = [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **NAME-COLLISION** = ***DBL-DEFAULT** / ***STD** / ***ABORT**

| | ,**UNRESOLVED-EXTRNS** = ***DBL-DEFAULT** / ***STD** / ***DELAY** / ***ABORT**

| | ,**ERROR-EXIT** = ***DBL-DEFAULT** / ***NONE** / <x-string 1..8>

| ,**REPORT**ING = [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **MES**SAGE-**CONTR**OL = ***DBL-DEFAULT** / ***INF**ORMATION / ***WARN**ING / ***ERROR** /

| | ***NONE**

| | ,**PROG**RAM-**MAP** = ***DBL-DEFAULT** / ***NONE** / ***SYSLST**(...) / ***SYSOUT** / ***BOTH**(...)

| | ***SYSLST**(...)

| | | **SYSLST-NUM**BER = ***STD** / <integer 1..99>

| | ***BOTH**(...)

| | | **SYSLST-NUM**BER = ***STD** / <integer 1..99>

,**MONJV** = ***NONE** / <filename 1..54 without-gen-vers>

,**CPU-LIM**IT = ***JOB-REST** / <integer 1..32767 *seconds*>

,**TEST-OPT**IONS = ***DBL-DEFAULT** / ***NONE** / ***AID**

,**RESID**ENT-**PAGE**S = [***PAR**AMETERS] (...)

[***PAR**AMETERS](...)

| **MIN**IMUM = ***STD** / <integer 0..2147483647 *4Kbyte*>

| ,**MAX**IMUM = ***STD** / <integer 0..2147483647 *4Kbyte*>

,**VIRT**UAL-**PAGES** = ***STD** / <integer 0..32767 *4Kbyte*>

Operands

FROM-FILE =
Determines the input source from which the program is to be loaded.

FROM-FILE = <filename 1..54 without-gen>
Name of the PAM file that contains a load module or PAM-LLM.

> If the file/library name is specified without a catalog/user ID and if it is not cataloged in the user ID, the system tries to access a file or library of the same name in the system default ID. (For information on this "secondary read" function see the "Introductory Guide to DMS" [13].)

FROM-FILE = *OMF
The input source is the EAM object module file. This contains object modules only.

FROM-FILE = *LIBRARY-ELEMENT(...)
The input source is a program library from which modules are retrieved. Either the dynamic binder loader DBL or the static loader ELDE is called depending on the element type.

LIBRARY =
Specifies the input source from which modules (LLMs, load modules or object modules) are to be retrieved. The input source must generally be a program library. If the input source is an object module library (OML) then the following conditions must be fulfilled:

- Only object modules (OM, TYPE=R) may be loaded
- A value other than the default value ELEMENT must be specified for the NAME-SCOPE operand.

Whether other libraries are searched depends on the specification in the ALTERNATE-LIBRARIES operand.

LIBRARY = *DBL-DEFAULT
The setting in the last MODIFY-DBL-DEFAULTS command applies. *BLSLIB is set by default on task start.

LIBRARY = *BLSLIB
The input source is the **standard library** with the file link name BLSLIB.

LIBRARY = <filename 1..54 without-gen>
File name of a library serving as input source.

LIBRARY = *LINK(...)
File link name of the library serving as input source.

LINK-NAME = <structured-name 1..8>
File link name of the library.

ELEMENT-OR-SYMBOL =
Specifies the modules that are to be retrieved from the specified input source.
In the case of an object module, the start address is dependent on the specifications in the END record as follows:

- If a start address is specified in the END record then this address is used.
- If no start address is specified in the END record then the address of the first CSECT in the module is used.

- If an external reference (EXTRN or WXTRN) is specified in the END record then the module is started at the address of the symbol that resolves this reference. If no symbol that resolves the reference is found then
  - in the case of an unresolved EXTRN, loading is aborted,
  - in the case of an unresolved WXTRN, the module is started at the address of the first CSECT.

An LLM is started at the address that was taken over by the BINDER when the LLM was stored.

ELEMENT-OR-SYMBOL = <composed-name 1..64 with-under>(...)
Name of the object module (element type R), load module (element type C) or LLM (element type L). The possible element types are specified in the TYPE operand. Depending on the specification in the NAME-SCOPE operand, a CSECT name, ENTRY name or element name from a module may be specified.

VERSION =
Specifies the element version.

VERSION = *HIGHEST-EXISTING
The default value for the highest element version in program libraries is taken over (see the “LMS” manual [21]).

VERSION = <composed-name 1..24 with-under>
Explicit specification of the element version.

NAME-SCOPE =
Specifies whether the name entered in ELEMENT-OR-SYMBOL can be an element name or also a CSECT or ENTRY name.

NAME-SCOPE = *ELEMENT
Only elements in PLAM libraries are searched for.

NAME-SCOPE = *SYMBOL
Only CSECT or ENTRY names are searched for. If the specified name is longer than 32 characters, the command is rejected.
For the search order, see section “Linkage process” in the “BLSSERV” User Guide [3].

NAME-SCOPE = *STD
Both element names (with the exception of type C) and CSECT/ENTRY names are searched for. If the specified name is longer than 32 characters, the command is rejected.
For the search order, see section “Linkage process” in the “BLSSERV” User Guide [3].

ELEMENT-OR-SYMBOL = <c-string 1..32 with-low *symbol* >
Specifies a symbol as a C string (pay attention to uppercase/lowercase). For the search order, see section “Linkage process” in the “BLSSERV” User Guide [3].

TYPE = (L,C,R) / list-poss(3): L / C / R
Specifies the element type. When a list is specified, the order of the specified element types also determines the search order. The default setting (L,C,R) specifies that the element is first searched for in the LLMs, then in the load modules and finally in the OMs. In the case of NAME-SCOPE=*SYMBOL/*STD, the specification of element type C is ignored.
The following applies for element names > 41 characters:

- If element type C is specified as an individual value, the command is rejected.
- If multiple element types are specified, element type C is ignored.

The operand is only evaluated for the input source (LIBRARY), not for alternate libraries for which the order L, R applies.

PROGRAM-PARAMETERS = *NONE / <c-string 1..1800 with-low>
Parameters can be specified only if the chargeable SDF-P subsystem is in use.
Program parameters which read in the called program from the S variable SYSPARAM or via the C function *getopt*. The default value is *NONE, i.e. no parameters are passed to the program. In such cases, an existing SYSPARAM is deleted.

DBL-PARAMETERS = *STD / *PARAMETERS(...)
This operand is not evaluated for load modules (element type C).
Designates all the parameters that are set by default in DBL or whose default setting can be modified using the MODIFY-DBL-DEFAULTS command. *STD is set by default, i.e. the command is called with the current DBL parameters. It is possible to declare explicit values for the command call by specifying *PARAMETERS(...).

DBL-PARAMETERS = *PARAMETERS(...)
Explicit specification of the DBL parameters for this command call.

LOADING = *PARAMETERS(...)
Specifies the parameters for the load operation.

PROGRAM-MODE=
Specifies in which part of the address space (above or below the 16-Mbyte boundary) the modules of the load unit are to be loaded. For the addressing mode, see the “BLSSERV” User Guide [3].

PROGRAM-MODE = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is 24.

PROGRAM-MODE = *ANY
The modules of the load unit may be loaded above or below the 16-Mbyte boundary.

PROGRAM-MODE = *24
The entire load unit is loaded below the 16-Mbyte boundary.

LOAD-INFORMATION =
Specifies the loading information for the load unit.

LOAD-INFORMATION = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *DEFINITIONS.

LOAD-INFORMATION = *DEFINITIONS
Loads an ESD containing the program definitions of all the modules in the load unit. Program definitions include program sections (CSECTs), entry points (ENTRYs), COMMON areas and external dummy sections (XDSECs-D).

LOAD-INFORMATION = *REFERENCES
Loads an ESD containing not only the program definitions, but also the satisfied references of all the modules in the load unit.
References include external references (EXTRNs), V-type constants, conditional external references (WXTRNs) and external dummy sections (XDSECs-R).

LOAD-INFORMATION = *MAP
Only one ESD required for the generation of the DBL list is *temporarily* loaded. The ESD is unloaded as soon as the DBL list has been generated.

LOAD-INFORMATION = *NONE
The external symbols dictionary (ESD) is not loaded with LLMs and is only loaded temporarily with OMs.

- With LLMs, the ESD is not read at all and consequently is also not used to resolve references within the generated load unit.
- With OMs, the ESD is read and is temporarily available during the loading process.

If external references need to be resolved between LLMs and OMs of the generated load unit, the minimum specification is *DEFINITIONS or *MAP.

REP-FILE = *DBL-DEFAULT / *NONE / <filename 1..54 without-gen>
Specifies whether REP records are to be applied to the modules of a load unit. Default: The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE, i. e. no REP records are used.
If the user specifies a file name, the DBL attempts to process REP records from this file. The REP records must have the standard format that is processed by the RMS utility routine (see the “Utility Routines” manual [9]). Should an error occur during REP record processing, a message (warning) is output, the invalid REP record is skipped and REP processing is then continued.

IGNORE-ATTRIBUTES =
Specifies which CSECT attributes are ignored on loading.

IGNORE-ATTRIBUTES = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE.

IGNORE-ATTRIBUTES = *NONE
No CSECT attributes are ignored on loading.

IGNORE-ATTRIBUTES = *READ-ONLY
The CSECT attribute READ-ONLY is ignored on loading. The CSECT is loaded into a readable/writable main memory page. This enables breakpoints to be set when testing with AID, for example.

AMODE-CHECK = *DBL-DEFAULT / *STD / *ADVANCED
Determines whether additional checks of the addressing mode should take place during loading.

AMODE-CHECK = *DBL-DEFAULT
The setting of the last MODIFY-DBL-DEFAULTS command applies. When the task begins, *STD is the default.

AMODE-CHECK = *STD
Only the checks compatible with BLSSERV < V2.5 are executed.

AMODE-CHECK = *ADVANCED
The same checks as for AMODE-CHECK = *STD are performed.
During loading, a check is also performed to see whether inconsistencies can occur while resolving external references because of the load unit’s addressing mode.

RESOLUTION = *PARAMETERS(...)
Specifies how external references are to be handled.

SHARE-SCOPE =

*This specification is ignored for a PAM-LLM (SHARE-SCOPE=*NONE applies implicitly).* Specifies whether, and if so, which portion of the shared code (see section “Shareable programs (shared code)” in the “BLSSERV” User Guide [3]) is included in the search for modules of the load unit and for unresolved external references. On the system level, system administration can make available frequently used programs or modules to users in class 4/5 memory (as nonprivileged subsystems). The nonprivileged user can also make available programs or modules to users in class 6 memory (in a memory pool).
If a user uses modules from the available shared code, these modules need not be created in the task’s class 6 memory. The references to modules already loaded as shared code suffice.
The shared code is searched in the following order:

1. Search of the shared code in class 6 memory (Common Memory Pools). If DBL finds the symbol it is searching for, it passes the load address, connects the task to the memory pool and terminates the load operation.
2. Search of the system’s shared code, i.e. search of all nonprivileged subsystems that have been loaded into class 3/4 and class 5 memory. If DBL finds the symbol it is searching for, it passes the load address, connects the task to the memory pool and terminates the load operation.

SHARE-SCOPE = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *SYSTEM-MEMORY.

SHARE-SCOPE = *SYSTEM-MEMORY
Only the shared code made available in class 3/4 and class 5 memory is included in the search.

SHARE-SCOPE = *NONE
Shared code is not included in the search.

SHARE-SCOPE = *ALL
Both the shared code made available in class 3/4 and class 5 memory (system memory) and that made available in class 6 memory (memory pools) is included in the search.

SHARE-SCOPE = *MEMORY-POOL(...)
The user shared code available in class 6 memory is included in the search, i.e. memory pools with the specified scope are included.

SCOPE =
Scope of the memory pools to be included.

SCOPE = *ALL
All memory pools which the task can access are included.

SCOPE = *USER-ID
Only memory pools which were set up for the user ID of the calling task are included, i.e. memory pools which are shareable for all tasks under this user ID.

SCOPE = *USER-GROUP
Only memory pools which were set up for the user group to which the calling task belongs are included, i.e. memory pools which are shareable for all tasks of this user group.

SCOPE = *HOST-SYSTEM
Only memory pools which were set up globally are included, i.e. memory pools which can be used by all tasks.

PROGRAM-VERSION =
Specifies the program version that DBL is to use. With regard to DBL, a program version is the version of a load unit which is about to be or has already been loaded.

PROGRAM-VERSION = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *STD.

PROGRAM-VERSION = *STD
The load unit produced by the load call is assigned the version of the loaded library element as its program version.
If the symbol specified in the load call has already been loaded, the command looks for the program version defined in the SELECT-PROGRAM-VERSION command. If no program version has yet been defined, DBL uses the first symbol it finds.

PROGRAM-VERSION = *BLANK
The program version is disregarded. If the load unit specified in the call is not yet loaded, the load unit being loaded is not assigned a version.

PROGRAM-VERSION = <composed-name 1..24 with-under>
Version of the program looked for among the programs which are already loaded. If this program version has not yet been loaded, the load unit being loaded is assigned this version.

ALTERNATE-LIBRARIES = *DBL-DEFAULT / *NONE / list-poss(2) *TASKLIB / *BLSLIB##
*This specification is ignored for a PAM-LLM (ALTERNATE-LIBRARIES=*NONE applies implicitly).*
Specifies whether alternate libraries are to be searched for symbols. They are also used for the DBL autolink function (see also the AUTOLINK operand).
If a list is specified then the libraries are searched in the specified order.
When the alternate libraries are searched, then the fixed type order L,R applies irrespective of the TYPE operand. In this case, only symbols are searched for, not element names.

ALTERNATE-LIBRARIES = *DBL-DEFAULT
The setting in the last MODIFY-DBL-DEFAULTS command applies. *NONE is set by default at task start.

ALTERNATE-LIBRARIES = *NONE
No alternate libraries are searched.

ALTERNATE-LIBRARIES = *TASKLIB
The system and/or user Tasklibs are searched in the following order:

1. The library that was assigned using the SET-TASKLIB command
2. The library $userid.TASKLIB or, if this does not exist
   The TASKLIB library under the system default ID (DEFLUID ID)

ALTERNATE-LIBRARIES = *BLSLIB##
The libraries assigned with the file link name BLSLIBnn or $BLSLBnn (00<=nn<=99) are searched.

Files with the file link name $BLSLBnn are alternate system libraries that are internally assigned by the system depending on the components that are required by the runtime system.

AUTOLINK =
*This specification is ignored for a PAM-LLM (AUTOLINK=*NO applies implicitly).* Specifies whether the DBL autolink function is to be used.

AUTOLINK = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *YES.

AUTOLINK = *YES
The DBL autolink function is used and both the input source and any alternate libraries are searched.

AUTOLINK = *NO
The DBL autolink function is not used.

AUTOLINK = *ALTERNATE-LIBRARIES
The DBL autolink function is used for alternate libraries only if alternate library searching has been enabled (ALTERNATE-LIBRARIES=*TASKLIB/*BLSLIB##).

ERROR-PROCESSING = *PARAMETERS(...)
Specifies how any errors that occur are to be handled.

NAME-COLLISION =
Specifies how name collisions between symbols of the same name are to be handled. Name collisions are discovered only if the symbols are *not* masked.

NAME-COLLISION = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *STD.

NAME-COLLISION = *STD
Name collisions between nonmasked symbols are indicated by warning messages. The module containing the symbol with the same name is loaded. The new occurrence of the symbol is masked, i.e. it is no longer used to satisfy external references.

NAME-COLLISION = *ABORT
Loading of the current load unit is aborted if a name collision between nonmasked symbols is discovered.

UNRESOLVED-EXTRNS =
*This specification is ignored for a PAM-LLM (UNRESOLVED-EXTRNS=*STD applies implicitly).*
Specifies how unresolved external references are to be handled. All unresolved external references are output to the symbol file SYSOUT, with unresolved external dummy sections (XDSECs-R) listed separately.

UNRESOLVED-EXTRNS = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *STD.

UNRESOLVED-EXTRNS = *STD
Unresolved external references are assigned an address specified in the ERROR-EXIT operand.

UNRESOLVED-EXTRNS = *DELAY
Unresolved external references are satisfied at a later time. This operand is permissible only when LOAD-INFORMATION=*REFERENCES.
The DBL stores the unresolved external references in the link context. After the next load unit is loaded into the context, the DBL attempts to satisfy the stored external references with CSECTs and ENTRYs from this new load unit. This process is repeated whenever further load units are loaded for as long as the context continues to exist. External dummy sections (XDSECs-R) cannot be stored.

When stored in the context, the unresolved external references are assigned a (preliminary) address, which is specified in the ERROR-EXIT operand.

UNRESOLVED-EXTRNS = *ABORT
All external references must be resolved. If not, the current load unit is aborted.

ERROR-EXIT = *DBL-DEFAULT / *NONE / <x-string 1..8>
Defines the address that unresolved external references are to be assigned if the operands UNRESOLVED-EXTRNS=*STD / *DELAY are specified.
Default: The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE.
If *NONE is specified, external references are left unresolved (equivalent to specifying X'FFFFFFFF').

REPORTING = *PARAMETERS(...)
Specifies how the load operation is to be logged.

MESSAGE-CONTROL =
Specifies the lowest message class at which messages are to be output.

MESSAGE-CONTROL = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *INFORMATION.

MESSAGE-CONTROL = *INFORMATION
Outputs messages of all message classes.

MESSAGE-CONTROL = *WARNING
Outputs messages of the WARNING and ERROR message classes only; messages of the INFORMATION message class are not output.

MESSAGE-CONTROL = *ERROR
Outputs messages of the ERROR message class only.

MESSAGE-CONTROL = *NONE
No messages are to be output.

PROGRAM-MAP =
Specifies whether a DBL list is to be output and defines the output destination for the DBL list.

PROGRAM-MAP = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NO.

PROGRAM-MAP = *NONE
No DBL list is to be output.

PROGRAM-MAP = *SYSLST(...)
The output destination is the SYSLST system file.

SYSLST-NUMBER =
Specifies the number of the SYSLST system file from the set SYSLST00 to SYSLST99.

SYSLST-NUMBER = *STD
The output destination is the system file SYSLST[00]

SYSLST-NUMBER = <integer 1..99>
The output destination is a SYSLST system file from the set SYSLST01 to SYSLST99.

PROGRAM-MAP = *SYSOUT
The output destination is the SYSOUT system file.

PROGRAM-MAP = *BOTH(...)
The system files SYSOUT and SYSLST are both output destinations.

SYSLST-NUMBER =
Specifies the number of the SYSLST system file from the set SYSLST00 to SYSLST99.

SYSLST-NUMBER = *STD
The output destination is the system file SYSLST[00]

SYSLST-NUMBER = <integer 1..99>
The output destination is a SYSLST system file from the set SYSLST01 to SYSLST99.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Name of the job variable that is to monitor the program.
While the program is executing, the system sets the JV to one of the following values:

$R	program executing
$T	program terminated
$A	program abnormally terminated

(see also the “Job Variables” manual [20]).

CPU-LIMIT = *JOB-REST / <integer 1..32767 *seconds* >
Maximum CPU time, in seconds, allowed for execution of the program.
If the execution of the program exceeds the specified time, in interactive mode the program is interrupted and message EXC0075 is output. The user can request a dump, abort the program or continue the program. If a STXIT routine is defined in the program for the event of reaching the CPU time limit, this routine is executed and the program terminated.
In batch mode the program is terminated. See also section "Time limits in BS2000".

CPU-LIMIT = *JOB-REST
If the job was started with a time limit, the remaining CPU time will be used as the time limit for the program. Otherwise, the program executes without a time limit.

TEST-OPTIONS =
Specifies whether symbolic addresses in the program may be used in testing (with AID). Symbolic addresses can only be used to debug programs for which debugging and diagnostic information (LSD/list for symbolic debugging) was generated at compile time. This entails setting certain compiler options when compiling the source program (see the appropriate compiler user guide).

TEST-OPTIONS = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE.

TEST-OPTIONS = *NONE
The local symbolic address table/the internal symbolic address table is not used.

TEST-OPTIONS = *AID
This operand is required for testing with AID.
This specification permits the use of symbolic addresses when testing the program with AID commands. For this, a local symbolic address table or an internal symbolic address table must have been generated when the program was compiled.
This specification is only possible for OMs (element type R) and LLMs (element type L) if LOAD-INFORMATION=*DEFINITIONS/*REFERENCES is also specified.

RESIDENT-PAGES = *PARAMETERS(...)
Number of resident memory pages required for the program run.
This operand must be specified if, in the program, pages are to be made resident with a CSTAT macro (see the “Executive Macros” manual [22]). The permissible number of resident memory pages can be controlled by the operator.
If the operand is omitted (MIN=*STD,MAX=*STD), the memory requirements are taken from the start record of the program, which requires the file to be opened.

MINIMUM = *STD / <integer 0..2147483647 *4Kbyte* >
Minimum number of resident memory pages required.

MAXIMUM = *STD / <integer 0..2147483647 *4Kbyte* >
Maximum number of resident memory pages required.

VIRTUAL-PAGES = *STD / <integer 0..32767 *4Kbyte* >
The operand is evaluated only if a load module (element type C) is loaded.
Number of pageable memory pages which must be available for the program run. If the specified number exceeds the number of pages available on the computer, the command is rejected.

VIRTUAL-PAGES = *STD
The memory requirements are taken from the start record of the program.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0150	Warning on loading of the program (see the message on SYSOUT)
	32	BLS0152	Loading of the program aborted due to system error
	64	CMD0216	The user is not authorized to use the command
	64	BLS0153	Loading of the program aborted due to an unrecoverable error (see the SYSOUT message for the reason)

Notes

- Further information on loading programs can be found in the description of the loaders in the “BLSSERV” User Guide [3].
- DBL does not lock any libraries or library elements during the program run.
- Calling DBL with START-/LOAD-EXECUTABLE-PROGRAM always corresponds to a call with START-/LOAD-PROGRAM and RUN-MODE=*ADVANCED. The functionality of RUN-MODE=*STD is only available with the earlier commands START-/LOAD-PROGRAM.

- Some DBL functions are not available for an LLM that has already been linked into a load unit with BINDER and stored in a PAM file (PAM-LLM). Explicit specifications for the operands involved are ignored and the command is executed implicitly with the following values:
  - SHARE-SCOPE=*NONE
  - ALTERNATE-LIBRARIES=*NONE
  - AUTOLINK=*NO
  - UNRESOLVED-EXTRNS=*STD
- If multiple identical element types (TYPE operand) or alternate libraries (ALTERNATE-LIBRARIES operand) are specified, command execution is aborted with a warning.
- If NAME-SCOPE=*SYMBOL/*STD or ELEMENT-OR-SYMBOL= <c-string> is specified then:
  - if only element type C is declared (TYPE operand), command execution is aborted with an error message.
  - if element type C and at least one other element type are declared (TYPE operand) then element type C is ignored and the command is executed. If NAME-SCOPE=*STD then a warning is issued if an existing C element is skipped.
- As the specification of an element name > 32 characters in the ELEMENT-OR-SYMBOL operand cannot refer to a CSECT or ENTRY name (up to 32 characters), the following applies:
  - When NAME-SCOPE=*SYMBOL is specified the command is rejected.
  - When NAME-SCOPE=*STD is specified the search is restricted just to element names without a warning.
- As the specification of an element name > 41 characters in the ELEMENT-OR-SYMBOL operand cannot refer to a load module (element type C with up to 41 characters), the following applies:
  - When TYPE=C is specified the command is rejected.
  - If in addition to C at least one other element type is specified in the TYPE operand, element type C is ignored without a warning.
- DBL defines the following names for the context and the load unit:
  - the default name “LOCAL#DEFAULT” for the context
  - the default name “%UNIT” for the load unit
- Execution of programs cannot be nested. If a LOAD-EXECUTABLE-PROGRAM or LOAD-PROGRAM command is issued when a program is already loaded, the loaded program is unloaded and the new command is executed. No error message appears; however, an ABEND-STXIT routine defined in the unloaded program is first activated, unless the LOAD-PROGRAM command is called via the CMD macro (see the “Executive Macros” manual [22]).
- Program monitoring (see also the “Job Variables” manual [20]):
  - The status indicator in the job variable monitoring the program is set to “$R” when the program is started.
  - If a program is already loaded or a started program is interrupted by a HOLD-PROGRAM command or depression of the [K2] key, the status indicator in the program-monitoring job variable is set to “$A”.
  - If the JV is not accessible at the time the command is processed, an error message is issued to SYSOUT and command processing is continued.

Examples

See the START-EXECUTABLE-PROGRAM command.

3.90 LOAD-PROGRAM

Load program (load or object module)

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

> As of BLSSERV V2.3, the LOAD-PROGRAM command has been replaced by LOAD-EXECUTABLE-PROGRAM. However, LOAD-PROGRAM continues to be supported for reasons of compatibility. Despite this, the LOAD-EXECUTABLE-PROGRAM command should be used for new applications. The section below simply contains a short functional description, the syntax format, and the command return codes.

Function

The LOAD-PROGRAM command has two functions:

- It calls up the dynamic binder loader DBL and defines the primary input. The DBL then links LLMs (link and load modules) or OMs (object modules) to create a load unit, which it then loads into memory.
- It calls up the static loader ELDE. ELDE then loads a program (load module) linked by the TSOSLNK linkage editor into memory.

When calling with LOAD-PROGRAM, only the checks of the addressing mode compatible with BLSSERV < V2.5 are performed. This corresponds to specifying AMODE-CHECK=*STD in the START- or LOAD-EXECUTABLE-PROGRAM command. Execution of the loaded program or load unit does not begin until it is requested by means of a RESUME-PROGRAM command. If users wish to load *and* start the load unit or program with just one command, they may issue the START-EXECUTABLE-PROGRAM (or START-PROGRAM) command in place of the LOAD-PROGRAM and RESUME-PROGRAM commands.

In the case of operands which have *DBL-PARAMETERS as their default value, the MODIFY-DBL-DEFAULTS command can be used to modify the default DBL parameters which apply when the task is started. The parameters can be configured separately for calls to the LOAD- and START-... commands on the one hand and for the BIND macro call on the other. The SHOW-DBL-DEFAULTS command lists the values which are currently set. The RESET-DBL-DEFAULTS can be used to return the settings to the original DBL defaults.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Format

LOAD-PROGRAM Alias: **LDPG**

FROM-FILE = <filename 1..54 without-gen> / ***MOD**ULE(...) / ***PHASE**(...)

***MOD**ULE(...)

| **LIB**RARY = ***DBL-PAR**AMETERS / ***STD** / ***OMF** / <filename 1..54 without-gen> / ***LINK**(...)

| ***LINK**(...)

| | **LINK** = <structured-name 1..8> / <filename 1..8 without-gen-vers>

| ,**ELEM**ENT**-OR-SYMBOL** = ***ALL** / <composed-name 1..64 with-under>(...) /

| <c-string 1..32 with-low>(...)

| <composed-name 1..64 with-under>(...)

| | **VERSION** = ***STD** / <text 1..24>

| <c-string 1..32 with-low>(...)

| | **VERSION** = ***STD** / <composed-name 1..24 with-under> / <c-string 1..24>

| ,**PROG**RAM**-MODE** = ***DBL-PAR**AMETERS / ***24** / ***ANY**

| ,**RUN-MODE** = ***DBL-PAR**AMETERS / ***STD** / ***ADVANCED**(...)

| ***ADVANCED**(...)

| | **ALTER**NATE**-LIB**RARIES = ***DBL-PAR**AMETERS / ***NO** / ***Y**ES

| | ,**NAME-COLLISION** = ***DBL-PAR**AMETERS / ***STD** / ***ABORT**

| | ,**UNRESOLVED-EXTRNS** = ***DBL-PAR**AMETERS / ***STD** / ***DELAY** / ***ABORT**

| | ,**ERROR-EXIT** = ***DBL-PAR**AMETERS / ***NONE** / <x-string 1..8>

| | ,**MES**SAGE**-CONTR**OL = ***DBL-PAR**AMETERS / ***INF**ORMATION / ***ERROR** / ***WARN**ING

| | ,**LOAD-INF**ORMATION = ***DBL-PAR**AMETERS / ***DEFI**NITIONS / ***MAP** / ***NONE** /

| | ***REF**ERENCES

| | ,**PROG**RAM**-MAP** = ***DBL-PAR**AMETERS / ***NO** / ***SYSLST**(...) / ***SYSOUT** / ***BOTH**(...)

| | ***SYSLST**(...)

| | | **SYSLST-NUM**BER = ***STD** / <integer 0..99>

| | ***BOTH**(...)

| | | **SYSLST-NUM**BER = ***STD** / <integer 0..99>

| | ,**SHARE-SCOPE** = ***DBL-PAR**AMETERS / ***SYS**TEM**-MEMORY** / ***NONE** / ***ALL** /

| | ***MEMORY-POOL**(...)

```
        |           |       *MEMORY-POOL(...)
        |           |           |    SCOPE = *ALL / *USER-ID / *USER-GROUP / *HOST-SYSTEM
        |           |  ,IGNORE-ATTRIBUTES = *DBL-PARAMETERS / *NONE / *READ-ONLY
        |           |  ,REP-FILE = *DBL-PARAMETERS / *NONE / <filename 1..54 without-gen>
        |           |  ,AUTOLINK = *DBL-PARAMETERS / *YES / *NO / *ALTERNATE-LIBRARIES
        |           |  ,PROGRAM-VERSION = *DBL-PARAMETERS / *STD / *BLANK /
        |           |                                  <composed-name 1..24 with-under>
    *PHASE(...)
        |  LIBRARY = <filename 1..54 without-gen>
        |  ,ELEMENT = <filename 1..41 without-gen-vers>
        |  ,VERSION = *STD / <text 1..24>
,CPU-LIMIT = *JOB-REST / <integer 1..32767 seconds>
,TEST-OPTIONS = *DBL-PARAMETERS / *NONE / *AID
,MONJV = *NONE / <filename 1..54 without-gen-vers>
,RESIDENT-PAGES = *PARAMETERS (...)
    *PARAMETERS(...)
        |  MINIMUM = *STD / <integer 0..32767 4Kbyte>
        |  ,MAXIMUM = *STD / <integer 0..32767 4Kbyte>
,VIRTUAL-PAGES = *STD / <integer 0..32767 4Kbyte>
```

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0150	Warning on program loading (see message to SYSOUT)
	32	BLS0152	Program loading aborted due to system error
	64	CMD0216	User has no authorization for command
	64	BLS0153	Program loading aborted due to unrecoverable error (for cause, see SYSOUT message)

3.91 LOCK-FILE-LINK

Lock file link name against deletion

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The LOCK-FILE-LINK command locks an entry in the task file table (TFT), so that any subsequent REMOVE-FILE-LINK command for this TFT entry will be ineffective until an UNLOCK-FILE-LINK command is issued with the associated file link name.

If the file link name is amended by a CHANGE-FILE-LINK command, the TFT entry will remain locked, but now under the new file link name.

The ADD-FILE-LINK command can be used at any time to amend a TFT entry which has been locked by LOCK-FILE-LINK, but the lock will remain in effect.

Volumes from a TFT entry that is locked using LOCK-FILE-LINK are not released by the SECURE-RESOURCE-ALLOCATION command.

Format

LOCK-FILE-LINK
LINK-NAME = ***FIRST-BLANK** / <filename 1..8 without-gen>

Operands

LINK-NAME = *FIRST-BLANK / <filename 1..8 without-gen>
The file link name of the TFT entry which is to be locked.
If there is no TFT entry with this file link name, an entry will be created. This entry can then be allocated to a file by an ADD-FILE-LINK command or via the FCB and have its contents written into it.

LINK-NAME = *FIRST-BLANK
If *FIRST-BLANK is specified, the first TFT entry whose file link name consists of spaces (blanks) will be processed.

LINK-NAME = <filename 1..8 without-gen>
File link name of the TFT entry which is to be locked.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax or semantic error in command
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS06FF	BCAM connection severed
	130	DMS0594	Not enough virtual memory available

Example

Locking file link names to prevent deletion

```
/add-file-link link=sortin,file-name=max.file.10          ————————————————   (1)
/add-file-link link=sortout,file-name=max.file.10.sort-1  ————————————————   (2)
/show-file-link                                           ————————————————   (3)
```

```
%
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
% SORTIN :2OS2:$USER1.MAX.FILE.10
% SORTOUT :2OS2:$USER1.MAX.FILE.10.SORT-1
```

```
/sort-file                                                ————————————————   (4)
```

```
':1OSH:$TSOS.SYSLNK.SORT.080' IN PROCESS
%  BLS0524 LLM 'SRT80', VERSION '08.0A00' OF '2015-02-03 13:07:17' LOADED
%  BLS0551 COPYRIGHT (C) 2014 FUJITSU TECHNOLOGY SOLUTIONS GMBH. ALL RIGHTS RESERVED
%  SRT1001  2017-03-03/18:19:43/000000.00 SORT/MERGE STARTED, VERSION 08.0A00/BS
2000V20.0
%  SRT1130  PLEASE ENTER SORT STATEMENTS
%  SRT1016  SORT/MERGE INPUT RECORDS:.........................2.924 (FROM 01)
%  SRT1030  SORT/MERGE OUTPUT RECORDS:........................2.924
%  SRT1002  2017-03-03/18:19:43/000000.09 SORT/MERGE COMPLETED
```

```
/show-file-link                                           ————————————————   (5)
```

```
%
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
%   SORTOUT             :2OS2:$USER1.MAX.FILE.10.SORT-1
```

```
/add-file-link link=sortin,file-name=max.file.10          ————————————————   (6)
/lock-file-link link=sortin                               ————————————————   (7)
```

/show-file-link inf=(status=*yes) ——————————— **(8)**

```
%
%-- LINK-NAME --------- FILE-NAME ------------------------------------------
% SORTIN :2OS2:$USER1.MAX.FILE.10
% -------------------- STATUS ------------------------------------------
% STATE = INACTIVE ORIGIN = FILE LOCK-F-LI = YES
%-- LINK-NAME --------- FILE-NAME ------------------------------------------
% SORTOUT :2OS2:$USER1.MAX.FILE.10.SORT-1
% -------------------- STATUS ------------------------------------------
% STATE = INACTIVE ORIGIN = FILE
```

/sort-file ——————————— **(9)**

```
':1OSH:$TSOS.SYSLNK.SORT.080' IN PROCESS
% BLS0524 LLM 'SRT80', VERSION '08.0A00' OF '2015-02-03 13:07:17' LOADED
% BLS0551 COPYRIGHT (C) 2014 FUJITSU TECHNOLOGY SOLUTIONS GMBH. ALL RIGHTS RESERVED
% SRT1001 2017-03-03/18:19:43/000000.00 SORT/MERGE STARTED, VERSION 08.0A00/BS
2000V20.0
% SRT1130 PLEASE ENTER SORT STATEMENTS
% SRT1016 SORT/MERGE INPUT RECORDS:.........................2.924 (FROM 01)
% SRT1030 SORT/MERGE OUTPUT RECORDS:........................2.924
% SRT1002 2017-03-03/18:19:43/000000.09 SORT/MERGE COMPLETED
```

/show-file-link inf=(status=*yes) ——————————— **(10)**

```
%
%-- LINK-NAME --------- FILE-NAME ------------------------------------------
% SORTIN :2OS2:$USER1.MAX.FILE.10
% -------------------- STATUS ------------------------------------------
% STATE = INACTIVE ORIGIN = FILE LOCK-F-LI = YES
% REM-F-LINK = YES RELE-DEV = YES UNL-R-TAPE = NO
%-- LINK-NAME --------- FILE-NAME ------------------------------------------
% SORTOUT :2OS2:$USER1.MAX.FILE.10.SORT-1
% -------------------- STATUS ------------------------------------------
% STATE = INACTIVE ORIGIN = FILE
```

/add-file-link link=sortout,file-name=max.file.10.sort-2 ——————————— **(11)**

/sort-file fields=(field-explicit(pos=5,length=6,sort-order=*ascend),
field-explicit(pos=20,length=15,sort-order=*descend)) ——————————— **(12)**

```
':1OSH:$TSOS.SYSLNK.SORT.080' IN PROCESS
% BLS0524 LLM 'SRT80', VERSION '08.0A00' OF '2015-02-03 13:07:17' LOADED
% BLS0551 COPYRIGHT (C) 2014 FUJITSU TECHNOLOGY SOLUTIONS GMBH. ALL RIGHTS RESE
RVED
% SRT1001 2017-03-03/18:19:43/000000.00 SORT/MERGE STARTED, VERSION 08.0A00/BS
2000V20.0
% SRT1130 PLEASE ENTER SORT STATEMENTS
% SRT1016 SORT/MERGE INPUT RECORDS:.........................2.924 (FROM 01)
% SRT1030 SORT/MERGE OUTPUT RECORDS:........................2.924
% SRT1002 2017-03-03/18:19:43/000000.09 SORT/MERGE COMPLETED
```

/show-file-link inf=(status=*yes) ——————— **(13)**

```
%
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
% SORTIN :2OS2:$USER1.MAX.FILE.10
% -------------------- STATUS ----------------------------------------------
% STATE = INACTIVE ORIGIN = FILE LOCK-F-LI = YES
% REM-F-LINK = YES RELE-DEV = YES UNL-R-TAPE = NO
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
% SORTOUT :2OS2:$USER1.MAX.FILE.10.SORT-2
% -------------------- STATUS ----------------------------------------------
% STATE = INACTIVE ORIGIN = FILE
```

/unlock-file-link link=sortin ——————— **(14)**

/show-file-link ——————— **(15)**

```
%
%-- LINK-NAME --------- FILE-NAME -------------------------------------------
% SORTOUT :2OS2:$USER1.MAX.FILE.10.SORT-2
```

/remove-file-link link=sortout ——————— **(16)**

/show-file-link ——————— **(17)**

```
% DMS05E1 TASK FILE TABLE (TFT) NOT AVAILABLE OR SPECIFIED FILE NOT IN 'TFT'.
OPERATION NOT PROCESSED
```

(1) Creates a TFT entry for the file *MAX.FILE.10* under the link name *SORTIN*. This link name is used by the SORT utility routine as the default link name for an input file.

(2) Creates a TFT entry for the file *MAX.FILE.10.SORT-1* under the link name *SORTOUT*. This link name is used by the SORT utility routine as the default link name for an output file.

(3) Output of the TFT entries using SHOW-FILE-LINK.

(4) The SORT-FILE command is used to sort records of the file *MAX.FILE.10* into the file *MAX.FILE.SORT-10*. This command is a component of the SORT utility routine and provides specific sort functions at the command level (see the “SORT” manual [40]). The command was called without operands, i.e. with default values, so the complete record is sorted; the input file is determined from the TFT entry with the link name *SORTIN*, and the output file from the TFT entry with the link name *SORTOUT*.

(5) The output of TFT entries shows that the entry with the link name *SORTIN* was automatically released after sorting (implicit REMOVE-FILE-LINK).

(6) A TFT entry with the link name *SORTIN* is created again for the file *MAX.FILE.10*.

(7) The TFT entry with the link name *SORTIN* is now locked with the LOCK-FILE-LINK command. This means that the TFT entry cannot be deleted so long as the lock remains in effect. The file *MAX.FILE.10* may be used as an input file more than once for sort runs.

(8) Output of the TFT entries with the status of the file link.

(9) The command SORT-FILE is called again (as in step 4).

(10) Output of the TFT entries with the status of the file link. The TFT entry for *SORTIN* still exists. The value of *YES* in the *REM-F-LINK* output field indicates that a REMOVE-FILE-LINK was issued for this entry (in this case, the implicit REMOVE-FILE-LINK of SORT).

(11) Creates a new TFT entry for the file *MAX.FILE.10.SORT-2* with the link name *SORTOUT*. This file is to be used as the new output file for a sort run.

(12) The SORT-FILE command is called. The input file is still *MAX.FILE.10*, but the output file is now *MAX.FILE.10.SORT-2*. In this sort run, only selected parts of records are to be sorted and transferred to the output file (selective sort): 6 bytes as of the first data byte (record length field + 1 = 5) are sorted in ascending order. The second sort criterion selects 15 bytes of the record, starting with the 17th byte, and to be sorted in descending order.

(13) Output of the TFT entries with the status of the file link (as in step 10).

(14) The lock for the TFT entry with the link name *SORTIN* is released by the UNLOCK-FILE-LINK command.

(15) (implicit) REMOVE-FILE-LINK commands were executed only after the lock was removed.

(16) The TFT entry for *SORTOUT* is released explicitly with the REMOVE-FILE-LINK command.

(17) No further TFT entries exist.

3.92 LOCK-PRODUCT-VERSION

Lock product version

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

Systems support can use the LOCK-PRODUCT-VERSION command to lock the product version of an installation unit. The product version is then no longer available for nonprivileged users. The locked product version remains available for privileged users, (SUBSYSTEM-MANAGEMENT privilege) provided that the version is specified in the form <product-version mandatory-man-corr>.

Locking a product version may also affect the product's START command: if the START command is called with VERSION=*STD then the highest unlocked version is invoked.

The command cannot be executed unless product installation items are entered into the SCI. This requirement is satisfied in the following cases:

- The product was supplied as standard software by Fujitsu Technology Solutions using the SOLIS2 shipment procedure and was correctly installed in the system using IMON.
- The product takes the form of customer-specific software which was registered in the SCI using an in-house SYSSII file (see the "IMON" User Guide [19]).

A product version lock cannot extend beyond the current system run at the latest. It is released on the following system start. A lock is also set during product installation. The UNLOCK-PRODUCT-VERSION command can also be used to release the lock during the current system run.

Format

LOCK-PRODUCT-VERSION

PRODUCT-NAME = <text 1..30 without-sep>(...)

<text 1..30 without-sep>(...)

| **VERSION** = <product-version mandatory-man-corr>

Operands

PRODUCT-NAME = <text 1..30 without-sep>(...)
Specifies the name of the IMON installation unit for the software product that is to be locked.

VERSION = <product-version mandatory-man-corr>
Specifies the product version. The specification must include the release version and correction status.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	32	IMO9101	Command terminated abnormally (system error in external call; internal error in IMON-GPN)
	64	CMD0216	Privileges error
	64	IMO9100	Product or version not found, invalid product name

3.93 LOCK-USER

Lock access to system for user

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION
Routing code:	$

Function

This command can be used to prevent a user from accessing the system. The access lock for the user is entered in the user catalog of the specified pubset.
If this declaration is made for the home pubset in which logon validation is performed, the user is also denied access to the system.
This temporary access lock can be canceled with the UNLOCK-USER command.
If the definition applies to a data pubset, the access lock is filed there and evaluated only in the event that this pubset assumes the role of the home pubset.

The LOCK-USER command is not permitted

- for the user ID TSOS
- for the ID of the user issuing the command

Restriction

The only nonprivileged users (STD-PROCESSING privilege) authorized to issue this command are those designated as group administrators. The actions a group administrator can take are defined by the system support personnel. On setting up and managing user groups see the “SECOS” manual [35].

Format

LOCK-USER
USER-IDENTIFICATION = <name 1..8>
,**PUBSET** = **__*HOME__** / <cat-id 1..4>

Operands

USER-IDENTIFICATION = <name 1..8>
Identifies the user whose access is to be locked.

PUBSET = __*HOME__ / <cat-id 1..4>
Enters the access lock for the user in the user catalog of the specified pubset.

PUBSET = *HOME

Specifies the user catalog of the home pubset, thus denying the user access to the system. Logon attempts by the user are rejected with a message.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	1	SRM6010	Syntax error
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command temporarily cannot be executed

Example

/lock-user cognibs3

```
%  SRM2201 DO YOU WANT TO LOCK USER ID 'COGNIbBS3' ON PUBSET '1OSH' ? REPLY (Y=YES; N=NO)?
y
```

/show-user-attr cognibs3

```
%SHOW-USER-ATTRIBUTES --- PUBSET TK82 - USER COGNIBS3       2017-01-29 15:09:50
%-------------------------------------------------------------------------------
%USER-ID                     COGNIBS3          PUBLIC-SPACE-USED               0
%GROUP-ID                  *UNIVERSAL          PUBLIC-SPACE-LIMIT          20000
%DEFAULT-PUBSET                 TK82          PUBLIC-SPACE-EXCESS           *NO
%MAX-ACCOUNT-RECORDS             100          TEMP-SPACE-USED                 0
%DEFAULT-MSG-LANGUAGE                         TEMP-SPACE-LIMIT       2147483647
%                                             FILES                           0
%PROTECTION-ATTRIBUTES...                     FILE-NUMBER-LIMIT        16777215
%LOGON-PASSWORD                 *YES          JOB-VARIABLES                   0
%PASSWORD-MGMT     *USER-CHANGE-ONLY          JV-NUMBER-LIMIT          16777215
%TAPE-ACCESS                   *READ          RESIDENT-PAGES              32767
%FILE-AUDIT                     *NO          ADDRESS-SPACE-LIMIT            16
%                                             DMS-TUNING-RESOURCES        *NONE
%TEST-OPTIONS...                              CSTMP-MACRO-ALLOWED           *NO
%READ-PRIVILEGE                   1          CODED-CHARACTER-SET      EDF03IRV
%WRITE-PRIVILEGE                  1          PHYSICAL-ALLOCATION           *NO
%MODIFICATION            *CONTROLLED          USER-LOCKED                  *YES
%                                             CRYPTO-SESSION-USED             0
%AUDIT...                                     CRYPTO-SESSION-LIMIT          128
%HARDWARE-AUDIT             *ALLOWED          NET-STORAGE-USAGE        *ALLOWED
%LINKAGE-AUDIT              *ALLOWED          NET-CODED-CHAR-SET       *ISO
%
%PROFILE-ID  *NONE
%MAIL-ADDRESS  Abteilung Z8   Raum 55.105
%EMAIL-ADDRESS alfred.holli@incognito.de,
```

```
%              joachim.vogi@incognito.de,
%              (jk)johannes.kuli@incognito.de,
%              (mr)mathias.reh@incognito.de
%
%+---------+-----------+---------+--------+------------+-------+------+------+
%!ACCOUNT-#! CPU-LIMIT !SPOOLOUT-!MAX-RUN-!MAX-ALLOWED-!NO-CPU-!START-!INHIB-!
%!         !           !  CLASS  !PRIORITY!  CATEGORY  ! LIMIT ! IMMED! DEACT!
%+---------+-----------+---------+--------+------------+-------+------+------+
%! ACC00015!      10000!     0   !   255  !     STD    !   NO  !  YES !   NO !
%+---------+-----------+---------+--------+------------+-------+------+------+
%DEFAULT-ACCOUNT-# FOR LOGON:        *NONE
%DEFAULT-ACCOUNT-# FOR REMOTE-LOGIN: *NONE
%
%DEFAULT-JOB-CLASS FOR BATCH-JOBS:   JCBSTD
%DEFAULT-JOB-CLASS FOR DIALOG-JOBS:  JCDSTD
%LIST OF JOB-CLASSES ALLOWED:
%JCBATCHF JCBSTD   JCB00050 JCB00200 JCB02000 JCB05000 JCB32000 JCDSTD
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER COGNIBS3 ON PUBSET TK82
/
```

User ID *COGNIBS3* is temporarily barred from accessing the system. This is indicated by the value *YES in the USER-LOCKED output field of the user entry displayed by the SHOW-USER-ATTRIBUTES command.

3.94 LOGOFF

Terminate current job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	All privileges

Function

The LOGOFF command terminates the current job. Subsequently, the virtual memory pages and devices occupied by the job are released and the output system files made available for output.
If new file generations were created during the job, the system lists the names of the file generations involved, their base number as well as the names of the first and the current file generation.

> The LOGOFF command is now supported only for reasons of compatibility; the EXIT-JOB command should be used to terminate the job. The EXIT-JOB command offers the user expanded functionality.

Format

LOGOFF
KEEP-CONNECTION = ***NO** / ***Y**ES ,**SYS**TEM-**OUT**PUT = ***STDOUT** / ***PRINT** / ***DEL**ETE / ***TAPE-OUT**PUT

Operands

KEEP-CONNECTION =
Specifies whether the connection to the computer is to be kept so that a new job can be started immediately. This operand is permitted only in interactive mode; in batch mode it is ignored.

KEEP-CONNECTION = *NO
Clears the connection.

KEEP-CONNECTION = *YES
Maintains the connection with the computer. A new job can be started immediately.

SYSTEM-OUTPUT =
Specifies whether system files are to be output and defines the output medium. SYSLST and SYSOUT are not output if they are empty.

SYSTEM-OUTPUT = *STDOUT
Depending on the setting of the system parameter SSMOUT, the system files SYSLST and SYSOUT (batch mode) are output to printer or transferred by email. Transfer by email can be requested explicitly using the EXIT-JOB command.

SYSTEM-OUTPUT = *PRINT
Outputs the system files SYSLST and SYSOUT (in batch mode) to printer.
An additional list of dialog jobs can be output if the value NO-SPOOL is set for the system parameter SSMLGOF1.

SYSTEM-OUTPUT = *DELETE
Output of the system file is suppressed.

SYSTEM-OUTPUT = *TAPE-OUTPUT
Outputs the system files on tape.
SYSLST and SYSOUT (batch mode) are written to tape in the file: *TAPE.TSNnnnn*, where *nnnn* is the task sequence number of the job ended with LOGOFF.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed [1)]
	1	CMD0202	Syntax error
	32	CMD0221	System error; no message is sent to SYSOUT

[1)]Cannot be evaluated since in this case the task is terminated!

Note

If a LOGOFF command is issued while a program is loaded, any ABEND-STXIT routine that may have been defined is activated. This is not the case when the LOGOFF command is called via the CMD macro (see the “Executive Macros” manual [22]).

4 MAIL-FILE - MOVE-TASK-TO-CATEGORY

The manual "Commands" is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

4.1 MAIL-FILE

Send file by email

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS

Function

The MAIL-FILE command sends a file as an attachment to an email. A user ID is specified as the receiver of the email. The sender is the user ID of the calling task. MAIL-FILE takes over the email address entered in the EMAIL-ADDRESS field of these user entries. How you ascertain the receiver and sender addresses, in particular when an address list is used, is described in the section "Selecting email addresses by means of the job name".

A PLAM library element, a SAM or ISAM file and the contents of the system file SYSLST or SYSOUT can be sent. A PAM file can be sent only if its content is in PDF format. All other files that are not in PDF format are sent as text files (content type: 'text/plain'). The file attribute CCS name is evaluated in the case of automatic character set conversion. Optionally the caller can specify that the file is to be deleted automatically after it has been sent.

To execute the command the “Mail-Sender” function of the software product interNet-Services must be available, and at least one email address must be entered in the user entry of the TSOS system ID.

The command is rejected if no email address is entered in the receiver’s user entry. If no email address is entered for the caller, the address of the receiver or TSOS is entered instead as the sender.

If the email cannot be delivered (e.g. because the address is invalid), a bounce mail is sent to the email address of TSOS to request systems support to check the incorrect address. If more than one email address is entered for TSOS, the first address is used for the bounce mail.

The MAIL-FILE functionality is also used by other components of BS2000 to send log files:

- At job termination
  In the EXIT-JOB (or LOGOFF), CANCEL-JOB and ENTER-PROCEDURE commands, transfer to SYSLST or SYSOUT at job termination can be requested instead of a printout. The default value *STDOUT directs output to the output medium defined in the system parameter SSMOUT (printer or email).
- In the case of errors in the MSCF cluster
  In the MSCF configuration systems support can specify that a user ID will be notified by email if a critical situation (e.g. loss of connection) occurs.
- In the case of outputs from utility routines
  Currently, HSMS and MAREN support the transfer of output information and logs.

Format

MAIL-FILE

FILE-**NAME** = <filename 1..54> / ***SYSLST**(...) / ***SYSOUT** / ***LIB**RARY-**ELEM**ENT(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = **<u>*STD</u>** / <integer 1..99>

***LIB**RARY-**ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-vers>

| ,**ELEM**ENT = <composed-name 1..64 with-under>

| <composed-name 1..64> with-under(...)

| | **VERSION** = ***HIGH**EST-**EXIST**ING / ***UP**PER-**LIM**IT / <composed-name 1..24 with-under>

| ,**TYPE** = <alphanum-name 1..8>

,**TO** = **<u>*USER</u>**(...)

***USER**(...)

| **USER-ID**ENTIFICATION = **<u>*OWN</u>** / <name 1..8>

,**SUBJECT** = **<u>*STD</u>** / <c-string 1..256 with-low>

,**DEL**ETE-**FILE** = **<u>*NO</u>** / ***Y**ES / ***DESTROY**

Operands

FILE-NAME = <filename 1..54> / *SYSLST(...) / *SYSOUT / *LIBRARY-ELEMENT(...)
Selects the file to be sent.

FILE-NAME = <filename 1..54>
Name of the file to be sent:

- The file is a SAM or ISAM file. A PAM file is sent only if its content is in PDF format.
- Files that are not in PDF format are sent as text files (content type: 'text/plain').
- The file may not be empty.
- The name may specify a single file generation but not a file generation group.
- It can also be a temporary file.
- The file may not be only accessible via an RFA connection.

FILE-NAME = *SYSLST(...)
Specifies the system file SYSLST.

SYSLST-NUMBER = <u>*STD</u>
Specifies the system file SYSLST. The specification is rejected in the following cases:

- SYSLST is empty.
- The DUMMY file, a temporary file, a PLAM library member or an S variable is assigned.
- The assigned file or file generation is not resident on disk or was not created using the access method SAM.

SYSLST-NUMBER = <integer 1..99>
Specifies a SYSLST file from the set SYSLST01 through SYSLST99. This specification is possible only if the SYSLST file is assigned a file or file generation on disk which was created using the access method SAM. The specification is rejected in the following cases:

- The assigned file is still empty.
- The SYSLST file has the primary allocation.
- The DUMMY file, a temporary file, a PLAM library member or an S variable is assigned.

FILE-NAME = *SYSOUT
Specifies the system file SYSOUT. This specification is possible only if the SYSOUT file is assigned a file or file generation on disk which was created using the access method SAM. The specification is rejected in the following cases:

- The assigned file is still empty.
- The SYSOUT file has the primary allocation.
- The DUMMY file, a temporary file, a PLAM library member or an S variable is assigned.

FILE-NAME = *LIBRARY-ELEMENT(...)
An element of a PLAM library is to be sent. All user record types (1 to159) are sent.

LIBRARY = <filename 1..54 without-vers>
Name of the PLAM library.

ELEMENT = <composed-name 1..64 with-under>(...)
Name of the element.

VERSION =
Specifies the version of the element.

VERSION = *HIGHEST-EXISTING
Selects the highest existing version.

VERSION = *UPPER-LIMIT
Selects the highest possible version.

VERSION = <composed-name 1..24 with-under>
Selects the specified version.

TYPE = <alphanum-name 1..8>
Specifies the element type.
Only text elements and PDF files can be sent. Text elements are elements of the types S, M, J, P, D, X and types derived from these provided they contain no block-oriented records. An element containing block-oriented records is sent only if its content is in PDF format. All other elements are sent in text format (content type: 'text/plain').

TO = *USER(...)
Specifies the receiver of the email.

USER-IDENTIFICATION = *OWN / <name 1..8>
User ID whose entry in the user catalog contains the receiver's email address.
The default value is *OWN, i.e. the logon user ID of the calling task. If the user entry contains a list with more than one email address, a receiver address may be selected in accordance with the job name (see section "Return codes").

SUBJECT = *STD / <c-string 1..256 with-low>
Specifies the subject of the email.
*STD specifies that the email should have a standardized subject text which, in addition to the information "from BS2000", also contains the sender ID and the file name.

DELETE-FILE = *NO / *YES / *DESTROY
Specifies whether the file or the PLAM library element should be automatically deleted after it has been sent successfully: If the system file SYSLST is to be sent and SYSLST has the primary allocation, DELETE-FILE=*YES applies.
If the system file SYSLST or SYSOUT is to be sent and the system file is assigned to a file or file generation, it is not deleted automatically.

DELETE-FILE = *NO
The file or the PLAM library element is not deleted. The file or the PLAM library element is available again immediately after MAIL-FILE is called.

DELETE-FILE = *YES
The file or the PLAM library element is automatically deleted after it has been sent successfully. The file or the PLAM library element is regarded as having been sent successfully even if it cannot be delivered (e.g. because the email address is unknown).

DELETE-FILE = *DESTROY
This specification has the same effect as DELETE-FILE=*YES. In addition, the file or element content is overwritten with binary zeros when it is deleted.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
		CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	Specified file not shareable
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0681	DMS error during execution
	64	DMS0684	File does not exist
	64	DMS068A	Mail sender reported error
	64	DMS068B	ILAM reported error
	64	DMS068C	Userid locked
	64	DMS0694	Not permissible to send file
	64	DMS0695	Email address missing
	64	DMS0696	Email address of TSOS user ID missing
	130	DMS0524	System address space full
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0594	Not enough virtual memory available

Selecting email addresses by means of the job name

MAIL-FILE ascertains the email addresses of the receiver and the sender by means of the user entry of each of the user IDs concerned (see the SHOW-USER-ATTRIBUTES command, EMAIL-ADDRESS output field). The entry can also contain an address list, i.e. multiple email addresses separated by a comma. To execute the command at least the user ID of the receiver must contain at least one email address.

When the receiver's user entry contains an address list, MAIL-FILE makes a distinction between whether the caller's user ID (*OWN) or a "foreign" user ID was specified as the receiver. If a foreign user ID is specified, MAIL-FILE sends the email to all addresses. Only if the home user ID is specified does select the addresses by means of the job name of the calling task.

When the sender's user entry contains an address list, MAIL-FILE selects the sender address by means of the job name of the calling task.

In the address list MAIL-FILE searches for an address in which a partial name of the local address part (ahead of the @) begins with the job name (not case-sensitive). Partial names are separated from one another by a period (e. g. first-name.last-name).

For example, the following addresses are selected from the address list `Anna.Huber@xy,Anja.Bauer@xy, Anton.Baumann@xy:`

- `Anna.Huber@xy` with the job names: ANN, HU, HUBER
- `Anja.Bauer@xy` with the job names: ANJ, ANJA, BAUE, BAUER
- `Anton.Baumann@xy` with the job names: ANT, BAUM, BAUMAN

Optionally you can also prefix the addresses in the user entry with "address names" in parentheses.
Example: `(ANH)Anna.Huber@xy,(ANB)Anja.Bauer@xy,(BMN)Anton.Baumann@xy`

The following addresses, for example, are then selected from this address list:

- `Anna.Huber@xy` with the job names: ANH and ANN, HU, HUBER
- `Anja.Bauer@xy` with the job names: ANB and ANJ, ANJA, BAUE, BAUER
- `Anton.Baumann@xy` with the job names: BMN and ANT, BAUM, BAUMAN

If the job name matches more than one address, the address is selected whose partial name which matches the job name is the shortest. For example, the following addresses are selected from the address list `Beate.Pauli@xy,Pauline.Beck@xy,Paul.Becker@xy:`

- `Beate.Pauli@xy` with the job names: PAULI, BEA
- `Pauline.Beck@xy` with the job names: PAULIN, BE, BECK
- `Paul.Becker@xy` with the job names: P, PAUL, BECKER

If the partial name which matches the job name is equally short in more than one address, the first of these addresses is selected.

If more than one partial name in an address matches the job name, only the first partial name is taken into account.

If the calling task does not have a job name or the job name does not match any address in the address list, the following procedure applies:

- When the receiver address is ascertained, the entire address list is used, i.e. the email is sent to all addresses.

- When the sender address is ascertained, only the first address in the address list is used.

Example

/show-job-status ———————————————————————— (1)

```
%TSN:     3ZX9       TYPE:    3 DIALOG   NOW:     2012-04-15.150812
%JOBNAME: VOG        PRI:     0 210
%USERID:  COGNIBS3   JCLASS:  JCDSTD     LOGON:   2012-04-15.1428
%ACCNB:   89001      CPU-MAX:   9999     CPU-USED:000001.0700
%STATION: $$$06581   PROC:    FIREBALL
%TID:     00090119   UNP/Q#:    00/000
%CMD:     SHOW-JOB-STATUS
%MONJV:   *NONE
```

/show-user-attr

```
%SHOW-USER-ATTRIBUTES --- PUBSET TK82 - USER COGNIBS3       2012-04-15 15:09:05
  .
  .
%EMAIL-ADDRESS alfred.holli@incognito.de,
%              joachim.vogi@incognito.de,    ——————————————————————————   (2)
%              johannes.kuli@incognito.de,
%              mathias.reh@incognito.de
  .
  .
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER COGNIBS3 ON PUBSET TK82
```

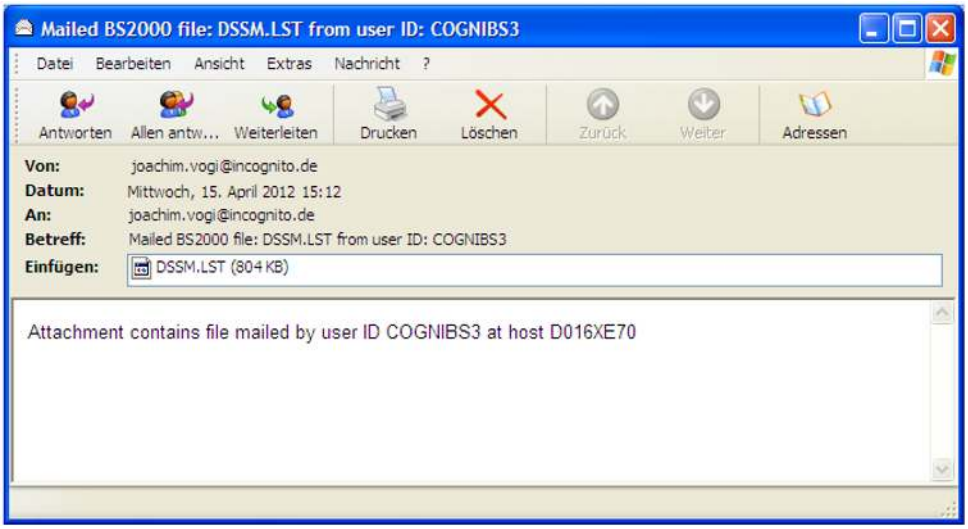
/mail-file dssm.lst ———————————————————————— (3)

(1) The user has logged in under the user ID *COGNIBS3* with the job name *VOG*.

(2) 4 email addresses are entered in the user entry (output abbreviated).

(3) With MAIL-FILE the *DSSM.LST* file is sent to the home user ID. As the job name *VOG* can be assigned unambiguously to the address *joachim.vogi@incognito.de* from the address list of the user entry, MAIL-FILE uses this address as the sender and recipient (see opened email).

After the email arrives, it is opened on the PC:



4.2 MESSAGE

Send message to specific user task

Component:	BS2000
Functional area:	not allocated
Domain:	not allocated
Privileges:	OPERATING
Routing code:	E

> The MESSAGE command is being replaced by the INFORM-JOB command. MESSAGE continues to be supported to ensure backwards compatibility, but INFORM-JOB should be used for new applications. All that follows is a brief overview of the command's function, syntax and return codes.

Function

The MESSAGE command enables the operator to send a message to a specific batch or interactive job. The system adds the date and time of day to the operator message. The message is written to SYSOUT.

If the job has already terminated, or has not yet been started, the MESSAGE command will not be executed and the operator will be informed.

Restrictions

The command is available in ISP format only; in other words, there are no SDF functions (such as syntax analysis or help).
The format has been subdivided into two subformats:

- Format 1: Send message to terminal
- Format 2: Send message to batch or interactive task

Note

The precise output format of the message is controlled by the NBMESLG system parameter (applies to both syntax formats).

Format 1

MESSAGE	Alias: **MSG**
TERM = (<processor 1..8>,<station 1..8>) ,<text 1..151>	

Format 2

MESSAGE	Alias: **MSG**
TSN = <alphanum-name 1..4> ,<text 1..151>	

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	EXC0064	Warning. Specified task has temporarily suppressed message function
1	1	EXC0240	Syntax error
2	64	EXC0080	Specified task does not exist
3	64	EXC0062	Specified task cannot receive message
4	64	EXC0081	Invalid task type
5	64	EXC0109	Semantic error; command ignored
	130	EXC0061	Insufficient class 4 memory; command aborted

Example

Operator input:

```
/MES TSN=0FC3, PLEASE CALL OPERATOR
```

Output on terminal of interactive task 0FC3:

```
%MESS PLEASE CALL OPERATOR :16:23:38 :12-01-26026
```

4.3 MODIFY-ACCOUNTING-PARAMETERS

Modify accounting system parameters

Component:	BS2000
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS

Function

This command allows system administration to modify the following accounting system parameters set with the START-ACCOUNTING command:

- accounting records and record extensions to be included in the accounting file
- the list of continuation files in the case of file switching
- the job classes to be monitored
- the monitoring cycle

Neither in the definition of the accounting records and their extensions nor in the definition of the job classes is a logical check of the ACCOUNT function for consistency of the specifications performed. The default value * UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Format

MODIFY-**ACC**OUNTING-**PAR**AMETERS

SET-RECORD-**TYPE** = ***UNCHA**NGED / ***ALL** / list-poss(**64**): <name 1..6>

,**ADD-REC**ORD-TYPE = ***NONE** / list-poss(**64**): <name 1..6>

,**REM**OVE-**REC**ORD-**TYPE** = ***NONE** / list-poss(**64**): <name 1..6>

,**ALT**ERNATE-**FILES** = ***UNCHA**NGED / ***NONE** / list-poss(5): <filename 1..54> / <partial-filename 2..53>

,**ACCOUNT**ING-**PERIOD** = ***UNCHA**NGED / <integer 10..1440 *minutes*> / ***STD**

,**JOB-CLASS** = ***UNCHA**NGED / ***NONE** / ***ALL** / list-poss(16): <name 1..8>

Operands

SET-RECORD-TYPE = *UNCHANGED / *ALL / list-poss(64): <name 1..6>
Defines the accounting records and record extensions to be written to the accounting file.

SET-RECORD-TYPE = *ALL
All accounting records and implicitly active record extensions are written to the accounting file.

SET-RECORD-TYPE = list-poss(64): <name 1..6>
Identifiers of the accounting records or record extensions to be written. Up to 64 accounting records or extensions can be specified (see notes).

ADD-RECORD-TYPE = *NONE / list-poss(64): <name 1..6>
Defines whether the specified accounting records and record extensions, and which ones (maximum 64), are also to be added to the list of accounting records/record extensions to be written (see the notes).

REMOVE-RECORD-TYPE = *NONE / list-poss(64): <name 1..6>
Defines whether the specified accounting records and record extensions (maximum 64) are no longer to be written to the accounting file (see notes).

ALTERNATE-FILES = *UNCHANGED / *NONE / <filename 1..54> / <partial-filename 2..53>
Replaces the list of accounting file names defined by means of the START-ACCOUNTING command.
Specification of a list of continuation files is meaningful only if the name of the current accounting file was not automatically generated.

ALTERNATE-FILES = *NONE
Deletes the list of continuation file names.

ALTERNATE-FILES = list-poss(5): <filename 1..54> / <partial-file-name 2..53>
Names of the continuation files to replace the file names in the list of continuation files. Up to 5 file names may be specified (see the notes).

ACCOUNTING-PERIOD = *UNCHANGED / *STD / <integer 10..1440 *minutes*>
Modifies the cycle of the periodic accounting interval.
Specific records of the accounting system and job classes are periodically monitored to derive average values.
To avoid overloading, the frequency of this periodic monitoring should be oriented towards the lower threshold of the value range only in exceptional cases.
The maximum value corresponds to one day.

ACCOUNTING-PERIOD = *STD
The default value of 20 minutes applies.

ACCOUNTING-PERIOD = <integer 10..1440 *minutes*>
Value in minutes defining the frequency of the periodic monitoring of accounting records and job classes.

JOB-CLASS = *UNCHANGED / *NONE / *ALL / list-poss(16): <name 1..8>
List of job classes to be subject to periodic monitoring of the accounting system.

JOB-CLASS = *NONE
No job classes are to be monitored any longer.

JOB-CLASS = *ALL
All job classes are to be monitored.

JOB-CLASS = list-poss(16): <name 1..8>
Specification of up to 16 job classes to be monitored within the specified period.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NAM3001	Requested action has been carried out, but accompanied by a warning
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	NAM0012	No authorization for this command
	64	NAM3003	Semantic error
	128	CMD2280	Temporarily unable to execute the command

Notes

- The accounting records are addressed via the record label (field 1 in the record definition). Activation of the accounting record implies that all record extensions are activated. If only specific record extensions are to be activated or suppressed, these must be addressed explicitly. The record extension is identified by adding the extension label to the record label. The deactivation of one or more record extensions means that the accounting record is written with the remaining record extensions.
  For example, the operand ADD-RECORD-TYPE=(DALC,TASKCA,TASKTI) causes memory allocation record DALC and two record extensions of the task accounting record (TASKCA and TASKTI) to be activated as well.
- The name of the continuation file or the last name in the list of continuation files may be a partially qualified file name. This causes automatic file name generation to be activated following a switch of accounting files.

Example

/show-acc-sta inf=*files

```
ACCOUNTING STATUS INFORMATION
=============================

CURRENT ACCOUNTING FILE:             (AUTOMATIC)
------------------------
:SBZ8:$TSOS.SYS.ACCOUNT.2017-01-26.074.01
 OPENED AT : 2017-01-26, 17:02:07-W

ALTERNATE FILENAMES:
--------------------
 ** NONE SPECIFIED **
```

/mod-acc-par alter-files=(account2,accoount3),add=(dalc,jobsjd),remove=splo

/show-acc-sta inf=*all

```
ACCOUNTING STATUS INFORMATION
=============================

CURRENT ACCOUNTING FILE:             (AUTOMATIC)
------------------------
:SBZ8:$TSOS.SYS.ACCOUNT.2014-01-26.074.01
 OPENED AT : 2017-01-26, 17:02:07-W

ALTERNATE FILENAMES:
--------------------
 ACCOUNT2
 ACCOUNT3

ACCOUNTING RECORD INFORMATION:
------------------------------
 RECORD IDS TURNED OFF:
  DRFA  PACC  RCPU  RSRV  SOPA  SPLI  SPLO  TATR

 RECORD EXTENSIONS TURNED ON:
  UACC: ID

 RECORD EXTENSIONS TURNED OFF:
 RECORD IDS TURNED OFF:
  DRFA  PACC  RCPU  RSRV  SOPA  SPLI  SPLO  TATR

 RECORD EXTENSIONS TURNED ON:
  UACC: ID

 RECORD EXTENSIONS TURNED OFF:
  JOBS: JP JR
  PRGS: CA ID PC TI
  PRGT: CA ID PC TI
  TASK: CA ID PC TI
  TDEV: ID VU

***** NOT LISTED RECORD IDS ARE TURNED ON *****

ACCOUNTING PROCESSING PARAMETERS:
---------------------------------
 ACCOUNTING PERIOD : 20

 JOB-CLASSES :
  ** NONE SPECIFIED **
```

4.4 MODIFY-ACS-OPTIONS

Modify ACS option settings

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING ACS-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-ACS-OPTIONS command allows the user to modify the following globally set AC options for the current task:

- output of messages when loading the alias catalog
- logging of alias substitutions and prefix insertions
- permission to use the catalog ID and user ID in aliases (fully qualified)This ACS option may be restricted by the ACS administrator!
- permission to use user IDs in aliases
  This ACS option may be restricted by the ACS administrator!
- range of the substitution (for files or for files and job variables)

The currently applicable settings can be determined by the user from the output of the SHOW-ACS-OPTIONS command.

Privileged functions

The ACS administrator uses SCOPE=*SYSTEM to set AC options for the whole system and can specify that users are not allowed to modify the AC options relating to the use of catalog and user IDs in alias names.
The ACS administrator also globally defines the pubset on which temporary spool files may be created.

The changes to the global options remain in effect until the next MODIFY-ACS-OPTIONS or until shutdown, or until the ACS subsystem is unloaded.

Following the loading of the ACS subsystem, the following preset values apply:

```
SUCCESS-MSG=PAR(USER-FILES=*YES, SYSTEM-FILES=*YES)
LOGGING=*PAR(ALIAS-SUBSTITUTION=*STD, PREFIX-INSERTION=*NO)
COMPLETE-ALIAS-NAMES=*NOT-ALLOWED(USER-MODIFICATION=*NOT-ALLOWED)
ALIAS-USERID=*NOT-ALLOWED(USER-MODIFICATION=*NOT-ALLOWED)
SPOOL-FILE-PUBSET=*STD
STANDARD-RANGE=*BOTH
```

Format

MODIFY-**ACS-OPT**IONS

SUCCESS-**MSG** = ***UNCHA**NGED / ***Y**ES / ***NO** / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **SYS**TEM-**FILE-MSG** = ***UNCHA**NGED / ***Y**ES / ***NO**

| ,**USER-FILE-MSG** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**LOG**GING = ***UNCHA**NGED / ***Y**ES / ***STD** / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **ALIAS-SUBST**ITUTION = ***UNCHA**NGED / ***STD** / ***Y**ES

| ,**PREFIX-INSERT**ION = ***UNCHA**NGED / ***Y**ES / ***NO**

,**COMPL**ETE-**ALIAS-NAMES** = ***UNCHA**NGED / ***ALLOW**ED / ***NOT-ALLOW**ED(...)

***NOT-ALLOW**ED(...)

| **USER-MOD**IFICATION = ***UNCHA**NGED / ***ALLOW**ED / ***NOT-ALLOW**ED

,**ALIAS-USERID** = ***UNCHA**NGED / ***ALLOW**ED / ***NOT-ALLOW**ED(...)

***NOT-ALLOW**ED(...)

| **USER-MOD**IFICATION = ***UNCHA**NGED / ***ALLOW**ED / ***NOT-ALLOW**ED

,**SPOOL-FILE-PUB**SET = ***UNCHA**NGED / ***STD** / <alphanum-name 1..4>

,**SCOPE** = ***TASK** / ***SYS**TEM

,**STANDARD-RANGE** = ***UNCHA**NGED / ***FILE** / ***BOTH**

Operands

SUCCESS-MSG = *UNCHANGED / *YES / *NO / *PARAMETERS(...)
Affects the default setting for the output of message ACS0001 when loading an alias catalog. The specification made here applies as the default value *STD in the SUCCESS-MSG operand of the LOAD-ALIAS-CATALOG command.

SUCCESS-MSG = *UNCHANGED
The default setting is not changed.

SUCCESS-MSG = *YES
The output of message ACS0001 is set as the task-specific default.

SUCCESS-MSG = *NO
Suppression of message ACS0001 is set as the task-specific default.

SUCCESS-MSG = *PARAMETERS(...)
Enables the output of message ACS0001 to be set independently for AC system files and AC files.

SYSTEM-FILE-MSG = *UNCHANGED / *YES / *NO
Defines the default setting for AC system files.

USER-FILE-MSG = *UNCHANGED / *YES / *NO
Defines the default setting for AC files.

LOGGING = *UNCHANGED / *YES / *STD / *PARAMETERS(...)
Specifies whether a message is to be output for each alias substitution and prefix insertion. Note that alias substitutions and prefix insertions are performed whenever the system internally accesses the actual file or job variable name, so a correspondingly large number of messages will be generated.

LOGGING = *UNCHANGED
The default setting is not changed.

LOGGING = *YES
The messages must always be output.

LOGGING = *STD
Messages for alias substitutions are output only if the corresponding AC entry has the LOGGING attribute; no messages are output for the insertion of prefixes.
*STD is equivalent to `LOGGING=*PARAMETERS(ALIAS-SUBSTITUTION=*STD, PREFIX-INSERTION=*NO)`.

LOGGING = *PARAMETERS(...)
Enables the output of messages to be set independently for alias substitutions and the insertion of prefixes.

ALIAS-SUBSTITUTION = *UNCHANGED / *STD / *YES
Specifies whether message ACS0000 or ACS0049 is to be output for each alias substitution, i.e. whenever the actual file or job variable name is substituted for the alias. *YES causes the message to be output for every alias substitution; *STD for aliases with the attribute LOGGING.

PREFIX-INSERTION = *UNCHANGED / *YES / *NO
Specifies whether message ACS0000 or ACS0049 is to be output for each prefix insertion.

COMPLETE-ALIAS-NAMES = *UNCHANGED / *ALLOWED / *NOT-ALLOWED(...)
Defines whether the catalog and user ID may be used in aliases. This modification of the global setting for the local task must be permitted by the ACS administrator.

The ALLOWED setting should only be used when really necessary. Not allowing the catalog ID and user ID in aliases prevents the possibility of duplicate substitutions in cases where the already substituted and completed actual file or job variable name is inadvertently specified instead of the alias. Preventing such file or job variable names from appearing as an alias in the catalog thus ensures that no unwanted file or job variable is referenced.

COMPLETE-ALIAS-NAMES = *NOT-ALLOWED(...)
Catalog and user IDs are not allowed within alias names.

For users with ACS-ADMINISTRATION privilege:
Specifies (in conjunction with SCOPE=*SYSTEM) that the ACS option of COMPLETE-ALIAS-NAMES is by default unavailable to the users. However, in the substructure which follows, a user can be given the right to use this option by explicitly requesting it.

Use of this operand together with SCOPE=*TASK modifies the setting for the current administrator task; in this case, the substructure is ignored.

USER-MODIFICATION =
Makes a system-wide specification of whether a user may utilize the COMPLETE-ALIAS-NAME option of ACS.

USER-MODIFICATION = *UNCHANGED
Preset value: the previous declaration continues to apply.

USER-MODIFICATION = *ALLOWED
Every ACS user is to be allowed to use the COMPLETE-ALIAS-NAME option of ACS, and hence use fully qualified file or job variable names, with catalog ID and user ID, in alias catalogs.

USER-MODIFICATION = *NOT-ALLOWED
The COMPLETE-ALIAS-NAME option of ACS may not be used by nonprivileged users. A corresponding request in the user command, with COMPLETE-ALIAS-NAMES = *ALLOWED, will be rejected with an error message.
This is the preset value which applies following loading of the subsystem.

ALIAS-USERID = *UNCHANGED / *ALLOWED / *NOT-ALLOWED(...)
Defines whether user IDs are permitted within aliases. The right to modify the global setting NOT-ALLOWED for the local task must have been granted by the ACS administrator.

ALIAS-USERID = *ALLOWED
Allows the use of user IDs in aliases. The user ID TSOS and all user IDs beginning with the string *SYS* are not permitted.

ALIAS-USERID = *NOT-ALLOWED(...)
No foreign user IDs other than the system default ID may be used in an alias.

For users with ACS-ADMINISTRATION privilege:
Specifies in conjunction with SCOPE=*SYSTEM that the ACS option of ALIAS-USERID is by default unavailable to the users. However, in the substructure which follows, a user can be given the right to use this option by explicitly requesting it.

USER-MODIFICATION =
Makes a system-wide specification of whether a user may utilize the ALIAS-USERID option of ACS.

USER-MODIFICATION = *UNCHANGED
Preset value: the previous declaration continues to apply.

USER-MODIFICATION = *ALLOWED
Every ACS user is to be allowed to use the ALIAS-USERID option of ACS, and hence use alias names containing any required user IDs (exception: $SYS*. and $TSOS.).

USER-MODIFICATION = *NOT-ALLOWED
The ALIAS-USERID option of ACS must not be amended by nonprivileged users.
A corresponding request in the user command, with ALIAS-USERID = *ALLOWED/ *NOT-ALLOWED will be rejected with an error message.
This is the preset value which applies following loading of the subsystem.

SPOOL-FILE-PUBSET =
Only for users with ACS-ADMINISTRATION privilege:
Specifies the pubset on which temporary spool files (S.OUT., S.LST. files) should be created.
The operand will only be evaluated when the command is called if SCOPE=SYSTEM is also set, i.e. the ACS administration cannot exercise control specifically over its own spool files.

SPOOL-FILE-PUBSET = *UNCHANGED
Preset value: the previous declaration continues to apply.

SPOOL-FILE-PUBSET = *STD
For setting up temporary SPOOL files, use should be made of the default pubset for the task which is creating the file.
This is the preset value which applies following loading of the subsystem.

SPOOL-FILE-PUBSET = <cat-id 1..4>
Catalog ID of the pubset on which all temporary SPOOL files should be created.
If a SPOOL pubset is defined, the system administration must make sure that all the users of the system are entered in the user catalog for this pubset.

SCOPE =
Only for users with ACS-ADMINISTRATION privilege:
Defines the scope of validity of the specified options.

SCOPE = *TASK
Preset value:
The specified options are only to apply task-locally, i.e. to the user's current task.

SCOPE = *SYSTEM
Specifies that the options are to have system-global validity.

STANDARD-RANGE =
Defines the standard range for substituting aliases and inserting a prefix. The range determines whether alias substitution and insertion of a prefix should apply both for files and for job variables.
In the case of alias substitution, this range applies for all AC entries which were set up with RANGE=*STD. A range deviating from this can be specified explicitly for each AC entry (see the ADD- and MODIFY-ALIAS-CATALOG-ENTRY commands).
For a prefix specification, this range applies with RANGE=*STD (see the SET-FILE-NAME-PREFIX command).

STANDARD-RANGE = *UNCHANGED
Preset value: the previous declaration continues to apply.

STANDARD-RANGE = *FILE
Alias substitution and the prefix specification are effective only for files.

STANDARD-RANGE = *BOTH
Alias substitution and the prefix specification are effective for both files and job variables.
This is the preset value which applies following loading of the subsystem.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed normally Guaranteed message: ACS0032 if SPOOL-FILE-PUBSET is modified
	64	ACS0029	Command not permitted
	64	ACS0038	Pubset could not be reserved
	128	ACS0018	ACS is not available

Examples

For examples, see the ADD-ALIAS-CATALOG-ENTRY and SET-FILE-NAME-PREFIX commands.

4.5 MODIFY-ACS-SYSTEM-FILE

Modify assignment or attributes of ACS system files

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	ACS-ADMINISTRATION

Function

The command MODIFY-ACS-SYSTEM-FILE permits the ACS administration to modify AC system file definitions which were specified by an ADD-ACS-SYSTEM-FILE command. An AC system file is addressed not by its file name, but instead by its symbolic name, which is its identifier. Using this command, it is possible to redefine both the assignment to a real file name and also the attributes of an AC system file.
Among the changes that are possible by modifying the attributes, the ACS system administration can specify that an identifier which has already been declared is to be used as the default AC system file for all subsequent calls. In this case, the entries from this file will be read whenever the user specifies the identifier “*STD” (in the LOAD-ALIAS-CATALOG command).
If there is no AC system file with the specified identifier, the command will be rejected with an error message.

Format

MODIFY**-ACS-SYS**TEM**-FILE**

ALIAS-CATALOG**-ID** = <composed-name 1..20>

,**F**ILE**-NAME** = ***UNCHA**NGED / <filename 1..54>

,**ATTR**IBUTES = ***UNCHA**NGED / ***STD** / list-poss(4): ***SYS**TEM**-DEF**AULT / ***INVISIBLE** /

***SECRET-FILE-NAME** / ***PRIVIL**EGED

Operands

ALIAS-CATALOG-ID = <composed-name 1...20>
The symbolic name under which the AC system file can be addressed by a LOAD-ALIAS-CATALOG command. The user can request a display of the list of all the available AC system files by a SHOW-ACS-SYSTEM-FILES command.

FILE-NAME = *UNCHANGED / <filename 1..54>
The assignment to the fully qualified, real file name of an AC system file, in which the entries are stored, is either to be kept unchanged or modified.

Before the file is inserted into the list of AC system files, the operand FILE-NAME will be supplemented, where appropriate, by the user ID of the calling task and its default pubset.

ATTRIBUTES =
Specifies the attributes which the AC system file is to be given.

ATTRIBUTES = *UNCHANGED
The declarations made by the ADD-ACS-SYSTEM-FILES command are to remain valid.

ATTRIBUTES = *STD
The AC system file is not to be given any of the attributes which follow, although the attribute SYSTEM-DEFAULT cannot be reset by this.

ATTRIBUTES = *SYSTEM-DEFAULT
This AC system file is to act as the default AC system file. The entries in this file will then automatically be loaded into the alias catalog of any user who specifies the value *STD for the ALIAS-CAT-ID operand in a LOAD-ALIAS-CATALOG command.
If the attribute SYSTEM-DEFAULT is given to more than one AC system file, the last assignment which was made will always apply. If there is no AC system file which has been explicitly given this attribute, it is implicitly given to the first of the system files which was declared.

ATTRIBUTES = *INVISIBLE
When the AC system files which are available to the nonprivileged user are being output (SHOW-ACS-SYSTEM-FILES command) the entry for this file will not be shown. The identifier of such an AC system file can only be used by users who have previously been informed of it, or who invoke specially provided procedures.
When the command SHOW-ACS-OPTIONS is used to output details of AC files which are loaded, the character '*' will appear for such files instead of their IDs, unless the caller is the ACS administrator.

ATTRIBUTES = *SECRET-FILE-NAME
When the AC files which are available to the user are being output (SHOW-ACS-SYSTEM-FILES and SHOW-ACS-OPTIONS commands), then instead of the file name for such a file, the string '*SYSTEM' will appear, unless the caller is the ACS administration. The nonprivileged user thus has no way of discovering the real file name.

ATTRIBUTES = *PRIVILEGED
When this AC system file is used in the LOAD-ALIAS-CATALOG command, its entries should be copied into the task's virtual alias catalog as **system entries**.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command correctly executed
	32	CMD0221	Internal system error
	64	ACS0012	Error: ACSF not found
	130	ACS0036	Resource bottleneck

4.6 MODIFY-ALIAS-CATALOG-ENTRY

Modify entry in alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING ACS-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-ALIAS-CATALOG-ENTRY command is used to change an existing entry in the current alias catalog. The following attributes can be redefined by the user for the existing entry:

- actual file or job variable name to be substituted for the alias
- whether the alias substitution is to be logged
- whether the entry is displayed in the output of the SHOW-ALIAS-CATALOG-ENTRY command
- whether the entry is protected against changes or deletion by the MODIFY-ALIAS-CATALOG-ENTRY or REMOVE-ALIAS-CATALOG-ENTRY command
- range of the substitution: the entry applies only for files, only for job variables, or for both (RANGE operand)

The command is rejected if there is no existing entry for the specified alias or if an existing entry is protected against changes by the PROTECTED attribute.

Modified entries are only temporarily present in the task-local alias catalog, which means they are discarded when the alias catalog is deleted (explicitly with the PURGE-ALIAS-CATALOG command or implicitly when the task is terminated). If desired, however, the current entries can be saved in a file by using the STORE-ALIAS-CATALOG command.

Privileged functions

When an individual catalog entry is modified, the ACS administration can convert the entry to a system entry. In this case, the alias name is subjected to a less rigorous check; it is then always permissible to specify a catalog ID and a user ID (other than $SYS*. or $TSOS.).

Format

MODIFY-**ALIAS-CAT**ALOG-**ENTRY**

ALIAS-FILE-NAME = <filename 1..54>

,**F**ILE-**NAME** = ***UNCHA**NGED / <filename 1..54> / ***SAME**

,**ATTR**IBUTES = ***UNCHA**NGED / *STD / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **LOG**GING = ***UNCHA**NGED / ***Y**ES / ***NO**

| ,**VISIBILITY** = ***UNCHA**NGED / ***Y**ES / ***NO**

| ,**PROTECTION** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**TYPE** = ***UNCHA**NGED / ***USER** / ***SYS**TEM

,**RANGE** = ***UNCHA**NGED / ***FILE** / ***JV** / ***BOTH**

Operands

ALIAS-FILE-NAME = <filename 1..54>
Alias for which the actual file or job variable name is to be substituted by ACS.

FILE-NAME = *UNCHANGED
The associated actual file or job variable name is not changed.

FILE-NAME = <filename 1..54>
Actual file or job variable name to be substituted by ACS for the alias. The name of a temporary file or job variable is not allowed.
If the actual name is identical to the alias, the entry is treated as a normal alias definition (in contrast to *SAME).
The substitution of the file name is logged as ACS0000. The substitution of the job variable name is logged with ACS0049.

FILE-NAME = *SAME
The original specification can only be changed if the entry does not have the PROTECTED attribute.
The actual file or job variable name is the same as the alias, so no substitution and logging take place in this case; however, the entry prevents the insertion of the defined prefix.

ATTRIBUTES = *UNCHANGED / *STD / *PARAMETERS(...)
Changes the attributes of the existing entry created in the alias catalog. Several attributes may be specified together in a list.

ATTRIBUTES = *UNCHANGED
No attributes are changed.

ATTRIBUTES = *STD
The entry in the alias catalog is to have none of the attributes below.

ATTRIBUTES = *PARAMETERS(...)
The new entry is to have the following attributes:

LOGGING = *UNCHANGED / *YES / *NO
Substitution of the alias is to be logged. This attribute is independent of the corresponding ACS setting which applies to the task.

VISIBILITY = *UNCHANGED / *YES / *NO
Prevents the entry for non-privileged users in the alias catalog from appearing in the output of the SHOW-ALIAS-CATALOG-ENTRY command.

PROTECTION = *UNCHANGED / *YES / *NO
Protects the entry in the alias catalog against modification and deletion with the MODIFY-ALIAS-CATALOG-ENTRY and REMOVE-ALIAS-CATALOG-ENTRY commands respectively.

TYPE = *UNCHANGED / *USER / *SYSTEM
Only for users with ACS-ADMINISTRATION privilege:
Specifies whether the type of the entry which is being modified is to be USER or SYSTEM.

TYPE = *UNCHANGED
Preset value: the previous declaration continues to apply.

TYPE = *USER
The catalog entry in the alias catalog is to be held as a user entry. Such entries are included when the virtual catalog is saved into a file.

TYPE = *SYSTEM
The catalog entry in the alias catalog is to be held as a system entry. When the virtual catalog is saved into the AC file of a nonprivileged user, such entries are not included.

RANGE = *UNCHANGED / *FILE / *JV / *BOTH
Determines the range of the entry. Alias substitution can be defined for files and/or job variables.

RANGE = *UNCHANGED
Preset value: the previous declaration continues to apply.

RANGE = *FILE
Alias substitution is only effective for files.

RANGE = *JV
Alias substitution is only effective for job variables.

RANGE = *BOTH
Alias substitution is effective for both files and job variables.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
	32	CMD0221	Internal error
	64	ACS0006	Error: ACE entry not found
	64	ACS0017	Error: alias catalog not available
	64	ACS0024	Invalid alias catalog entry
	64	ACS0029	Command not permitted
	128	ACS0018	ACS is not available

Examples

For examples, see the ADD-ALIAS-CATALOG-ENTRY, LOAD-ALIAS-CATALOG, and SET-FILE-NAME-PREFIX commands.

4.7 MODIFY-ASE-PARAMETERS

Modify global ASE settings

Component:	ASE
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS

Function

The MODIFY-ASE-PARAMETERS command modifies global ASE settings. The size of the internal logging buffer in which SERSLOG events are logged is concerned here (ACTION=*INTERNAL-LOGGING). When the ASE subsystem is started, the buffer is created with a size of 4 KB. If the buffer is not large enough, new log records overwrite the oldest entries (“wrap-around”). If this is not desired, the buffer can be enlarged. The SHOW-ASE-STATUS command can be used to determine whether wrap-around is being used.

ASE V1.0 enables up to 127 log records to be saved per 4-KB block.

The SHOW-ASE-PARAMETERS command displays the current buffer size.

Format

MODIFY**-ASE-PAR**AMETERS
BUFFER**-SIZE** = ***UNCHA**NGED / <integer 1..16 *4Kbyte*>

Operands

BUFFER-SIZE = *UNCHANGED / <integer 1..16 *4Kbyte*>
Specifies the new size of the internal logging buffer in 4-KB blocks. When the subsystem starts, ASE creates the internal logging buffer with a size of 4 KB (corresponds to BUFFER-SIZE=1).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

4.8 MODIFY-CHANGE-DATE

Modify changeover time

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS

Function

The MODIFY-CHANGE-DATE command changes a future changeover time from standard daylight time to daylight saving time (or vice versa).

The modified changeover time must satisfy the following conditions:

- It must be between the neighboring changeover times like the previous changeover time
- It may not be within the next hour
- It must be 4 to 8 months away from its neighboring changeover times

> The MODIFY-CHANGE-DATE command modifies a changeover time for the current session. If required, also modify the changeover time in the GTIME parameter set of the startup parameter file so that it is valid for future sessions.

Format

MODIFY**-CHANGE-DATE**
DATE = <date>
,**NEW-DATE** = ***UNCHA**NGED / <date>
,**NEW-TIME** = ***UNCHA**NGED / <time>

Operands

DATE = <date>
Selects the changeover time to be modified.

NEW-DATE = *UNCHANGED / <date>
Date of the new changeover time.

NEW-TIME = *UNCHANGED / <time>
Time of day of the new changeover time in the format hh:mm.
No seconds may be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CHD0010	Syntax error in the command
	32	CMD0221	System error
	64	CHD0011	Semantic error in the command

4.9 MODIFY-CONSOLE-OPTIONS

Set operator terminal output control options

Component:	BS2000
Functional area:	Operator terminal control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	@

Function

The MODIFY-CONSOLE-OPTIONS command can be used to set the following operator terminal (console) output control options:

- screen updating on operator terminals (SCREEN-UPDATE operand)
- maximum number of undisplayed (queued) messages (QUEUE-WARNING operand)

Restrictions when using the “Operator LOGON” function

If the “Operator LOGON” function is used (incompatible mode; system parameter NBCONOPI=Y), the command can refer only to the physical operator terminal at which it is issued. That means that:

- with this command the main operator terminal ceases to have a privileged status in relation to the other operator terminals;
- entering the command from authorized user programs is no longer permissible; and
- the only value accepted for the CONSOLE-UNIT operand is the default setting *OWN, so this operand can be left unspecified.

Format

MODIFY**-CONSOLE-OPT**IONS

CONSOLE-UNIT = ***OWN** / <alphanum-name 2..2>

,**SCREEN-UPDATE** = ***UNCHA**NGED / ***SCROLL** / ***PER**IOD(...)

***PER**IOD(...)

| **UPD**ATE**-INTERVAL** = ***UNCHA**NGED / <integer 0..60 *seconds*>

,**QUEUE-WARNING** = ***UNCHA**NGED / <integer 10..500>

Operands

CONSOLE-UNIT =
Specifies the operator terminal whose parameters are to be modified.

CONSOLE-UNIT = *OWN
The parameters of the operator terminal from which the command was issued are to be modified (default value).

CONSOLE-UNIT = <alphanum-name 2..2>
Not allowed in conjunction with the Operator Logon function.
Specifies the mnemonic device name of the operator terminal whose parameters are to be modified. A different operator terminal may be specified at the main operator terminal or by an authorized user program only in compatible mode (NBCONOPI=N).

SCREEN-UPDATE =
Defines the time intervals at which the screen is to be updated and how many lines are to be affected. There are two screen update modes: roll-up mode and interval mode.

SCREEN-UPDATE = *UNCHANGED
The values set for UPDATE-INTERVAL and MESSAGE-REPLACE-RATE remain unchanged.

SCREEN-UPDATE = *SCROLL
Sets roll-up mode. Screen update takes place at intervals of 255 ms, with one message per output.

SCREEN-UPDATE = *PERIOD(...)
Specifies values for the screen update and replacement of messages.

> **UPDATE-INTERVAL = *UNCHANGED**
> The preset value is to remain unchanged.
>
> **UPDATE-INTERVAL = <integer 0..60 *seconds* >**
> Specifies the minimum time (in seconds) that may elapse between two screen updates. You can specify values in the range of 0 to 60; the default value is 0 (i.e. 255ms).

QUEUE-WARNING =
Specifies the number of queued messages which may accrue at a given operator terminal.

QUEUE-WARNING = *UNCHANGED
The preset value is to remain unchanged.

QUEUE-WARNING = <integer 10..500>
Specifies the number of queued messages which may accrue at a given operator terminal. If the number of such outstanding messages exceeds the specified value, control passes to interval mode with UPDATE-INTERVAL=0 (i. e. 255 ms).
Possible values: 10 <= int <= 500
The preset value is 50.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NBR0927	Command partially executed
	1	CMD0202	Syntax error
1	32	NBR0926	Internal error in command server
	64	CMD0216	Privilege violation
2	64	NBR0898	Input from user task illegal
1	64	NBR0922	Semantic error: command may be issued only from main console or by application
2	64	NBR0923	Semantic error: incorrect MN
3	64	NBR0924	Command not permitted on this console type
4	64	NBR0925	Semantic error; operand not allowed
	64	NBR1043	Authorized user program not allowed to perform this function in incompatible mode (NBCONOPI=Y)
	130	NBR0921	Out of memory

4.10 MODIFY-DBL-DEFAULTS

Set defaults for DBL calls

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING

Function

The MODIFY-DBL-DEFAULTS command sets defaults on a task-local basis for subsequent calls to the DBL using the START- and LOAD-EXECUTABLE-PROGRAM (or START-/LOAD-PROGRAM) commands and the BIND macro. Apart from setting specific values, it can configure their scope and priority.

The SHOW-DBL-DEFAULTS command lists the current settings. The RESET-DBL-DEFAULTS command can be used to return all settings to the original defaults.

Format

MODIFY**-DBL-DEFAULTS**

```
PRIORITY = *STD / *FORCED
,SCOPE = *ALL(...) / *CMD-CALLS(...) / *PROGRAM-CALLS(...)
    *ALL(...)
        | LIBRARY = *UNCHANGED / *STD / *OMF / <filename 1..54 without-gen> / *LINK(...)
        |     *LINK(...)
        |         | LINK = <structured-name 1..8> / <filename 1..8 without-gen-vers>
        | LOADING = *PARAMETERS(...)
        |     *PARAMETERS(...)
        |         | PROGRAM-MODE = *UNCHANGED / *ANY / 24
        |         | ,LOAD-INFORMATION = *UNCHANGED / *DEFINITIONS / *REFERENCES / *MAP /
        |         |     *NONE
        |         | ,REP-FILE = *UNCHANGED / *NONE / <filename 1..54 without-gen>
        |         | ,IGNORE-ATTRIBUTES = *UNCHANGED / *NONE / *READ-ONLY
        |         | ,AMODE-CHECK = *UNCHANGED / *STD / *ADVANCED
        | ,RESOLUTION = *PARAMETERS(...)
        |     *PARAMETERS(...)
        |         | SHARE-SCOPE = *UNCHANGED / *SYSTEM-MEMORY / *NONE / *ALL /
```

```
|          |                              *MEMORY-POOL(...)
|          |        *MEMORY-POOL(...)
|          |             |    SCOPE = *ALL / *USER-ID / *USER-GROUP / *HOST-SYSTEM
|          |    ,PROGRAM-VERSION = *UNCHANGED / *STD / *BLANK /
|          |                              <composed-name 1..24 with-under>
|          |    ,ALTERNATE-LIBRARIES = *UNCHANGED / *NONE / *YES /
|          |                              list-poss(2): *TASKLIB / *BLSLIB##
|          |    ,AUTOLINK = *UNCHANGED / *YES / *NO / *ALTERNATE-LIBRARIES
|  ,ERROR-PROCESSING = *PARAMETERS(...)
|      *PARAMETERS(...)
|          |    NAME-COLLISION = *UNCHANGED / *STD / *ABORT
|          |    ,UNRESOLVED-EXTRNS = *UNCHANGED / *STD / *DELAY / *ABORT
|          |    ,ERROR-EXIT = *UNCHANGED / *NONE / <x-string 1..8>
|  ,REPORTING = *PARAMETERS(...)
|      *PARAMETERS(...)
|          |    MESSAGE-CONTROL = *UNCHANGED / *INFORMATION / *WARNING / *ERROR /
|          |                              *NONE
|          |    ,PROGRAM-MAP = *UNCHANGED / *NO / *SYSLST(...) / *SYSOUT / *BOTH(...)
|          |        *SYSLST(...)
|          |             |    SYSLST-NUMBER = *STD / <integer 1..99>
|          |        *BOTH(...)
|          |             |    SYSLST-NUMBER = *STD / <integer 1..99>
|  ,TEST-OPTIONS = *UNCHANGED / *NONE / *AID
*CMD-CALLS(...)
|  LIBRARY = *UNCHANGED / *STD / *OMF / <filename 1..54 without-gen> / *LINK(...)
|      *LINK(...)
|          |    LINK = <structured-name 1..8> / <filename 1..8 without-gen-vers>
|  LOADING = *PARAMETERS(...)
|      *PARAMETERS(...)
|          |    PROGRAM-MODE = *UNCHANGED / *STD / 24 / *ANY
|          |    ,LOAD-INFORMATION = *UNCHANGED / *DEFINITIONS / *REFERENCES / *MAP /
```

```
|       |                          *NONE
|       |  ,REP-FILE = *UNCHANGED / *NONE / <filename 1..54 without-gen>
|       |  ,IGNORE-ATTRIBUTES = *UNCHANGED / *NONE / *READ-ONLY
|       |  ,AMODE-CHECK = *UNCHANGED / *STD / *ADVANCED
|  ,RESOLUTION = *PARAMETERS(...)
|    *PARAMETERS(...)
|       |  SHARE-SCOPE = *UNCHANGED / *SYSTEM-MEMORY / *NONE / *ALL /
|       |                          *MEMORY-POOL(...)
|       |    *MEMORY-POOL(...)
|       |      |  SCOPE = *ALL / *USER-ID / *USER-GROUP / *HOST-SYSTEM
|       |  ,PROGRAM-VERSION = *UNCHANGED / *STD / *BLANK /
|       |                          <composed-name 1..24 with-under>
|       |  ,ALTERNATE-LIBRARIES = *UNCHANGED / *NONE / *YES /
|       |                          list-poss(2): *TASKLIB / *BLSLIB##
|       |  ,AUTOLINK = *UNCHANGED / *YES / *NO / *ALTERNATE-LIBRARIES
|  ,ERROR-PROCESSING = *PARAMETERS(...)
|    *PARAMETERS(...)
|       |  NAME-COLLISION = *UNCHANGED / *STD / *ABORT
|       |  ,UNRESOLVED-EXTRNS = *UNCHANGED / *STD / *DELAY / *ABORT
|       |  ,ERROR-EXIT = *UNCHANGED / *NONE / <x-string 1..8>
|  ,REPORTING = *PARAMETERS(...)
|    *PARAMETERS(...)
|       |  MESSAGE-CONTROL = *UNCHANGED / *INFORMATION / *WARNING / *ERROR /
|       |                          *NONE
|       |  ,PROGRAM-MAP = *UNCHANGED / *NO / *SYSLST(...) / *SYSOUT / *BOTH(...)
|       |    *SYSLST(...)
|       |      |  SYSLST-NUMBER = *STD / <integer 1..99>
|       |    *BOTH(...)
|       |      |  SYSLST-NUMBER = *STD / <integer 1..99>
|  ,TEST-OPTIONS = *UNCHANGED / *NONE / *AID
|  ,RUN-MODE = *UNCHANGED / *STD / *ADVANCED
```

| ,**CISC-COMPILATION** = ***UNCHA**NGED / ***Y**ES(...) / ***NO**

| ***Y**ES(...)

| | **WORKSPAC**E = ***STD** / <integer 1..2048 *Mbyte*>

| | ,**SHOW-MEMORY-USAGE** = ***UNCHA**NGED / ***NO** / ***Y**ES

***PROG**RAM-**CALLS**(...)

| **LIB**RARY = ***UNCHA**NGED / ***STD** / ***OMF** / <filename 1..54 without-gen> / ***LINK**(...)

| ***LINK**(...)

| | **LINK** = <structured-name 1..8> / <filename 1..8 without-gen-vers>

| ,**LOAD**ING = ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **PROG**RAM-**MODE** = ***UNCHA**NGED / ***ANY** / **24**

| | ,**LOAD-INF**ORMATION = ***UNCHA**NGED / ***DEFI**NITIONS / ***MAP** / ***NONE** /

| | ***REF**ERENCES

| | ,**REP-FILE** = ***UNCHA**NGED / ***NONE** / <filename 1..54 without-gen>

| | ,**REP-SCOPE** = ***UNCHA**NGED / ***CONTEXT** / ***UNIT**

| | ,**CONTEXT-NAME** = ***UNCHA**NGED / <filename 1..32>

| | ,**CONTEXT-STATE** = ***UNCHA**NGED / ***ANY** / ***NEW** / ***OLD**

| | ,**CLOSE-LIB**RARIES = ***UNCHA**NGED / ***ALL** / ***NONE** / ***ALTER**NATE-**LIB**RARIES

| | ,**IGNORE-ATTR**IBUTES = ***UNCHA**NGED / ***NONE** / ***READ-ONLY**

| | ,**AMODE-CHECK** = ***UNCHA**NGED / ***STD** / ***ADVANCED**

| ,**RESOLUTION** = ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **SHARE-SCOPE** = ***UNCHA**NGED / ***SYS**TEM-**MEMORY** / ***NONE** / ***ALL** /

| | ***MEMORY-POOL**(...)

| | ***MEMORY-POOL**(...)

| | | **SCOPE** = ***ALL** / ***USER-ID** / ***USER-GROUP** / ***HOST-SYS**TEM

| | ,**PROG**RAM-**VERS**ION = ***UNCHA**NGED / ***STD** / ***BLANK** /

| | <composed-name 1..24 with-under>

| | ,**ALTER**NATE-**LIB**RARIES = ***UNCHA**NGED / ***NONE** / ***Y**ES /

| | list-poss(2): ***TASKLIB** / ***BLSLIB##**

| | ,**AUTOLINK** = ***UNCHA**NGED / ***Y**ES / ***NO** / ***ALTERNATE-LIBRARIES**

```
|          |  ,RESOL-TYPE = *UNCHANGED / *STD / *USER(...)
|          |      *USER(...)
|          |          |  ORDER = *UNCHANGED / list-poss(4): *LINK-CONTEXT /
|          |          |          *USER-SHARED-CODE / *SYSTEM-SHARED-CODE /
|          |          |          *REFERENCE-CONTEXTS
|          |  ,PUBLIC-RESOL-TYPE = *UNCHANGED / *STD / *USER(...)
|          |      *USER(...)
|          |          |  ORDER = *UNCHANGED / list-poss(3): *USER-SHARED-CODE /
|          |          |          *SYSTEM-SHARED-CODE / *LINK-CONTEXT
|  ,ERROR-PROCESSING = *PARAMETERS(...)
|      *PARAMETERS(...)
|          |  NAME-COLLISION = *UNCHANGED / *STD / *ABORT
|          |  ,UNRESOLVED-EXTRNS = *UNCHANGED / *STD / *DELAY / *DELAY-WARN / *ABORT
|          |  ,ERROR-EXIT = *UNCHANGED / *NONE / <x-string 1..8>
|  ,REPORTING = *PARAMETERS(...)
|      *PARAMETERS(...)
|          |  MESSAGE-CONTROL = *UNCHANGED / *INFORMATION / *ERROR / *WARNING /
|          |                    *NONE
|          |  ,PROGRAM-MAP = *UNCHANGED / *NO / *SYSLST(...) / *SYSOUT / *BOTH(...)
|          |      *SYSLST(...)
|          |          |  SYSLST-NUMBER = *STD / <integer 1..99>
|          |      *BOTH(...)
|          |          |  SYSLST-NUMBER = *STD / <integer 1..99>
|  ,TEST-OPTIONS = *UNCHANGED / *NONE / *AID
```

Operands

A value of *UNCHANGED for an operand means that the previous setting of the associated DBL parameter is left unchanged. If nothing has yet been specified for the operand in a MODIFY-DBL-DEFAULTS command, the value that follows *UNCHANGED in the syntax description applies.

The only operands described below are those which do not appear in LOAD-/START-EXECUTABLE-PROGRAM (or LOAD-/START-PROGRAM). The operands of the DBL macros are listed in table "Assignment to corresponding operands of DBL macro calls".

PRIORITY =
Defines the priority of DBL parameter settings.

PRIORITY = *STD
The DBL parameters specified in LOAD-/START-EXECUTABLE-PROGRAM (or LOAD-/START-PROGRAM) or in the BIND macro have top priority. Thus, the hierarchy is as follows:

1. values specified in LOAD-EXECUTABLE-PROGRAM (or LOAD-/START-PROGRAM) or in a BIND macro call
2. values specified in the MODIFY-DBL-DEFAULTS command
3. default values defined on initialization of an internal DBL parameter table. In the syntax chart, these are the values following *UNCHANGED, unless some other value is underscored

PRIORITY = *FORCED
The DBL parameters defined in MODIFY-DBL-DEFAULTS have top priority. The DBL parameters specified in EXECUTABLE-PROGRAM (or LOAD-/START-PROGRAM) or in a BIND macro are ignored by the DBL.

> PRIORITY = *FORCED must not be specified together with LIBRARY, PROGRAM-VERSION, CONTEXT-NAME or CONTEXT-STAT.

SCOPE =
Defines the scope of the settings.

SCOPE = *ALL(...)
The default settings apply both to DBL commands ((START-/LOAD-EXECUTABLE-PROGRAM or START-/LOAD-PROGRAM) and to DBL macros (BIND, ASHARE)).

SCOPE = *CMD-CALLS(...)
The default settings apply to DBL commands only (START-/LOAD-EXECUTABLE-PROGRAM or START-/LOAD-PROGRAM).

LOADING = *PARAMETERS(...)

PROGRAM-MODE = *UNCHANGED / *STD / 24 / *ANY
Defines the part of the address space (above or below 16 MB) in which the load unit modules are to be loaded.

*STD is set by default at task start.

PROGRAM-MODE = *STD
The DBL default depends on the command call:

- In the case of LOAD-/START-EXECUTABLE-PROGRAM with FROM-FILE=*LIBRARY-ELEMENT(...), PROGRAM-MODE=*ANY is assumed as the DBL default value.
- In the case of LOAD-/START-PROGRAM with FROM-FILE=*MODULE(...), PROGRAM-MODE=24 is assumed as the DBL default value.

CISC-COMPILATION = *UNCHANGED / *YES(...) / *NO
Specifies whether CISCFW compilation is permitted. CISCFW is a firmware component on SU x86 for mapping nonprivileged /390 code to X86-64 code. It supplements X86-64 mode and enables existing /390 code to be executed object-compatibly on SU x86. CISCFW contains a Just-In-Time /390 code compiler which converts /390 code to X86-64 code at runtime.

A code block is compiled only when it is executed and is stored in a local task CISCFW memory. When the code block is executed again, the code, which has already been compiled and optimized, is executed directly from the CISCFW memory. Further optimization is achieved by making the CISCFW memory resident.

CISCFW compilation is enabled by default.
In systems possessing only a small memory extension, programs that require high performance should be executed with CISCFW compilation. In the case of very large programs, a correspondingly larger main memory should be chosen (WORKSPACE operand).

CISC-COMPILATION = *YES(...)
CISCFW compilation is allowed.

WORKSPACE = *STD / <integer 1..2048 *Mbyte*>
Defines the size of the work area in MBytes available for the CISCFW memory. The default setting is *STD, i.e. the size of the work storage area for CISCFW compilation is defined by the compiler.

SHOW-MEMORY-USAGE = *UNCHANGED / *NO / *YES
Specifies whether the main memory that is to be used for the CISCFW memory is defined by the current value of the system parameter JTSTDMEM.

CISC-COMPILATION = *NO
CISCFW compilation is not to be used. /390 code is emulated by the /390 firmware.

SCOPE = *PROGRAM-CALLS(...)
The default settings apply to DBL macros only (BIND, ASHARE, see table "Assignment to corresponding operands of DBL macro calls").

LOADING = *PARAMETERS(...)

CLOSE-LIBRARIES = *UNCHANGED / *ALL / *NONE / *ALTERNATE-LIBRARIES
Specifies whether the libraries used by DBL are to be closed after processing.

CLOSE-LIBRARIES = *ALL
All libraries used by DBL are closed.

CLOSE-LIBRARIES = *NONE
None of the libraries used by DBL are closed.

CLOSE-LIBRARIES = *ALTERNATE-LIBRARIES
Only the alternate libraries are closed.

REP-SCOPE = *UNCHANGED / *CONTEXT / *UNIT
Specifies whether REP processing is to be performed for all modules in the context or only the modules of the current load unit.

REP-SCOPE = *CONTEXT
REP processing is carried out for all modules in the context.

REP-SCOPE = *UNIT
REP processing is restricted to the modules of the current load unit. All other modules in the context are skipped.

CONTEXT-NAME = *UNCHANGED / <filename 1..32>
Names a context in which the load units are to be loaded. The name must begin with a letter. If no name is specified, the context LOCAL#DEFAULT is used.

CONTEXT-STATE = *UNCHANGED / *ANY / *NEW / *OLD
Determines whether the context specified with CONTEXT-NAME must or can exist.

CONTEXT-STATE = *ANY
If a user context with the specified name (CONTEXT-NAME) exists, this context is used; otherwise, a new context is created.

CONTEXT-STATE = *NEW
A new context with the specified name (CONTEXT-NAME) is created. This context must not be already present.

CONTEXT-STATE = *OLD
The context with the specified name (CONTEXT-NAME) is used. This context must be one that exists.

RESOLUTION = *PARAMETERS(...)

RESOL-TYPE = *UNCHANGED / *STD / *USER(...)
Specifies the search strategy for resolving external references.

RESOL-TYPE = *STD
The search sequence predefined by DBL applies:

1. link context
2. shared code of the user
3. shared code of the system
4. reference context(s)

RESOL-TYPE = *USER(...)
The search sequence is defined by the user.

ORDER = *UNCHANGED / list-poss(4): *LINK-CONTEXT / *USER-SHARED-CODE / *SYSTEM-SHARED-CODE / *REFERENCE-CONTEXTS
The user-defined search sequence is specified in the form of a list of the following keywords. The order in which the contexts are searched is defined by the sequence of the keywords in the list:

*LINK-CONTEXT	for link context
*USER-SHARED-CODE	for shared code of the user
*SYSTEM-SHARED-CODE	for shared code of the system
*REFERENCE-CONTEXT	for reference context

Each keyword can appear in the list only once. Keywords that are not specified in the list are appended to the end of the list internally by DBL in accordance with the predefined sequence (see *STD).

Example

The specification `ORDER=(*SYSTEM-SHARED-CODE,*USER-SHARED-CODE)` is extended to `ORDER=(*SYSTEM-SHARED-CODE,*USER-SHARED-CODE,*LINK-CONTEXT,*REFERENCE-CONTEXT)`. When external references are resolved, the search is performed in the following order:

1. in the system’s shared code

2. in the user's shared code
3. in the link context
4. and, finally, in the reference context

PUBLIC-RESOL-TYPE = *UNCHANGED / *STD / *USER(...)
Specifies the search strategy for the resolution of external references in PUBLIC parts of LLMs.

PUBLIC-RESOL-TYPE = *STD
The search sequence predefined by the DBL applies:

1. shared code of the user
2. shared code of the system
3. link context

PUBLIC-RESOL-TYPE = *USER(...)
The search sequence is specified by the user.

ORDER = *UNCHANGED / list-poss(3): *USER-SHARED-CODE / *SYSTEM-SHARED-CODE / *LINK-CONTEXT
Specifies the user-defined search sequence in the form of a list of the following keywords. The order in which the contexts are to be searched is defined by the sequence of the keywords in the list:

*USER-SHARED-CODE	for shared user code of the user
*SYSTEM-SHARED-CODE	for shared user code of the system
*LINK-CONTEXT	for link context

Each keyword can appear in the list only once. Keywords that are not specified in the list are appended to the end of the list internally by DBL in accordance with the predefined sequence (see *STD).

Example

The specification `ORDER=*SYSTEM-SHARED-CODE` is extended to `ORDER=(*SYSTEM-SHARED-CODE,*USER-SHARED-CODE,*LINK-CONTEXT)`. When external references are resolved in PUBLIC parts, the following search order is used:

1. in the system's shared code
2. in the user's shared code
3. and, finally, in the link context

ERROR-PROCESSING = *PARAMETERS(...)

UNRESOLVED-EXTRNS = *UNCHANGED / *STD / *DELAY / *DELAY-WARN / *ABORT
With the exception of the operand value *DELAY-WARN, the operand occurs in LOAD-/START-EXECUTABLE-PROGRAM (or LOAD-/START-PROGRAM).

UNRESOLVED-EXTRNS = *DELAY-WARN
The specification mainly corresponds to the operand value *DELAY. However, when unresolved external symbols are found in the context, a return code is provided as a warning.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0150	The command was executed and a warning was issued
1	1	BLS0170	PRIORITY=*FORCED not allowed with specified operands
1	1	BLS0171	Invalid context name
1	32	BLS0002	Internal DBL error
1	32	BLS0152	System error
	64	CMD0216	User is not authorized to issue the command

Notes

- For compatibility reasons, the priorities indicated above do not apply to the BIND macro parameters NACOL, UNRES, LDINFO, TSTOPT, MSG, and AMODCHK. The default settings are always taken from the LOAD-/START-EXECUTABLE-PROGRAM or LOAD-/START-PROGRAM command.
- The command MODIFY-DBL-DEFAULTS PRIORITY=*FORCED is rejected if used with the specification of a library (file name or file link name), context, or program version.
- The default settings are not relevant for the LINK macro described in the appendix.
- The search order specified in the RESOL-TYPE and PUBLIC-RESOL-TYPE operands (ORDER suboperand) has no influence on **which** contexts are searched. **Whether** shared code is searched must be specified with the SHARE-SCOPE operand.

Operands of the command and corresponding macro operands

Command	Macro			
	ASHARE	BIND	ETABLE / ILEMGT	LDSLICE / UNBIND
ALTERNATE-LIBRARIES	ALTLIB	ALTLIB	-	-
AMODE-CHECK	-	AMODCHK	-	-
AUTOLINK	-	AUTOLNK	-	-
CLOSE-LIBRARIES	-	CLOSE	-	-
CONTEXT-NAME	-	LNKCTX	-	-
CONTEXT-STATE	-	LNKCTXS	CONTEXT-STATE	-
ERROR-EXIT	-	ERREXIT	-	-
IGNORE-ATTRIBUTES	-	IGNATTR	-	-
LIBRARY	-	LIBNAM	-	-
LOAD-INFORMATION	-	LDINFO	-	-
MESSAGE-CONTROL	MSGCTRL	MSG	-	MSG
NAME-COLLISION	-	NACOL	-	-
PROGRAM-MAP	MAP	MAP	-	-
PROGRAM-MODE	-	PROGMOD	-	-
PROGRAM-VERSION	-	PGMVERS	-	-
PUBLIC-RESOL-TYPE	-	PURESTY	-	-
REP-FILE	-	REPFILE	-	-
REP-SCOPE	-	REPSCOP	-	-
RESOL-TYPE	-	RESTYP	-	-
SHARE-SCOPE	-	SHARE	-	-
TEST-OPTIONS	-	TSTOPT	-	-
UNRESOLVED-EXTRNS	-	UNRES	-	-

Table 53: Assignment to corresponding operands of DBL macro calls

4.11 MODIFY-DEFAULT-ACCOUNT

Modify default account numbers

Component:	SRPMNUC
Functional area:	Job processing User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the MODIFY-DEFAULT-ACCOUNT command the user modifies the default account numbers which are entered in the user catalog of the home pubset for BS2000 timesharing mode and POSIX access. The particular default account number entered is used in the following cases:

- The default account number for BS2000 timesharing mode is used for interactive or batch access if no account number is specified in the SET-LOGON-PARAMETERS, ENTER-JOB or ENTER-PROCEDURE command (ACCOUNT=*NONE is the default).
- The default account number for POSIX access is always used for POSIX Rlogin and remote access as POSIX access itself does not provide an account number.

Format

MODIFY**-DEF**AULT**-ACCOUNT**

LOGON-DEFAULT = ***UNCHA**NGED / ***NONE** / <alphanum-name 1..8>

,**POSIX-DEF**AULT = ***UNCHA**NGED / ***NONE** / ***SAME** / <alphanum-name 1..8>

Operands

LOGON-DEFAULT = *UNCHANGED / *NONE / <alphanum-name 1..8>
Specifies which account number is to be used as the default for interactive and batch access in BS2000 timesharing mode.

LOGON-DEFAULT = *UNCHANGED
The definition applicable so far remains unchanged.

LOGON-DEFAULT = *NONE
No default account number is to be used.

LOGON-DEFAULT = <alphanum-name 1..8>
The account number specified becomes the default account number.

POSIX-DEFAULT = *UNCHANGED / *NONE / *SAME / <alphanum-name 1..8>
Specifies which account number is to be used as the default for POSIX Rlogin and remote access.

POSIX-DEFAULT = *UNCHANGED
The definition applicable so far remains unchanged.

POSIX-DEFAULT = *NONE
No default account number is to be used.

POSIX-DEFAULT = *SAME
The same default account number is to be used as for BS2000 access.

POSIX-DEFAULT = <alphanum-name 1..8>
The account number specified becomes the default account number.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	SRM6001	Command executed with warning
	32	SRM6020	Command rejected owing to system error
	64	SRM6040	Command rejected with error message
	130	SRM6030	Command rejected owing to lack of resources

4.12 MODIFY-FILE-ATTRIBUTES

Modify attributes of file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS
Routing code:	$ (bei NBCONOPI=N) bzw. E (bei NBCONOPI=Y)

Function

The MODIFY-FILE-ATTRIBUTES command changes the attributes for existing catalog entries (see section "Overview of functions"). Only the owner, any co-owners (see “Privileged functions”) and systems support personnel are allowed to modify all the file’s attributes. Other users, who have write permission for the the file, are only allowed to allocate extra space or tapes and modify the CODED-CHARACTER-SET and NET-CODED-CHAR-SET entries.

If a file is write-protected by a password, the password must have been added to the password table for the job (see the ADD-PASSWORD command).

File renaming (NEW-NAME operand) and the operand settings AVAILABILITY=*HIGH (even specified implicitly by the allocation of a storage class) and MIGRATE=*FORBIDDEN are rejected if applied to a file which has been migrated from the processing level (S0) to a background level (S1 or S2) using HSMS.

For each of the operands, a value of *UNCHANGED means that the value previously specified will continue to apply. If a permanent file is recataloged as a temporary file (or vice versa), file attributes may change even if *UNCHANGED is specified (see section "Temporary files").

Privileged functions

The following functions are available to nonprivileged users only if the physical allocation of public space is allowed (see “Privileged functions” in the function description of the CREATE-FILE command):

- explicit specification (values other than the default, *STD) of a volume or volume set in the VOLUME or VOLUME-SET operand in the structure SUPPORT=*PUBLIC-DISK (STORAGE-CLASS=*NONE(...)) when the files are contained on the pubset's disks
- absolute space reservation using SPACE=*ABSOLUTE(...) in the structure SUPPORT=*PUBLIC-DISK(...)
- intensified migration locking using MIGRATE=*FORBIDDEN
- locking against migration to another volume set in the SM pubset, using S0-MIGRATION=*FORBIDDEN

Exception: Privileged functions are not available for work files if no authorization for physical allocation is given.

Systems support personnel can supplement the user information in the file catalog with one to eight bytes of information about the file (ADM-INFORMATION operand).

Systems support personnel (TSOS privilege) can have accesses to the file monitored (AUDIT operand). To configure the AUDIT function, nonprivileged users need appropriate authorization in the user entry of the pubset in which the file is to be created (see the *AUDIT* output field of the SHOW-USER-ATTRIBUTES) command.

By default, systems support (TSOS privilege) is a co-owner of all the files (and can, therefore, modify files under any user ID). When SECOS is used, this co-ownership can be restricted for permanent files.

Temporary files

Temporary files can be accessed only by the task which creates them and by systems support personnel. It is impossible to specify any file protection measures for them, i.e. no passwords can be defined for them, and only the standard protection attributes ACCESS= *WRITE, USER-ACCESS=*OWNER-ONLY, BASIC-ACL=*NONE, GUARDS=*NONE, and FREE-FOR-DELETION=*NONE can be assigned. The EXPIRATION-DATE operand may only be specified as *UNCHANGED (the default value in the catalog entry of a file already created with OPEN /CLOSE is <= current date, otherwise NONE). If a permanent file is recataloged (renamed) as a temporary file or vice versa, the default protection attributes are set automatically, even if the associated operand is specified as *UNCHANGED.

The attribute NUM-OF-BACKUP-VERS can be given only two values: *UNCHANGED or 0.
If a permanent file is recataloged as a temporary file, the attribute NUM-OF-BACKUP-VERS switches from *UNCHANGED to 0. If the value is specified explicitly, only *UNCHANGED or 0 are accepted.
If a temporary file is recataloged as a permanent file, the attribute NUM-OF-BACKUP-VERS switches from *UNCHANGED to the value specified in the system parameter NUMBACK.

The BACKUP-CLASS and DISK-WRITE attributes may likewise change when a permanent file is recataloged (renamed) as a temporary file or vice versa if the associated operand is assigned the default value *UNCHANGED (see operand description).

A nonprivileged user can only generate temporary files on the default pubset of his user ID.

Verifying command execution

The DIALOG-CONTROL operand governs whether a verification dialog is to be conducted with the user. The OUTPUT operand lets the user specify whether each file name that is processed is to be logged in a guaranteed message to SYSOUT. In conjunction with the chargeable SDF-P subsystem, the processed file names can be viewed in the S variable stream for guaranteed messages (SYSMSG; see also the ASSIGN-STREAM and EXECUTE-CMD commands in the “SDF-P” manual [34]).

Physical allocation in SM pubsets

A user who is allowed to perform physical allocation of public storage space (see “Privileged functions” in the CREATE-FILE command function description) can directly specify a volume or volume set (VOLUME or VOLUME-SET operand) in the structure STORAGE-CLASS= *NONE(...) in order to select a specific volume set of an SM pubset as the storage location for a file.
The WORK-FILE attribute is specified implicitly. In addition, a lock on migration to another volume set of the SM pubset is placed on the file (S0-MIGRATION=*FORBIDDEN; see also the identically named operand in the command description).
When S0-MIGRATION=*FORBIDDEN is set (explicitly with the identically named operand or implicitly through the physical allocation of storage space), the file’s PERFORMANCE and AVAILABILITY attributes are matched to the identically named attributes of the volume set.

These attributes correspond to the levels of PERFORMANCE (STD, HIGH, VERY-HIGH) and AVAILABILITY (STD, HIGH) which are hierarchically arranged in the user catalog. To ensure that there are adequate levels of performance and availability, files with the S0-MIGRATION=*FORBIDDEN attribute are always assigned at least

the PERFORMANCE and AVAILABILITY levels defined for the volume set (you can list the attributes of the volume set with the SHOW-PUBSET-DEFINITION-FILE command (and also with SHOW-PUBSET-CONFIGURATION)). Any explicit specification of the PERFORMANCE and AVAILABILITY operands which selects a lower level in the hierarchy is ignored. The minimum value is recorded in the file's catalog entry, and the level in the user catalog is set accordingly. Note that a file's PERFORMANCE attribute may be higher than the maximum permissible value as set in the user entry (*DMS-TUNING-RESOURCES* output field). Then, regardless of the level that has been set, the file will at best be processed using the value which is in the user entry at the time of OPEN processing. The level settings and the value of the DMS-TUNING-RESOURCES attribute can be viewed in the output of the SHOW-USER-ATTRIBUTES command, INFORMATION =*PUBSET-ATTRIBUTES operand.

Example

Together with the operand setting S0-MIGRATION=*FORBIDDEN or in conjunction with physical allocation, the user specifies PERFORMANCE=*HIGH or *STD (or this applies implicitly, since it is the default), but the attribute of the chosen volume set is PERFORMANCE=*VERY-HIGH. The file will then automatically be assigned the attribute PERFORMANCE=*VERY-HIGH. If the user entry includes DMS-TUNING-RESOURCES=*NONE, the file will actually only be processed with a setting of PERFORMANCE=*STD.

Work files

A file which is in an SM pubset and does not yet occupy any storage space can be defined as a work file by the user in one of the following ways:

- explicitly by setting the operand value WORK-FILE=*YES.
- implicitly by physical allocation in a volume set for work files (VOLUME-SET operand)
- implicitly by assignment to a storage class with the attribute WORK-FILE=*YES

Work files are created as permanent files in a volume set defined for that purpose. Systems support personnel can delete work files again at times which it defines.
By default, work files are not backed up.
The WORK-FILE attribute cannot be changed for files which already occupy storage space, i.e. that a "normal" file cannot be recataloged as a work file and vice versa.
Only a storage class with the attribute WORK-FILE=*YES can be assigned to a work file. The only possible setting for the AVAILABILITY attribute for work files is *STD, i.e. AVAILABILITY=*HIGH will be rejected.

Files in SM pubsets

The storage location for a file on an SM pubset can be selected on the basis of a storage class. This simplifies the automatic management of storage space on an SM pubset (for details see the "Introduction to System Administration" [14] or the "System-Managed Storage" manual [45]).
Systems support personnel allocates to a storage class certain file attributes which are implicitly set for all files assigned to that storage class. If a storage class is specified, there is no need to explicitly specify values for the WORK-FILE, VOLUME-SET, VOLUME, DEVICE-TYPE, IO-ATTRIBUTES, DISK-WRITE, FILE-PREFORMAT, and AVAILABILITY operands.
The SHOW-STORAGE-CLASS command allows users to find out which storage classes of the SM pubset are available to them and which file attributes are set.

If the requirements for the file's storage location are changed (explicitly or implicitly by way of the storage class), the storage location may change automatically, with the result that the file is moved to a different volume set.
The change of storage location is a synchronous process involving copying of the file. The file is not accessible to other tasks while copying is in progress.

An automatic change of storage location and the recataloging of a permanent file as a temporary file (or vice versa) cannot be performed at the same time.

Files on tapes and tape cartridges

When the catalog entries for tape files are being accessed or created, the special features associated with this storage medium must be taken into account.

For files with standard labels, the specifications for shareability (USER-ACCESS), access type (ACCESS) and passwords will be transferred from the catalog entry into the file labels at the time the file is created.

Since the file labels on a tape cannot be amended without corrupting the file (hardware restriction), and the contents of the catalog entry for each file must agree with the contents of its file labels, it will not be possible to amend the access rights and expiration date using a MODIFY-FILE-ATTRIBUTES command after the file has once been correctly opened and closed again. This means that the file protection attributes can only be changed before the file is opened for the first time. These attributes will then be transferred unchecked into the labels when the file is created. This allows attributes, e.g. write protection (MODIFY-FILE-ATTRIBUTES...ACCESS=*READ) to be defined for a file which has yet to be created. The file can then be opened as an output file, and created; the write protection will take effect after this.

If password protection is specified for a tape file, then when the file is created, the label processing routines will transfer the passwords from the catalog entry to the HDR3 labels, without checking them (conversely, the passwords will be transferred from the HDR3 label to the catalog entry if the file is imported).

For file processing in batch mode, if ADD-FILE-LINK...PROTECTION-LEVEL=*LOW is specified, the file owner can bypass the checking of the passwords if his user entry includes TAPE-ACCESS=*PRIVILEGED

If systems support specified password encryption using the system parameter ENCRYPT, then the encryption indicator in the HDR3 label will be set to “1”.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Name of the catalog entry which is to be changed	FILE-NAME =	
New name of the file	NEW-NAME =	
Specify the volume	SUPPORT	
Volume: pubset and Net-Storage	SUPPORT = *PUBLIC-DISK(...)	
• Specify storage type		STORAGE-TYPE =
○ File type (on Net-Storage)		FILE-TYPE =
• Define storage class		STORAGE-CLASS =
○ Define work file attribute		WORK-FILE =
○ Performance requirements ■ Performance attribute ■ type of I/O operations		IO-ATTRIBUTES =
○ Define time when data consistency is required after write operations		DISK-WRITE =
○ preferred file format		FILE-PREFORMAT =
○ Define availability requirements		AVAILABILITY =
○ Specify volume set		VOLUME-SET =
○ Specify the volume		VOLUME =

Function / Meaning	Level 1 operands	Level 2 /3 operands
○ Specify device type		DEVICE-TYPE =
○ Change of volume set allowed		S0-MIGRATION =
• Storage space allocation		SPACE =
• HSMS storage management class		MANAGEMENT-CLASS =
• user information		USER-INFORMATION =
• systems support information		ADM-INFORMATION =
Volume: private disk	SUPPORT = *PRIVATE-DISK(...)	
• Specify device type		DEVICE-TYPE =
• Request volume(s)		VOLUME =
• Storage space allocation (allocate,change, release)		SPACE =
• Time of disk mounting		VOLUME-ALLOCATION =
• Separate storage of data/index for ISAM files		DATA-SUPPORT =
Volume: pubset or private disk	SUPPORT = *ANY-DISK(...)	
• Specify device type		DEVICE-TYPE =
• Specify the volume		VOLUME =

Function / Meaning	Level 1 operands	Level 2 /3 operands
• Storage space allocation (allocate,change, release)		SPACE =
Volume: tape	SUPPORT = *TAPE(...)	
• Request volume(s)		VOLUME =
• Specify device type		DEVICE-TYPE =
• Request tape device		PREMOUNT-LIST =
Define protection attributes	PROTECTION =*PARAMETERS(...)	
• Import protection attributes from file		PROTECTION-ATTR =
• Access rights		ACCESS =
• Shareability		USER-ACCESS =
• Basic access control list		BASIC-ACL =
• Password protection		GUARDS =
• Define passwords		WRITE-PASSWORD =
• Physical deletion (overwrite with binary zeros)		DESTROY-BY-DELETE =
• Monitoring of DMS accesses via SAT/System Exit Routines		AUDIT =
• Lock to prevent release of reserved storage space (disk files only)		SPACE-RELEASE-LOCK =

• Date when file is freed for updating		EXPIRATION-DATE =
• Date when file is freed for deletion		FREE-FOR-DELETION =
Only for files on disk and Net-Storage: Type and frequency of automatic data backup by ARCHIVE or HSMS	SAVE =	
• Backup frequency		BACKUP-CLASS =
• Scope of backup		SAVED-PAGES =
• Maximum number of file versions in the version backup archive		NUM-OF-BACKUP-VERS=
Only for files on disk and Net-Storage: Whether migration is possible if the software product HSMS is used (automatic management of public storage space) is used	MIGRATE =	
• Migration allowed	= *ALLOWED	
• Migration lock	= *INHIBITED	
• Intensified migration lock	= *FORBIDDEN	
Code table (XHCS)	CODED-CHARACTER-SET =	
Only for node files: character set with which the file is created on Net-Storage	NET-CODED-CHAR-SET =	
Verification of multiple file specifications:		
File selection dialog		
• User intervention in command execution not possible (default setting for procedures and batch mode)	DIALOG-CONTROL = *NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	DIALOG-CONTROL = *MORE-THAN-ONE-FILE	

• Dialog when an error occurs	DIALOG-CONTROL = *ERROR	
• Dialog when catalog ID changes	DIALOG-CONTROL =*CATALOG-CHANGE	
• Dialog for each selected file that is to be processed	DIALOG-CONTROL = *FILE-CHANGE	
• Dialog when user ID changes	DIALOG-CONTROL = *USER-ID-CHANGE	
Guaranteed message for successfully modified catalog entries	OUTPUT =	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	

Table 54: Overview of MODIFY-FILE-ATTRIBUTES command functions

Format

MODIFY**-FILE-ATTR**IBUTES Alias: **MD** / **MDFA**

FILE**-NAME** = <filename 1..54 without-gen with-wild(80)>

,**NEW-NAME** = ***SAME** / <filename 1..54 with-wild-constr(80)>

,**SUP**PORT = ***UNCHA**NGED / ***PUB**LIC**-DISK**(...) / ***PRIV**ATE**-DISK**(...) / ***ANY-DISK**(...) / ***TAPE**(...)

***PUB**LIC**-DISK**(...)

| **STOR**AGE**-TYPE** = ***UNCHA**NGED / ***STD** / ***PUBLIC-SPACE** / ***NET-STORAGE**(...)

| ***NET-STORAGE**(...)

| | **FILE-TYPE** = ***UNCHA**NGED / ***STD** / ***BS2000** / ***NODE-FILE**

| ,**STOR**AGE**-CLASS** = ***UNCHA**NGED / ***STD** / ***UPD**ATE / <composed-name 1..8> / ***NONE**(...)

| ***NONE**(...)

| | **WORK-FILE** = ***UNCHA**NGED / ***NO** / ***Y**ES

| | ,**IO-ATTRIBUTES** = ***UNCHA**NGED / ***PAR**AMETERS(...)

| | ***PAR**AMETERS(...)

| | | **PERFORMANCE** = ***UNCHA**NGED / ***STD** / ***HIGH** / ***VERY-HIGH** / ***USER-MAX**IMUM

| | | | ,**USAGE** = ***UNCHA**NGED / ***READ-WRITE** / ***WR**ITE / **READ**

| | | ,**DISK-WRITE** = ***UNCHA**NGED / ***IMMED**IATE / ***BY-CLOSE**

| | | ,**AVAIL**ABILITY = ***UNCHA**NGED / ***STD** / ***HIGH**

| | | ,**FILE-PREFORMAT** = ***STD** / ***K** / ***NK2** / ***NK4**

| | | ,**VOL**UME-**SET** = ***STD** / ***CONTR**OL-**VOL**UME-**SET** / <cat-id 1..4>

| | | ,**VOL**UME = ***UNCHA**NGED / list-poss(255): <vsn 1..6>

| | | ,**DEV**ICE-**TYPE** = ***UNCHA**NGED / <device>

| | | ,**S0-MIG**RATION = ***UNCHA**NGED / ***ALLOW**ED / ***FORBIDDEN**

| ,**SPACE** = ***UNCHA**NGED / ***RELA**TIVE(...) / ***ABSO**LUTE(...) / ***RELE**ASE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY-**ALLOC**ATION = **0** / <integer 0..2147483647>

| | ,**SEC**ONDARY-**ALLOC**ATION = ***UNCHA**NGED / <integer 0..32767>

| ***ABSO**LUTE(...)

| | **FIRST-PAGE** = <integer 1..2147483647>

| | ,**SIZE** = <integer 1..2147483647>

| ***RELE**ASE(...)

| | **NUM**BER-**OF-PAGES** = <integer 1..2147483647> / ***ALL-RELE**ASABLE

| | ,**KEEP-MIN-ALLOC**ATION = ***NO** / ***Y**ES

| ,**MANAG**EMENT-**CLASS** = ***UNCHA**NGED / ***NONE** / <composed-name 1..8>

| ,**USER-INF**ORMATION = ***UNCHA**NGED / ***NONE** / <c-string 1..8 with-low>

,**ADM-INF**ORMATION = ***UNCHA**NGED / ***NONE** / <c-string 1..8 with-low>

***PRIV**ATE-**DISK**(...)

| **VOL**UME = ***UNCHA**NGED / [***ANY**](...) / list-poss(255): <alphanum-name 1..6>

| [***ANY**](...)

| | **NUM**BER-**OF-DEV**ICES = **1** / <integer 1..9>

| ,**DEV**ICE-**TYPE** = ***UNCHA**NGED / <device>

| ,**SPACE** = ***UNCHA**NGED / ***RELA**TIVE(...) / ***ABSO**LUTE(...) / ***RELE**ASE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY-**ALLOC**ATION = **0** / <integer 0..2147483647>

| | ,**SEC**ONDARY-**ALLOC**ATION = ***UNCHA**NGED / <integer 0..32767>

| ***ABSO**LUTE(...)

```
|          |       FIRST-PAGE = <integer 1..2147483647>
|          |       ,SIZE = <integer 1..2147483647>
|      *RELEASE(...)
|          |       NUMBER-OF-PAGES = <integer 1..2147483647> / *ALL-RELEASABLE
|   ,VOLUME-ALLOCATION = *IMMEDIATE / *DELAYED
|   ,DATA-SUPPORT = *UNCHANGED / [*PARAMETERS](...)
|      [*PARAMETERS](...)
|          |       DATA-DEVICE-TYPE = *UNCHANGED / <device>
|          |       ,DATA-VOLUME = *UNCHANGED / list-poss(255): <alphanum-name 1..6>
|          |       ,DATA-SPACE = *RELATIVE(...) / *ABSOLUTE(...)
|          |          *RELATIVE(...)
|          |              |    PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
|          |              |    ,SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
|          |          *ABSOLUTE(...)
|          |              |    FIRST-PAGE = <integer 1..2147483647>
|          |              |    ,SIZE = <integer 1..2147483647>
*ANY-DISK(...)
   |   VOLUME = *UNCHANGED / list-poss(255): <alphanum-name 1..6>
   |   ,DEVICE-TYPE = *UNCHANGED / <device>
   |   ,SPACE = *UNCHANGED / *RELATIVE(...) / *ABSOLUTE(...) / *RELEASE(...)
   |      *RELATIVE(...)
   |          |       PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
   |          |       ,SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
   |      *ABSOLUTE(...)
   |          |       FIRST-PAGE = <integer 1..2147483647>
   |          |       ,SIZE = <integer 1..2147483647>
   |      *RELEASE(...)
   |          |       NUMBER-OF-PAGES = <integer 1..2147483647> / *ALL-RELEASABLE
*TAPE(...)
   |   VOLUME = *NO / [*ANY](...) / *REMOVE-UNUSED / list-poss(255): <alphanum-name 1..6>
   |      [*ANY](...)
```

```
        |           |       NUMBER-OF-DEVICES = 1 / <integer 1..9>
        |   ,DEVICE-TYPE = *UNCHANGED / <device>
        |   ,PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
,PROTECTION = *UNCHANGED / [*PARAMETERS](...)
    [*PARAMETERS](...)
        |   PROTECTION-ATTR = *UNCHANGED / *BY-DEF-PROT-OR-STD / *STD / *FROM-FILE(...)
        |     *FROM-FILE(...)
        |           |       FILE-NAME = <filename 1..54 without-gen>
        |   ,ACCESS = *BY-PROTECTION-ATTR / *UNCHANGED / *WRITE / *READ
        |   ,USER-ACCESS = *BY-PROTECTION-ATTR / *UNCHANGED / *OWNER-ONLY / *ALL-USERS /
        |                  *SPECIAL
        |   ,BASIC-ACL = *BY-PROTECTION-ATTR / *UNCHANGED / *NONE / *PREVIOUS / *STD /
        |                    [*PARAMETERS](...) / *OWNER-RX / *OWNER-WRX / *OWNER-ONLY /
        |                      *GROUP-X / *GROUP-RX / *GROUP-WRX / *EXCEPT-OTHERS / *OTHERS-X /
        |                      *OTHERS-RX / *OTHERS-WRX / *ALL-X / *ALL-RX / *ALL-WRX
        |     [*PARAMETERS](...)
        |           |       OWNER = *UNCHANGED / *NO-ACCESS / [*PARAMETERS](...)
        |           |         [*PARAMETERS](...)
        |           |           |   READ = *UNCHANGED / *NO / *YES
        |           |           |   ,WRITE = *UNCHANGED / *NO / *YES
        |           |           |   ,EXEC = *UNCHANGED / *NO / *YES
        |           |       ,GROUP = *UNCHANGED / *NO-ACCESS / [*PARAMETERS](...)
        |           |         [*PARAMETERS](...)
        |           |           |   READ = *UNCHANGED / *NO / *YES
        |           |           |   ,WRITE = *UNCHANGED / *NO / *YES
        |           |           |   ,EXEC = *UNCHANGED / *NO / *YES
        |           |       ,OTHERS = *UNCHANGED / *NO-ACCESS / [*PARAMETERS](...)
        |           |         [*PARAMETERS](...)
        |           |           |   READ = *UNCHANGED / *NO / *YES
        |           |           |   ,WRITE = *UNCHANGED / *NO / *YES
        |           |           |   ,EXEC = *UNCHANGED / *NO / *YES
```

| ,**GUARDS** = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***NONE** / [***PAR**AMETERS](...)
| [***PAR**AMETERS](...)
| | **READ** = ***UNCHA**NGED / ***NONE** / <filename 1..18 without-cat-gen-vers>
| | ,**WR**ITE = ***UNCHA**NGED / ***NONE** / <filename 1..18 without-cat-gen-vers>
| | ,**EXEC** = ***UNCHA**NGED / ***NONE** / <filename 1..18 without-cat-gen-vers>
| ,**WR**ITE-**PASS**WORD = ***BY-PROT-ATTR-OR-UNCH** / ***UNCHA**NGED / ***NONE** / <c-string 1..4> /
| <x-string 1..8> / <integer -2147483648..2147483647> / ***SECRET**
| ,**READ-PASS**WORD = ***BY-PROT-ATTR-OR-UNCH** / ***UNCHA**NGED / ***NONE** / <c-string 1..4> /
| <x-string 1..8> / <integer -2147483648..2147483647> / ***SECRET**
| ,**EXEC-PASS**WORD = ***BY-PROT-ATTR-OR-UNCH** / ***UNCHA**NGED / ***NONE** / <c-string 1..4> /
| <x-string 1..8> / <integer -2147483648..2147483647> / ***SECRET**
| ,**DESTROY**-BY-DELETE = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***NO** / ***Y**ES
| ,**AUDIT** = ***UNCHA**NGED / ***NONE** / ***SUCC**ESS / ***FAIL**URE / ***ALL**
| ,**SPACE-RELE**ASE-**LOCK** = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***NO** / ***Y**ES
| ,**EXPIR**ATION-DATE = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***TODAY** / ***TOMORROW** /
| <date with-compl> / <integer 0..99999 *days*>
| ,**FREE-FOR-DEL**ETION = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***NONE** / <date> /
| <integer 0..99999>
,**SAVE** = ***UNCHA**NGED / [***PAR**AMETERS](...)
[***PAR**AMETERS](...)
| **BACK**UP-**CL**ASS = ***UNCHA**NGED / ***A** / ***B** / ***C** / ***D** / ***E**
| ,**SAVED-PAGES** = ***UNCHA**NGED / ***COMPL**ETE-**FILE** / ***MOD**IFIED-**PAGE**S
| ,**NUM-OF-BACKUP-VERS = *UNCHANGED** / <integer 0..32>
,**MIGRATE** = ***UNCHA**NGED / ***ALLOW**ED / ***INHIBITED** / ***FORBIDDEN**
,**CODED-CHAR**ACTER-**SET** = ***UNCHA**NGED / ***USER-DEF**AULT / ***NONE** / <name 1..8>
,**NET-CODED-CHAR-SET** = ***UNCHA**NGED / ***USER-DEF**AULT / ***ISO** / ***NO-CONV**ERSION / <name 1..8>
,**DIALOG-CONTR**OL = ***STD** / ***NO** / ***ERROR** / ***F**ILE-**CHA**NGE / ***MORE-THAN-ONE-F**ILE /
***USER-ID-CHA**NGE / ***CAT**ALOG-**CHA**NGE
,**OUTPUT** = ***NO** / ***SYSOUT**

Operands

FILE-NAME = <filename 1..54 without-gen with-wild(80)>
Name of an existing permanent or temporary file. If the file name includes wildcards, or if the specification is partially qualified, the command is executed for the associated set of files. Processing can be controlled and verified with the aid of the DIALOG-CONTROL and OUTPUT operands. Only systems support is allowed to use wildcards within the user ID. In processing a file set, no distinction is made between files and file generation groups. Changes to group entries are rejected if operands not available for file generation groups are specified in the command. The MODIFY-FILE-GROUP-ATTRIBUTES command should be used to modify group entries.

NEW-NAME = *SAME / <filename 1..54 with-wild-constr(80)>
Specifies whether the file is to be renamed.

NEW-NAME = *SAME
The default value is *SAME, i.e. the current name is retained.

NEW-NAME = <filename 1..54 with-wild-constr(80)>
The file is to be renamed. Either a new file name or the name of a new file generation is specified. The command is rejected if a file or file generation with the specified name already exists. Files which are on HSMS storage level S1 or S2 cannot be renamed (see the STORAGE-LEVEL operand in the SHOW-FILE-ATTRIBUTES command). If a set of files has been specified in the FILE-NAME operand, a constructor can be used to specify how the names of the target files are to be formed. The constructor string should be designed to ensure that the names of the target files are unique. Renaming is rejected for file names which already exist. If, for example, a fully qualified file name is specified as the new name for a set of files, only the first file can be given this name. For the following files, the name will already exist, so renaming will be rejected.

If a permanent file is recataloged as a temporary file (or vice versa), the values in the catalog entry may change even if the default value *UNCHANGED has been specified for the operand in question. A nonprivileged user can only generate temporary files on the default pubset of his user ID.

With tape files, NEW-NAME must differ from FILE-NAME by the addition of, or by a change to, the version identifier.

If a file generation is specified (relatively or absolutely), the absolute number of the new generation must either be LAST-GEN + 1 or, with LAST-GEN=9999, must be equal to 1 (see *BASE-NUM* and *LAST-GEN* output fields, SHOW-FILE-ATTRIBUTES command).

Renaming a file as a file generation: The CODED-CHARACTER-SET specified for the file must be the same as that defined in the file generation's group entry. In an SM pubset, the WORK-FILE attributes of the file and the file generation group must also match. Any further file attribute specifications must be made in the SUPPORT operand. The other file attributes of the original file (such as its protection attributes) are automatically set to the values defined in the group entry.

SUPPORT = *UNCHANGED / *PUBLIC-DISK(...) / *PRIVATE-DISK(...) / *ANY-DISK(...) / *TAPE(...)
Type of volume on which the file is located. This entry must not contradict the specification that was made when the catalog entry was created (CREATE-FILE).

SUPPORT = *PUBLIC-DISK(...)
The file is located on a public disk or Net-Storage.

> **STORAGE-TYPE = *UNCHANGED / *STD / *PUBLIC-SPACE / *NET-STORAGE**
> Determines the storage type for the file's storage location.
> Files which have already been allocated cannot be moved from public disks to Net-Storage volumes and vice versa.

STORAGE-TYPE = *STD
The file is created on the default storage type for storing files on this pubset.

STORAGE-TYPE = *PUBLIC-SPACE
The file is created on the disks of the pubset.
In addition to the entry in the file catalog, the file is also created physically with the smallest possible amount of storage space (see the SPACE operand).

STORAGE-TYPE = *NET-STORAGE(...)
The file is created on a Net-Storage volume.
The authorization NET-STORAGE-USAGE=*ALLOWED (default) must be entered in the user entry. Catalog entries are generated both on the local pubset and in the relevant file system of the Net-Server. However, the file is not created physically. If no volume is specified, the file is created on the default Net-Storage volume.

> Files with a PAM key, file generation groups, work files and temporary files cannot be stored on Net-Storage.

FILE-TYPE = *UNCHANGED / *STD / *BS2000 / *NODE-FILE
Determines the file type in which the file is created. The file type can no longer be changed for files which have already been allocated.

FILE-TYPE = *STD
The file is created as a BS2000 file on a Net-Storage volume. When the volume of a private disk is specified under STORAGE-CLASS=*NONE(...), the file is created on the private disk.

FILE-TYPE = *BS2000
The file is created as a BS2000 file on a Net-Storage volume. When under STORAGE-CLASS=*NONE (...) specifications regarding the volume or device type are provided which do not permit this, the command is aborted with an error.

FILE-TYPE = *NODE-FILE
The file is created as a node file on a Net-Storage volume. When under STORAGE-CLASS=*NONE(...) specifications regarding the volume or device type are provided which do not permit this, the command is aborted with an error.

STORAGE-CLASS = *UNCHANGED / *STD / *UPDATE/ <composed-name 1..8> / *NONE(...)
Governs the properties of the file's storage location. A storage class is a container set up by systems support to hold a defined combination of file attributes specific to an SM pubset. On the basis of the assigned volume set lists it maps these attributes onto the existing range of pubset services. This mapping may be more detailed than can be described by explicitly specifying the WORK-FILE, IO-ATTRIBUTES, DISK-WRITE, AVAILABILITY, FILE-PREFORMAT, VOLUME-SET, VOLUME, DEVICE-TYPE and S0-MIGRATION operands in the structure STORAGE-CLASS=*NONE.

At the time when the assignment is made, the storage class that is specified (even implicitly using *STD) must exist, and the user must be authorized to use it. The SHOW-STORAGE-CLASS command allows users to find out which storage classes of an SM pubset are available to them and which file attributes are set.

Assigning a storage class simplifies the automatic management of storage space in an SM pubset (for details see the "Introduction to System Administration" [14] or the "System-Managed Storage" manual [45]).

The WORK-FILE attribute of the storage class must be the same as that of the file.

Defining a different storage class (STORAGE-CLASS unequal to *NONE) can result in the file being relocated (reallocated) from its current volume set to another volume set which is better suited to this storage class. The following cases can occur here:

- If the storage class contains AVAILABILITY=*HIGH and the existing volume set has AVAILABILITY=*STD, the file must be reallocated to a volume set with the attribute AVAILABILITY=*HIGH. If reallocation is not possible, the command is rejected.
- If the storage class contains a volume set list and the file is not located on a volume set of this volume set list, the file is, if possible, reallocated to a volume set from this list. If reallocation is not possible, the command is executed without it.

During reallocation, the file is open. Accesses from other tasks are rejected.

STORAGE-CLASS = *STD
A file in an SM pubset is assigned the default storage class from the user entry for that pubset. If there is no default storage class defined, or if the file is stored in an SF pubset, the file is given the same attributes as with STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = *UPDATE
The operand is evaluated only for files on SM pubsets to which a storage class has already been assigned.
The attributes are once more read from the storage class catalog and assigned to the file.

STORAGE-CLASS = <composed-name 1..8>
A file in an SM pubset is assigned the specified storage class. This specification is ignored for a file in an SF pubset; the file is then given the same attributes as with STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = *NONE(...)
The value has the same effect as *UNCHANGED if all the following conditions are fulfilled:

- The file was or is being created on a volume set for permanent data storage.
- A default storage class is assigned to the user ID at the SM pubset in question.
- Physical allocation is not permitted.

Only in this case are the WORK-FILE, PERFORMANCE, USAGE, DISK-WRITE and AVAILIBILITY operands and the S0-MIGRATION=*ALLOWED specification ignored.

In all other cases, the properties of the file’s storage location are determined on the basis of the following operands and no storage class is assigned to the file or a storage class which is already assigned is withdrawn.

WORK-FILE = *UNCHANGED / *NO / *YES
The operand is evaluated only for files in SM pubsets. Specifies whether the file is a work file which systems support is allowed to delete at a time which it defines. If the file already occupies storage space, the only value allowed is *UNCHANGED.

WORK-FILE = *NO
The file is not to be a work file.

WORK-FILE = *YES
The file is to be a work file.

IO-ATTRIBUTES = *UNCHANGED / *PARAMETERS(...)
Specifies the performance requirements demanded by the user for input/output operations. Whether such requirements are satisfied and the extent to which they are fulfilled depends on the cache medium that is

defined for the associated pubset (see the output of the SHOW-MASTER-CATALOG-ENTRY command). Read and write access is performed through a fast cache. The number of disk accesses and the access times are reduced. Performance attributes for processing can also be defined in the TFT (see the ADD-FILE-LINK command).

IO-ATTRIBUTES = *PARAMETERS(...)
Performance attributes are determined by the values of the PERFORMANCE and USAGE operands.

PERFORMANCE = *UNCHANGED / *STD / *HIGH / *VERY-HIGH / *USER-MAXIMUM
Specifies the file's performance attribute. It indicates the priority required for the I/O operations selected in the USAGE operand. The highest performance attribute allowed is defined in the user entry (see also the *DMS-TUNING- RESOURCES* output field in the output of the SHOW-USER-ATTRIBUTES command).

PERFORMANCE = *STD
The file has no special performance attribute and is therefore not processed via a cache. The USAGE operand does not affect the processing of the file in this case.

PERFORMANCE = *HIGH
The file is to be processed through a cache (high performance priority). This specification is only possible for users who have the DMS tuning privilege CONCURRENT-USE or EXCLUSIVE-USE for the pubset (see the output field *DMS-TUNING-RESOURCES* in the output of the SHOW-USER-ATTRIBUTES command).

PERFORMANCE = *VERY-HIGH
The file is to be processed through a cache. The referenced data in the file is to be kept permanently in the cache (highest performance priority). The cache data is only evicted from the cache when the file is closed. Specification is only possible for users who have the DMS tuning privilege EXCLUSIVE-USE for the pubset (see the output for the SHOW-USER-ATTRIBUTES command, output field DMS-TUNING-RESOURCES).

Note

All cache segments used for this file are locked until the file is closed. If there are many files open with this attribute at the same time, the cache memory available for normally cached files may as a result be so greatly restricted that data accesses to such files can no longer be implemented with an adequate level of performance.

PERFORMANCE = *USER-MAXIMUM
The file is assigned the highest performance attribute contained in the user catalog for the user.

USAGE = *UNCHANGED / *READ-WRITE / *WRITE / *READ
Specifies the I/O operations for which enhanced performance (caching) is required. The default setting is *READ-WRITE, i.e. the requirements apply to read and write operations. If the file does not have a particular performance attribute (PERFORMANCE= *STD) and if the cache area for the pubset is not defined in such a way that all existing files are served (see the operand CACHED-FILES=*ALL for the MODIFY-PUBSET-CACHING-ATTRIBUTES command), then the USAGE operand has no effect on processing.

USAGE = *READ-WRITE
The performance requirements apply both to read and to write operations.

USAGE = *WRITE
The performance requirements apply to write operations only.

USAGE = *READ
The performance requirements apply to read operations only.

Note

With USAGE=*READ-WRITE or *WRITE, write caching is performed only if the conditions for the DISK-WRITE file attributes are met (see CREATE-FILE or MODIFY-FILE-ATTRIBUTES). In the case of DISK-WRITE= *IMMEDIATE, the cache medium used for write caching has to be failsafe (see the output for the command SHOW-MASTER-CATALOG-ENTRY INFORMATION=*USER, output field *CACHE-MEDIUM*).

DISK-WRITE = *UNCHANGED / *IMMEDIATE / *BY-CLOSE
Specifies the time at which the data must be on a nonvolatile medium (disk or fail-safe cache medium) after a write operation. If a volatile cache medium is used as the write cache, data in the file will not be in a consistent state until CLOSE processing has been completed because the write data is written out to disk during CLOSE processing. System errors during the processing phase may lead to inconsistencies. Write caching for files containing data which cannot easily be restored should be performed using only fail-safe cache media, i.e. data consistency after each write operation should be requested with DISK-WRITE=*IMMEDIATE.

DISK-WRITE = *UNCHANGED
When a temporary file is recataloged to a permanent file, DISK-WRITE=IMMEDIATE is set. DISK-WRITE=BY-CLOSE is set for the reverse case.

DISK-WRITE = *IMMEDIATE
Data contained in the file must be on a nonvolatile medium immediately after a write operation. Write caching is performed for files marked in this way only if a nonvolatile cache area is active for the pubset (see the *CACHE- MEDIUM=NONVOLATILE* output field of the SHOW-MASTER-CATALOG-ENTRY command with INFORMATION= *USER). If a volatile cache area is active for the pubset (*CACHE-MEDIUM=VOLATILE* output field), only read accesses are buffered for the file; write accesses are performed directly on the disks.

DISK-WRITE = *BY-CLOSE
Data contained in the file needs to be on a nonvolatile medium only after CLOSE processing. Write caching for files marked in this way is performed regardless of whether the cache medium is fail-safe, i.e. even on volatile cache media. Unsaved cached data is written out during CLOSE processing. The data in the file will not be on a nonvolatile medium (disk storage) until that point. This attribute is suitable only for files containing data that can easily be restored (list files generated during compilation, for example), as a system error may cause inconsistencies in the files.

AVAILABILITY = *UNCHANGED / *STD / *HIGH
Specifies availability requirements for the file. Files for which high availability is required must always be created by the system on suitable volumes. If no appropriate volume is available, the command is rejected.

AVAILABILITY = *STD
The file is not subject to special availability requirements.

AVAILABILITY = *HIGH
The file is to have high availability. A file for which high availability was not originally required is automatically relocated to a suitable volume. The file cannot be accessed while relocation is in progress. If the volume is not capable of meeting the requirement, or if no suitable volume set is available within the SM pubset, the command is rejected. This specification is not allowed for temporary files or when renaming a permanent file as a temporary file. Furthermore, the file must not have been migrated to one of the HSMS background storage levels, S1 and S2 (see the STORAGE-LEVEL operand in the SHOW-FILE-ATTRIBUTES command).

FILE-PREFORMAT = *STD / *K / *NK2 / *NK4
The operand is evaluated only for files which do not yet occupy any storage space and for which storage space on an SM pubset is requested. Governs the preferred file format, which is taken into account in the choice of volume set. As long as the file has not yet been opened (no CREATION-DATE in the catalog entry), the chosen storage location is provisional and may still change in the course of OPEN processing.

FILE-PREFORMAT = *STD
The preferred file format which applies is the format that systems support has defined as the pubset-specific default for the SM pubset using the MODIFY-PUBSET-SPACE-DEFAULTS command. The value set can be determined with the SHOW-PUBSET-SPACE-DEFAULTS command (and also with SHOW-PUBSET-CONFIGURATION).

FILE-PREFORMAT = *K
The file is to be created as a K file (BLOCK-CONTROL-INFO=*PAMKEY).

FILE-PREFORMAT = *NK2
The file is to be created as an NK file in 2K format (BLOCK-CONTROL-INFO= *WITHIN-DATA-2K-BLOCK or *WITHIN-DATA-BLOCK for a SAM file).

FILE-PREFORMAT = *NK4
The file is to be created as an NK file in 4K format (BLOCK-CONTROL-INFO= *WITHIN-DATA-4K-BLOCK or *WITHIN-DATA-BLOCK for a SAM file).

VOLUME-SET = *STD / *CONTROL-VOLUME-SET / <cat-id 1..4>
The operand is evaluated only for files which do not yet occupy any storage space and for which storage space on an SM pubset is requested. Determines the volume set on which the file is to be stored. Systems support can use *CONTROL-VOLUME-SET or <cat-id 1..4> to specify a volume set explicitly. Nonprivileged users cannot specify a volume set explicitly unless they have authorization to perform physical allocation of public storage space (see “Privileged functions” under “Function” in the CREATE-FILE command).

VOLUME-SET = *STD
The file is stored in a suitable volume set of the SM pubset.

VOLUME-SET = *CONTROL-VOLUME-SET
Subject to restrictions (see general operand description). The file is stored in a control volume set of the SM pubset. S0-MIGRATION= *FORBIDDEN is set implicitly. If the volume set does not match the requested file attributes, the command is rejected.

VOLUME-SET = <cat-id 1..4>
Subject to restrictions (see general operand description). The file is stored in the specified volume set of the SM pubset. S0-MIGRATION= *FORBIDDEN is set implicitly. If the volume set does not match the requested file attributes, the command is rejected.

VOLUME = *UNCHANGED / list-poss(255): <vsn 1..6>
Volume serial numbers of additional public disks or of a Net-Storage volume which may be used for storage space extension.

VOLUME = list-poss(255): <vsn 1..6>
Systems support can specify volume serial numbers explicitly.
Nonprivileged users can specify a VSN for a Net-Storage volume explicitly. Nonprivileged users can specify VSNs explicitly for a public disk only if they have authorization to perform physical allocation of public storage space (see section "Privileged functions"). VSNs can only be specified for public disks of the pubset whose pubset ID matches the catalog ID of the file name. If the specified disk is part of the volume set of an SM pubset, S0-MIGRATION and MIGRATE=*FORBIDDEN are set implicitly.
In the case of files on Net-Storage the specified Net-Storage volume must be assigned to the catalog ID of the file name.
If the file is only cataloged and stored on a specific Net-Storage volume without a default name, the VSN must be specified. Otherwise, the file is stored in the default Net-Storage volume or, if this does not exist, the system selects a Net-Storage volume.

DEVICE-TYPE = *UNCHANGED / <device>
Type of device to which the required public disks or Net-Storage volumes are assigned. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?.
The volume type NETSTOR must be specified for Net-Storage volumes.
If at least one volume ID is specified with VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.
Systems support can specify device types explicitly.
When files are created on public volumes, nonprivileged users cannot specify a device type explicitly unless they have authorization to perform physical allocation (see section "Privileged functions").

S0-MIGRATION = *UNCHANGED / *ALLOWED / *FORBIDDEN
The specification is relevant only for a file on an SM pubset. Governs whether the file may be relocated to a different volume set within the SM pubset (storage level S0). Migration can be initiated either explicitly using the HSMS subsystem or implicitly by the system.

S0-MIGRATION = *UNCHANGED
The previous value is left unchanged if the file already occupies storage space. With physical space allocation (explicit specification of a volume set or volume or absolute allocation), S0-MIGRATION=*FORBIDDEN is set for a file not yet occupying storage space. Without physical allocation, S0-MIGRATION= *ALLOWED is set.

S0-MIGRATION = *ALLOWED
Migration of the file within the SM pubset is allowed.

S0-MIGRATION = *FORBIDDEN
Nonprivileged users cannot select this value unless they are authorized to perform physical allocation of public space (see “Privileged functions” under “Function” in the CREATE-FILE command). Migration of the file within the SM pubset is not allowed. The S0 migration lock affects the allocation of PERFORMANCE and AVAILABILITY attributes to files (see section "Physical allocation in SM pubsets").

SPACE = *UNCHANGED / *RELATIVE(...) / *ABSOLUTE(...) / *RELEASE(...)
Influences the storage space allocation for the file.

SPACE = *RELATIVE(...)
Here, the user can request additional storage space for the file (as a relative allocation). Note that the storage

space ceiling defined for the user in the user entry may be exceeded only if the user is authorized to do so (PUBLIC-SPACE-EXCESS=*YES, see the SHOW-USER-ATTRIBUTES command).

PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
The number of PAM pages by which the file should immediately be increased.
The user should note that, in procedures, etc. every call of the MODIFY-FILE-ATTRIBUTES command which has a positive value for the primary allocation will reserve storage space for the file. If the primary allocation is large, this will quickly exhaust the storage space assigned to the user. Since the disk selection mechanism is executed each time, a suitable primary allocation can be used to cause a disk swap when creating large files and only a few segments are free on individual disk. This then avoids excessive fragmentation of the file.

When storage space is actually allocated, the specified number of PAM pages is rounded up to a multiple of **k** if required. At this **k** is the number of PAM pages in the smallest allocation unit in each case.

Pubset/volume set format	Smallest allocation unit in Kbytes	Rounding factor k
K pubset/volume set	6	3
NK2(6K) pubset/volume set	6	3
NK2(8K) pubset/volume set	8	4
NK2(64K) pubset/volume set	64	32
NK4(8K) pubset/volume set	8	4
NK4(64K) pubset/volume set	64	32

Table 55: Smallest allocation unit based on pubset/volume set format

The pubset/volume set format and the smallest allocation unit can also be determined by the user from the output of the SHOW-MASTER-CATALOG-ENTRY command.

SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
The number of PAM pages for later file extensions.
The number of PAM pages specified here is not immediately reserved. Only if the number of pages initially reserved (primary allocation) is no longer sufficient will the system automatically increase the storage space allocated to the file by the number of PAM pages specified in SECONDARY-ALLOCATION (output field *S-ALLOC* of the SHOW-FILE-ATTRIBUTES command). The value for secondary allocation is doubled after each successful extension. It is no longer doubled when the maximum value set in the system has been reached. When storage space is actually allocated, the specified number of PAM pages is rounded up to a multiple of **k** if required. The rounding factor **k** is dependent on the pubset/volume set format, i.e. on the formatting of the associated disks (see the PRIMARY-ALLOCATION operand).
Specifying SECONDARY-ALLOCATION=0 will prevent dynamic extension of the file.

SPACE = *ABSOLUTE(...)
Systems support staff can allocate storage space explicitly. Absolute allocation is allowed only if a disk is specified in the VOLUME operand.
Nonprivileged users are allowed to use an absolute allocation only if they have authorization to perform physical allocation of public storage space (see “Privileged functions” under “Function” in the CREATE-FILE command).

When requesting additional storage space (as an absolute allocation), please note: An absolute allocation will only be made if it is possible to reserve the whole of the specified number of PAM pages (SIZE) on **one** disk. If

this is not the case, the command is rejected. If more than one disk was specified in the VOLUME operand, then only the first of the named disks will be used. If no secondary allocation has been defined for the file, the *SECONDARY-ALLOCATION* field in the catalog entry will have the value zero, i.e. if the number of PAM pages specified in SIZE proves insufficient at a later point, there will be no automatic extension of the storage space.

FIRST-PAGE = <integer 1..2147483647>
Number of the first physical block of the file on the first specified disk. The value specified here must be a multiple of the smallest allocation unit **k** plus 1 (see SPACE=*RELATIVE).

SIZE = <integer 1..2147483647>
Number of PAM pages required. This value must be a multiple of the smallest allocation unit **k** (see SPACE=*RELATIVE).

SPACE = *RELEASE(...)
Here, the user can release storage space which has been reserved but not used. The request to release memory space is ignored if SPACE-RELEASE-LOCK=*YES has been defined for the file.

NUMBER-OF-PAGES = <integer 1..2147483647> / *ALL-RELEASABLE
The maximum number of PAM pages which are to be released. *ALL-RELEASABLE means that the maximum possible number of PAM pages will be released.
The release of storage space will start at the end of the file and work toward its beginning, in units of **k** PAM pages, going no further than the PAM page which follows the last occupied one. If DESTROY=YES is recorded in the catalog for the file, then up to the specified number of PAM pages (but not more than the number of unused PAM pages) will be overwritten with binary zeros.

KEEP-MIN-ALLOCATION = *NO / *YES
Specifies whether at least one allocation unit is to be retained for the file when storage space is released.

MANAGEMENT-CLASS = *UNCHANGED / *NONE / <composed-name 1..8>
Specifies whether the HSMS backup, archiving and long-term archiving functions are controlled by a management class defined using HSMS. See “HSMS, Volume 1” manual [18] for further details. Management class allocations are rejected for files in SF pubsets.

MANAGEMENT-CLASS = *NONE
The file attributes set with the SAVE and MIGRATE operands are evaluated for file backup and migration.

MANAGEMENT-CLASS = <composed-name 1..8>
This specification is permitted only for files on SM pubsets. Name of the management class defined using HSMS. The specified management class must exist, and the file owner must have access authorization.

USER-INFORMATION = *UNCHANGED / *NONE / <c-string 1..8 with-low>
Specifies whether user information is to be added to the catalog entry. This information is not evaluated by the system. Its content and meaning are defined solely by the user. This specification is ignored for files on private disks. If *NONE is specified, any existing user information is deleted.

ADM-INFORMATION = *UNCHANGED / *NONE / <c-string 1..8 with-low>
This operand is available only to privileged users (TSOS privilege). Specifies whether a text is to be added to the catalog entry as information for systems support. This information is not evaluated by the system. Its content and meaning are defined solely by systems support. This specification is ignored for files on private disks. If *NONE is specified, any existing user information is deleted.

SUPPORT = *PRIVATE-DISK(...)
The file is held on private disk.

VOLUME = *UNCHANGED / *ANY(...) / list-poss(255): <alphanum-name 1..6>
The VSNs of the required disks (additional disks can be requested here; the operand is only effective if additional storage space is requested).

VOLUME = *ANY(...)
Any private disks may be mounted (no particular VSNs are required).

NUMBER-OF-DEVICES = 1 / <integer 1..9>
Number of disks required.

DEVICE-TYPE = *UNCHANGED / <device>
The device type to which the required private disks are assigned. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?. The permissible specifications for DEVICE-TYPE can also be found in the device table in section "Device type table" (device type column). The devices available on the system can be listed with the SHOW-DEVICE-CONFIGURATION command.
If at least one volume ID is specified with VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.

SPACE = *UNCHANGED / *RELATIVE(...) / *ABSOLUTE(...) / *RELEASE(...)
Type of storage space allocation.

SPACE = *UNCHANGED
The previous specification for this operand will continue to apply.

SPACE = *RELATIVE(...)
Here, the user can request additional storage space for the file (as a relative allocation).

PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
The number of PAM pages by which the file is to be immediately extended (if additional disks are requested, the allocation is made at that point).

The user should note that, in procedures etc., every call of the MODIFY-FILE-ATTRIBUTES command which has a positive value for the primary allocation will reserve storage space for the file. If the primary allocation is large, this will quickly exhaust the storage space assigned to the user. Since the disk selection mechanism is executed each time, a suitable primary allocation can be used to cause a disk swap when creating large files and only a few segments are free on individual disk. This then avoids excessive fragmentation of the file.

SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
The number of PAM pages for later file extensions.
The number of PAM pages specified here is not immediately reserved. Only if the number of pages initially reserved (primary allocation) is no longer sufficient will the system automatically increase the storage space allocated to the file by the number of PAM pages specified in SECONDARY-ALLOCATION (*S-ALLOC* output field of the SHOW-FILE-ATTRIBUTES command). The value for secondary allocation is doubled after each successful extension. It is no longer doubled when the maximum value set in the system has been reached. If required, the defined number of PAM pages is rounded up to a multiple of 3 when allocating space.
Specifying SECONDARY-ALLOCATION=0 will prevent dynamic extension of the file.

SPACE = *ABSOLUTE(...)
Here, the user can request additional storage space (as an absolute allocation). When doing so, the following

should be noted: An absolute allocation will only be made if it is possible to reserve the whole of the specified number of PAM pages (SIZE) on **one** single disk. If more than one disk was specified in the VOLUME operand, then only the first of the named disks will be used.

FIRST-PAGE = <integer 1..2147483647>
The number of the first physical block of the file on the first specified disk (the specified number must be 1 more than a multiple of 3, i.e. 1 / 4 / 7 / 10, etc.).

SIZE = <integer 1..2147483647>
The number of PAM pages required (this must be a multiple of 3).

SPACE = *RELEASE(...)
Here, the user can release storage space which has been reserved but not used. If this operand is specified, any VOLUME operand value will be ignored.

NUMBER-OF-PAGES = <integer 1..2147483647> / *ALL-RELEASABLE
The maximum number of PAM pages which are to be released. *ALL-RELEASABLE means that the maximum possible number of PAM pages will be released.
The release of storage space will start at the end of the file and work towards its beginning, in units of three PAM pages, going no further than the PAM page which follows the last occupied one. If DESTROY=*YES is recorded in the catalog for the file, then up to the specified number of PAM pages (but not more than the number of unused PAM pages) will be overwritten with binary zeros. All the private disks which hold any part of the file must be mounted.

VOLUME-ALLOCATION = *IMMEDIATE / *DELAYED
Specifies when the required private disk is to be mounted.

VOLUME-ALLOCATION = *IMMEDIATE
The required private disk is to be mounted immediately.

VOLUME-ALLOCATION = *DELAYED
The required private disk is to be mounted when the file is opened.

DATA-SUPPORT = *UNCHANGED / *PARAMETERS(...)
Only allowed for ISAM files: where the data section is stored.
This operand is only meaningful if it is required to change the storage location for the data section of an ISAM file whose data and index blocks are held on separate disks. For such files, the details specified in the VOLUME and SPACE operands refer only to the index section.

DATA-SUPPORT = *PARAMETERS(...)

DATA-DEVICE-TYPE = *UNCHANGED / <device>
The type of device to which the required disks are allocated. Only device types known within the system are accepted.
In interactive mode, DATA-DEVICE-TYPE=? calls up a list of the available device types. The permissible specifications for DEVICE-TYPE can also be found in the device table in section "Device type table" (device type column). If at least one volume ID is specified with DATA- VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.

DATA-VOLUME = *UNCHANGED / list-poss(255): <alphanum-name 1..6>
The VSNs of the required disks (additional disks can be requested here; the operand is only effective if additional storage space is requested).

DATA-SPACE = *RELATIVE(...) / *ABSOLUTE(...)
Type of storage space allocation.

DATA-SPACE = *RELATIVE(...)
Here, the user can request additional storage space for the data section of the ISAM file (as a relative allocation).

PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
The number of PAM pages by which the file is to be immediately extended. If additional disks are requested, the allocation is made at that point.

SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
The number of PAM pages for later file extensions. The number of PAM pages specified here is not immediately reserved. Only if the number of pages initially reserved (primary allocation) is no longer sufficient will the system automatically increase the storage space allocated to the data section of the ISAM file by the number of PAM pages specified in the *S-ALLOC* (output field). This allocation is made dynamically, i.e. each time that additional storage space is required. If it is not already a multiple of 3, the extra space requested will be rounded to one.

DATA-SPACE = *ABSOLUTE(...)
Here, the user can request additional storage space (as an absolute allocation). When doing so, the following should be noted: An absolute allocation will only be made if it is possible to reserve the whole of the specified number of PAM pages (SIZE) on **one** single disk. If more than one disk was specified in the DATA-VOLUME operand, then only the first of the named disks will be used.

FIRST-PAGE = <integer 1..2147483647>
The number of the first physical block of the file on the first specified disk (the specified number must be 1 more than a multiple of 3, i.e. 1 / 4/ 7 / 10, etc.).

SIZE = <integer 1..2147483647>
The number of PAM pages required (this must be a multiple of 3).

SUPPORT = *ANY-DISK(...)
The file may be held on public or private disks. A detailed description can be found with the corresponding operands under SUPPORT=PUBLIC-DISK(...) or SUPPORT=PRIVATE-DISK(...).

VOLUME = *UNCHANGED / list-poss(255): <vsn 1..6>
VSNs of additional disks to be used for storage space extension.

DEVICE-TYPE = *UNCHANGED / <device>
Type of device to which the specified disks are assigned. Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?. If at least one volume ID is specified with VOLUME, each specification of a disk device type which is known to the system is handled like the STDDISK specification.

SPACE = *UNCHANGED / *RELATIVE(...) / *ABSOLUTE(...) / *RELEASE(...)
Type of storage space allocation.

SPACE = *RELATIVE(...)
Reserves additional storage space for the file (a relative allocation).

PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
The number of PAM pages by which the file is to be immediately extended.

SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
The number of PAM pages for later file extensions.

SPACE = *ABSOLUTE(...)
Here, the user can request additional storage space (as an absolute allocation).

FIRST-PAGE = <integer 1..2147483647>
Number of the first physical block of the file on the first specified disk.

SIZE = <integer 1..2147483647>
Number of PAM pages required.

SPACE = *RELEASE(...)
Here, the user can release storage space which has been reserved but not used.

NUMBER-OF-PAGES = <integer 1..2147483647> / *ALL-RELEASABLE
The maximum number of PAM pages which are to be released. *ALL-RELEASABLE means that the maximum possible number of PAM pages will be released.
The release of storage space will start at the end of the file and work towards its beginning, in units of **three** PAM pages, going no further than the PAM page which follows the last occupied one. With files on private volumes, at least one allocation unit will be reserved for the file. If DESTROY=*YES is recorded in the catalog for the file, then up to the specified number of PAM pages (but not more than the number of unused PAM pages) will be overwritten with binary zeros. If the file is held on private disks, they must be mounted.

SUPPORT = *TAPE(...)
The file is stored on tape. This operand can only be meaningfully specified if additional tapes are to be requested.

VOLUME = *NO / *ANY(...) / *REMOVE-UNUSED / list-poss(255): <alphanum-name 1..6>
The VSNs of the required tapes (additional tapes can be requested at this point). The volume list in the VOLUME operand represents an extension to the volume list in the catalog entry; the former must therefore not contain any VSNs which are already recorded in the catalog entry.

VOLUME = *NO
No extra tapes are to be added to the volume list in the catalog entry.

VOLUME = *ANY(...)
Any tapes may be provided and added to the volume list in the catalog entry (no particular VSN required).

NUMBER-OF-DEVICES = 1 / <integer 1..9>
The number of tapes which is required.

VOLUME = *REMOVE-UNUSED
Any tapes on which none of the file’s data is located are to be removed from the volume list in the catalog entry.

DEVICE-TYPE = *UNCHANGED / <device>
Device type for the required tapes. Only device types or volume types known within the system are accepted. In interactive mode, the possible device and volume types are displayed with DEVICE-TYPE=?.

PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
Tape sequence number of the required tape.
Issues a MOUNT message on the console (operator) requesting the mounting of tapes or suppresses the request.

PREMOUNT-LIST = *NONE
The first volume containing the file will be requested.

PREMOUNT-LIST = list-poss(255): <integer 0..255>
Issues a MOUNT message on the console (operator) requesting the mounting of tapes or suppresses the request. The tape sequence numbers specified here refer to the VSNs recorded in the catalog entry, followed by those listed in the VOLUME operand. Specifying PREMOUNT-LIST=0 has the effect that no tapes will be requested. Otherwise, PREMOUNT-LIST=(n[,n+1][,n+2]...) applies with n=1

PROTECTION = *UNCHANGED / *PARAMETERS(...)
The protection attributes for the file.
The default value *UNCHANGED means in each case that the previous specification continues to apply.

With regard to temporary files, see also "Temporary files" section.

PROTECTION = *PARAMETERS(...)
The file is to be given the specified protection attributes. When the file is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 56: Hierarchy of access control methods

All other protection attributes of the file (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

If the file's date of release for deletion has been reached (see the FREE-FOR-DELETION operand), the file owner can delete the file regardless of its access protection.

With temporary files, the only attributes that can be given values other than the default protection attributes specified in the table "Effects of PROTECTION-ATTR on the protection attributes" are AUDIT, SPACE-RELEASE-LOCK, and DESTROY-BY-DELETE.

PROTECTION-ATTR = *UNCHANGED / *BY-DEF-PROT-OR-STD / *STD / *FROM-FILE(...)
Specifies whether the protection attributes with the values *BY-PROTECTION-ATTR or *BY-PROT-ATTR-OR-UNCH are to be copied.

Protection attribute	PROTECTION-ATTR=				
	*UNCH	*FROM-FILE	*STD[1)]	*BY-DEF-PROT-OR-STD	
				Default protection not active[1)]	Default protection active
ACCESS	UNCHANGED	value from reference file	WRITE	WRITE	values from default protection
USER-ACCESS	UNCHANGED		OWNER-ONLY	OWNER-ONLY	
BASIC-ACL	UNCHANGED		NONE	NONE	
DESTROY-BY-DELETE	UNCHANGED		NO	NO	
GUARDS	UNCHANGED		NONE	NONE	
SPACE-RELEASE-LOCK	UNCHANGED		NO	NO	
EXPIRATION-DATE[2)]	UNCHANGED		TODAY	TODAY	
READ-PASSWORD	UNCHANGED	UNCHANGED	UNCHANGED	NONE	
WRITE-PASSWORD	UNCHANGED	UNCHANGED	UNCHANGED	NONE	
EXEC-PASSWORD	UNCHANGED	UNCHANGED	UNCHANGED	NONE	
FREE-FOR-DELETION	UNCHANGED	UNCHANGED	UNCHANGED	NONE	
AUDIT	UNCHANGED	UNCHANGED	UNCHANGED	UNCHANGED	UNCHANGED

1) The system default values are entered.

2) The protection terms is only entered for permanent files with a creation date or for file generation groups. If the reference file does not have a protected period, then *TODAY is entered.

Table 57: Effects of PROTECTION-ATTR on the protection attributes of the MODIFY commands

If a value other than *UNCHANGED is entered for this operand in the guided dialog of the EDIT-FILE-ATTRIBUTES command, only the protection attributes will be copied for which the default values was replaced with *BY-PROTECTION-ATTR or *BY-PROT-ATTR-OR-UNCH.

PROTECTION-ATTR = *UNCHANGED
The values of protection attributes with *BY-PROTECTION-ATTR or *BY-PROT-ATTR-OR-UNCH remain unchanged.

PROTECTION-ATTR = *BY-DEF-PROT-OR-STD
Operands with *BY-PROTECTION-ATTR or *BY-PROT-ATTR-OR-UNCH are supplied with the default protection values. If default protection has not been activated, the system standard values apply.

Note

A modification made with the SPACE, VOLUME or DEVICE-TYPE operand is executed immediately after the protection attributes are entered. Exception: When renaming at the same time, a modification made with SPACE, VOLUME or DEVICE-TYPE is performed before the protection attributes are entered.

PROTECTION-ATTR = *STD
Operands for which the default value *BY-PROTECTION-ATTR is specified (either explicitly or implicitly) are assigned default protection attributes.
Operands with the value *BY-PROT-ATTR-OR-UNCH remain unchanged.

PROTECTION-ATTR = *FROM-FILE(...)
Operands for which *BY-PROTECTION-ATTR is specified are assigned the operand value which they are assigned in the reference file named next. If the reference file has no EXPIRATION-DATE, but the original file has a creation date, then EXPIRATION-DATE=*TODAY is entered. Operands with the value *BY-PROT-ATTR-OR-UNCH remain unchanged.

If the protection attributes are to be copied for a temporary file, either the operands ACCESS=*WRITE, USER-ACCESS=*OWNER-ONLY, BASIC-ACL=*NONE and GUARDS=*NONE must be specified explicitly or the specified file must have been cataloged with these attributes. ACCESS and USER-ACCESS can have any value in the case of temporary tape files.

FILE-NAME = <filename 1..54 without-gen>
The name of the reference file.

Note

A modification made with the SPACE, VOLUME or DEVICE-TYPE operands is only executed after the protection status requested with *FROM-FILE has been established. The modification may be rejected by the new protection status. In this case the command is only partially executed or canceled (with a return code).

ACCESS = *BY-PROTECTION-ATTR / *UNCHANGED / *WRITE / *READ
The ACCESS operand enables a file to be protected against overwriting; it specifies whether write access to the file is permitted (implicitly allowing read access) or only read access. This protection attribute is used by the standard access control procedure, and will only be evaluated if no higher-level access protection is active (see table "Hierarchy of access control methods").

Tape files: When the file is first opened, DMS copies the ACCESS type identifier into the HDR3 label. During subsequent accesses to the file, the file owner can bypass the checks on access type by using the command ADD-FILE-LINK... PROTECTION-LEVEL=*LOW.

ACCESS = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set to *UNCHANGED, the value set previously is retained. If PROTECTION-ATTR is set to *STD, ACCESS defaults to *WRITE.

ACCESS = *UNCHANGED
The ACCESS value recorded in the catalog entry is not to be changed.

ACCESS = *WRITE
All types of access to the file are permitted.

Tape files: HDR3 label: access type indicator = 0

ACCESS = *READ
The file may only be accessed to read it.

Temporary files: Write access cannot be prevented, ACCESS=*READ will be rejected.

Tape files: HDR3 label: access type indicator = 1

USER-ACCESS = *BY-PROTECTION-ATTR / *UNCHANGED / *OWNER-ONLY / *ALL-USERS / *SPE-CIAL
Specifies whether the file may be processed under user IDs other than the file owner's ID. The type of access permitted in this case is defined by the other protection attributes (see the operands ACCESS, WRITE-PASSWORD, etc.).
This protection attribute is part of the standard access control mechanism. It is evaluated for users without HARDWARE-MAINTENANCE privileges only if no higher access protection is defined for the file (see table "Hierarchy of access control methods").

Tape files: When the file is first opened, DMS copies the USER-ACCESS indicator into the HDR1 label (access type indicator = 1).
The file may be accessed by any user ID, i.e. the file is shareable.

USER-ACCESS = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set to *UNCHANGED, the value set previously is retained.

USER-ACCESS = *OWNER-ONLY
The file is not shareable. It may only be accessed under its owner's ID, but this may be under any catalog identifier under which a user with the same name is recorded (i.e. not only under the catalog ID under which the file was created).

USER-ACCESS = *ALL-USERS
The file may be accessed under IDs other than the user's. The file may be accessed by any user ID, i.e. such files are shareable.

Temporary files: USER-ACCESS=ALL-USERS is not permitted.

Tape files: HDR1 label: access indicator = (X'40') 'BLANK'

USER-ACCESS = *SPECIAL
File access is allowed for maintenance IDs (i.e. user IDs with HARDWARE-MAINTENANCE privileges). USER-ACCESS= *ALL-USERS applies implicitly.

BASIC-ACL = *BY-PROTECTION-ATTR / *UNCHANGED / *NONE / *PREVIOUS / *STD / *PARAMETERS(...) / *OWNER-RX / *OWNER-WRX / *OWNER-ONLY / *GROUP-X / *GROUP-RX /

***GROUP-WRX / *EXCEPT-OTHERS / *OTHERS-X / *OTHERS-RX / *OTHERS-WRX / *ALL-X / *ALL-RX / *ALL-WRX**

Specifies whether a BASIC-ACL entry is to be created, changed, or deleted for the file. A BASIC-ACL entry will only be evaluated if no higher protection level has been activated for the file (see also table "Hierarchy of access control methods"). Temporary files and tape files cannot be protected with BASIC-ACL. The following operand values correspond to common BASIC-ACL settings:

Operand value	BASIC-ACL protection								
	OWNER			GROUP			OTHERS		
	R	W	X	R	W	X	R	W	X
*STD	Y	Y	Y	N	N	N	N	N	N
*OWNER-RX	Y	N	Y	U	N	U	U	N	U
*OWNER-WRX	Y	Y	Y	U	U	U	U	U	U
*OWNER-ONLY	U	U	U	N	N	N	N	N	N
*GROUP-X	U	U	Y	N	N	Y	N	N	U
*GROUP-RX	Y	U	Y	Y	U	Y	U	N	U
*GROUP-WRX	Y	Y	Y	Y	Y	Y	U	U	U
*EXCEPT-OTHERS	U	U	U	U	U	U	N	N	N
*OTHERS-X	U	U	Y	N	N	Y	N	N	Y
*OTHERS-RX	Y	U	Y	Y	N	Y	Y	N	Y
*OTHERS-WRX	Y	Y	Y	Y	Y	Y	Y	Y	Y
*ALL-X	U	U	Y	N	N	Y	N	N	Y
*ALL-RX	Y	U	Y	Y	N	Y	Y	N	Y
*ALL-WRX	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 58: Operand values for common BASIC-ACL settings

Y: access granted

N: access denied

U: access unchanged

> On initial activation of BASIC-ACL, U is treated as if it were N! That is why it is usually best to activate it with BASIC-ACL=*PREVIOUS.

BASIC-ACL = *BY-PROTECTION-ATTR

The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set to *UNCHANGED, the value set previously is retained. If PROTECTION-ATTR is set to *STD, BASIC-ACL defaults to *NONE.

BASIC-ACL = *UNCHANGED
The previous setting is to remain unchanged.

BASIC-ACL = *NONE
Any existing BASIC-ACL entry for the file will be deleted. Access control will then be in accordance with the values of USER-ACCESS and ACCESS (standard access control), provided no higher protection level has been activated.

BASIC-ACL = *PREVIOUS
A BASIC-ACL entry will be created for the file if there is not already one. In doing this, the values for USER-ACCESS and ACCESS will be converted to a BASIC-ACL according to the following table:

Standard access control		BASIC-ACL protection								
USER-ACCESS	ACCESS	OWNER			GROUP			OTHERS		
		R	W	X		W	X	R	W	X
OWNER-ONLY	WRITE	Y	Y	Y	N	N	N	N	N	N
OWNER-ONLY	READ	Y	N	Y	N	N	N	N	N	N
ALL-USERS	WRITE	Y	Y	Y	Y	Y	Y	Y	Y	Y
ALL-USERS	READ	Y	N	Y	Y	N	Y	Y	N	Y
SPECIAL	WRITE	Y	Y	Y	Y	Y	Y	Y	Y	Y
SPECIAL	READ	Y	N	Y	Y	N	Y	Y	N	Y

Table 59: Standard access control/BASIC-ACL

If a BASIC-ACL entry already exists, all the values it contains will be unchanged.

BASIC-ACL = *PARAMETERS(...)
A BASIC-ACL entry will not be generated for a file which was previously not protected by BASIC-ACL unless a value other than *UNCHANGED is specified for at least one of the OWNER, GROUP and OTHERS operands. Authorization to make read, write and execute accesses must be explicitly granted or denied for each user ID which has any rights. Those with access rights are:

- OWNER, i.e. the user ID of the file owner, any co-owners and systems support.
- GROUP, i.e. all user IDs which are in the same group as the file owner (i.e. not the owner and not systems support). Definition of user groups is possible only when the software product SECOS is used. To allow for possible later installation of the software product SECOS, GROUP should be given the same access rights as for OTHERS.
- OTHERS, i.e. all user IDs which belong to a different group from the file owner (i.e. not the owner and not systems support).

If the value *UNCHANGED is specified for any of the operands OWNER, GROUP, OTHERS, READ, WRITE and EXEC when a BASIC-ACL entry is created, the associated access permissions will be set to “no access” (equivalent to *NO-ACCESS or *NO). An ungranted access permission is indicated by “-”.

OWNER = *UNCHANGED / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for the owner. When BASIC-ACL is first activated, *UNCHANGED is treated like *NO-ACCESS.

OWNER = *PARAMETERS(...)
The owner’s access rights are entered as specified:

READ = *UNCHANGED / *NO / *YES
Specifies whether read authorization is set.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

WRITE = *UNCHANGED / *NO / *YES
Specifies whether write authorization is specified.
Write permission does not imply read permission.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

EXEC = *UNCHANGED / *NO / *YES
Indicates whether read access is permitted or not.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

GROUP = *UNCHANGED / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for all user IDs from the group of the owner. When BASIC-ACL is first activated, *UNCHANGED is treated like *NO-ACCESS.

GROUP = *PARAMETERS(...)
The access rights are to be set for the group as specified:

READ = *UNCHANGED / *NO / *YES
Specifies whether read authorization is set.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

WRITE = *UNCHANGED / *NO / *YES
Specifies whether write authorization is specified.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

EXEC = *UNCHANGED / *NO / *YES
Indicates whether read access is permitted or not.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

OTHERS = *UNCHANGED / *NO-ACCESS / *PARAMETERS(...)
Specifies what access rights are to be given to all other user IDs. To allow for possible later installation of the software product SECOS, GROUP should be given the same access rights as for OTHERS. When BASIC-ACL is first activated, *UNCHANGED is treated like *NO-ACCESS.

OTHERS = *PARAMETERS(...)
The access rights for other users will be set as specified:

READ = *UNCHANGED / *NO / *YES
Specifies whether read authorization is set.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

WRITE = *UNCHANGED / *NO / *YES
Specifies whether write authorization is specified.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

EXEC = *UNCHANGED / *NO / *YES
Indicates whether read access is permitted or not.
When BASIC-ACL is first activated, *UNCHANGED is treated like *NO.

GUARDS = *BY-PROTECTION-ATTR / *UNCHANGED / *NONE / *PARAMETERS(...)
Specifies whether access control using GUARDS is to be activated or modified. Temporary files and files on private volume (tape and disk) cannot be protected with GUARDS.

GUARDS = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set to *UNCHANGED, the value set previously is retained. If PROTECTION-ATTR is set to *STD, GUARDS defaults to *NONE.

GUARDS = *NONE
Access to the JV is not (is no longer) to be controlled via GUARDS.

GUARDS = *PARAMETERS(...)
Any existing access control via GUARDS for the JV is to be modified as specified. If the file in question was not protected by GUARDS, access control with GUARDS will be activated for it, provided at least one of the operands READ, WRITE or EXEC has an operand value other than *UNCHANGED.
Access to the file is controlled via a guard, i.e. a specific object identifying all the conditions subject to which access will be granted: such as date, time and user ID. The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard. Each guard is uniquely identified by its name. The guard name resembles a file name: it can contain a user ID and consists of a name part which is up to 8 characters in length. If no user ID is specified explicitly, the user’s own ID is added implicitly. Each access mode can be controlled by a separate guard. If no guard is assigned for an access mode (*NONE), access control will refuse any corresponding access (e.g. WRITE=*NONE prevents all write access). Specifying GUARDS=*PARAMETERS defines access control using GUARDS, with the default value *NONE for all access modes, which means that the file cannot be read, updated or executed.
The GUARDS subsystem is not required in order to define access control via GUARDS. The appropriate checks by GUARDS are not performed until the time file access takes place: If a guard has been defined but is not available, all access of the type controlled by that guard is prohibited. No access at all is possible if the GUARDS subsystem is not available at the time of access.

READ = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling read access (up to 8 characters if no user ID is specified). The default setting is *NONE, i.e. no read access is allowed.

WRITE = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling write access (up to 8 characters if no user ID is specified). The default setting is *NONE, i.e. no write access is allowed.

EXEC = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard for execute protection (up to 8 characters when no user ID is specified). The default setting is *NONE, i.e. the file cannot be executed.

WRITE-PASSWORD = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Write or read password for the JV to be modified. The defined password must be specified in the ADD-PASSWORD command in order to enable write access to the file or to modify or delete a defined password.
The WRITE-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Temporary files: cannot be password-protected

Tape files: the password protection is noted in the HDR3 label

WRITE-PASSWORD = *BY-PROT-ATTR-OR-UNCH
The write password is defined through the value of the PROTECTION-ATTR operand. If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered. Otherwise, the write password remains unchanged.

WRITE-PASSWORD = *NONE
Any existing write protection password will be deleted.

WRITE-PASSWORD = <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Defines a password that is required for write accesses.

READ-PASSWORD = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
*For encrypted files all values specified are handled like *UNCHANGED.*
Password for protection against unauthorized reading. The defined password must be specified in the ADD-PASSWORD command in order to enable read access to the file or to modify or delete a defined password.
The READ-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Temporary files: cannot be password-protected

Tape files: the password protection is noted in the HDR3 label

READ-PASSWORD = *BY-PROT-ATTR-OR-UNCH
The read password is defined through the value of the ROTECTION-ATTR operand. If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered. Otherwise, the read password remains unchanged.

READ-PASSWORD = *NONE
Any existing read protection password will be deleted.

READ-PASSWORD = <c-string 1..4> / x-string 1..8> / <integer -2147483648..2147483647>
Defines a password which protects against unauthorized read accesses to the file. This protection against unauthorized read accesses also provides protection against unauthorized write accesses; however, it does not protect against the unauthorized execution of an object or load module stored in the file, or a command sequence. In the case of an object or load module, both the file itself and the phase held in main memory are protected against unauthorized read accesses (the LOAD-PROGRAM command and the AID commands `%DISPLAY` and `%IN` will be rejected if access is not authorized). A source program which is protected by a read password cannot be compiled.

EXEC-PASSWORD = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
*For encrypted files all values specified are handled like *UNCHANGED.*
The password used to protect against unauthorized execution of the file. This type of password is specified for procedures and load modules. The specified password must be entered into the job-specific password table by using the ADD-PASSWORD command before the procedure or program can be run or a defined password can be

changed or deleted.
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

Temporary files: cannot be password-protected

Tape files: the password protection is noted in the HDR3 label

EXEC-PASSWORD = *BY-PROT-ATTR-OR-UNCH
The execution password is defined through the value of the ROTECTION-ATTR operand. If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered. Otherwise, the execution password remains unchanged.

EXEC-PASSWORD = *NONE
Any existing execute protection password will be deleted.

EXEC-PASSWORD = <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Defines a password which is required to call a program/procedure file.

DESTROY-BY-DELETE = *BY-PROTECTION-ATTR / *UNCHANGED / *NO / *YES
To increase the level of protection of data, the user can specify in the catalog entry that any data no longer required is overwritten by X'00' (binary zero). For disk files, the specification DESTROY-BY-DELETE takes effect when deletions are carried out or storage space is released; for tape files, any data remaining on the tape when EOF or EOV processing is carried out will be overwritten (see also the ADD-FILE-LINK command, DESTROY-OLD-CONTENTS operand).

DESTROY-BY-DELETE = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set to *UNCHANGED, the value set previously is retained. If PROTECTION-ATTR is set to *STD, DESTROY-BY-DELETE defaults to *NO.

DESTROY-BY-DELETE = *UNCHANGED
The value set previously will be retained.

DESTROY-BY-DELETE = *NO
If this operand is set to NO, the action specified in the DELETE-FILE command (OPTION operand) will be carried out.

Disk files: the storage space released will be left unchanged if the operand OPTION=DESTROY-ALL is not specified in the DELETE-FILE command

Tape files: Any data which follows on the tape will not be overwritten if DESTROY-OLD-CONTENTS=*YES is not specified in the ADD-FILE-LINK command for the current processing run.

DESTROY-BY-DELETE = *YES
When the file is deleted, its storage space will be overwritten with binary zeros. When storage space is released, the specified number of reserved PAM pages will be overwritten with binary zeros, unless they are occupied by data.

Disk files: when the storage space is released or deleted, it will be automatically overwritten with binary zeros (X'00').

Tape files: the tape content after the end of the file will be overwritten with binary zeros; it is not necessary to explicitly set the ADD-FILE-LINK command to delete residual data for the current processing run (DESTROY-OLD-CONTENTS operand).

> ℹ Please also observe the notes in the section “Data protection by data destruction” in the “Introductory Guide to DMS” [13].

AUDIT = *UNCHANGED / *NONE / *SUCCESS / *FAILURE / *ALL
This operand specifies whether accesses to the file are to be monitored. This monitoring may also be made dependent on the result of the access (see the operand values). Systems support staff (TSOS privilege) can use this function unrestrictedly. Nonprivileged users require the appropriate authorization in the user entry of the pubset in which the file is to be created (see the *FILE-AUDIT* output field of the SHOW-USER-ATTRIBUTES command). Without this authorization the command will be rejected if auditing is requested.

It is possible to monitor the following DMS actions:

- the creation, amendment (protection attributes), reading and deletion of a catalog entry
- the opening and closing of files
- the renaming, importing and exporting of files

The monitoring is performed by system exit routines or, if the software product SECOS is being used, by the SAT function unit.

In order to use system exit routines for monitoring, they must be activated (this is the responsibility of systems support, privilege TSOS). In order to use SAT for monitoring, SAT logging must have been started, and events for the FILE to be monitored must not be excluded from the logging procedure (this is the responsibility of the security officer, under the user ID SYSPRIV). The user cannot alter any explicit settings of SAT made by the security officer. The SAT log files can be analyzed by the SAT file administrator, under the user ID SYSAUDIT.

AUDIT = *NONE
No monitoring.

AUDIT = *SUCCESS
All successful DMS operations on the file will be monitored.

AUDIT = *FAILURE
All erroneous/unsuccessful DMS operations on the file will be monitored.

AUDIT = *ALL
All DMS operations on the file will be monitored.

SPACE-RELEASE-LOCK = *BY-PROTECTION-ATTR / *UNCHANGED / *NO / *YES
Specifies whether the specification to release unused memory space in the MODIFY-FILE-ATTRIBUTES command (SPACE=RELEASE operand) is to be ignored. The existence of a space release lock can be determined by the user from the output field *SP-REL-LOCK* of the SHOW-FILE-ATTRIBUTES command.

SPACE-RELEASE-LOCK = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set

to *UNCHANGED, the value set previously is retained. If PROTECTION-ATTR is set to *STD, SPACE-RELEASE-LOCK defaults to *NO.

SPACE-RELEASE-LOCK = *NO
Removes an existing lock to prevent the release of unused storage space.

SPACE-RELEASE-LOCK = *YES
Sets an existing lock to prevent the release of unused storage space.

EXPIRATION-DATE = *BY-PROTECTION-ATTR / *UNCHANGED / *TODAY / *TOMORROW / <date> / <integer 0..99999>
Specifies a protected period, during which the file may be neither amended nor deleted; i.e. it can only be read (“read only”).
The MODIFY-FILE-ATTRIBUTES command can be run again specifying EXPIRATION-DATE in order to cancel or change the expiration date. Once the specified date has arrived, write access is allowed again, but the file is not automatically deleted.
A protected period can only be assigned if the file has already been opened and consequently has a CREATION-DATE.
If the end of the protected period is before the current date, the current date is entered.

Temporary files: cannot be given an expiration date

Tape files: maximum possible EXPIRATION-DATE is 2155-12-31

EXPIRATION-DATE = *BY-PROTECTION-ATTR
The value defined for the file specified in the PROTECTION-ATTR operand is used. If PROTECTION-ATTR is set to *UNCHANGED, the value set previously is retained.

EXPIRATION-DATE = *UNCHANGED
The expiration date will remain unchanged.

EXPIRATION-DATE = *TODAY
The file can be updated or deleted immediately. Today’s date is added to the catalog entry as the EXPIRATION-DATE.

EXPIRATION-DATE = *TOMORROW
The file cannot be updated or deleted until the following day. The following day’s date is added to the catalog entry as the EXPIRATION-DATE.

EXPIRATION-DATE = <date with-compl>
The file can be updated or deleted starting on the specified date. The specified date is added to the catalog entry as the EXPIRATION-DATE. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

EXPIRATION-DATE = <integer 0..99999 *days* >
The file can be updated or deleted after the specified number of days. The value must be specified in the form +n (days). The date calculated internally is added to the catalog entry as the EXPIRATION-DATE.
A retention period can only be specified for an existing file, i.e. the *CRE-DATE* and *FILE-STRUC* output fields must indicate a value other than NONE.

FREE-FOR-DELETION = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / *NONE / <date> / <integer 0..99999>
Specifies as of when the file can be deleted, regardless of its ACCESS, BASIC-ACL, GUARDS, EXPIRATION-DATE protection attributes and its password protection or when its storage space can be released (free-for-deletion date).
A free-for-deletion date cannot be assigned to temporary files or to files on private volumes.

FREE-FOR-DELETION = *BY-PROT-ATTR-OR-UNCH
The free-for-deletion date is defined by means of the PROTECTION-ATTR operand value. If PROTECTION-ATTR=*BY-DEF-PROT-OR-STD is set, the values supplied by default protection or - if default protection is not activated - *NONE is entered. Otherwise, the free-for-deletion date remains unchanged.

FREE-FOR-DELETION = *NONE
No free-for-deletion date is defined. The protection attributes are taken into account with regard to file deletion.

FREE-FOR-DELETION = <date>
Once the specified date is reached, the file can be deleted regardless of its protection attributes listed above. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

FREE-FOR-DELETION = <integer 0..99999>
After the specified number of days, the file can be deleted regardless of the protection attributes listed above. The date must be specified in the form +n.

SAVE = *UNCHANGED
Only for files on disks and Net-Storage volume: BACKUP-CLASS relates to the automatic file backup by the ARCHIVE backup system; it determines which runs of the ARCHIVE or HSMS system are to back up the files.

SAVE = *PARAMETERS(...)
Parameters governing the type and frequency of backups.

BACKUP-CLASS = *UNCHANGED / *A / *B / *C / *D / *E
Backup frequency, where *A represents the most frequent backup.

BACKUP-CLASS = *A
The most frequent backup. Files with this setting will be backed up by every backup run.

BACKUP-CLASS = *B
Files with this setting will be backed up every time a backup run is performed for files with BACKUP-CLASS=*B or *C or *D.

BACKUP-CLASS = *C
Files with this setting will be backed up every time a backup run is performed for files with BACKUP-CLASS=*C or *D.

BACKUP-CLASS = *D
The least frequent backup.
Files with this setting will only be backed up when a backup run is performed for files with BACKUP-CLASS=*D.

BACKUP-CLASS = *E
Not backed up by ARCHIVE or HSMS (This is appropriate for work files, for example.).

SAVED-PAGES = *UNCHANGED / *COMPLETE-FILE / *MODIFIED-PAGES
Only for disk files:
like BACKUP-CLASS, refers to the backup with ARCHIVE or HSMS and defines whether the entire file is to be backed up completely during automatic backup runs, or whether only those blocks that have changed since the last backup are to be saved.

SAVED-PAGES = *COMPLETE-FILE
The complete file is backed up.

SAVED-PAGES = *MODIFIED-PAGES
Incremental saving: only the modified blocks are saved. This specification is useful for extremely large files.

NUM-OF-BACKUP-VERS = *UNCHANGED / <integer 0..32>
Maximum number of file versions in the version backup archive.
A value equal to 0 means the file will be ignored when version backups are performed.
Any values except 0 specified for temporary files or files on private disks are rejected.
A file on tape does not participate in the version backup, so the specified value is ignored and the value 0 is set.

MIGRATE = *UNCHANGED / *ALLOWED / *INHIBITED / *FORBIDDEN
Only relevant for files on public disks - evaluated by the software product HSMS (Hierarchical Storage Management System).
It allows a user to specify whether files that have not been accessed for a long time (by the user) may be migrated to a storage medium with slower access. The files will be migrated from the online processing level S0 to the background level S1, which is available online, or to background level S2 (e.g. tape storage) which is available offline (for further details see the “HSMS, Volume 1” manual [18]).

MIGRATE = *ALLOWED
If HSMS is being used, the file may be migrated from the processing level to the background level (S1), or to the archive level (S2). This operand value may only be specified for permanent files.

MIGRATE = *INHIBITED
The file may only be migrated for a brief period, e.g. for reorganization purposes (migration lock).

MIGRATE = *FORBIDDEN
This specification is allowed only in conjunction with authorization to perform physical allocation of public storage space (see “Privileged functions” under “Function” above).
The file must not be migrated, typically because it is intended to stay in its current physical storage location (intensified migration lock). The command is rejected if the file has been migrated to a background storage level (S1 or S2) using HSMS (see the STORAGE-LEVEL operand in the SHOW-FILE-ATTRIBUTES command).

CODED-CHARACTER-SET = *UNCHANGED / *USER-DEFAULT / *NONE / <name 1..8>
This operand is ignored with regard to files on private disks.
Determines the code of the file. This defines how the characters of a national character set are to be stored in binary form. The specified character set has an effect on the representation of characters on the screen, the collating sequence, etc. (see the “XHCS” manual [51]).

CODED-CHARACTER-SET = *USER-DEFAULT
The code is taken over from the file owner’s user ID if a code other than EDF03IRV is entered there, otherwise *NONE applies.

CODED-CHARACTER-SET = *NONE
No coded character set is specified for the file.

CODED-CHARACTER-SET = <name 1..8>
Specifies the coded character set for the file.

NET-CODED-CHAR-SET = *UNCHANGED / *USER-DEFAULT / *ISO / *NO-CONVERSION / <name 1..8>
Only relevant for Net-Storage files of the type node file. This specification is ignored for other files.
Defines which Net-Storage coded character set (NETCCS) is to be used for a node file on Net-Storage. The NETCCS is the character set used to store the data from SAM node files on Net-Storage. During copying, the data are converted from the CODED-CHARACTER-SET into the NET-CODED-CHARATER-SET and vice versa. All SAM node files and PAM node files created with BS2000 V11.0 or later have a defined NETCCS. PAM node files created with an older version than V11.0 are treated as if they were created with *NO-CONVERSION. Only data from SAM node files are converted. In the case of PAM node files, the NET-CODED-CHAR-SET is not evaluated while data are copied.

NET-CODED-CHAR-SET = *USER-DEFAULT
The setting is defined by the definition in the user entry. The resulting NETCCS of the file is determined based on the following table:

User entry (SYSSRPM) or specification in the CREATE-FILE / MODIFY-FILE-ATTRIBUTES command		Resulting NETCCS in the catalog entry of the node files
CCS	**NETCCS**	**NETCCS**
EDF03IRV/*NONE	*ISO	ISO88591; during code conversion, EDF041 is assumed for CCS
EDF03DRV	*ISO	ISO88591; during code conversion, EDF04DRV is assumed for CCS
EDF04DRV	*ISO	ISO88591
EDF04x	*ISO	ISO8859x with x=1,2,..F
ISO8859x	*ISO or *NO-CONV	ISOx
UTFx	*ISO or *NO-CONV	UTFx
<name_a 1..8>	<name_b 1..8>	<name_b 1..8>
<name_a 1..8>	*NO-CONV	<name_a 1..8>

NET-CODED-CHAR-SET = *ISO
For SAM node files, EBCDIC character sets are converted into character sets common in the open world. In the process, the NETCCS is mapped onto an ISO variant that corresponds to the CCS. Examples:

```
EDF03IRV  =>  ISO88591
EDF04DRV  =>  ISO88591
EDF04x    =>  ISO8859x
```

The following applies here: If an ISO or UTF character set was specified for the CODED-CHARACTER-SET, no conversion takes place. In this case, *ISO acts like *NO-CONVERSION.

NET-CODED-CHAR-SET = *NO-CONVERSION
The character set of the file is not converted while the file is transferred to the Net-Storage. The value of the CODED-CHARACTER-SET is adopted for the NET-CODED-CHAR-SET. If the CODED-CHARACTER-SET is equivalent to *NONE or EDV03IRV, the resulting NETCCS becomes EDF03IRV.

A node file is created on the Net-Storage in the EBCDIC character set specified in the CCS.

NET-CODED-CHAR-SET = <name 1..8>
Name of the NETCCS with which a node is created on the Net-Storage.

> There is no check whether the name corresponds to a valid character set!

DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE / *CATALOG-CHANGE / *USER-ID-CHANGE
Specifies whether and under what conditions a verification dialog is to be conducted with the user during command execution. The verification dialog allows you to monitor the progress of the command and to take action if necessary. A control dialog is only possible in interactive mode but, in this mode, may also be used in procedures. In batch mode, all operand values have the same effect as *NO.

If one of the events (apart from *ERROR) specified in the DIALOG-CONTROL operand occurs, a verification dialog is initiated. Message DMS0810 is issued, asking you whether you want the command to be executed for the shown file or file set. The SDF abbreviation rules apply to the entered response. To display the possible responses, enter a question mark.

Syntax of the response to message DMS0810 (verification dialog)

```
possible replies: *YES(...) / *NO(...) / *TERMINATE

  *YES(...)

    |  DIALOG-CONTROL = *UNCHANGED / *NO / *ERROR / *MORE-THAN-ONE-FILE /
    |       *FILE-CHANGE / *CATALOG-CHANGE / *USER-ID-CHANGE
    |  ,OUTPUT = *UNCHANGED / *NO / *SYSOUT

  *NO(...)

    |  DIALOG-CONTROL = *UNCHANGED / *NO / *ERROR / *MORE-THAN-ONE-FILE /
    |       *FILE-CHANGE / *CATALOG-CHANGE / *USER-ID-CHANGE
       ,OUTPUT = *UNCHANGED / *NO / *SYSOUT
```

Meaning of the operands

The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands. The operand value *UNCHANGED leaves the previous setting unchanged.

Reply *YES(...)
The set of files listed in the message is processed. If you specify a new value in the DIALOG-CONTROL suboperand which calls for a reduction in the size of the set of files listed in the message (e.g. changing *CATALOG-

CHANGE to *FILE-CHANGE), the file set is first slimmed down to reflect the new value, and then a second verification dialog is conducted for the reduced set of files. The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands.

Reply *NO(...)
The set of files listed in the message is not processed. If you change the DIALOG-CONTROL operand, the verification check is not repeated until the next time the associated event occurs. If there are other files to process before the event occurs, they will be processed without verification.

Reply *TERMINATE
The set of files listed in the message is not processed and processing of the command terminates. In a non-S procedure, spin-off is initiated; in an S procedure, SDF-P error handling is initiated.

If an error occurs while one of the selected files is being processed and DIALOG-CONTROL has a setting other than *NO, an error verification dialog is initiated. Guaranteed message DMS0811 or DMS0812 shows you the file name(s) and the DMS error code. You are then asked by message DMS0813 whether and if so how command execution is to continue. The SDF abbreviation rules apply to the entered response. To display the possible responses, enter a question mark.

Syntax of replies to message DMS0813 (error verification dialog)

possible replies : ***Y**ES(...) / ***RETRY**(...) / ***NO** / ***SKIP-CAT**ALOG(...) / ***SKIP-USER**-ID(...)

***Y**ES(...)

| **DIALOG-CONTR**OL = ***UNCHA** NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA** NGED / ***NO** / ***SYSOUT**

***RETRY**(...)

| **DIALOG-CONTR**OL = ***UNCHA** NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA** NGED / ***NO** / ***SYSOUT**

***SKIP-CAT**ALOG(...)

| **DIALOG-CONTR**OL = ***UNCHA** NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

| ,**OUTPUT** = ***UNCHA** NGED / ***NO** / ***SYSOUT**

***SKIP-USER**-ID(...)

| **DIALOG-CONTR**OL = ***UNCHA** NGED / ***NO** / ***ERROR** / ***MORE-THAN-ONE-F**ILE /

| ***F**ILE**-CHA**NGE / ***CAT**ALOG**-CHA**NGE / ***USER-ID-CHA**NGE

,**OUTPUT** = ***UNCHA** NGED / ***NO** / ***SYSOUT**

Meaning of the operands

The meaning of the DIALOG-CONTROL and OUTPUT suboperands is the same as that of the corresponding main command operands. The operand value *UNCHANGED leaves the previous setting unchanged.

Reply *YES(...)
Processing is to continue with the next file name.

Reply *RETRY(...)
Processing is to be retried for the same file name.

Reply *SKIP-CATALOG(...)
Processing is to continue with the file names from the next selected catalog. This selection only makes sense if wildcards were used in the catalog ID.

Reply *SKIP-USER-ID(...)
Processing is to continue with the file names from the next selected user ID or, if files of a user ID which are on various pubsets were selected, with the next catalog ID. This selection only makes sense if wildcards were used in the user or catalog ID.

DIALOG-CONTROL = *STD
The default *STD setting is equivalent to *MORE-THAN-ONE-FILE in an interactive dialog (when SYSCMD is connected to the terminal) and to *NO in procedures and in batch mode.

DIALOG-CONTROL = *NO
All the selected files are processed without an opportunity for the user to intervene.

DIALOG-CONTROL = *MORE-THAN-ONE-FILE
A verification dialog is initiated if more than one file has been selected. The verification query is issued for each of the selected files. If the catalog and/or user ID contains wildcards, the query is issued for each catalog and/or user ID. DIALOG-CONTROL=*ERROR also applies implicitly.

DIALOG-CONTROL = *ERROR
An error verification dialog is initiated if an error occurs while one of the selected file names is being processed.

DIALOG-CONTROL = *FILE-CHANGE
A verification dialog is initiated for each selected file name. DIALOG-CONTROL=*ERROR also applies implicitly.

DIALOG-CONTROL = *CATALOG-CHANGE
The verification query is issued for all the selected file names in a catalog. DIALOG-CONTROL=*ERROR also applies implicitly.

DIALOG-CONTROL = *USER-ID-CHANGE
The verification query is issued for all the selected file names of a user ID within a catalog. DIALOG-CONTROL=*ERROR also applies implicitly.

OUTPUT = *STD / *NO / *SYSOUT
Specifies whether the names of processed files are to be logged on SYSOUT.

OUTPUT = *NO
Only any errors that occur are logged on SYSOUT.

OUTPUT = *SYSOUT
The names of processed files and any errors that occur are logged on SYSOUT (guaranteed message DMS0815 or DMS0816, or DMS0811 or DMS0812 in the event of an error).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS051E	Inconsistency in private disk pool or operand error detected
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
2	0	DMS06A9	Some generations of this FGG are missing
	1	CMD0202	Syntax or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0102	Wildcard selection action: processing interrupted by *TERMINATE or by K2 key in verification dialog
	64	CMD0216	Privilege error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS0535	Specified file not shareable
	64	DMS053E	File already cataloged on private volume
	64	DMS0557	Invalid volume specification
	64	DMS055C	Catalog entry not found on the assigned volume
	64	DMS0579	Invalid operand for temporary file or work file
	64	DMS057A	Invalid combination of file attributes and storage class
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS057F	Renaming of migrated file not permitted

	64	DMS0585	Error detected when processing catalog or multiprocessor system.
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS0588	The disk storage assignment could not be executed
	64	DMS05A0	Attribute modification not possible - data still in write cache
	64	DMS059F	Specified value for number of backup versions invalid
	64	DMS05A5	Allocation change not allowed when renaming permanent file as temporary file (or vice versa)
	64	DMS05AD	Renaming in conjunction with a change of storage location: the attributes have been modified, but renaming failed owing to a system malfunction
	64	DMS05B5	Guard not available
	64	DMS05BD	Invalid combination of file and volume set attributes
	64	DMS05CC	File name already cataloged
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file
	64	DMS060D	Invalid file name for reference file (PROTECTION-ATTR)
	64	DMS0610	Action with selection specification (wildcards): command execution failed for at least one of the selected files
	64	DMS0613	Unknown management class
	64	DMS0618	Unknown storage class
	64	DMS061A	Storage class catalog could not be read
	64	DMS0640	Access to Net-Storage is rejected by the ONETSTOR subsystem because of communication problems with the net client
	64	DMS0643	Net client reports access error
	64	DMS0644	Net client reports internal error
	64	DMS0645	File does not exist on Net-Storage
	64	DMS0646	FGG does not exist on Net-Storage
	64	DMS0649	Net server reports POSIX-ACL error
	64	DMS064A	Net client reports that access to files is forbidden on the Net-Storage volume
	64	DMS064B	Access to node files not supported by the net client

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	64	DMS0684	File does not exist Guaranteed message: DMS0684
	64	DMS0685	File not yet allocated storage space
	64	DMS0689	Operands only allowed for files not yet occupying storage space have been specified
	64	DMS06B5	File already open or catalog entry not updated after system error
	64	DMS06B6	File attributes not compatible with file generation group
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space exhausted
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system. Guaranteed message: DMS053C
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0588	The disk storage assignment could not be executed
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Examples

Example 1: Changing file attributes (releasing storage space)

```
/show-file-attr d.9,inf=(alloc=*yes) ──────────────────────────────────────  (1)
```

```
%0000000093 :2OSG:$USER1.D.9
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 24          HIGH-US-PA = 1
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      2       GVS2.0       D3435
%  NUM-OF-EXT = 2
%:2OSG: PUBLIC:      1 FILE  RES=        93 FRE=        92 REL=        90 PAGES
```

```
/mod-file-attr d.9,sup=*pub(space=*release(90)) ──────────────────────────  (2)
/show-file-attr d.9,inf=(alloc=*yes,security=*yes) ──────────────────────────  (3)
```

```
%0000000093 :2OSG:$USER1.D.9
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-11-09
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= YES         ENCRYPTION = *NONE
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 24          HIGH-US-PA = 1
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      2       GVS2.0       D3435
%  NUM-OF-EXT = 2
%:2OSG: PUBLIC:      1 FILE  RES=        93 FRE=        92 REL=        90 PAGES
```

```
/mod-file-attr d.9,sup=*pub(space=*release(90)),prot=(space-release-lock=*no) —  (4)
/show-file-attr d.9,inf=(alloc=*yes) ──────────────────────────────────────  (5)
```

```
%0000000003 :2OSG:$USER1.D.9
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 24          HIGH-US-PA = 1
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       GVS2.0       D3435
%  NUM-OF-EXT = 1
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
%00000003 :2OS2:$USER1.D.9
```

(1) Shows the storage space allocation attributes for the file *D.9*. The file occupies 93 PAM pages, of which only one is used. No more than 90 of the unused PAM pages may be released.

(2) The MODIFY-FILE-ATTRIBUTES command is used to release 90 PAM pages.

(3) Shows the storage space allocation and protection attributes for the file D.9: the request to release storage space was ignored due to the SPACE-RELEASE-LOCK protection attribute.

(4) The MODIFY-FILE-ATTRIBUTES command is now entered again. Additionally the space release lock is also removed.

(5) The output of the SHOW-FILE-ATTRIBUTES command shows that storage space has been released.

Example 2: Renaming a permanent file to a temporary file

```
/show-file-attr d.10,inf=(security=*yes) ——————————————————————————  (1)
```

```
%0000000003 :2OSG:$USER1.D.10
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-11-09
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
```

```
/mod-file-attr d.10,new-name=#file.1 ——————————————————————————————  (2)
```

```
%  DMS0681 DMS ERROR '05CF' WHEN ACCESSING FILE ':2OSG:$USER1.D.10'. FOR FURTHER
 INFORMATION: /HELP-MSG DMS05CF ————————————————————————————————————  (3)
```

```
/add-pass 'paul' ——————————————————————————————————————————————————  (4)
/mod-file-attr d.10,new-name=#file.1 ——————————————————————————————  (5)
/show-file-attr #file.1,inf=(security=*yes) ———————————————————————  (6)
```

```
%0000000003 :2OSG:$USER1.S.313.3ZAA.FILE.1
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2012-11-09
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
```

(1) The file *D.10* is protected by a read password.

(2) Renames the permanent file *D.10* to the temporary file *#FILE.1* (the tempfile character is #).

(3) The command was rejected, since the password is not contained in the password table of the task.

(4) The read password *PAUL* is entered into the password table of the task.

(5) A new attempt is made to rename the permanent file *D.10* to the temporary file *#FILE.1* (see also Point 2).

(6) Shows the protection attributes of the temporary file *#FILE.1*. The tempfile character is replaced in the output by the internal name component for temporary files (here: *S.313.3ZAA.*). When a permanent file is renamed to a temporary file, some of the file attributes are changed. For example, temporary files cannot be protected by passwords. In this case, the read password was canceled (READ-PASS=*NONE).

Example 3: Assigning BASIC-ACL protection to a group of files

/sh syssdf.group.,inf=*min ——————————————————————————————— (1)

```
%I NNN YR              72 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140
%I NNN YR             192 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.BINDER
%I NNN YR              33 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.USER
```

/md syssdf.group.,prot=(basic-acl=*all-x) ——————————————————————— (2)

```
% DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.SYSSDF.GROUP.' (Y=YES; N=NO; T=
TERMINATE; ?=HELP/FURTHER OPTIONS)? y(output=*sysout)
```

```
%  DMS0815 JOB FOR THE FILE NAME ':2OSG:$USER1.SYSSDF.GROUP.PROG-1.140' SUCCESSF
ULLY EXECUTED
%  DMS0815 JOB FOR THE FILE NAME ':2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.BINDER' S
UCCESSFULLY EXECUTED
%  DMS0815 JOB FOR THE FILE NAME ':2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.USER' SUC
CESSFULLY EXECUTED
```

/sh syssdf.group.,inf=*min

```
%I NNN --X--X--X       72 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140
%I NNN --X--X--X      192 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.BINDER
%I NNN --X--X--X       33 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.USER
```

/md syssdf.group.,prot=(basic-acl=*all-rx) ——————————————————————— (3)

```
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.SYSSDF.GROUP.' (Y=YES; N=NO; T=
TERMINATE; ?=HELP/FURTHER OPTIONS)?y
```

/sh syssdf.group.,inf=*min

```
%I NNN R-XR-XR-X       72 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140
%I NNN R-XR-XR-X      192 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.BINDER
%I NNN R-XR-XR-X       33 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.USER
```

/md syssdf.group.,prot=(basic-acl=*owner-wrx) ——————————————————————— (4)

```
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.SYSSDF.GROUP.' (Y=YES; N=NO; T=
TERMINATE; ?=HELP/FURTHER OPTIONS)?y
```

/sh syssdf.group.,inf=*min

```
%I NNN RWXR-XR-X       72 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140
%I NNN RWXR-XR-X      192 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.BINDER
%I NNN RWXR-XR-X       33 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.USER
```

/md syssdf.group.,prot=(basic-acl=*owner-rx) ——————————————————————— (5)

```
%  DMS0810 EXECUTE JOB FOR FILE(S) ':2OSG:$USER1.SYSSDF.GROUP.' (Y=YES; N=NO; T=
TERMINATE; ?=HELP/FURTHER OPTIONS)?y
```

/sh syssdf.group.,inf=*min

```
%I NNN R-XR-XR-X        72 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140
%I NNN R-XR-XR-X       192 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.BINDER
%I NNN R-XR-XR-X        33 :2OSG:$USER1.SYSSDF.GROUP.PROG-1.140.USER
```

(1) All files with names beginning with *SYSSDF.GROUP.* are to have their access permissions modified. SHOW-FILE-ATTRIBUTES (alias = SH) is used to show the currently set permissions in abbreviated form (INFORMATION=*MINIMUM). Only the default permissions are set (all users have read access).

(2) Using MODIFY-FILE-ATTRIBUTES (alias = MD), BASIC-ACL protection is applied to the chosen files. *ALL-X assigns execute permission to all users. Command execution is confirmed with “Y(OUTPUT=*SYSOUT)”. This causes the names of processed files to be displayed.

(3) Read and execute permission is to be granted to all users. This is achieved with BASIC-ACL=*ALL-RX.

(4) *OWNER-WRX grants the owner all access permissions.

(5) *OWNER-RX lets the owner protect the file against inadvertent overwriting.

4.13 MODIFY-FILE-GENERATION-SUPPORT

Modify device assignment and space allocation of file generations

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The MODIFY-FILE-GENERATION-SUPPORT command amends the device assignment and storage space allocation for an existing file generation. Only the owner, any co-owners (see “Privileged functions”) and systems support personnel are allowed to modify all of a file generation’s attributes. Other users, provided they have write permission for the file generation, are allowed only to allocate extra space or tapes.

The file protection and data backup attributes are defined once only for the entire file generation group using the CREATE-FILE-GROUP command and modified using the MODIFY-FILE-GROUP-ATTRIBUTES command. User and systems support information (see the USER-INFORMATION and ADM-INFORMATION operands) is not copied from the group entry but can be defined separately for each file generation.

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Privileged functions

The following functions are available to nonprivileged users only if physical allocation of public space is allowed (see “Privileged functions” in the function description of the CREATE-FILE command):

- explicit specification (values other than the default, *STD) of a volume or volume set in the VOLUME and VOLUME-SET operands in the structure SUPPORT=*PUBLIC-DISK (STORAGE-CLASS=*NONE(...))
- absolute space reservation using SPACE=*ABSOLUTE(...) in the structure SUPPORT=*PUBLIC-DISK(...)

Exception: Privileged functions are not available for work files if no authorization for physical allocation is given.

Systems support personnel can supplement the user information in the file catalog with one to eight bytes of information about the file generation (ADM-INFORMATION operand).

By default, systems support (TSOS privilege) is a co-owner of all the files and file generations (and can, therefore, modify their catalog entries). When SECOS is used, this co-ownership can be restricted for permanent files.

Verifying command execution

The DIALOG-CONTROL operand governs whether a verification dialog is to be conducted with the user. The OUTPUT operand lets the user specify whether each file name that is processed is to be logged in a guaranteed message to SYSOUT. In conjunction with the chargeable SDF-P subsystem, the processed file names can be viewed in the S variable stream for guaranteed messages (SYSMSG; see also the ASSIGN-STREAM and EXECUTE-CMD commands in the “SDF-P” manual [34]).

File generations in SM pubsets

The storage location for a file generation on an SM pubset can be selected on the basis of a storage class. This simplifies the automatic management of storage space on an
SM pubset (for details see the “Introduction to System Administration” [14] or the “System-Managed Storage” manual [45]). Systems support personnel allocates to a storage class certain file attributes which are implicitly set for all files assigned to that storage class. If a storage class is specified, there is no need to explicitly specify values for the WORK-FILE, VOLUME-SET, VOLUME, DEVICE-TYPE, IO-ATTRIBUTES, DISK-WRITE, FILE-PREFORMAT and AVAILABILITY operands. The SHOW-STORAGE-CLASS command allows users to find out which storage classes of the SM pubset are available to them and which file attributes are set.

If the requirements for the file generation’s storage location are changed (explicitly or implicitly by way of the storage class), the storage location may change automatically, with the result that the file is moved to a different volume set. The change of storage location is a synchronous process involving copying of the file generation. The file generation is not accessible to other tasks while copying is in progress.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
The name of the file generation concerned	GENERATION-NAME	
Specify the volume	SUPPORT	
Volume: pubset	SUPPORT = *PUBLIC-DISK(...)	
• Specify storage class		STORAGE-CLASS
○ Performance requirements ■ performance attribute ■ type of I/O operations		IO-ATTRIBUTES PERFORMANCE USAGE
○ Define time when data consistency is required after write operations		DISK-WRITE
○ Define availability requirements		AVAILABILITY
○ preferred file format		FILE-PREFORMAT
○ Specify volume sets		VOLUME-SET
○ Specify the volume		VOLUME

○ Specify device type		DEVICE-TYPE
○ Change of volume set allowed		S0-MIGRATION
• user information		USER-INFORMATION
• systems support information		ADM-INFORMATION
Volume: private disk	= *PRIVATE-DISK	
• Specify device type		DEVICE-TYPE
• Request volume(s)		VOLUME
• Storage space allocation (allocate, change, release)		SPACE
• Time of disk mounting		VOLUME-ALLOCATION
• Separate storage of data/index for ISAM files		DATA-SUPPORT
Volume: pubset or private disk	= *ANY-DISK	
• Specify device type		DEVICE-TYPE
• Specify the volume		VOLUME
• Storage space allocation (allocate,change, release)		SPACE
Volume: tape	= *TAPE	
• Specify device type		DEVICE-TYPE
• Request volume(s)		VOLUME

• Request tape device		PREMOUNT-LIST
Verification of multiple file specifications		
• File selection dialog	DIALOG-CONTROL	
• User intervention in command execution not possible (default setting for procedures and batch mode)	=*NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	=*MORE-THAN-ONE-FILE	
• Dialog when an error occurs	=*ERROR	
• Dialog when catalog ID changes	=*CATALOG-CHANGE	
• Dialog for each selected file that is to be processed	=*FILE-CHANGE	
• Dialog when user ID changes	=*USER-ID-CHANGE	
• Message for successfully modified catalog entries	OUTPUT	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	

Table 60: Overview of MODIFY-FILE-GENERATION-SUPPORT command functions

Format

MODIFY-**FILE-GEN**ERATION-SUPPORT Alias: **MDFGNS**

GENERATION-**NAME** = <filename 1..54 without-vers with-wild(80)>

,**SUP**PORT = ***UNCHA**NGED / ***PUB**LIC-**DISK**(...) / ***PRIV**ATE-**DISK**(...) / ***ANY-DISK**(...) / ***TAPE**(...)

***PUB**LIC-**DISK**(...)

| **STOR**AGE-**CLASS** = ***UNCHA**NGED / ***STD** / ***UPD**ATE / <composed-name 1..8> / ***NONE**(...)

| ***NONE**(...)

| | **IO-ATTRIBUTES** = **UNCHA**NGED / ***PAR**AMETERS(...)

| | ***PAR**AMETERS(...)

| | | **PERFORMANCE** = ***UNCHA**NGED / ***STD** / ***HIGH** / ***VERY-HIGH** /

| | | ***USER-MAX**IMUM

| | | ,**USAGE** = ***UNCHA**NGED / ***READ-WRITE** / ***WR**ITE / **READ**

| | ,**DISK-WRITE** = ***UNCHA**NGED / ***IMMED**IATE / ***BY-CLOSE**

| | ,**AVAIL**ABILITY = ***UNCHA**NGED / ***STD** / ***HIGH**

| | ,**FILE-PREFORMAT** = ***STD** / ***K** / ***NK2** / ***NK4**

| | ,**VOL**UME-**SET** = ***STD** / ***CONTR**OL-**VOL**UME-**SET** / <cat-id 1..4>

| | ,**VOL**UME = ***UNCHA**NGED / list-poss(255): <vsn 1..6>

| | ,**DEV**ICE-**TYPE** = ***UNCHA**NGED / <device>

| | ,**S0-MIG**RATION = ***UNCHA**NGED / ***ALLOW**ED / ***FORBIDDEN**

| ,**SPACE** = ***UNCHA**NGED / ***RELA**TIVE(...) / ***ABSO**LUTE(...) / ***RELE**ASE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY-**ALLOC**ATION = **0** / <integer 0..2147483647>

| | ,**SEC**ONDARY-**ALLOC**ATION = ***UNCHA**NGED / <integer 0..32767>

| ***ABSO**LUTE(...)

| | **FIRST-PAGE** = <integer 1..2147483647>

| | ,**SIZE** = <integer 1..2147483647>

| ***RELE**ASE(...)

| | **NUM**BER-**OF-PAGES** = <integer 1..2147483647> / ***ALL-RELE**ASABLE

| | ,**KEEP-MIN-ALLOC**ATION = ***NO** / ***Y**ES

| ,**USER-INF**ORMATION = ***UNCHA**NGED / ***NONE** / <c-string 1..8 with-low>

| ,**ADM-INF**ORMATION = ***UNCHA**NGED / ***NONE** / <c-string 1..8 with-low>

***PRIV**ATE**-DISK**(...)

| **VOL**UME = ***UNCHA**NGED / [***ANY**](...) / list-poss(255): <alphanum-name 1..6>

| [***ANY**](...)

| | **NUM**BER**-OF-DEV**ICES = **1** / <integer 1..9>

| ,**DEV**ICE**-TYPE** = ***UNCHA**NGED / <device>

| ,**SPACE** = ***UNCHA**NGED / ***RELA**TIVE(...) / ***RELE**ASE(...) / ***ABSO**LUTE(...)

| ***RELA**TIVE(...)

| | **PRIM**ARY**-ALLOC**ATION = **0** / <integer 0..2147483647>

| | ,**SEC**ONDARY**-ALLOC**ATION = ***UNCHA**NGED / <integer 0..32767>

| ***RELE**ASE(...)

| | **NUM**BER**-OF-PAGES** = <integer 1..2147483647> / ***ALL-RELE**ASABLE

| ***ABSO**LUTE(...)

| | **FIRST-PAGE** = <integer 1..2147483647>

| | ,**SIZE** = <integer 1..2147483647>

| ,**VOL**UME**-ALLOC**ATION = ***IMMED**IATE / ***DELAY**ED

| ,**DATA-SUPPORT** = ***UNCHA**NGED / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **DATA-DEV**ICE-TYPE = ***UNCHA**NGED / <device>

| | ,**DATA-VOL**UME = ***UNCHA**NGED / list-poss(255): <alphanum-name 1..6>

| | ,**DATA-SPACE** = ***RELA**TIVE(...) / ***ABSO**LUTE(...)

| | ***RELA**TIVE(...)

| | | **PRIM**ARY**-ALLOC**ATION = **0** / <integer 0..2147483647>

| | | ,**SEC**ONDARY**-ALLOC**ATION = ***UNCHA**NGED / <integer 0..32767>

| | ***ABSO**LUTE(...)

| | | **FIRST-PAGE** = <integer 1..2147483647>

| | | ,**SIZE** = <integer 1..2147483647>

***ANY-DISK**(...)

| **VOL**UME = ***UNCHA**NGED / [***ANY**](...) / list-poss(255): <alphanum-name 1..6>

| [***ANY**](...)

| | **NUM**BER**-OF-DEV**ICES = **1** / <integer 1..9>

```
        |   ,DEVICE-TYPE = *UNCHANGED / <device>
        |   ,SPACE = *UNCHANGED / *RELATIVE(...) / *ABSOLUTE(...) / *RELEASE(...)
        |       *RELATIVE(...)
        |           |   PRIMARY-ALLOCATION = 0 / <integer 0..2147483647>
        |           |   ,SECONDARY-ALLOCATION = *UNCHANGED / <integer 0..32767>
        |       *ABSOLUTE(...)
        |           |   FIRST-PAGE = <integer 1..2147483647>
        |           |   ,SIZE = <integer 1..2147483647>
        |       *RELEASE(...)
        |           |   NUMBER-OF-PAGES = <integer 1..2147483647> / *ALL-RELEASABLE
    *TAPE(...)
        |   VOLUME = [*ANY] (...) / *NO / *REMOVE-UNUSED / list-poss(255): <alphanum-name 1..6>
        |       [*ANY](...)
        |           |   NUMBER-OF-DEVICE = 1 / <integer 1..9>
        |   ,DEVICE-TYPE = *UNCHANGED / <device>
        |   ,PREMOUNT-LIST = *NONE / list-poss(255): <integer 0..255>
,DIALOG-CONTROL = *STD / *NO / *ERROR / *FILE-CHANGE / *MORE-THAN-ONE-FILE /
                          *USER-ID-CHANGE / *CATALOG-CHANGE
,OUTPUT = *NO / *SYSOUT
```

Operands

GENERATION-NAME = <filename 1..54 without-vers with-wild(80)>
Name of an existing file generation. If the generation name includes wildcards, or if the specification is partially qualified, the command is executed for the associated set of files. Processing can be controlled and verified with the aid of the DIALOG-CONTROL and OUTPUT operands. Only systems support personnel (TSOS privilege) is allowed to use wildcards within the user ID.

SUPPORT = *UNCHANGED / *PUBLIC-DISK(...) / *PRIVATE-DISK(...) / *ANY-DISK(...) / *TAPE(...)
Type of volume on which the file generation is located. This entry must not contradict the specification that was made when the catalog entry was created (CREATE-FILE-GENERATION).

SUPPORT = *PUBLIC-DISK(...)
The file generation is located on a public disk.

STORAGE-CLASS = *UNCHANGED / *STD / *UPDATE/ <composed-name 1..8> / *NONE(...)
Governs the properties of the file generation’s storage location. A storage class is a container set up by systems support to hold a defined combination of file attributes specific to an SM pubset. On the basis of the assigned volume set lists it maps these attributes onto the existing range of pubset services. This mapping may be more detailed than can be described by explicitly specifying the IO-ATTRIBUTES, DISK-WRITE,

AVAILABILITY, FILE-PREFORMAT, VOLUME-SET, VOLUME, DEVICE-TYPE and S0-MIGRATION operands in the STORAGE-CLASS=*NONE structure.

Assigning a storage class simplifies the automatic management of storage space in an SM pubset (for details see the “Introduction to System Administration” [14] or the “System-Managed Storage” manual [45]).

At the time when the assignment is made, the storage class that is specified (even implicitly using *STD) must exist, and the user must be authorized to use it. The SHOW-STORAGE-CLASS command allows users to find out which storage classes of an SM pubset are available to them and which file attributes are set.

The WORK-FILE attribute of the storage class must be the same as that of the file generation group.

Defining a different storage class (STORAGE-CLASS not equal *NONE) can result in the file generation being relocated (reallocated) from its current volume set to another volume set which is better suited to this storage class. The following cases can occur here:

- If the storage class contains AVAILABILITY=*HIGH and the existing volume set has AVAILABILITY=*STD, the file generation must be reallocated to a volume set with the attribute AVAILABILITY=*HIGH. If reallocation is not possible, the command is rejected.
- If the storage class contains a volume set list and the file generation is not located on a volume set of this volume set list, the file generation is, if possible, reallocated to a volume set from this list. If reallocation is not possible, the command is executed without it.

During reallocation, the file generation is open. Accesses from other tasks are rejected.

STORAGE-CLASS = *STD
If the file generation is stored in an SM pubset, it is assigned the default storage class from the group entry of the FGG. The default storage class is governed by the STOR-CLASS-DEFAULT operand of the CREATE-FILE-GROUP or MODIFY-FILE-GROUP-ATTRIBUTES command. If there is no default storage class defined, or if the file generation is stored in an SF pubset, the file generation is given the same attributes as with STORAGE-CLASS= *NONE with default values.

STORAGE-CLASS = *UPDATE
The operand is evaluated only for files in SM pubsets to which a storage class has already been assigned. The attributes are once more read from the storage class catalog and assigned to the file.
The attributes are once more read from the storage class catalog and assigned to the file.

STORAGE-CLASS = <composed-name 1..8>
A file generation in an SM pubset is assigned the specified storage class. If the file generation has already been assigned the specified storage class, the attributes are not updated, so any changes made to the storage class in the intervening period do not come into effect. *UPDATE can be used to ensure that the attributes are updated.
For a file generation in an SF pubset this value has the same effect as STORAGE-CLASS=*NONE with default values.

STORAGE-CLASS = *NONE(...)
The value has the same effect as *UNCHANGED if all the following conditions are fulfilled:

- The file generation was or is being created on a volume set for permanent data storage.
- A default storage class is assigned to the user ID at the SM pubset in question.
- Physical allocation is not permitted.

Only in this case are the PERFORMANCE, USAGE, DISK-WRITE and AVAILIBILITY operands and the S0-MIGRATION=*ALLOWED specification ignored.

In all other cases, the properties of the file generation's storage location are determined on the basis of the following operands and no storage class is assigned to the file generation or a storage class which is already assigned is withdrawn.
The properties of the file generation's storage location are governed by the following operands. The file generation is not assigned a storage class, and any storage class already assigned is disregarded.
See the MODIFY-FILE-ATTRIBUTES command for descriptions of the suboperands

See the MODIFY-FILE-ATTRIBUTES command for descriptions of the other operands.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS051E	Inconsistency in private disk pool or operand error detected
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
2	0	DMS06A9	Some generations of this FGG are missing
	1	CMD0202	Syntactical or semantic error in command
	32	DMS05C7	Unexpected internal error in DMS
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Wildcard selection action: processing interrupted by *TERMINATE or by K2 key in verification dialog
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS0535	Specified file not shareable
	64	DMS0557	Invalid volume specification
	64	DMS055C	Catalog entry not found on specified private disk
	64	DMS057A	Specified storage class not compatible with FGG in terms of WORK-FILE attribute

	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS057F	Renaming of migrated file not permitted
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS05A0	Attribute modification not possible - data still in write cache
	64	DMS05BD	Invalid combination of file and volume set attributes
	64	DMS05CC	File name already cataloged
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0681	DMS error on accessing file
	64	DMS0684	File does not exist Guaranteed message: DMS0684
	64	DMS0610	Wildcard selection action: command execution defective for at least one of the selected files
	64	DMS0618	Unknown storage class
	64	DMS061A	Storage class catalog could not be read
	64	DMS0685	File not yet allocated storage space
	64	DMS0689	Operands only allowed for files not yet occupying storage space have been specified
	64	DMS06B5	File already open or catalog entry not updated after system error
	64	DMS06C4	File generation group not yet cataloged
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space full
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing Guaranteed messages: DMS053C

	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0588	It was not possible to allocate disk space
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Example

Changing the file attributes of a file generation (storage space / primary and secondary allocations)

```
/show-file-attr max.group.2(*4),inf=(alloc=*yes) ————————————————————   (1)
```

```
%0000000003 :2OSG:$USER1.MAX.GROUP.2(*0004)
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       GVS2.2       D3435
%  NUM-OF-EXT = 1
%:2OSG: PUBLIC:      1 FILE  RES=         3 FRE=         3 REL=         3 PAGES
```

```
/mod-file-gen max.group.2(*12),
              sup=*pub(space=*relative(prim-alloc=90,sec-alloc=30)) ————————   (2)
/show-file-attr max.group.2(*4),inf=(alloc=*yes)————————————————————   (3)
```

```
%0000000093 :2OSG:$USER1.MAX.GROUP.2(*0004)
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 30          HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      2       GVS2.2       D3435
%  NUM-OF-EXT = 2
%:2OSG: PUBLIC:      1 FILE  RES=        93 FRE=        93 REL=        93 PAGES
```

(1) The SHOW-FILE-ATTRIBUTES command indicates that three PAM pages are reserved (initial allocation) for the file *MAX.GROUP.2(*4)*.

(2) The MODIFY-FILE-GENERATION-SUPPORT command raises the primary space allocation by 90 PAM pages and sets the secondary space allocation to 30 PAM pages (for subsequent storage space extensions).

(3) The SHOW-FILE-ATTRIBUTES command indicates the new number of reserved pages (93) and the new secondary allocation (30).

4.14 MODIFY-FILE-GROUP-ATTRIBUTES

Modify catalog entry of file generation group

Component:	BS2000
Functional area:	File processing
Domain:	FILE-GENERATION-GROUP
Privileges:	STD-PROCESSING TSOS
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

The MODIFY-FILE-GROUP-ATTRIBUTES command amends the attributes of a file generation group. Only the owner, any co-owners (see the CREATE-FILE command, “Privileged functions”) and systems support personnel are allowed to modify all the attributes of a file generation group (FGG). Other users, provided they have write permission for the file, are allowed only to modify the CODED-CHARACTER-SET entry.

If the FGG is write-protected by a password, the password must have been added to the password table for the job (see the ADD-PASSWORD command).

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Privileged functions

Systems support personnel can supplement the user information in the file catalog with one to eight bytes of information about the file generation group (ADM-INFORMATION operand).

By default, systems support (TSOS privilege) is a co-owner of all the files and file generation groups (and can therefore modify their catalog entries). When SECOS is used, this co-ownership can be restricted for permanent files.

Verifying command execution

The DIALOG-CONTROL operand governs whether a verification dialog is to be conducted with the user. The OUTPUT operand lets the user specify whether each file name that is processed is to be logged in a guaranteed message to SYSOUT. In conjunction with the chargeable SDF-P subsystem, the processed file names can be viewed in the S variable stream for guaranteed messages (SYSMSG; see also the ASSIGN-STREAM and EXECUTE-CMD commands in the “SDF-P” manual [34]).

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
The name of the file generation group (FGG) to be amended	GROUP-NAME	
New name of the FGG	NEW-NAME	
Define the general attributes of the FGG	GENERATION-PARAMETER	
• Maximum permitted number of generations		MAXIMUM
• Action when this number exceeded		OVERFLOW-OPTION
• Base number • absolute • relative to last file generation		BASE-NUMBER ABSOLUTE RELATIVE-TO-LAST-GEN
Define protection attributes	PROTECTION = *PARAMETERS	
• Import protection attributes from file		PROTECTION-ATTR
• File access rights		ACCESS
• Shareability		USER-ACCESS
• Basic access control list		BASIC-ACL
• Password protection		PASSWORD
• Define passwords		WRITE-PASSWORD/ READ-PASSWORD
• Physical deletion (overwrite with binary zeros)		DESTROY-BY-DELETE

• Monitoring of DMS accesses via SAT /System Exit Routines		AUDIT
• Lock to prevent release of reserved storage space (disk files only)		SPACE-RELEASE-LOCK
• Date when file is freed for updating		EXPIRATION-DATE
• Date when file is freed for deletion		FREE-FOR-DELETION
For disk files only: Type and frequency of automatic data backup by ARCHIVE or HSMS	SAVE	
• Backup frequency		BACKUP-CLASS
• Scope of backup		SAVED-PAGES
HSMS storage management class	MANAGEMENT-CLASS	
Code table (XHCS)	CODED-CHARACTER-SET	
user information	USER-INFORMATION	
systems support information	ADM-INFORMATION	
File selection dialog	DIALOG-CONTROL	
• User intervention in command execution not possible (default setting for procedures and batch mode)	=*NO	
• Dialog when more than one file is referenced if the file name specified is not fully qualified (default setting for interactive mode)	=*MORE-THAN-ONE-FILE	
• Dialog when an error occurs	=*ERROR	
• Dialog when catalog ID changes	=*CATALOG-CHANGE	

• Dialog for each selected file that is to be processed	=*FILE-CHANGE	
• Dialog when user ID changes	=*USER-ID-CHANGE	
Guaranteed message for successfully modified catalog entries	OUTPUT	
• Suppress	=*NO	
• Output to SYSOUT	=*SYSOUT	

Table 61: Overview of MODIFY-FILE-GROUP-ATTRIBUTES command functions

Format

MODIFY-**FILE-GR**OUP-ATTRIBUTES Alias: **MDFGPA**

GROUP-**NAME** = <filename 1..47 without-gen-vers with-wild(80)>

,**NEW-NAME** = ***SAME** / <filename 1..47 without-gen-vers with-wild-constr(80)>

,**GEN**ERATION-**PAR**AMETER = ***UNCHA**NGED / [***GEN**ERATION-**PAR**AMETER](...)

[***GEN**ERATION-**PAR**AMETER](...)

| **MAX**IMUM = ***UNCHA**NGED / <integer 1..255>

| ,**OV**ERFLOW-**OPT**ION = ***UNCHA**NGED / ***CYCL**IC-**REPL**ACE / ***REUSE-VOL**UME /

| ***DEL**ETE-**ALL** / ***KEEP-GEN**ERATION

| ,**BASE-NUM**BER = ***UNCHA**NGED / ***ABSO**LUTE(...) / ***RELA**TIVE-**TO-LAST-GEN**ERATION(...)

| ***ABSO**LUTE(...)

| | **NUM**BER = <integer 0..9999>

| ***RELA**TIVE-**TO-LAST-GEN**ERATION(...)

| | **NUM**BER = <integer -99..0>

,**PROT**ECTION = ***UNCHA**NGED / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **PROT**ECTION-**ATTR** = ***UNCHA**NGED / ***BY-DEF-PROT-OR-STD** / ***STD** / ***FROM-FILE**(...)

| ***FROM-FILE**(...)

| | **F**ILE-**NAME** = <filename 1..54 without-gen>

| ,**ACCESS** = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***WR**ITE / ***READ**

| ,**USER-ACCESS** = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***OWNER-ONLY** / ***ALL-USERS**

| ,**BASIC-ACL** = ***BY-PROT**ECTION-**ATTR** / ***UNCHA**NGED / ***NONE** / ***PREV**IOUS / ***STD** /

| [***PAR**AMETERS](...) / ***OWN**ER-**R** / ***OWN**ER-**WR** / ***OWNER-ONLY** / ***GR**OUP-**R** /

| ***GR**OUP-**WR** / ***EXCEPT-OTHERS** / ***OTH**ERS-**R** / ***OTH**ERS-**WR** / ***ALL-R** /

| ***ALL-WR**

| [***PAR**AMETERS](...)

| | **OWNER** = ***UNCHA**NGED / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***UNCHA**NGED / ***NO** / ***Y**ES

| | | ,**WR**ITE = ***UNCHA**NGED / ***NO** / ***Y**ES

```
        |           |   ,GROUP = *UNCHANGED / *NO-ACCESS / [*PARAMETERS](...)
        |           |       [*PARAMETERS](...)
        |           |           |   READ = *UNCHANGED / *NO / *YES
        |           |           |   ,WRITE = *UNCHANGED / *NO / *YES
        |           |   ,OTHERS = *UNCHANGED / *NO-ACCESS / [*PARAMETERS](...)
        |           |       [*PARAMETERS](...)
        |           |           |   READ = *UNCHANGED / *NO / *YES
        |           |           |   ,WRITE = *UNCHANGED / *NO / *YES
        |   ,GUARDS = *BY-PROTECTION-ATTR / *UNCHANGED / *NONE / [*PARAMETERS](...)
        |       [*PARAMETERS](...)
        |           |   READ = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
        |           |   ,WRITE = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
        |   ,WRITE-PASSWORD = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / *NONE / <c-string 1..4> /
        |                                   <x-string 1..8> /<integer -2147483648..2147483647> / *SECRET
        |   ,READ-PASSWORD = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / *NONE / <c-string 1..4> /
        |                                   <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
        |   ,DESTROY-BY-DELETE = *BY-PROTECTION-ATTR / *UNCHANGED / *NO / *YES
        |   ,AUDIT = *UNCHANGED / *NONE / *FAILURE / *ALL / *SUCCESS
        |   ,SPACE-RELEASE-LOCK = *UNCHANGED / *NO / *YES
        |   ,EXPIRATION-DATE = *BY-PROTECTION-ATTR / *UNCHANGED / *TODAY / *TOMORROW /
        |                               <date with-compl> / <integer 0..99999 days>
        |   ,FREE-FOR-DELETION = *BY-PROT-ATTR-OR-UNCH / *UNCHANGED / <date> /
        |                                       <integer 0..99999>
,SAVE = *UNCHANGED / [*PARAMETERS](...)
    [*PARAMETERS](...)
        |   BACKUP-CLASS = *UNCHANGED / *A / *B / *C / *D / *E
        |   ,SAVED-PAGES = *UNCHANGED / *COMPLETE-FILE / *MODIFIED-PAGES
,MANAGEMENT-CLASS = *UNCHANGED / *NONE / <composed-name 1..8>
,CODED-CHARACTER-SET = *UNCHANGED / *USER-DEFAULT / *NONE / <name 1..8>
,USER-INFORMATION = *UNCHANGED / *NONE / <c-string 1..8 with-low>
,ADM-INFORMATION = *UNCHANGED / *NONE / <c-string 1..8 with-low>
```

,**STOR-CLASS-DEF**AULT = ***UNCHA**NGED / ***STD** / <composed-name 1..8> / ***NONE**

,**DIALOG-CONTR**OL = ***STD** / ***NO** / ***ERROR** / ***F**ILE**-CHA**NGE / ***MORE-THAN-ONE-F**ILE /
***USER-ID-CHA**NGE / ***CAT**ALOG**-CHA**NGE

,**OUTPUT** = ***NO** / ***SYSOUT**

Operands

GROUP-NAME = <filename 1..47 without-gen-vers with-wild(80)>
Name of an existing file generation group. If the name includes wildcards, or if the specification is partially qualified, the command is executed for the associated set of file generation groups. Processing can be controlled and verified with the aid of the DIALOG-CONTROL and OUTPUT operands. Only systems support personnel (TSOS privilege) is allowed to use wildcards within the user ID.

NEW-NAME = *SAME / <filename 1..47 without-gen-vers with-wild-constr(80)>
Specifies whether the file is to be renamed.

NEW-NAME = *SAME
The current name of the FGG is retained.

NEW-NAME = <filename 1..47 without-gen-vers with-wild-constr(80)>
The FGG is to be renamed. The command is rejected if a catalog entry with the specified name already exists. It is also rejected for FGGs whose generations are on HSMS storage level S1 or S2 (see the STORAGE-LEVEL operand in the SHOW-FILE-ATTRIBUTES command).
If wildcards or a partially qualified name have been specified in the GROUP-NAME operand, a constructor can be used to specify how the new names of the selected FGGs are to be formed. The constructor string should be designed to ensure that the new names are unique; in other words, multiple renames must not produce the same name more than once.

File generations on tape: If some or all of the file generations are stored on tape, their names will be changed only in the catalog entry, not in the tape labels. These file generations can no longer be accessed.

GENERATION-PARAMETER = *UNCHANGED / *GENERATION-PARAMETER(...)
Specifies the attributes of the file generation group.

GENERATION-PARAMETER = *GENERATION-PARAMETER(...)
Attributes of the file generation group.

MAXIMUM = *UNCHANGED / <integer 1..255>
Defines how many file generations may be cataloged at the same time (see the OVERFLOW-OPTION operand).

OVERFLOW-OPTION = *UNCHANGED / *CYCLIC-REPLACE / *REUSE-VOLUME / *DELETE-ALL / *KEEP-GENERATION
Specifies what action is to be taken if the maximum permitted number of file generations is exceeded (see the MAXIMUM operand). When the maximum permitted number is reached, the surplus file generations are deleted regardless of password protection, retention period (EXPIRATION-DATE) and the permitted mode of access (ACCESS).

OVERFLOW-OPTION = *CYCLIC-REPLACE
The current oldest generation is deleted and its storage space, or the tapes it occupies, are released. In the catalog, the entries in the *LAST-GEN* and *FIRST-GEN* output fields (most recent/old existing generations) are updated.

OVERFLOW-OPTION = *REUSE-VOLUME
The effect of OVERFLOW-OPTION=*REUSE-VOLUME depends on the storage medium:

For FGGs on public disks: the oldest generation is deleted and its storage space returned to the system; the group entry is updated (see OVERFLOW-OPTION= *CYCLIC-REPLACE).

For FGGs on private disks: the new generation is created and the oldest generation deleted, the volume being used for storage of the new generation. If the generation which is being deleted extends over several disks, the new generation is cataloged only on the first of these disks. The group entry is updated accordingly. Since the old generation is not deleted until the new generation has been created, lack of storage space on the disk may mean that it is impossible to create the new generation, even though OVERFLOW-OPTION=*REUSE-VOLUME is specified.

For FGGs on tape: the oldest generation is deleted from the catalog, and the new generation is created on the tape thus released. The group entry is updated accordingly. OVERFLOW-OPTION=*REUSE-VOLUME is not permitted for file generation groups on multifile tapes (file sets).

OVERFLOW-OPTION = *DELETE-ALL
All generations of the FGG are deleted, and the new generation becomes the oldest one in the new series. The group entry is updated accordingly.

OVERFLOW-OPTION = *KEEP-GENERATION
The file generations are not automatically deleted. The oldest file generations which overshoot the maximum are not deleted until OVERFLOW-OPTION or BASE-NUMBER is modified.

BASE-NUMBER = *UNCHANGED / *ABSOLUTE(...) / *RELATIVE-TO-LAST-GENERATION(...)
Defines a reference point/a base generation to which all relative generation numbers refer. The names of the file generations can be specified with absolute (*n) or relative (±n) generation numbers.

BASE-NUMBER = *ABSOLUTE(...)
Specifies the base value as an absolute value.

NUMBER = <integer 0..9999>
The generation number which represents the base value in absolute terms. Only the number of an existing, nonsurplus file generation may be specified.

BASE-NUMBER = *RELATIVE-TO-LAST-GENERATION(...)
Specifies the base value indirectly:

NUMBER = <integer -99..0>
The value whose magnitude is to be subtracted from the last file generation number to give the absolute base value. The absolute base value calculated in this way must be the number of an existing, nonsurplus generation.

PROTECTION = *UNCHANGED / *PARAMETERS(...)
The protection attributes for the FGG.

PROTECTION = *PARAMETERS(...)
The file generation group is given the specified protection attributes. For descriptions of the PROTECTION-ATTR, ACCESS, USER-ACCESS, BASIC-ACL, GUARDS, WRITE-PASSWORD, READ-PASSWORD, DESTROY-BY-

DELETE, AUDIT, SPACE-RELEASE-LOCK, EXPIRATION-DATE and FREE-FOR-DELETION operands, see the corresponding operand descriptions for the MODIFY-FILE-ATTRIBUTES command.

Notes

- Since file generations are not executable (program or procedure), they cannot be protected with an execute password (EXEC-PASSWORD). Likewise, for the same reason no execute permission can be set within BASIC-ACL or GUARDS.
- The protection attribute EXPIRATION-DATE is of no effect for file generations that have not been opened yet (`CRE-DATE=NONE`).

STOR-CLASS-DEFAULT = *UNCHANGED / *STD / <composed-name 1..8> / *NONE
The operand is evaluated only for file generation groups in SM pubsets. Governs the properties of the storage location if no explicit specification is made when the file generation is created.

Assigning a storage class simplifies the automatic management of storage space in an SM pubset (for details see the “Introduction to System Administration” [14]). The SHOW-STORAGE-CLASS command allows users to find out which storage classes of an SM pubset are available to them and which file attributes are set.

A file generation group for work files cannot be converted to a file generation group for normal files and vice versa.

The only specification allowed for a file generation group in an SF pubset is STOR-CLASS-DEFAULT=*NONE.

STOR-CLASS-DEFAULT = *STD
The pubset-specific default storage class from the user entry is used as the default storage class for the file generation group. If the file generation group is to be created in an SF pubset or if there is no default storage class defined in the user entry, the file generation group is given the same attributes as with STOR-CLASS-DEFAULT=*NONE.

STOR-CLASS-DEFAULT = <composed-name 1..8>
The file generation group is assigned the specified storage class. The storage class must exist and be accessible to the user at the time when the assignment is made. This specification is ignored for a file generation group in an SF pubset; the FGG is then given the same attributes as with STOR-CLASS-DEFAULT=*NONE.

STOR-CLASS-DEFAULT = *NONE
The value has the same effect as *UNCHANGED if all the following conditions are fulfilled:

- The file generation group is located on a volume set for permanent data storage.
- A default storage class is assigned to the user ID at the SM pubset in question.
- Physical allocation is not permitted.

In all other cases, the properties of the file generation group’s storage location are determined on the basis of the *NONE(...) structure and no storage class is assigned to the file generation group or an already assigned storage class is withdrawn.
The properties of the storage location for the file generations are governed by the specifications in the CREATE-FILE-GENERATION or MODIFY-FILE-GENERATION-SUPPORT command.

For descriptions of the SAVE, MANAGEMENT-CLASS, CODED-CHARACTER-SET, USER-INFORMATION, ADM-INFORMATION, DIALOG-CONTROL, and OUTPUT operands, see the corresponding operand descriptions for the MODIFY-FILE-ATTRIBUTES command.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
2	0	DMS051E	Inconsistency in private disk pool or operand error detected
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
2	0	DMS06A9	Some generations of this FGG are missing
2	0	DMS06CA	Command executed, but invalid specification in BASE-NUMBER operand ignored
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0102	Wildcard selection action: processing interrupted by *TERMINATE or by K2 key in verification dialog
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset Guaranteed messages: DMS051B, DMS0681
	64	DMS051C	User not authorized to access pubset Guaranteed messages: DMS051C, DMS0681
	64	DMS0535	Specified file not shareable
	64	DMS053E	File already cataloged on private volume
	64	DMS055C	Catalog entry not found on specified private disk
	64	DMS0579	Invalid operand for temporary file or work file
	64	DMS057A	Specified storage class not compatible with WORK-FILE attribute
	64	DMS057B	Invalid operand for migrated file
	64	DMS057C	Processing not possible due to HSMS error
	64	DMS057E	File has been migrated, and HSMS is not available
	64	DMS057F	Renaming of migrated file not permitted

	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS059F	Specified value for number of backup versions invalid
	64	DMS05B5	Guard not available
	64	DMS05CC	File name already cataloged
	64	DMS05CE	First file name not cataloged
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file
	64	DMS060D	Invalid file name for reference file (PROTECTION-ATTR)
	64	DMS0610	Wildcard selection action: command execution defective for at least one of the selected FGGs
	64	DMS0613	Unknown management class
	64	DMS0618	Unknown storage class
	64	DMS061A	Storage class catalog could not be read
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0588	It was not possible to allocate disk space
	130	DMS0524	System address space full
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing Guaranteed messages: DMS053C
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Examples

Example 1: Changing the file attributes of a file generation group (OVERFLOW-OPTION)

/show-file-attr max.group.2,inf=(org=*yes) ———————————— (1)

```
%0000000000 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 7           LAST-GEN   = 9
%:2OSG: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/show-file-attr max.group.2,select=(generation=*yes) ———— (2)

```
%         0 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0007)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0008)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0009)
%:2OSG: PUBLIC:      4 FILES RES=         9 FRE=         9 REL=         9 PAGES
```

/mod-file-gr max.group.2,gen-par=(overflow-option=*keep-gen) — (3)
/cre-file-gen max.group.2(*10)
/cre-file-gen max.group.2(*11)
/show-file-attr max.group.2,inf=(org=*yes) ——————————————— (4)

```
%0000000000 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = KEEP-GEN
%  FIRST-GEN  = 7           LAST-GEN   = 11
%:2OSG: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/show-file-attr max.group.2,select=(generation=*yes) ———————— (5)

```
%         0 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0007)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0008)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0009)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0010)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0011)
%:2OSG: PUBLIC:      6 FILES RES=        15 FRE=        15 REL=        15 PAGES
```

/mod-file-gr max.group.2,gen-par=(overflow-option=*cyclic-replace) —— (6)
/show-file-attr max.group.2,inf=(org=*yes) —————————————————————— (7)

```
%         0 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0009)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0010)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0011)
%:2OSG: PUBLIC:      4 FILES RES=         9 FRE=         9 REL=         9 PAGES
```

/show-file-attr max.group.2,select=(generation=yes)

```
%       0 :2OSG:$USERXY01.MAX.GROUP.2 (FGG)
%       9 :2OSG:$USERXY01.MAX.GROUP.2(*0009)
%       9 :2OSG:$USERXY01.MAX.GROUP.2(*0010)
%       9 :2OSG:$USERXY01.MAX.GROUP.2(*0011)
%:2OSG: PUBLIC:      4 FILES RES=       27  FRE=        27  REL=       27 PAGES
```

(1) Shows the file attributes of the file generation group *MAX.GROUP.2* (group entry). A maximum of 3 generations can exist. Every additional generation would replace the oldest existing generation at the time (OVERFLOW-OPTION= *CYCLIC-REPLACE).

(2) Shows the file generation group *MAX.GROUP.2* along with the associated generations. Generations *0007 to *0009 exist.

(3) The OVERFLOW-OPTION specification is modified to KEEP-GENERATION. Generations *0010 and *0011 are then created.

(4) Output of the modified group entry.

(5) Shows the group entry and all associated generations. There are now five existing generations. The generations *0007 and *0008 were not deleted when creating generations *0010 and *0011!

(6) The OVERFLOW-OPTION specification now changed to CYCLIC-REPLACE.

(7) Shows the modified group entry and the associated file generations. The “excess” generations *0007 and *0008 were deleted.

Example 2: Changing the file attributes of a file generation group (BASE-NUMBER)

/show-file-attr max.group.2,inf=(org=*yes) ———————————————— (1)

```
%0000000000 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 9           LAST-GEN   = 11
%:2OSG: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
%00000000 :2OS2:$USER1.MAX.GROUP.2 (FGG)
```

/show-file-attr max.group.2,select=(generation=yes) ———————————— (2)

```
%       0 :2OSG:$USERXY01.MAX.GROUP.2 (FGG)
%       9 :2OSG:$USERXY01.MAX.GROUP.2(*0009)
%       9 :2OSG:$USERXY01.MAX.GROUP.2(*0010)
%       9 :2OSG:$USERXY01.MAX.GROUP.2(*0011)
%:2OSG: PUBLIC:      4 FILES RES=       27  FRE=        27  REL=       27 PAGES
```

/cre-file-gen max.group.2(+1) ——————————————————————— **(3)**

```
%  CMD0051 INVALID OPERAND 'GENERATION-NAME'  ————————————————————————————   (4)
%  DMS0681 DMS ERROR '06C7' WHEN ACCESSING FILE ':2OSG:$USER1.MAX.GROUP.2(+01)'.
 FOR FURTHER INFORMATION: /HELP-MSG DMS06C7
```

/mod-file-gr max.group.2,gen-par=(base-number=absolut(11)) ———— **(5)**
/cre-file-gen max.group.2(+1) ———————————————————— **(6)**
/cre-file-gen max.group.2(+2)
/show-file-attr max.group.2,inf=(org=*yes) ———————————————— **(7)**

```
%0000000000 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 11          OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 11          LAST-GEN   = 13
%:2OSG: PUBLIC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

/show-file-attr max.group.2,select=(generation=yes)

```
%         0 :2OSG:$USER1.MAX.GROUP.2 (FGG)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0011)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0012)
%         3 :2OSG:$USER1.MAX.GROUP.2(*0013)
%:2OSG: PUBLIC:      4 FILES RES=         9 FRE=         9 REL=         9 PAGES
```

(1) Shows the group entry for the file generation group *MAX.GROUP.2*. The value entered as the base number for relative generation numbers is zero.

(2) Shows all associated generations. The existing generations are *0009 to *0011.

(3) The relative generation number *+1* is specified in an attempt to create a new generation.

(4) The CREATE-FILE-GENERATION command is rejected since the *+1* specification in relation to the base number zero would produce generation *0001, and the last created generation is *0011.

(5) The base number in the group entry is set to the number of the last generation created (*0011). This makes it possible to begin relative specifications with *+1* again (instead of +12).

(6) Generation *0012 and *0013 are created by specifying the relative generation numbers *+1* and *+2*.

(7) Shows the group entry and all associated generations.

4.15 MODIFY-HEL-CHECK

Control HEL record threshold monitoring

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE

Function

The MODIFY-HEL-CHECK command controls threshold monitoring for hardware errors (HEL records). Once an error threshold has been reached, the message “CALL TELESERVICE” is displayed on the operator terminal (console) the next time the error occurs. However, the message is displayed only if the Teleservice alarm function has been enabled (see the MODIFY-HEL-TELESERVICE-ALARM command).
The following mechanisms are available for threshold monitoring control:

- Enabling/disabling the monitoring of all records of a monitoring class (control ID)
- Enabling/disabling the monitoring of all records for a device, which can be identified by its device mnemonic or its device address
- Enabling/disabling the monitoring of specific records or of a group of records with specific attributes (monitoring class, error type and error priority)
- The threshold can be set separately for each control mechanism
- The current threshold counter of a specific monitor setting can be reset

Each MODIFY-HEL-CHECK command with at least one nondefault value generates an additional threshold monitoring control record. No more than 50 control records are allowed. During threshold monitoring, all the control records are scanned in the order in which they were generated. Only the last control record found for the error which has occurred is evaluated. For that reason, control records which describe an error in detail should not be generated until after “general” control records (e.g. only for a monitoring class).
MODIFY-HEL-CHECK CHECK=*STD with no other arguments causes all modifications made earlier to be reversed, with the result that any control records that have been added are deleted and only the default set of records remains (as at system startup).
MODIFY-HEL-CHECK CHECK=*STD and other specifications (e.g. monitoring class, error type, device, etc.) only the control records that correspond to all the specifications made are deleted.

The command is rejected if HEL logging is disabled or the maximum allowable number of control records (message HEL0108) has been reached.

If logging is disabled and restarted with START-HEL-LOGGING during a system session, the number of HEL records being monitored remains unchanged.

The SHOW-HEL-CHECK command lists the active threshold monitoring control records.

Format

MODIFY-**HEL-CHECK**

CHECK = ***STD** / ***ON** / ***OFF**

,**CONTR**OL-**ID**ENTIFIER = **_*ANY_** / ***MCK** / ***CCK** / ***CRW** / ***DISK** / ***TAPE** / ***SPOOL** / ***BCAM** /
***NINT** / ***STAT**

,**ATTR**IBUTE = **_*ANY_** / ***HARDWARE-ERROR** / ***UNCORRECTABLE** / ***CORRECTABLE** /
***TAPE-ERROR** / ***OVERRUN**

,**PRIO**RITY = **_*ANY_** / ***HIGH** / ***MED**IUM / ***LOW**

,**DEV**ICE = **_*ANY_** / <alphanum-name 2..4> / ***UNIT**(...)

***UNIT**(...)

| **PATH** = <alphanum-name 1..6>

,**MAX**IMUM = **_*STD_** / <integer 1..255>

,**RESET-COUNT** = **_*OFF_** / ***ON**

Operands

CHECK = *STD / *ON / *OFF
Specifies the HEL records for which threshold monitoring is to be enabled or disabled. The HEL records to be monitored can be identified more precisely with the selection operands CONTROL-IDENTIFIER, ATTRIBUTE, PRIORITY, and DEVICE, where a value of *ANY means that the operand is not to be used as a selection criterion. If more than one selection operand is used, the arguments are logically ANDed.

CHECK = *STD
The CHECK setting defined by the system is applied to all the HEL records matching the specified selection criteria. If no selection criteria are defined, or if the selection operands are explicitly set to *ANY, threshold monitoring is restored to the condition it was in at system startup (reset function). In this case, a threshold specification in the MAXIMUM operand is ignored.
When selection attributes are specified, only the control records that correspond to all the specifications made are deleted.

CHECK = *ON
Thresholds are monitored for all HEL records matching the specified selection criteria.

CHECK = *OFF
Threshold monitoring is disabled for all HEL records matching the specified selection criteria.

CONTROL-IDENTIFIER = _*ANY_ / *MCK / *CCK / *CRW / *DISK / *TAPE / *SPOOL / *BCAM / *NINT / *STAT
The selection criterion is the monitoring class to which the error reported in the HEL record is allocated.

Operand value	Monitoring class
*ANY	Not used as selection criterion
*MCK	M (machine check)
*CCK	C (channel check)
*CRW	R (channel report words)
*DISK	D (disk device error)
*TAPE	T (tape device error)
*SPOOL	S (spool device error)
*BCAM	B (error detected by BCAM)
*NINT	N (no interrupt)
*STAT	Z (device statistics)

ATTRIBUTE = *ANY / *HARDWARE-ERROR / *UNCORRECTABLE / *CORRECTABLE / *TAPE-ERROR / *OVERRUN
The selection criterion is the error type to which the error reported in the HEL record is allocated.

Operand value	Error type identification	
*ANY	Not used as selection criterion	
*HARDWARE-ERROR	Attribute H:	True hardware error
*UNCORRECTABLE	Attribute U:	Uncorrectable error; only affects devices of the “older” generation
*CORRECTABLE	Attribute C:	Software-correctable error; only affects devices of the “older” generation
*TAPE-ERROR	Attribute T:	Logical tape error
*OVERRUN	Attribute O:	Channel capacity exceeded (queued data cannot all be transferred); only affects devices which operate without an I/O buffer

PRIORITY = *ANY / *HIGH / *MEDIUM / *LOW
The selection criterion is the error priority assigned to the error reported in the HEL record.

PRIORITY = *ANY
The error priority is not used as a selection criterion.

PRIORITY = *HIGH
Selects HEL records assigned priority H (high-priority errors).

PRIORITY = *MEDIUM
Selects HEL records assigned priority M (medium-priority errors).

PRIORITY = *LOW
Selects HEL records assigned priority L (low-priority errors).

DEVICE = *ANY / <alphanum-name 2..4> / *UNIT(...)
The selection criterion is the hardware unit in which the error reported in the HEL record occurred.

DEVICE = *ANY
The hardware unit affected by the error is not used as a selection criterion.

DEVICE = <alphanum-name 2..4>
Device mnemonic of a hardware unit.
Selects HEL records reporting errors affecting this hardware unit.

DEVICE = *UNIT(...)
Selects HEL records reporting errors affecting this hardware unit. The hardware unit is identified by its device address in the associated PATH operand.

> **PATH = <alphanum-name 1..6>**
> Device address in the form cccuu.

MAXIMUM = *STD / <integer 1..255>
Sets the threshold which is to apply to the selected HEL records.
This operand is ignored if combined with CHECK=*STD with no further selection criteria (reset function).

MAXIMUM = *STD
Sets the threshold to 10.

MAXIMUM = <integer 1..255>
Threshold specification for the selected HEL records.

RESET-COUNT = *OFF / *ON
Governs whether the current threshold counter of a threshold monitoring mechanism is to be reset. The monitoring mechanism must be precisely defined in the CONTROL-IDENTIFIER, ATTRIBUTE, PRIORITY and/or DEVICE operands.

RESET-COUNT = *OFF
The current threshold counter is not reset.

RESET-COUNT = *ON
The current threshold counter is reset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	HEL0100	Internal error
	32	HEL0105	Bourse problems
	32	HEL0108	Too many control commands
	64	HEL0010	Hardware error logging not active
	64	HEL0110	Privilege error

Example

See SHOW-HEL-CHECK.

4.16 MODIFY-HEL-LOGGING

Control HEL record logging

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE

Function

The MODIFY-HEL-LOGGING command controls the scope of hardware error logging (HEL records). The command is rejected if HEL logging is disabled. The following control mechanisms are available:

- Enabling/disabling the monitoring of all records of a monitoring class (control ID)
- Enabling/disabling the monitoring of all records for a device, which can be identified by its device mnemonic or its device address
- Enabling/disabling the monitoring of specific records or of a group of records with specific attributes (monitoring class, error type and error priority)
- Enabling/disabling the monitoring of records which are excluded from logging

Each MODIFY-HEL-LOGGING command with at least one nondefault value generates an additional logging control record. No more than 50 control records are allowed.

The command is rejected if HEL logging is disabled or the maximum allowable number of control records (message HEL0108) has been reached.

MODIFY-HEL-LOGGING LOGGING=*STD with no other arguments causes all modifications made earlier to be reversed, with the result that the default setting applies again (as at system startup).

If logging is disabled and restarted with START-HEL-LOGGING during a system session, the number of HEL records being logged remains unchanged.

The SHOW-HEL-LOGGING command lists the current settings.

Format

MODIFY-**HEL-LOG**GING

LOGGING = ***STD** / ***ON** / ***OFF**

,**CONTR**OL-**ID**ENTIFIER = ***ANY** / ***MCK** / ***CCK** / ***CRW** / ***DISK** / ***TAPE** / ***SPOOL** / ***BCAM** /
***NINT** / ***STAT**

,**ATTR**IBUTE = ***ANY** / ***HARDWARE-ERROR** / ***UNCORRECTABLE** / ***CORRECTABLE** /
***TAPE-ERROR** / ***OVERRUN**

,**PRIO**RITY = ***ANY** / ***HIGH** / ***MED**IUM / ***LOW**

,**DEV**ICE = ***ANY** / <alphanum-name 2..4> / ***UNIT**(...)

***UNIT**(...)

| **PATH** = <alphanum-name 1..6>

Operands

LOGGING = *STD / *ON / *OFF
Specifies the HEL records which are to be written to the log file. The HEL records to be logged can be identified more precisely with the selection operands CONTROL-IDENTIFIER, ATTRIBUTE, PRIORITY, and DEVICE, where a value of *ANY means that the operand is not to be used as a selection criterion. If more than one selection operand is used, the arguments are logically ANDed.

LOGGING = *STD
The LOGGING setting defined by the system is applied to all the HEL records matching the specified selection criteria (i.e. the submitter of the record determines the logging setting). If no selection criteria are defined, or if the selection operands are explicitly set to *ANY, the scope of logging is restored to the condition it was in at system startup (reset function).

LOGGING = *ON
All HEL records matching the specified selection criteria are written to the log file.

LOGGING = *OFF
Logging is disabled for all HEL records matching the specified selection criteria.

CONTROL-IDENTIFIER = *ANY / *MCK / *CCK / *CRW / *DISK / *TAPE / *SPOOL / *BCAM / *NINT / *STAT
The selection criterion is the monitoring class to which the error reported in the HEL record is allocated.

Operand value	Monitoring class
*ANY	Not used as selection criterion
*MCK	M (machine check)
*CCK	C (channel check)
*CRW	R (channel report words)
*DISK	D (disk device error)
*TAPE	T (tape device error)
*SPOOL	S (spool device error)
*BCAM	B (error detected by BCAM)
*NINT	N (no interrupt)
*STAT	Z (device statistics)

ATTRIBUTE = *ANY / *HARDWARE-ERROR / *UNCORRECTABLE / *CORRECTABLE / *TAPE-ERROR / *OVERRUN
The selection criterion is the error type to which the error reported in the HEL record is allocated.

Operand value	Error type identification	
*ANY	Not used as selection criterion	
*HARDWARE-ERROR	Attribute H:	True hardware error
*UNCORRECTABLE	Attribute U:	Uncorrectable error; only affects devices of the “older” generation
*CORRECTABLE	Attribute C:	Software-correctable error; only affects devices of the “older” generation
*TAPE-ERROR	Attribute T:	Logical tape error
*OVERRUN	Attribute O:	Channel capacity exceeded (queued data cannot all be transferred); only affects devices which operate without an I/O buffer

PRIORITY = *ANY / *HIGH / *MEDIUM / *LOW
The selection criterion is the error priority assigned to the error reported in the HEL record.

PRIORITY = *ANY
The error priority is not used as a selection criterion.

PRIORITY = *HIGH
Selects HEL records assigned priority H (high-priority errors).

PRIORITY = *MEDIUM
Selects HEL records assigned priority M (medium-priority errors).

PRIORITY = *LOW
Selects HEL records assigned priority L (low-priority errors).

DEVICE = *ANY / <alphanum-name 2..4> / *UNIT(...)
The selection criterion is the hardware unit in which the error reported in the HEL record occurred.

DEVICE = *ANY
The hardware unit affected by the error is not used as a selection criterion.

DEVICE = <alphanum-name 2..4>
Device mnemonic of a hardware unit.
Selects HEL records reporting errors affecting this hardware unit.

DEVICE = *UNIT(...)
Selects HEL records reporting errors affecting this hardware unit. The hardware unit is identified by its device address in the associated PATH operand.

PATH = <alphanum-name 1..6>
Device address in the form ccccuu.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	HEL0100	Internal error
	32	HEL0105	Bourse problems
	32	HEL0108	Too many control commands
	64	HEL0010	Hardware error logging not active
	64	HEL0110	Privilege error

Example

See SHOW-HEL-LOGGING.

4.17 MODIFY-HEL-TELESERVICE-ALARM

Set Teleservice alarm

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE

Function

The MODIFY-HEL-TELESERVICE-ALARM command enables and disables the Teleservice alarm function. If the Teleservice alarm is on, the message “CALL TELESERVICE” is displayed on the operator terminal (console) when an error threshold is reached (see the MODIFY-HEL-CHECK command). When enabling the alarm function it is also possible to specify a period during which the message will be displayed, typically so that the alarm message will be issued during normal working hours only.

The command is rejected if HEL logging is disabled.

The SHOW-HEL-TELESERVICE-ALARM shows the current setting of the alarm function.

Format

MODIFY**-HEL-TELE**SERVICE**-ALARM**

ALARM = ***STD** / ***OFF** / ***ON**(...)

***ON**(...)

| FROM = ***UNCHA**NGED / <time> / ***STD**

| ,TO = ***UNCHA**NGED / <time> / ***STD**

Operands

ALARM = STD / *OFF / *ON(...)
Governs whether the alarm message will be issued when an error threshold is reached. If the alarm function is enabled (ALARM=*ON), it is possible to specify a period during which alarm messages are to be issued.

ALARM = *STD
The value defined by the system is applied: ALARM=*ON(FROM=*STD,TO=*STD)

ALARM = *OFF
Disables the alarm function. No messages are issued if error thresholds are reached

ALARM = *ON(...)
Enables the alarm function. Messages are issued when error thresholds are reached. Messages will be issued during the period indicated by the associated FROM and TO operands.

FROM = *UNCHANGED / <time> / *STD
Identifies the start of the period in which alarm messages are to be issued.

FROM = *UNCHANGED
The current setting is left unchanged.

FROM = <time>
Time at which the period begins.

FROM = *STD
The system default time is used (FROM=00:00:00).

TO = *UNCHANGED / <time> / *STD
Identifies the end of the period in which alarm messages are to be issued.

TO = *UNCHANGED
The current setting is left unchanged.

TO = <time>
Time at which the period ends.

TO = *STD
The system default time is used (TO=24:00:00).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	HEL0100	Internal error
	32	HEL0105	Bourse problems
	64	HEL0010	Hardware error logging not active
	64	HEL0110	Privilege error

Example

/mod-hel-tele-alarm alarm=*std ——————————————————————— **(1)**
/show-hel-tele-alarm

```
%  HEL0005 TELESERVICE-ALARM BY HEL IS ACTIVE. MONITORING-INTERVALL FROM
00:00:00 TO 24:00:00
```

/mod-hel-tel-alarm *on(from=8:15,to=16:45) ——————————————————— **(2)**
/mod-hel-tel-alarm *off ——————————————————————— **(3)**
/show-hel-tele-alarm

```
%  HEL0006 TELESERVICE-ALARM BY HEL IS DEACTIVATED.
```

/mod-hel-tele-alarm *on ——————————————————————— **(4)**
/show-hel-tele-alarm

```
%  HEL0005 TELESERVICE-ALARM BY HEL IS ACTIVE. MONITORING-INTERVALL FROM
08:15:00 TO 16:45:00
```

/show-hel-tele-alarm

```
%  HEL0005 TELESERVICE-ALARM BY HEL IS ACTIVE. MONITORING-INTERVALL FROM
08:15:00 TO 16:45:00
```

/mod-hel-tele-alarm *on(from=*std) ——————————————————— **(5)**
/show-hel-tele-alarm

```
%  HEL0005 TELESERVICE-ALARM BY HEL IS ACTIVE. MONITORING-INTERVALL FROM
00:00:00 TO 16:45:00
```

(1) The MODIFY-HEL-TELESERVICE-ALARM command with ALARM=*STD selects the default setting of the alarm function. The SHOW-HEL-TELESERVICE-ALARM command which follows it shows how the alarm is set: The alarm function is enabled, and alarms will be issued at all times.

(2) Changes the period in which alarm messages are issued: messages will be displayed between 8:15 and 17:45.

(3) Disables the alarm function, as indicated by the SHOW-HEL-TELESERVICE-ALARM command which follows.

(4) MODIFY-HEL-TELESERVICE-ALARM with ALARM=*ON switches the alarm function back on, and SHOW-HEL-TELESERVICE-ALARM shows that the modified alarm period setting has been retained (see Point 2).

(5) MODIFY-HEL-TELESERVICE-ALARM with ALARM=*ON(FROM=*STD) sets the start of the alarm period to the system default value. The SHOW-HEL-TELESERVICE-ALARM command which follows shows the starting time is midnight.

4.18 MODIFY-IMON-SCI

Modify IMON SCI

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

Systems support can use the MODIFY-IMON-SCI command to incorporate path name modifications in the SCI (System Configuration Inventory) of IMON and IMON-GPN.
A catalog ID (e.g. modification of the pubset with PVSREN), a user ID or a prefix can be modified. Systems support can also prepare the SCI for a new pubset.

Format

MODIFY-IMON-SCI

```
SCI-NAME = *STD / <filename 1..50 without-gen-vers>
,REFERRED-PUBSET = *UNCHANGED / *PARAMETERS(...)
    *PARAMETERS(...)
        | OLD-NAME = <cat-id 1..4>
        | ,NEW-NAME = <cat-id 1..4>
,REFERRED-USER-ID = *UNCHANGED / *PARAMETERS(...)
    *PARAMETERS(...)
        | OLD-NAME = <name 1..8>
        | ,NEW-NAME = <name 1..8>
,REFERRED-PREFIX = *UNCHANGED / *PARAMETERS(...)
    *PARAMETERS(...)
        | OLD-NAME = *NONE / <partial-filename 2..7 without-cat-user>
        | ,NEW-NAME = *NONE / <partial-filename 2..7 without-cat-user>
```

Operands

SCI-NAME =
Name of the SCI.

SCI-NAME = *STD
The default SCI is used ($TSOS.SYS.IMON.SCI and $TSOS.SYS.IMON.SCI.GPN).

SCI-NAME = <filename 1..50 without-gen-vers>
Specification of the foreign SCI, e.g. the SCI on an imported pubset
(<filename 1..50 without-gen-vers> and <filename 1..50 without-gen-vers>.GPN).

REFERRED-PUBSET = *UNCHANGED / *PARAMETERS(...)
Specifies the pubset whose modified name is to be registered in the SCI.

REFERRED-PUBSET = *PARAMETERS(...)
Specifications concerning the modified pubset name:

OLD-NAME = <cat-id 1..4>
Old catalog ID.

NEW-NAME = <cat-id 1..4>
New catalog ID.

REFERRED-USER-ID = *UNCHANGED / *PARAMETERS(...)
Specifies the user ID for which the name change is to be included in the SCI.

REFERRED-USER-ID = *PARAMETERS(...)
Specifications concerning the modified user ID name:

OLD-NAME = <name 1..8>
Old name of user ID.

NEW-NAME = <name 1..8>
New name of user ID.

REFERRED-PREFIX = *UNCHANGED / *PARAMETERS(...)
Specifies the prefix for which the change of name is to be included in the SCI.

REFERRED-PREFIX = *PARAMETERS(...)
Specifications concerning the modified prefix name:

OLD-NAME = *NONE / <partial-filename 2..7 without-cat-user>
Old prefix name. *NONE indicates that a prefix is not considered in the existing path names in the SCI (see Notes).

NEW-NAME = *NONE / <partial-filename 2..7 without-cat-user>
New prefix name. *NONE indicates that a prefix is not added to the existing path names in the SCI (see Notes).

Notes

1. The three types of changes that can be made (pubset, user ID, prefix) are added, i.e. with the command

```
/MODIFY-IMON-SCI  REFERRED-PVS=*PAR(OLD-NAME=R,NEW-NAME=N)
                 ,REFERRED-USER-ID=*PAR(OLD-NAME=TSOSWRK,NEW-NAME=TSOS)
                 ,REFERRED-PREFIX=*PAR(OLD-NAME=PREF1.,NEW-NAME=PREF2.)
```

   all strings ":R:$TSOSWRK.PREF1." in existing path names are replaced by ":N:$TSOS.PREF2."

2. If *NONE is specified for the old prefix and a value other than *NONE for the new prefix, then a new prefix is added to the path name and an existing prefix is ignored.
3. If a value other than *NONE is specified for the old prefix and *NONE is specified for the new prefix, then the old prefix is removed from the path name.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command processed without errors
2	0	IMO9103	Partially modified
	32	IMO9101	Command terminated abnormally (system error in external call; internal error in IMON-GPN)
	64	CMD0216	Privilege error
	64	IMO9100	SCI not available, SCI version or format in IMON-GPN invalid, or problem when renaming IMON-SCI

4.19 MODIFY-IO-OPTIONS

Modify IO settings of input/output devices

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing Code:	G

Function

Using the MODIFY-IO-OPTIONS command the system support can modify the following IO settings of the input /output devices:

- Timeout value for IO monitoring.

  Changes to timeout values are suggested for specific actions that might cause time delay in the execution of an IO request (e.g. during the online update of RAID system’s firmware). Upon completion of these actions the default timeout values should be restored.

- FastDPAV options for disks, if FastDPAV is supported in the system.

  In connection with FastDPAV an additional performance improvement can be reached for VM-shared disks.

  Selecting a FastDPAV alias device as preferred device for an IO request can increase the performance additively, as the alias devices are assigned exclusively to the guest systems and therefore the overhead of IO execution by the VM2000 hypervisor for these devices is not applied.

  The setting of this option is common for all VM-shared disks that are assigned to the system.

In VM2000 operation mode, the command MODIFY-IO-OPTIONS enables the modification of the options in all guest systems that support this command, if it is entered in the Monitor System (VM1),

The command /SHOW-IO-OPTIONS shows the current settings of the option values.

Format

MODIFY-IO-OPTIONS

UNIT = alphanum-name_2..2 / x-text_4..4 / ***ALL** / ***CONTROLLER**(...) / ***DEVICE-RANGE**(...)

***CONTROLLER**(...)

| NAME = <alphanum-name 2..2> / <x-text 4..4>

***DEVICE-RANGE**(...)

| FROM = <alphanum-name 2..2> / <x-text 4..4>

| ,TO = <alphanum-name 2..2> / <x-text 4..4>

,TIMEOUT = ***UNCHANGED** / ***SYSTEM-DEFAULT** / <integer 16..86400>

,FAST-DPAV = ***UNCHANGED** / ***PARAMETER**(...)

***PARAMETER**(...)

| PREFERRED-DEVICE = ***BASE-DEVICE** / ***ALIAS-DEVICE**

,SCOPE = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

Operands

UNIT = alphanum-name_2..2 / x-text_4..4 / *ALL / *CONTROLLER(...) / *DEVICE-RANGE(...)

Specifies the devices, for which the IO settings are to be modified.

UNIT = alphanum-name_2..2 / x-text_4..4

2- or 4-character mnemonic device code of the device.

UNIT = *ALL

The modification is applied to all devices. The combination UNIT=*ALL and TIMEOUT = <integer> is rejected.

UNIT = *CONTROLLER(...)

The modification is applied to all devices of a controller.

NAME = <alphanum-name 2..2> / <x-text 4..4>

2- or 4-character mnemonic device code of the controller.

UNIT = *DEVICE-RANGE(...)
The modification is applied to a group of devices.

The mnemonic device codes specified in this range must not allover belong to generated devices. If the device does not exist, the processing continues with the following mnemonic. Based on the mnemonic of the first device (FROM operand), the mnemonics of the following devices are determined by adding 1 for 4-character (hexadecimal) mnemonics until the mnemonic of the TO operand is reached. In the case of 2-character

(alphanumeric) mnemonics, the subsequent mnemonics are created in ascending lexicographical order, that means letters before digits (A, B, ...,Z, 0, 1, ..., 9). The range is limited to 256 mnemonics. The range may not exceed the highest mnemonic FFFF or 99 respectively.

FROM = <alphanum-name 2..2> / <x-text 4..4>

2- or 4-character mnemonic device code of the first device.

TO = <alphanum-name 2..2> / <x-text 4..4>

2- or 4-character mnemonic device code of the last device.

TIMEOUT = *UNCHANGED / *SYSTEM-DEFAULT / <integer 16..86400 >

Specifies the timeout value, that shall be used for the devices specified by the UNIT operand.

The timeout value only refers to devices and is independent of the input/output paths. If a device is connected through several controllers and if the timeout values are modified for several of the controllers, then it is always the most recent setting that takes effect for the device.

Changes to timeout values should only be effective for a limited time and for specific actions (e.g. during the online update of RAID system's firmware). The default timeout values should then be restored using TIMEOUT= *SYSTEM-DEFAULT.

TIMEOUT = <integer 16..86400 >

Specifies the new timeout value in seconds. The value will be rounded up to a multiple of 8.

TIMEOUT = *SYSTEM-DEFAULT

The system default timeout value is set. The value depends on the device type. It can be determined with the command /SHOW-IO-OPTIONS.

FAST-DPAV = ***UNCHANGED** / ***PARAMETER**(...)

Specifies settings for FastDPAV.

FAST-DPAV = ***PARAMETER**(...)

PREFERRED-DEVICE = *BASE-DEVICE / *ALIAS-DEVICE

Specifies the order of the selection of base device and alias devices for the IO execution of a VM-shared disk, if FastDPAV is supported in the system.

The setting is accepted independently of the devices specified in the UNIT operand.

If FastDPAV is not supported in the system, the command is rejected.

PREFERRED-DEVICE = *BASE-DEVICE

If no IO is running on the base device, this one is chosen for an incoming IO request. If an IO is already running on the base device, a new IO request is started on an alias device, provided there is one available. This is the system preset device selection.

PREFERRED-DEVICE = *ALIAS-DEVICE

If no IO is running for the device neither on the base nor on a alias device, a new IO request is started on an alias device, provided there is one available. If there is already an IO request running for this device, a new one will be started on the base device, if there is no IO running on it or if no (further) alias device is available.

This device selection mode can improve the IO performance, if there are sufficient alias devices available. It may be unfavourable, if volumes with low IO rate occupy the alias devices and volumes with higher IO rate have no or too few alias devices at their disposal.

SCOPE = *OWN-SYSTEM-ONLY / *VM2000-GLOBAL

Specifies how the command is to be executed in VM2000 operation mode.

SCOPE = *OWN-SYSTEM-ONLY

The command is executed in the local system only.

SCOPE = *VM2000-GLOBAL

If entered in the Monitor System (VM1), the command is executed in all guest systems that support this command. If entered in another guest system, the command is rejected.

Command Return Codes

(SC2)	SC1	Maincode	Meaning
	0	CMD001	Command processed successfully
	64	NDI0711	UNIT not found
	64	NDI0715	Device Range invalid
	64	NDI0758	Not privileged for SCOPE=VM
	64	NDI0716	Operand combination invalid
	64	NDI0714	FastDPAV not supported
	32	NDI0713	Internal error
	32	NDI0759	VM communication with error

Examples

/MODIFY-IO-OPTIONS A500,TIMEOUT=300

```
%  NDI0718 'TIMEOUT' VALUE OF 'DEVICE' 'A500' MODIFIED
```

/MOD-IO-OPT *ALL,FAST-DPAV=*PAR(ALIAS)

```
%  NDI0718 'FAST-DPAV' VALUE OF 'ALL' 'DEVICES' MODIFIED
```

/MOD-IO-OPT *CONTROLLER(AK),TIME=300,SCOPE=*VM

```
%  NDI0718 'TIMEOUT' VALUE OF 'CONTROLLER' 'AK' MODIFIED
%  NDI0753 MODIFICATION OF IO OPTIONS COMPLETED AT VM SYSTEM 'VMGUEST3'
%  NDI0753 MODIFICATION OF IO OPTIONS COMPLETED AT VM SYSTEM 'VMGUEST5'
%  NDI0757 VM COMMUNICATION FOR IO OPTIONS NOT SUPPORTED BY ' 2' VM SYSTEMS
```

4.20 MODIFY-IO-UNIT

Modify configuration attributes of input/output unit

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

Systems support can modify the configuration attributes of controllers or of devices dynamically using the MODIFY-IO-UNIT command. The path names can be modified for a controller or, for a device, the preferred input/output path. A controller with at least two channel links can be relinked without having to interrupt normal operation.
The timeout setting for devices can also be modified using this command.
The command is only accepted when changing configuration attributes, if dynamic reconfiguration was initiated successfully (see the START-CONFIGURATION-UPDATE command).
If only the timeout settings for devices (TIMEOUT operand) or the PAV settings (operand PAV-PREFERRED-DEVICE) are to be modified, the command may also be entered outside of a dynamic I/O configuration change (i.e. without START-CONFIGURATION-UPDATE command and regardless of the system type). In VM2000 operating mode, the command is only executed in the local system. In VM2000 operating mode the command MODIFY-IO-OPTIONS should be used to modify the timeout settings.

Format

MODIFY-IO-UNIT

UNIT = ***CONTR**OLLER(...) / ***DEV**ICE(...)

***CONTR**OLLER(...)

| **NAME** = <alphanum-name 2..2> / <x-text 4..4>

| ,**PATH** = **_*NO_** / list-poss(8): ***CHANNEL**(...)

| ***CHANNEL**(...)

| | **CHANNEL-PATH-ID** = <x-text 2..3>

| | ,**CONTROLLER-ADDRESS** = <x-text 1..2>

| | ,**PATH-STATE** = **_*INCLUDED_** / ***REMOVED**

| | ,**PORT-ID** = **_*NONE_** / <x-text 2..16>

***DEV**ICE(...)

| **NAME** = <alphanum-name 2..2> / <x-text 4..4> / ***RANGE**(...)

| ***RANGE**(...)

| | **FIRST-NAME** = <alphanum-name 2..2> / <x-text 4..4>

| | ,**NUM**BER-**OF-DEV**ICES = <integer 2..256>

| ,**STATE** = **_*UNCHA_**NGED / ***PREFERRED-PATH**(...) / ***PAV-PREFERRED-DEVICE**(...)

| *__PREFERRED-PATH__(...)

| | ,**PREFERRED-PATH** = **_*NO_** / ***Y**ES(...)

| | ***Y**ES(...)

| | | **CHANNEL-PATH-ID** = <x-text 2..3>

| *__PAV-PREFERRED-DEVICE__(...)

| | ,**PAV-PREFERRED-DEVICE** = **_*UNCHA_**NGED / ***NO** / ***Y**ES

,**TIMEOUT** = **_*UNCHA_**NGED / ***DEFAULT** / <integer 16..86400 *seconds*>

Operands

UNIT = *CONTROLLER(...) / *DEVICE(...)
Specifies whether the configuration attributes of a controller or of a device are to be modified.

UNIT = *CONTROLLER(...)
The configuration attributes of a controller are to be modifies.

NAME = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code of the controller.

PATH = *NO / list-poss(8): *CHANNEL(...)
Specifies whether the input/output paths of the controller are to be modified. The default is *NO, i.e. the paths are not modified.

PATH = list-poss(8): *CHANNEL(...)
As many as eight input/output paths via which the controller is to be accessible in the future can be specified in a list. All paths have to be specified, i.e. even if only one path is being added, modified or removed, all the other paths that are to remain unchanged also have to be included in the list.

CHANNEL-PATH-ID = <x-text 2..3>
Specifies the number of the channel to which the controller is linked.

CONTROLLER-ADDRESS = <x-text 1..2>
Specifies the physical controller address.

PATH-STATE = *INCLUDED / *REMOVED
Specifies whether the link between the channel and the controller are available. The default is *INCLUDED, i.e. the connection is available.

PORT-ID = *NONE / <x-text 2..16>
Specifies whether the controller is connected to a channel type FC.
The default is *NONE, i.e. the controller is not connected to a channel type FC.

PORT-ID = <x-text 2..16>
When a controller is connected to a channel type FC the WWPN (World Wide Port Name) of the controller port (16 hexadecimal characters) must be specified. The /SHOW-DEVICE-CONFIGURATION INF=*INNER command for the controller can then be used to output the WWPN.

UNIT = *DEVICE(...)
The configuration attributes of a device are to be modified.

NAME = <alphanum-name 2..2> / <x-text 4..4> / *RANGE(...)
Mnemonic device code. A group of devices can be addressed using the *RANGE operand value.

NAME = *RANGE(...)
The modifications of the configuration attributes refer to a group of devices. Based on the mnemonics of the first device (FIRST-NAME operand), the mnemonics of the following devices are determined by adding 1 until the maximum number of devices defined in the NUMBER-OF-DEVICES operand is reached. The group can comprise as many as 256 devices. The maximum number has to be chosen so as not to exceed the value FFFF when the mnemonics are calculated.

FIRST-NAME = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code of the first device.

NUMBER-OF-DEVICES = <integer 2..256>
Number of devices for which the modification is to be made.

STATE = *UNCHANGED / *PREFERRED-PATH(...) / *PAV-PREFERRED-DEVICE(...)
Specifies whether a particular path should be preferred on input to or output from a device.

STATE = *PREFERRED-PATH(...)
Specifies whether a path is to preferred on input/output if the device can be accessed via different paths.

PREFERRED-PATH = *NO
No path is preferred on input/output.

PREFERRED-PATH = *YES(...)
The path specified in the CHANNEL-PATH-ID operand should be preferred on input/output.

CHANNEL-PATH-ID = <x-text 2..3>
Designates the preferred path (Channel Path Identifier).

STATE = *PAV-PREFERRED-DEVICE(...)
Specifies whether the PAV device is to be preferred on input/output In VM2000 operating mode.

PAV-PREFERRED-DEVICE = *UNCHANGED
The current setting remains unchanged.

PAV-PREFERRED-DEVICE = *YES
The PAV device is preferred on input/output In VM2000 operating mode.

PAV-PREFERRED-DEVICE = *NO
The PAV device is no longer preferred.

TIMEOUT = *UNCHANGED / *DEFAULT / <integer 16..86400 *seconds* >
Specifies whether the standard timeout value for the devices named in the UNIT operand is to be modified. It applies to disk devices only.
When a controller is specified (UNIT=*CONTROLLER), the settings apply to all devices linked to that controller. The default timeout value only refers to devices and is independent of the input/output paths. If a device is connected through several controllers and if the default timeout values are modified for several of the controllers, then it is always the most recent setting that takes effect for the device.

Changes to default timeout values should only be effective for a limited time and for specific actions (e.g. during the online update of RAID system's firmware). The default timeout values should then be restored using TIMEOUT= *DEFAULT.

TIMEOUT = *DEFAULT
The system default timeout value is set. The value depends on the device type.

TIMEOUT = <integer 16..86400 *seconds* >
The new timeout value in seconds.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command processed without errors
	1	NKR0006	Syntax error
	64	CMD0216	Privilege error
1	64	NKR0169	System error
2	64	NKR0169	Wrong parameter
3	64	NKR0169	Dynamic I/O configuration change was rejected
4	64	NKR0169	Dynamic I/O configuration change is not supported
6	64	NKR0169	Internal input/output unit not defined
9	64	NKR0169	Input/output unit not defined
11	64	NKR0169	Path to input/output unit not removed
12	64	NKR0169	Dynamic I/O configuration change was not started
14	64	NKR0169	Configuration change was not performed in the guest system
19	64	NKR0169	Device is not a PAV device
16	128	NKR0169	Another guest system is currently being started
17	128	NKR0169	Another guest system is currently being terminated
18	128	NKR0169	Dynamic I/O configuration change is not supported by one or several guest systems

4.21 MODIFY-ISAM-CACHING

Change number of data spaces for ISAM cache areas

Component:	BS2000
Functional area:	System control and optimization
Domain:	FILE
Privileges:	TSOS

Function

The MODIFY-ISAM-CACHING command enables systems support to change the maximum number of data spaces for ISAM cache areas dynamically. ISAM creates these cache areas to add and manage cross-task ISAM pools.

The maximum number of usable data spaces can be increased only if the paging area is large enough. It may be necessary to enlarge the paging area up front.

Information on the maximum number of data spaces for ISAM cache areas and how they are used can be inquired using the SHOW-ISAM-CACHING command.

Format

MODIFY-ISAM-CACHING	Alias: **MDISAMC**
CACHE-SIZE = ***UNCHA**NGED / <integer 1..127>	

Operands

CACHE-SIZE = *UNCHANGED / <integer 1..127>
Specifies the maximum number of data spaces for ISAM cache areas.

CACHE-SIZE = *UNCHANGED
The maximum number of data spaces for ISAM cache areas remains unchanged.

CACHE-SIZE = <integer 1..127>
Specifies the new maximum number of data spaces for ISAM cache areas. The existing value can be increased only if the paging area is large enough.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	32	DMS0A66	Internal error while executing the command
	64	CMD0216	Privileges error
	64	DMS0A67	ISAM cache cannot be extended/reduced
	129	DMS0A68	ISAM cache cannot be reduced at present

4.22 MODIFY-JOB

Modify job attributes of a batch job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	J

Function

The MODIFY-JOB command is used to change certain attributes of a batch job. The batch job must have been initiated from the user ID of the user issuing the command, and generally, it must be running under that user ID. In addition, the command may be used to address jobs on the local system which were generated under the issuing user ID but are running under a different user ID (extended access on the local system).

The following attributes can be modified:

- job class (JOB-CLASS operand)
- priority (JOB-PRIORITY operand)
- action to be taken following a system error (RERUN-AFTER-CRASH operand)
- scheduling attributes for ordinary jobs, scheduled jobs and repeat jobs (SCHEDULING-TIME=*STD / *PARAMETERS(...))
  - start time (START operand)
  - repeat time (REPEAT-JOB operand)
- scheduling attributes for calendar jobs (SCHEDULING-TIME=*CALENDAR(...) operand)
  - calendar file (CALENDAR-NAME operand)
  - symbolic date (SYMBOLIC-DATE operand)
- limit on job repeats for a calendar job (LIMIT operand)
- additional attributes defined by the system administrator (JOB-PARAMETER operand)
- behavior after shutdown (FLUSH-AFTER-SHUTDOWN operand)
- logging to SYSLST (LOGGING operand)
- job name (JOB-NAME operand)
- protection against unintentional termination (PROTECTION operand)
- values for run priority, CPU time and the maximum number of SYSLST records (RESOURCES operand)

Values given for job class, priority, logging and the maximum number of SYSLST records, as well as start time and additional attributes, may be changed only if the batch job has not yet been started, i.e. if it is still in the TYPE 1 job queue. This can be checked with the SHOW-JOB-STATUS command. The job status of a monitoring job variable is logged as “$S”.

Wait states can be released for TYPE 1 user jobs (see section "MODIFY-JOB").

In the case of a calendar job, the MODIFY-JOB command applies to the entire calendar job, i.e. including any future repeats.

Only those attributes may be defined that are permitted by the job class definition. A check on the specified job class can be made using the SHOW-JOB-CLASS command. Note also that the combination of some job attributes may produce differing results and that modifying certain attributes also causes the batch job type to change. For details see section "Notes".

The default value *UNCHANGED mean that the existing specification continues to apply.

Privileged functions

Privileged users (OPERATING or TSOS privilege) can modify the attributes of any batch job.

Format

MODIFY**-JOB** Alias: **MDJ**

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...) / <alphanum-name 1..4>

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

, **JOB-CLASS** = ***UNCHA** NGED (...) / ***STD**(...) / <name 1..8>(...)

***UNCHA** NGED(...)

| **JOB-PRIO**RITY = ***UNCHA** NGED / ***STD** / <integer 1..9>

| , **SCHED**ULING**-TIME** = ***UNCHA** NGED / ***STD** / ***PAR**AMETERS(...) / ***BY-CALENDAR**(...)

| ***PAR**AMETERS(...)

| | **START** = ***UNCHA** NGED / ***STD** / ***SOON** / ***IMMED**IATELY / ***AT-STREAM**-STARTUP /

| | ***WITHIN**(...) / ***AT**(...) / ***EARL**IEST(...) / ***LATEST**(...)

| | ***WITHIN**(...)

| | | **HOURS** = **0** / <integer 0..23 *hours*>

| | | , **MINUT**ES = **0** / <integer 0..59 *minutes*>

| | ***AT**(...)

| | | **DATE** = ***TODAY** / <date>

```
|          |          |       , TIME = <time>
|          |      *EARLIEST(...)
|          |          |       DATE = *TODAY / <date>
|          |          |       , TIME = <time>
|          |      *LATEST(...)
|          |          |       DATE = *TODAY / <date>
|          |          |       , TIME = <time>
|          | , REPEAT-JOB = *UNCHANGED / *NO / *STD / *DAILY / *WEEKLY /
|          |                    *AT-STREAM-STARTUP / *PERIOD(...)
|          |      *PERIOD(...)
|          |          |       HOURS = 0 / <integer 0..23 hours>
|          |          |       , MINUTES = 0 / <integer 0..59 minutes>
|      *BY-CALENDAR(...)
|          | CALENDAR-NAME = *UNCHANGED / <filename 1..54 without-gen-vers>
|          | , SYMBOLIC-DATE = *UNCHANGED / <filename 1..20 without-cat-user-vers> /
|          |                    <partial-filename 2..20 without-cat-user>
|  , LIMIT = *UNCHANGED / *STD / <integer 1..32767> / *BY-DATE(...)
|      *BY-DATE(...)
|          | DATE = <date>
|          | , TIME = <time>
|  , RESOURCES = *UNCHANGED / *PARAMETERS (...) / *STD
|      *PARAMETERS(...)
|          | RUN-PRIORITY = *UNCHANGED / *STD / <integer 30..255>
|          | , CPU-LIMIT = *UNCHANGED / *STD / *NO / <integer 1..32767 seconds>
|          | , SYSLST-LIMIT = *UNCHANGED / *STD / *NO / <integer 0..999999>
*STD(...)
|  JOB-PRIORITY = * STD / *UNCHANGED / <integer 1..9>
|  , SCHEDULING-TIME = *STD / *UNCHANGED / *PARAMETERS(...) / *BY-CALENDAR(...)
|      *PARAMETERS(...)
|          | START = *STD / *UNCHANGED / *SOON / *IMMEDIATELY / *AT-STREAM-STARTUP /
|          |                    *WITHIN(...) / *AT(...) / *EARLIEST(...) / *LATEST(...)
```

```
|          |       *WITHIN(...)
|          |           |       HOURS = 0 / <integer 0..23 hours>
|          |           |       , MINUTES = 0 / <integer 0..59 minutes>
|          |       *AT(...)
|          |           |       DATE = *TODAY / <date>
|          |           |       , TIME = <time>
|          |       *EARLIEST(...)
|          |           |       DATE = *TODAY / <date>
|          |           |       , TIME = <time>
|          |       *LATEST(...)
|          |           |       DATE = *TODAY / <date>
|          |           |       , TIME = <time>
|          | , REPEAT-JOB = * STD / *UNCHANGED / *NO / *DAILY / *WEEKLY /
|          |                      *AT-STREAM-STARTUP / *PERIOD(...)
|          |       *PERIOD(...)
|          |           |       HOURS = 0 / <integer 0..23 hours>
|          |           |       , MINUTES = 0 / <integer 0..59 minutes>
|      *BY-CALENDAR(...)
|          |   CALENDAR-NAME = *UNCHANGED / <filename 1..54 without-gen-vers>
|          |   , SYMBOLIC-DATE = *UNCHANGED / <filename 1..20 without-cat-user-vers> /
|          |                         <partial-filename 2..20 without-cat-user>
|  , LIMIT = *STD / *UNCHANGED / <integer 1..32767> / *BY-DATE(...)
|      *BY-DATE(...)
|          |   DATE = <datel>
|          |   , TIME = <time>
|  , RESOURCES = *STD / *UNCHANGED / *PARAMETERS(...)
|      *PARAMETERS(...)
|          |   RUN-PRIORITY = *STD / *UNCHANGED / <integer 30..255>
|          |   , CPU-LIMIT = *STD / *UNCHANGED / *NO / <integer 1..32767 seconds>
|          |   , SYSLST-LIMIT = *STD / *UNCHANGED / *NO / <integer 0..999999>
<name1..8>(...)
```

```
| JOB-PRIORITY = * STD / *UNCHANGED / <integer 1..9>
| , SCHEDULING-TIME = *STD / *UNCHANGED / *PARAMETERS(...) / *BY-CALENDAR(...)
|   *PARAMETERS(...)
|     | START = *STD / *UNCHANGED / *SOON / *IMMEDIATELY / *AT-STREAM-STARTUP /
|     |                 *WITHIN(...) / *AT(...) / *EARLIEST(...) / *LATEST(...)
|     |   *WITHIN(...)
|     |     | HOURS = 0 / <integer 0..23 hours>
|     |     | , MINUTES = 0 / <integer 0..59 minutes>
|     |   *AT(...)
|     |     | DATE = TODAY / <date>
|     |     | , TIME = <time>
|     |   *EARLIEST(...)
|     |     | DATE = TODAY / <date>
|     |     | , TIME = <time>
|     |   *LATEST(...)
|     |     | DATE = TODAY / <date>
|     |     | , TIME = <time>
|     | , REPEAT-JOB = * STD / *UNCHANGED / *NO / *DAILY / *WEEKLY /
|     |       *AT-STREAM-STARTUP / *PERIOD(...)
|     |   *PERIOD(...)
|     |     | HOURS = 0 / <integer 0..23 hours>
|     |     | , MINUTES = 0 / <integer 0..59 minutes>
|   *BY-CALENDAR(...)
|     | CALENDAR-NAME = *UNCHANGED / <filename 1..54 without-gen-vers>
|     | , SYMBOLIC-DATE = *UNCHANGED / <filename 1..20 without-cat-user-vers> /
|     |   <partial-filename 2..20 without-cat-user>
| , LIMIT = *STD / *UNCHANGED / <integer 1..32767> / *BY-DATE(...)
|   *BY-DATE(...)
|     | DATE = <date>
|     | , TIME = <time>
| , RESOURCES = *STD / *UNCHANGED / *PARAMETERS(...)
```

```
        |       *PARAMETERS(...)
        |           |   RUN-PRIORITY = *STD / *UNCHANGED / <integer 30..255>
        |           |   , CPU-LIMIT = *STD / *UNCHANGED / *NO / <integer 1..32767 seconds>
        |           |   , SYSLST-LIMIT = *STD / *UNCHANGED / *NO / <integer 0..999999>
    , RERUN-AFTER-CRASH = *UNCHA NGED / *NO / *YES
    , JOB-PARAMETER = *UNCHA NGED / *NO / <c-string 1..127>
    , FLUSH-AFTER-SHUTDOWN = *UNCHA NGED / *NO / *YES
    , LOGGING = *UNCHA NGED / *PARAMETERS(...)
        *PARAMETERS(...)
            |   LISTING = *UNCHA NGED / *NO / *YES
    , PROTECTION = *UNCHA NGED / *NONE / *CANCEL
    , JOB-NAME = *UNCHA NGED / *NO / <name 1..8>
```

Operands

JOB-IDENTIFICATION =
Type of job identification. Jobs may be identified by TSN or by monitoring JV.

JOB-IDENTIFICATION = *TSN(...)

TSN = <alphanum-name 1..4>
Task sequence number of the required job.

JOB-IDENTIFICATION = *MONJV(...)

MONJV = <filename 1..54 without-gen-vers>
Name of the JV monitoring the desired job.

JOB-IDENTIFICATION = <alphanum-name 1..4>
This operand value cannot be specified in guided dialog. Direct specification of the task sequence number of the desired job.

JOB-CLASS = *UNCHANGED(...) / *STD(...) / <name 1..8>(...)
Job class into which the job is to be placed. Authorization for starting jobs in the various job classes is indicated by the user entry, which can be queried by means of the SHOW-USER-ATTRIBUTES command. The attributes of the permissible job classes can be queried using the SHOW-JOB-CLASS command.

JOB-CLASS = *UNCHANGED(...)
The job class remains unchanged. The JOB-PRIORITY, SCHEDULING-TIME (with scheduling attributes for scheduled, repeat and calendar jobs), LIMIT and RESOURCES attributes of the batch job are changed only if values other than *UNCHANGED are explicitly specified:

JOB-PRIORITY = *UNCHANGED / *STD / <integer 1..9>
Job priority to be given to the batch job. The lower the value, the higher the priority. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands. Specifying *STD sets the preset value (default) of the job class definition for JOB-PRIORITY.

SCHEDULING-TIME = *UNCHANGED / *STD / *PARAMETERS(...) / *BY-CALENDAR(...)
Defines how scheduling times are specified for the batch job. Changing the existing setting may cause the batch job type to change (see section "Changing the batch job type").

SCHEDULING-TIME = *STD
The default settings for START and REPEAT-JOB scheduling time specifications for the selected job class apply (see the operands of the SCHEDULING-TIME=
*PARAMETERS(...) structure).

SCHEDULING-TIME = *PARAMETERS(...)
Defines a scheduling time (start time) for the batch job (ordinary job or scheduled job). It is also possible to define job repeats (repeat job). See also the note on section "Combinations of the START and REPEAT-JOB operands".

START =
Starting time for the batch job. Values other than UNCHANGED are appropriate only if they are permitted in accordance with the definition of the job class (see the SHOW-JOB-CLASS command). The date may be given in the form “yymmdd” or “yyyy-mm-dd”.

START = *UNCHANGED
The specification valid previously remains in effect.

START = *STD
The default value for the chosen job class applies.

START = *SOON
The job is to be started as soon as possible, in accordance with its priority.

START = *IMMEDIATELY
The job is to be started immediately.

START = *AT-STREAM-STARTUP
The job is to be started upon startup of the job scheduler.

START = *WITHIN(...)
The job is to be started within the specified time period.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

START = *AT(...)
The job is to be started exactly at the time specified in the following.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes.
Seconds are not interpreted.

START = *EARLIEST(...)
The job is to be started no earlier than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes.
Seconds are not interpreted.

START = *LATEST(...)
The job is to be started no later than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes.
Seconds are not interpreted.

REPEAT-JOB =
Time interval at which the batch job is to be repeated. Values other than the default are appropriate only if permitted in accordance with the job class definition (see the SHOW-JOB-CLASS command). The time interval for the repetitions depends on the specification in the START operand; see the note on section "Combinations of the START and REPEAT-JOB operands". For the repetitions, the following applies:

- The i-th repetition (i >= 1) of a job is not started until the (i1)th repetition has ended.
- Cancellation of the currently executing job (i) has no effect on the start of (i+1); (i >= 0).
- Cancellation of the entire job: Both the currently executing job (i) and the subsequent job (i+1) must be canceled, (i >= 0); (CANCEL-JOB command, or make job (i) the last job in the series using the MODIFY-JOB... command, REPEAT-JOB=*NO).

REPEAT-JOB = *UNCHANGED
The specification valid previously remains in effect.

REPEAT-JOB = *NO
The batch job is not repeated.

REPEAT-JOB = *STD
The default value for the chosen job class applies.

REPEAT-JOB = *DAILY
Daily repetition at the time specified with START.

REPEAT-JOB = *WEEKLY
Weekly repetition at the time specified with START.

REPEAT-JOB = *AT-STREAM-STARTUP
Repetition following each startup of the job scheduler.

REPEAT-JOB = *PERIOD(...)
Repetition after the specified time interval.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

SCHEDULING-TIME = *BY-CALENDAR(...)
The batch job scheduling time and any repeat jobs are specified in the form of a symbolic date defined in a calendar file (calendar job). The entries in a calendar file can be listed with the SHOW-CALENDAR command. Creation of calendar files with the CALENDAR-EDITOR utility is described in the “Calendar” manual [4].

CALENDAR-NAME = *UNCHANGED / <filename 1..54 without-gen-vers>
Name of the calendar file.

SYMBOLIC-DATE = *UNCHANGED / <filename 1..20 without-cat-user-vers> / <partial-filename 2..20 without-cat-user>
Symbolic date which defines the scheduling time and any repetition cycles within the calendar file.

LIMIT = *UNCHANGED / *STD / <integer 1..32767> / *BY-DATE(...)
Governs how long a calendar job remains in existence. This limit applies in addition to the limits set by the calendar.

LIMIT = *STD
The duration of the calendar job depends entirely on the symbolic date entry in the calendar. The specification is not evaluated for other batch job types.

LIMIT = <integer 1..32767>
This specification is only permitted for calendar jobs.
Maximum number of repetitions of the calendar job. Whenever a job run is completed, a check is performed to determine whether the run counter has reached or exceeded the maximum number. If this is the case, the entire calendar job is terminated. Otherwise, the run counter is incremented by 1.

LIMIT = *BY-DATE(...)
This specification is only permitted for calendar jobs.
Entries in the calendar file are only taken into account up to the specified limit. No further repeat job is generated for calendar entries after the limit; the calendar job terminates.

The limit refers solely to the schedule entries in the file, not to the real runtime of the jobs. Repeat jobs with a “permissible” start date are not subject to any further restrictions and are, for example, also started after the specified date if this was not possible earlier because of delays in the job scheduler.
The date specification consists of the day and the time:

DATE = <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day.

RESOURCES = *UNCHANGED / *STD / *PARAMETERS(...)
Values for run priority, CPU time and the maximum number of SYSLST records.

RESOURCES = *UNCHANGED
Values for run priority, CPU time and the maximum number of SYSLST records remain unchanged.

RESOURCES = *STD
Values for run priority, CPU time and the maximum number of SYSLST records remain unchanged.

RESOURCES = *PARAMETERS(...)
The run priority, CPU time and the maximum number of SYSLST records can be changed within the limits permitted for the job class. The operand value *UNCHANGED means that the relevant attribute is not changed.

RUN-PRIORITY = *UNCHANGED / *STD / <integer 30..255>
Run priority which the job is to be assigned. The lower the value, the higher the priority. The maximum permissible priority value is the lesser of the two values (i.e. the more favorable of the values) from the user catalog and the job class definition. If no maximum value is defined for the job class, the default run priority applies. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

RUN-PRIORITY = *STD
The standard run priority specified for the job class applies.

CPU-LIMIT = *UNCHANGED / *STD / <integer 1..32767 *seconds* >
Maximum CPU time, in seconds, that the batch job may consume. The maximum time permitted depends on the job class specified. See also section "Time limits inBS2000".

CPU-LIMIT = *STD
The default value for the chosen job class applies.

SYSLST-LIMIT = *UNCHANGED / *STD / <integer 0..999999>
Specifies the maximum number of records the job is allowed to output to the system files SYSLST, SYSLST01, SYSLST02, ..., SYSLST99 and SYSOUT. The records for SYSOUT are counted separately from the records for SYSLST files. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST. This value must not be above the limit set in the job class definition. This limit may be queried using the SHOW-JOB-CLASS command.
If the specified number is exceeded, the batch job is terminated abnormally.

SYSLST-LIMIT = *STD
The default value for the chosen job class applies.

JOB-CLASS = *STD(...)
The batch job is to run in the default job class. If no values other than *STD are explicitly specified for the attributes LIMIT, JOB-PRIORITY, SCHEDULING-TIME, and RESOURCES, these attributes are set in accordance with the default settings of the job class definition. These values are changed even if the job was already queued in the specified job class. The job class definition can be queried with the SHOW-JOB-CLASS command. In nonprivileged job classes, up to 32767 waiting jobs are permissible.

JOB-PRIORITY = *STD / *UNCHANGED / <integer 1..9>
Job priority which the job is to receive.
The default is *STD, i.e. the preset value of the job class definition (otherwise corresponds to PRIORITY under JOB-CLASS=*UNCHANGED(...)).

JOB-PRIORITY = *UNCHANGED
The current job priority is to remain unchanged. If that priority is higher than the current maximum for the job class, the command is rejected.

SCHEDULING-TIME = *STD / *UNCHANGED / *PARAMETERS(...) / *BY-CALENDAR(...)
Defines how scheduling times are specified for the batch job. If the specifications applying until now are changed, this may lead to a change of the batch job type (see section " Changing the batch job type ").

SCHEDULING-TIME = *STD
The default settings for START and REPEAT-JOB scheduling time specifications for the selected job class apply (see the operands of the SCHEDULING-TIME=
*PARAMETERS(...) structure).

SCHEDULING-TIME = *UNCHANGED
The current scheduling time remains unchanged, provided that it is valid according to the job class definition. Scheduled and repeat jobs retain their START-JOB and REPEAT-JOB attribute values, and the values for the CALENDAR and SYMBOLIC-DATE and the relevant starting times and repeat cycles of calendar jobs.

SCHEDULING-TIME = *PARAMETERS(...)
Defines a scheduling time (start time) for the batch job. It is also possible to define job repeats (repeat job).

START = *STD / *UNCHANGED / *SOON / *IMMEDIATELY / *AT-STREAM-STARTUP / *WITHIN(...) / *AT(...) / *EARLIEST(...) / *LATEST(...)
Time when the job is to be started. The default value is *STD, i.e. the value preset in the job class definition (otherwise corresponds to START under JOB-CLASS=*UNCHANGED(...)).

START = *UNCHANGED
Specification permitted only for simple batch jobs, scheduled jobs and repeat jobs. The current start attribute remains unchanged, provided that it is valid according to the job class definition.

REPEAT-JOB = *STD / *UNCHANGED / *NO / *DAILY / *WEEKLY / *AT-STREAM-STARTUP / *PERIOD(...)
Time interval during which the job is to be repeated. The default value is *STD, i.e. the value preset in the job class definition (otherwise corresponds to REPEAT-JOB under JOB-CLASS=*UNCHANGED(...)).

REPEAT-JOB = *UNCHANGED
*Specification only permitted for simple batch jobs, scheduled job and repeat jobs together with START=*UNCHANGED.* The current repeat cycle remains unchanged, provided that it is valid according to the job class definition.

SCHEDULING-TIME = *BY-CALENDAR(...)
The batch job scheduling time and any repeat jobs are specified in the form of a symbolic date defined in a calendar file (calendar job). The entries in a calendar file can be listed with the SHOW-CALENDAR command. Creation of calendar files with the CALENDAR utility is described in the “Calendar” manual [4].

CALENDAR-NAME = *UNCHANGED / <filename 1..54 without-gen-vers>
Name of the calendar file.

SYMBOLIC-DATE = *UNCHANGED / <filename 1..20 without-cat-user-vers> / <partial-filename 2..20 without-cat-user>
Symbolic date which defines the scheduling time and any repetition cycles within the calendar file.

LIMIT = *STD / *UNCHANGED / <integer 1..32767> / *BY-DATE(...)
Governs how long a calendar job remains in existence. This limit applies in addition to the limits set by the calendar. The default is *STD, i.e. the calendar job remains in existence for the duration resulting from the symbolic date in the calendar file (or else the LIMIT setting in JOB-CLASS=*UNCHANGED). Values other than *STD are allowed only for calendar jobs.

RESOURCES = *STD / *UNCHANGED / *PARAMETERS(...)
Values for run priority, CPU time and the maximum number of SYSLST records.

RESOURCES = *STD
Values for run priority, CPU time and the maximum number of SYSLST records remain unchanged.

RESOURCES = *UNCHANGED
Values for run priority, CPU time and the maximum number of SYSLST records remain unchanged.

RESOURCES = *PARAMETERS(...)
The run priority, CPU time and the maximum number of SYSLST records can be changed within the limits permitted for the job class. The operand value *UNCHANGED means that the relevant attribute is not changed.

RUN-PRIORITY = *STD / *UNCHANGED / <integer 30..255>
Run priority which the job is to be assigned. The lower the value, the higher the priority. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

RUN-PRIORITY = *STD
The standard run priority specified for the job class applies.

CPU-LIMIT = *STD / *UNCHANGED / <integer 1..32767 *seconds* >
Maximum CPU time, in seconds, that the batch job may consume. The maximum time permitted depends on the job class specified. See also section "Time limits inBS2000".

CPU-LIMIT = *STD
The default value for the chosen job class applies.

SYSLST-LIMIT = *STD / *UNCHANGED / <integer 0..999999>
Specifies the maximum number of records the job is allowed to output to the system files SYSLST, SYSLST01, SYSLST02, ..., SYSLST99 and SYSOUT. The records for SYSOUT are counted separately from the records for SYSLST files. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST. This value must not be above the limit set in the job class definition. This limit may be queried using the SHOW-JOB-CLASS command. If the specified number is exceeded, the batch job is terminated abnormally.

SYSLST-LIMIT = *STD
The default value for the chosen job class applies.

JOB-CLASS = <name 1..8>(...)
The batch job is to run in the specified job class. If no values other than *STD are explicitly specified for the attributes LIMIT, JOB-PRIORITY, SCHEDULING-TIME and RESOURCES, these attributes are set in accordance with the default settings of the job class definition. These values are changed even if the job was already queued in the specified job class. The job class definition can be queried with the SHOW-JOB-CLASS command. In nonprivileged job classes, up to 32767 waiting jobs are permissible.

JOB-PRIORITY = *STD / *UNCHANGED / <integer 1..9>
Job priority which the job is to receive.
The default value is *STD, i.e. the preset value of the job class definition (otherwise corresponds to PRIORITY under JOB-CLASS=*UNCHANGED(...)).

JOB-PRIORITY = *UNCHANGED
The current job priority is to remain unchanged. If that priority is higher than the current maximum for the job class, the command is rejected.

SCHEDULING-TIME = *STD / *UNCHANGED / *PARAMETERS(...) / *BY-CALENDAR(...)
Defines how scheduling times are specified for the batch job. If the specifications applying until now are changed, this may lead to a change of the batch job type (see section " Changing the batch job type ").

SCHEDULING-TIME = *STD
The default settings for START and REPEAT-JOB scheduling time specifications for the selected job class apply (see the operands of the SCHEDULING-TIME= *PARAMETERS(...) structure).

SCHEDULING-TIME = *UNCHANGED
The current scheduling time remains unchanged, provided that it is valid according to the job class definition. Scheduled and repeat jobs retain their START-JOB and REPEAT-JOB attribute values, and the values for the CALENDAR and SYMBOLIC-DATE and the relevant starting times and repeat cycles of calendar jobs.

SCHEDULING-TIME = *PARAMETERS(...)
Defines a scheduling time (start time) for the batch job. It is also possible to define job repeats (repeat job).

START = *STD / *UNCHANGED / *SOON / *IMMEDIATELY / *AT-STREAM-STARTUP / *WITHIN(...) / *AT(...) / *EARLIEST(...) / *LATEST(...)
Time when the job is to be started. The default value is *STD, i.e. the value preset in the job class definition (otherwise corresponds to START under JOB-CLASS=*UNCHANGED(...)).

START = *UNCHANGED
Specification permitted only for simple batch jobs, scheduled jobs, and repeat jobs.
The current start attribute remains unchanged, provided that it is valid according to the job class definition.

REPEAT-JOB = *STD / *UNCHANGED / *NO / *DAILY / *WEEKLY / *AT-STREAM-STARTUP / *PERIOD(...)
Time interval during which the job is to be repeated. The default value is *STD, i.e. the value preset in the job class definition (otherwise corresponds to REPEAT-JOB under JOB-CLASS=*UNCHANGED(...)).

REPEAT-JOB = *UNCHANGED
*Specification permitted only for simple batch jobs, scheduled jobs, and repeat jobs together with START=*UNCHANGED.* The current repeat cycle remains unchanged, provided that it is valid according to the job class definition.

SCHEDULING-TIME = *BY-CALENDAR(...)
The batch job scheduling time and any repeat jobs are specified in the form of a symbolic date defined in a calendar file (calendar job). The entries in a calendar file can be listed with the SHOW-CALENDAR command. Creation of calendar files with the CALENDAR utility is described in the “Calendar” manual [4].

CALENDAR-NAME = *UNCHANGED / <filename 1..54 without-gen-vers>
Name of the calendar file.

SYMBOLIC-DATE = *UNCHANGED / <filename 1..20 without-cat-user-vers> / <partial-filename 2..20 without-cat-user>
Symbolic date which defines the scheduling time and any repetition cycles within the calendar file.

LIMIT = *STD / *UNCHANGED / <integer 1..32767> / *BY-DATE(...)
Governs how long a calendar job remains in existence. This limit applies in addition to the limits set by the calendar. The default is *STD, i.e. the calendar job remains in existence for the duration resulting from the symbolic date in the calendar file (or else the LIMIT setting in JOB-CLASS=*UNCHANGED). Values other than *STD are allowed only for calendar jobs.

RESOURCES = *STD / *UNCHANGED / *PARAMETERS(...)
Values for run priority, CPU time and the maximum number of SYSLST records.

RESOURCES = *STD
Values for run priority, CPU time and the maximum number of SYSLST records remain unchanged.

RESOURCES = *UNCHANGED
The job is assigned the default values for run priority, CPU time and the maximum number of SYSLST records for its job class.

RESOURCES = *PARAMETERS(...)
The run priority, CPU time and the maximum number of SYSLST records can be changed within the limits permitted for the job class. The operand value *UNCHANGED means that the relevant attribute is not changed.

RUN-PRIORITY = *STD / *UNCHANGED / <integer 30..255>
Run priority which the job is to be assigned. The lower the value, the higher the priority. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

RUN-PRIORITY = *STD
The standard run priority specified for the job class applies.

CPU-LIMIT = *STD / *UNCHANGED / <integer 1..32767 *seconds* >
Maximum CPU time, in seconds, that the batch job may consume. The maximum time permitted depends on the job class specified. See also section "Time limits in BS2000".

CPU-LIMIT = *STD
The default value for the chosen job class applies.

SYSLST-LIMIT = *STD / *UNCHANGED / <integer 0..999999>
Specifies the maximum number of records the job is allowed to output to the system files SYSLST, SYSLST01, SYSLST02, ..., SYSLST99 and SYSOUT. The records for SYSOUT are counted separately from the records for SYSLST files. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST. This value must not be above the limit set in the job class definition. This limit may be queried using the SHOW-JOB-CLASS command.
If the specified number is exceeded, the batch job is terminated abnormally.

SYSLST-LIMIT = *STD
The default value for the chosen job class applies.

RERUN-AFTER-CRASH = *UNCHANGED / *NO / *YES
The operand is not evaluated for repeat jobs. Specifies whether the batch job is to be restarted during the next system session if processing has been aborted as the result of a system error or termination of the system session.

JOB-PARAMETER = *UNCHANGED / *NO / <c-string 1..127>
Specifies additional attributes for the selected job class-assuming that systems support has defined some and made them known.

JOB-PARAMETER = *NO
No additional attributes.

JOB-PARAMETER = <c-string 1..127>
String of freely selectable characters issued by the system administrator to identify further job class attributes.

FLUSH-AFTER-SHUTDOWN = *UNCHANGED / *NO / *YES
This operand is ignored for calendar jobs. Specifies whether the batch job is to be removed from the job queue if it has not been processed by the end of the session.

LOGGING = *UNCHANGED / *PARAMETERS(...)
Controls the logging of job progress.

LOGGING = *PARAMETERS(...)

LISTING = *UNCHANGED / *NO / *YES
Specifies whether the job run is also to be logged on SYSLST.

PROTECTION = *UNCHANGED / *NONE / *CANCEL
Specifies whether a job is to be protected against being canceled unintentionally with the CANCEL-JOB command.

PROTECTION = *NONE
The job is not protected against unintentional cancellation.

PROTECTION = *CANCEL
The job is protected against unintentional cancellation. When an interactive job is terminated with the CANCEL-JOB command, the system demands an additional confirmation from the user. This is to avoid unintentional cancellation of a job, for instance through incorrect entry of the job number.

JOB-NAME = *UNCHANGED / *NO / <name 1..8>
The name of the job. The job can be accessed using this name (e.g. using SHOW-JOB-STATUS). Jobs that are started without a name being specified are also given this name.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	CMD0002	Warning: job in wait state due to lack of resources
	1	CMD0202	Syntax error
	32	CMD0221	system error
	64	JMS0630	Semantic error (see SYSOUT message)
	64	JMS0640	MONJV error, illegal access or invalid time of call
	130	JMS0620	Memory saturation

Notes

Combinations of the START and REPEAT-JOB operands

START=	REPEAT-JOB=		
	*AT-STREAM-STARTUP	*DAILY or *WEEKLY	*PERIOD
*IMMEDIATELY or *SOON	a)	c)	c)
*AT or *EARLIEST	a)	d)	f)
*LATEST or *WITHIN	a)	c)	g)
*AT-STREAM-STARTUP	b)	e)	e)

Table 62: START and REPEAT-JOB operand combinations in the MODIFY-JOB command

Explanation:

a) The first and all subsequent starts of the job take place as specified.

b) The first start of the job is made with START=*AT-STREAM-STARTUP. All further starts take place after the startup of the job scheduler with START=*SOON.

c) The base time for the repetition cycle is the time the job is accepted.

d) The specified point in time (START=...., TIME=....) is the base time for the repetition cycle.

e) The first start of the job follows startup of the job scheduler. This point in time is the base time for the repetition cycle. Further starts take place with START=*SOON.

f) The specified point in time (START=...., TIME=....) is the base time for the repetition cycle. The second and all further starts take place with START=*SOON.

g) The base time for the repetition cycle is the time the job is accepted. All further starts take place with START=*SOON.

Validity of operand combinations depending on job status and batch job type

Regardless of batch job type, all job attributes can be modified for TYPE 1 queued jobs (job status = waiting), with the following exceptions:

- The START and RERUN-AFTER-CRASH attributes must not be modified for repeat jobs.
- Modification of the LIMIT attribute is allowed for calendar jobs only.

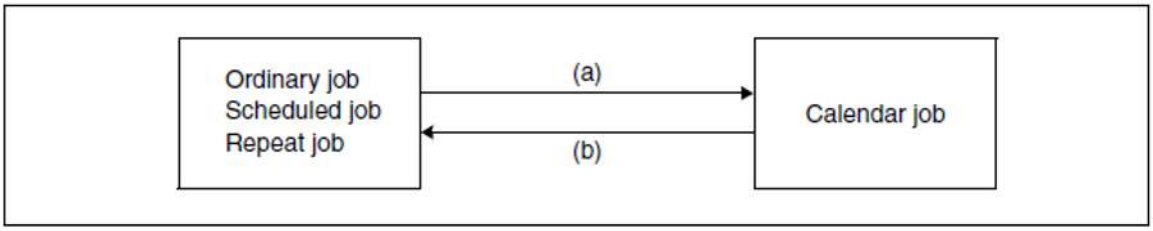
With running jobs (TYPE 2; job status = running), the valid job attribute combinations depend on the batch job type. The following table shows which combinations are allowed:

	Batch job type		
Job attribute	**Ordinary job/ scheduled job**	**Repeat job**	**Calendar job**
JOB-CLASS	-	-	-
JOB-PRIORITY	-	-	X
JOB-PARAMETER	-	-	X
SCHEDULING-TIME=*PARAMETERS(...)			
- START	-	-	-
- REPEAT	X	X	
SCHEDULING-TIME=*BY-CALENDAR(...)	X	-	X
RERUN-AFTER-CRASH	X	I	X
LIMIT	I	I	X
RESOURCES=*PARAMETERS(...)			
- RUN-PRIORITY	X	X	X
- CPU-LIMIT	X	X	X
- SYSLST-LIMIT	-	-	-
FLUSH-AFTER-SHUTDOWN	X	X	|
LOGGING=*PARAMETERS(...)			
- LISTING	-	-	-
PROTECTION	X	X	X
JOB-NAME	X	X	X
X: allowed I: ignored –: rejected with error message			

Table 63: Valid changes to job attributes using MODIFY-JOB depending on batch job type

Changing the batch job type

Modifying job attributes with the MODIFY-JOB command may also cause the batch job type to change:



a) Specifying SCHEDULING-TIME=*BY-CALENDAR(...) turns the job into a calendar job.

b) A calendar job is turned into an ordinary job, a scheduled job or a repeat job by one of the following specifications:

   - SCHEDULING-TIME=*PARAMETERS(...), with the new batch job type being governed by the START and REPEAT operands

   - JOB-CLASS=*STD or <name>, but without SCHEDULING-TIME=*CALENDAR(...); the new batch job type then depends on the default values for the START and REPEAT job attributes as defined in the job class

As there are interrelationships between individual job attributes, changing the batch job type may also have consequences for job attributes which are not explicitly modified with the MODIFY-JOB command. The following job attributes lose their significance for the new batch job type and are reset to the associated default value, accompanied by a message to that effect:

New batch job type	Implicitly modified job attributes
Calendar job	FLUSH-AFTER-SHUTDOWN=*NO
Repeat job	RERUN-AFTER-CRASH=*NO
	LIMIT=*STD
Scheduled job	LIMIT=*STD
Ordinary job	LIMIT=*STD

Table 64: Job attributes modified implicitly when the batch job type is changed with MODIFY-JOB

Releasing wait states

The following wait states applying to TYPE 1 user jobs can be released using the MODIFY-JOB command:

- HELD-BY-COMMAND (see the HOLD-JOB command)
  This wait state can be released by changing the start attributes to START=*IMMEDIATELY. Any wait state that applies simultaneously due to a lack of resources (waiting for pubset import or TSN release) is retained and a corresponding warning is issued.
- HELD-BY-CALENDAR
  This wait state can be released by specifying a new calendar file (CALENDAR-NAME) which is located on an accessible pubset. The wait state is also released if the calendar job is converted into a different batch job type by specifying SCHEDULING-TIME= *PARAMETERS(START=*IMMEDIATE, ...) (see also section " Changing the batch job type ").
- HELD-BY-PUBSET and HELD-BY-TSN
  These wait states are released by changing the start attributes to START=*AT(...) or *EARLIEST(...) and specifying a start time in the future. The availability of the resources is not checked until the currently set start time is reached.

4.23 MODIFY-JOB-CLASS

Modify limits and weight of job classes

Component:	BS2000
Functional area:	Job processing
Domain:	ERROR-LOGGING
Privileges:	TSOS OPERATING
Routing code:	J

Function

The MODIFY-JOB-CLASS command allows systems support to alter the limits and weights of job classes. The job limits and weight of job classes are defined by means of the JMU statement DEFINE-JOB-CLASS. The modifications, which are valid until the next MODIFY-JOB-CLASS command or until the end of the session, apply only to those jobs that have not yet been released for starting.

CLASS-LIMIT=0 should only be declared briefly, if at all, after startup in order to prevent any jobs being started that could hinder the activation of the job schedulers at this stage.
A message is output on the console if the command is executed successfully.

The modified values can be displayed using the SHOW-SYSTEM-STATUS command.

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Format

MODIFY**-JOB-CL**ASS Alias: **MDJCL**

CLASS-NAME = <name 1..8>

,**CLASS-LIM**IT = ***UNCHA**NGED / <integer 0..4095>

,**CLASS-WEI**GHT = ***UNCHA**NGED / <integer 1..9>

,**CLASS-OPT**IMUM = ***UNCHA**NGED / <integer 0..4095>

Operands

CLASS-NAME = <name 1..8>
Name of the job class whose attributes are to be modified.

CLASS-LIMIT = *UNCHANGED / <integer 0..4095>
Defines the maximum number of jobs which may run at any given time in the specified job class.
A job transferred to the class scheduler for starting will be rejected if the CLASS-LIMIT has already been reached.
As soon as the value has fallen below the CLASS-LIMIT again, the scheduler managing the job classes is informed of this.
The only exceptions to this are express jobs, which can be started even when the class limit is reached.

CLASS-WEIGHT = *UNCHANGED / <integer 1..9>
Defines the weight of the job classes relative to each other.
This operand affects the selection of the job class from which a job is to be started. The higher the value for CLASS-WEIGHT, the greater is the weight and the urgency to start a job from the selected class.

CLASS-OPTIMUM = *UNCHANGED / <integer 0..4095>
Defines the number of jobs, which should ideally run within job class in order to reach a certain job mix.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

Example

/show-job-class jcb00050

```
%NAME.........:JCB00050
%CLASS LIMIT...:20
%CLASS OPTIMUM.:0
%WEIGHT........:6
%JOB PRIORITY..:DEFAULT=9           MAXIMUM= 9
%JOB ATTRIBUTES:JOBTYPE=BATCH       ST-ATTR= BATCH
%BATCH ALLOWED.:YES
%DIALOG ALLOWED:NO
%TP ALLOWED....:YES
%RUN PRIORITY..:DEFAULT=210         MAXIMUM= 209
%NO CPU LIMIT..:NO
%CPU LIMIT.....:DEFAULT=50          MAXIMUM= 50
%SYSLST LIMIT..:DEFAULT=NO-LIMIT    MAXIMUM= NO-LIMIT
%SYSOPT LIMIT..:DEFAULT=NO-LIMIT    MAXIMUM= NO-LIMIT
%START.........:DEFAULT=SOON        ALLOWED= SOON EARLY AT LATE IN STUP
%REPEAT JOB....:DEFAULT=NO          ALLOWED= NO STUP DAILY WEEKLY PERIOD
%JOB PARAMETER.:UNDEFINED
JCB00050 IS AVAILABLE TO:
ALL USERS
```

/mod-job-class jcb00050,class-limit=100,class-weight=5

```
%  JMS0022 '/MODIFY-JOB-CLASS' COMMAND PROCESSED
```

/show-job-class jcd00050

```
%NAME.........:JCB00050
%CLASS LIMIT...:100
%CLASS OPTIMUM.:0
%WEIGHT........:5
%JOB PRIORITY..:DEFAULT=9           MAXIMUM= 9
%JOB ATTRIBUTES:JOBTYPE=BATCH       ST-ATTR= BATCH
%BATCH ALLOWED.:YES
%DIALOG ALLOWED:NO
%TP ALLOWED....:YES
%RUN PRIORITY..:DEFAULT=210         MAXIMUM= 209
%NO CPU LIMIT..:NO
%CPU LIMIT.....:DEFAULT=50          MAXIMUM= 50
%SYSLST LIMIT..:DEFAULT=NO-LIMIT    MAXIMUM= NO-LIMIT
%SYSOPT LIMIT..:DEFAULT=NO-LIMIT    MAXIMUM= NO-LIMIT
%START.........:DEFAULT=SOON        ALLOWED= SOON EARLY AT LATE IN STUP
%REPEAT JOB....:DEFAULT=NO          ALLOWED= NO STUP DAILY WEEKLY PERIOD
%JOB PARAMETER.:UNDEFINED
JCB00050 IS AVAILABLE TO:
ALL USERS
```

4.24 MODIFY-JOB-OPTIONS

Modify parameters for logging a job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS

Function

The MODIFY-JOB-OPTIONS command controls the following for the user’s own job:

- the form in which system messages are output (INFORMATION-LEVEL operand).
- the output of console messages (OPERATOR-INTERACTION operand).
- the maximum number of output records in SYSLST (SYSLST-LIMIT operand).
- the logging of the current job (LOGGING operand).

The SHOW-JOB-OPTIONS command lists the current settings.

Privileged functions

The privileged user (TSOS privilege) can change job monitoring for an ongoing job, i.e. start or stop job monitoring or assign another job variable for job monitoring (JOB-IDENTIFICATION and MONJV operands).

Format

MODIFY-**JOB-OPT**IONS Alias: **MDJO**

INFORMATION-**LEV**EL = ***UNCHANGED** / ***STD / *MEDIUM / *MIN**IMUM

,**OPER**ATOR-**INTERACT**ION = ***UNCHANGED** / ***STD / *NO** / ***Y**ES

,**SYSLST-LIM**IT = ***UNCHA**NGED / ***STD** / ***NO-LIMIT** / <integer 0..999999>

,**LOG**GING = ***PAR**AMETERS (...)

***PAR**AMETERS(...)

| **LIST**ING = ***UNCHANGED** / ***STD / *NO** / ***Y**ES

| ,**HARDCOPY** = ***UNCHANGED** / ***STD / *NO** / ***Y**ES

,**JOB-ID**ENTIFICATION = ***OWN** / ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**MONJV** = ***UNCHA**NGED / ***NO** / <filename 1..54 without-gen-vers>

Operands

INFORMATION-LEVEL =
Format in which system messages are output.

INFORMATION-LEVEL = *UNCHANGED
The value last defined in a MODIFY-JOB-OPTIONS command in the course of the current job applies (current assignment). If no value has been defined, *MEDIUM applies.

INFORMATION-LEVEL = *STD
Equivalent to specifying *MEDIUM.

INFORMATION-LEVEL = *MEDIUM
System messages are output in abbreviated form.

INFORMATION-LEVEL = *MINIMUM
System messages are output in coded form.

OPERATOR-INTERACTION =
Specifies whether console messages caused by its own task and operator responses are to be output. Operator commands for controlling the current job (e.g. a change in priority), as well as general warning and error messages for the operator are not considered here.

OPERATOR-INTERACTION = *UNCHANGED
The value last defined in a MODIFY-JOB-OPTIONS command in the course of the current job applies (current assignment). If a value is not yet defined, *NO applies.

OPERATOR-INTERACTION = *STD / *NO
No console messages or operator responses are output.

OPERATOR-INTERACTION = *YES
If possible, console messages or operator responses are output. In interactive mode, however, this cannot be guaranteed, since console messages may also be created asynchronously at times where the data display terminal is not ready to output.

SYSLST-LIMIT =
Maximum number of records that may be spooled out to SYSLST and SYSOUT during the currently executing job. The records are counted separately for SYSOUT and SYSLST respectively. In interactive mode, output records on SYSOUT are only counted if the output is (also) written to a file. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST.
This specification must not exceed the limit specified in the job class definition (this limit can be checked with the SHOW-JOB-CLASS command).
In batch mode, if the specified value is reached during logging, the job is terminated abnormally. In interactive mode, the system asks whether the job is to be ended or continued; if the job is continued, the counter is set to zero and the specified value again applies.

SYSLST-LIMIT = *UNCHANGED
The value last defined in the course of the current job applies (defined when the job was started or last set with the MODIFY-JOB-OPTIONS command).

SYSLST-LIMIT = *STD
The value specified in the job class definition applies.

SYSLST-LIMIT = *NO-LIMIT
Unlimited number of records that may be spooled out to SYSLST and SYSOUT during the currently executing job. If there is a lower value specified in the job class definition, *NO-LIMIT is rejected.

SYSLST-LIMIT = <integer 0..999999>
Specifies the maximum number of records that can be output to SYSLST and SYSOUT in the course of the current job.
This value must not be above the limit set in the job class definition.

LOGGING = *PARAMETERS(...)
Information on logging of the job run.

LISTING =
Specifies whether the job run is also to be logged on SYSLST.
Console messages and operator responses (OPERATOR-INTERACTION operand) are supplemented with the time of day when logged on SYSLST.
System messages requiring an answer from the user, and the message `ABNORMAL PROGRAM TERMINATION`, are not logged.
In line mode, logging proceeds by lines, i.e. NL control characters are interpreted.
In format mode (menu), logging takes place continuously, i.e. in the log the format is destroyed, NL control characters are not interpreted.

LISTING = *UNCHANGED
The value last defined in the course of the current job applies (defined when the job was started or last set with the MODIFY-JOB-OPTIONS command).

LISTING = *STD / *NO
The job run is not to be logged on SYSLST.

LISTING = *YES
The job run is also to be logged on SYSLST.

HARDCOPY =
This operand is ignored in batch mode.
Specifies whether the job run is also to be logged on a hardcopy printer. Formats (menus) cannot be logged.

HARDCOPY = *UNCHANGED
The value last defined in the course of the current job applies (defined when the job was started or last set with the MODIFY-JOB-OPTIONS command).

HARDCOPY = *STD / *NO
The job run is not to be logged on a hardcopy printer.

HARDCOPY = *YES
The job run is also to be logged on a hardcopy printer.

JOB-IDENTIFICATION =
This operand is available only to privileged users.
Specifies the job for which job monitoring is to be changed. The job can be identified by means of the TSN or the job variable monitoring it.

JOB-IDENTIFICATION = *OWN
Job monitoring is to be changed for the user's own task. The settings for INFORMATION-LEVEL, OPERATOR-INTERACTION, SYSLST-LIMIT and LOGGING can only be changed for the user's own task.

JOB-IDENTIFICATION = *TSN(...)
Identifies the job by means of its TSN.

TSN = <alphanum-name 1..4>
Task sequence number of the required job.

JOB-IDENTIFICATION = *MONJV(...)
Identifies the job by means of its monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>
Name of the job variable which is monitoring the required job. The job must run on the local system.

MONJV = *UNCHANGED / *NO / <filename 1..54 without-gen-vers>
This operand is available only to privileged users.
Specifies whether job monitoring should be changed for the job specified in the operand.

MONJV = *NO
The job is not to be monitored. If it is being monitored, job monitoring is terminated.

MONJV = <filename 1..54 without-gen-vers>
Specifies the job variable which is to monitor the required job. If the job was already being monitored by a job variable, job monitoring is passed on to the new job variable.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error (see SYSOUT message)

Note

Modifying the MONJV assignment of a foreign task is done solely for job monitoring. The SHOW-JOB-STATUS command provides information about the current job monitoring for a task.

Information which is only visible locally within the task (JV link *SMONJVJ, special job variable $SYSJV.JOB-MONJV) remains unchanged.

Examples

Example 1

```
/mod-job-opt inf-level=*min,oper-interact=*yes,log=*par(list=*yes)——   (1)
/show-job-opt
```

```
%
%   INFORMATION-LEVEL =  MINIMUM   OPERATOR-INTERACTION =      YES
%   SYSLST-LIMIT      = NO-LIMIT   SYSOPT-LIMIT         = NO-LIMIT
%   LOGGING : LISTING =      YES   HARDCOPY             =       NO
```

```
/xxx
```

```
%  CMD0186 XXX
```

```
/mod-job-opt inf-level=*med    ————————————————————————————   (2)
/xxx
```

```
%  CMD0186 OPERATION NAME 'XXX' UNKNOWN
```

```
/mod-job-opt log=*par(list=*no) ————————————————————————————   (3)
```

(1) The following specifications are in effect:

- coded form of messages on SYSOUT
- logging of console messages and operator answers on SYSOUT
- logging on SYSLST

(2) The specifications are modified to:

- unabbreviated message output on SYSOUT

(3) Logging on SYSLST is deactivated.

Example 2

```
/mod-job-opt syslst-limit=100
/show-job-opt
```

```
%
%   INFORMATION-LEVEL =   MEDIUM   OPERATOR-INTERACTION =      YES
%   SYSLST-LIMIT      =      100   SYSOPT-LIMIT         = NO-LIMIT
%   LOGGING : LISTING =       NO   HARDCOPY             =       NO
```

```
/show-file-attr output=*syslst
```

```
%  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=YES; N=NO)?n
     GROUP: :2OSG:$USERXY01.MAX.GROUP.2
     BASE: 0011     FIRST: 0011     CURRENT: 0013
%(MSG) %  %  EXC0736 ABNORMAL TASK TERMINATION. ERROR CODE 'SSM2223': /HELP-MSG SSM2223
%(MSG) %  %  EXC0420 /LOGOFF PROCESSED. CPU TIME USED: 4.2455 SEC, USER ID: USERXY01,
TASK ID: 004C01F3
```

A limit of 100 records is specified for output to SYSLST. The SHOW-FILE-ATTRIBUTES output is directed to SYSLST, the record limit being reached. Message *SSM2222* is answered with *N* (NO). The task is terminated abnormally.

Example 3

```
/ass-syslst lst.file ————————————————————————————————   (1)
/mod-job-opt syslst-limit=10,log=*par(list=*yes) ————————————   (2)
/show-file-attr alt.lst.,output=*syslst ——————————————————   (3)
```

```
%  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=YES; N=NO)?y
%  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=YES; N=NO)?y
%  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=YES; N=NO)?y
%:2OSG: PUBLIC:     12 FILES RES=       462 FRE=       187 REL=       177 PAGES
%:2OSG: PUB/S2:      3 FILES RES=       570 FRE=         3 REL=         3 PAGES
```

```
/ass-syslst *primary   ————————————————————————————————   (4)
/show-file lst.file    ————————————————————————————————   (5)
```

```
(IN)     /mod-job-opt syslst-limit=10,log=*par(list=*yes)
(IN)     /show-file-attr alt.lst.,output=*syslst
AFILE STATUS
|-------------------------------------------------------------------------|
                                                      |          |        |
| FILENAME                                            | PAM-     | FREE-  |
|                                                     | PAGES    | PAGES  |
|                                                     |          |        |
```

```
         (OUT)    %  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=
         (IN)     Y
|-------------------------------------------------------------------------------|
                                                      |          |          |
| :2OSG:$USER1.ALT.LST.BIND                           |         6|         1|
|#:2OSG:$USER1.ALT.LST.CMD                            |        90|         1|
|#:2OSG:$USER1.ALT.LST.CMDIMPL                        |       381|         2|
| :2OSG:$USER1.ALT.LST.CMP.040-041                    |        30|        16|
| :2OSG:$USER1.ALT.LST.CMP.040-042                    |        18|         0|
|                                                     |          |          |
| :2OSG:$USER1.ALT.LST.CMP.040-043                    |        21|         1|
| :2OSG:$USER1.ALT.LST.CMP.040-044                    |         6|         6|
         (OUT)    %  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=
         (IN)     Y
+                                                   S*SOF+         1(     1)
|#:2OSG:$USER1.ALT.LST.DOMAIN                         |        99|         0|
| :2OSG:$USER1.ALT.LST.RECALL                         |        24|        21|
| :2OSG:$USER1.ALT.LST.SPOOL043                       |         6|         6|
|                                                     |          |          |
| :2OSG:$USER1.ALT.LST.START-CMD                      |        30|        24|
| :2OSG:$USER1.ALT.LST.START-CMD.SYN                  |        75|        21|
| :2OSG:$USER1.ALT.LST.START-KDO.DOMAIN               |       174|        70|
| :2OSG:$USER1.ALT.LST.SYNTAXVERSION                  |        42|         0|
| :2OSG:$USER1.ALT.LST.SYSSII                         |        30|        21|
|                                                     |          |          |
         (OUT)    %  SSM2222 SPECIFIED MAXLST LIMIT REACHED. CONTINUE? REPLY (Y=
         (IN)     Y
|-------------------------------------------------------------------------------|
   PUBLIC SPACE:       12 FILES                              462
|   PUB/S2 SPACE:        3 FILES                               570
|-------------------------------------------------------------------------------(OUT)
             :2OSG: PUBLIC:     12 FILES RES=       462 FRE=       187 REL=
         (NL)     :2OSG: PUB/S2:      3 FILES RES=       570 FRE=         3 REL=
         (IN)     ass-syslst *p
%  SHO0301 WARNING: END OF FILE REACHED
-                                                   S*SOF+        24(     1)
```

(1) The system file SYSLST is assigned file *LST.FILE*.

(2) Logging to SYSLST is activated and a limit of 10 records specified.

(3) Output from SHOW-FILE-ATTRIBUTES for all files starting with *ALT.LST.* is effected to SYSLST. The record limit is executed three times (message *SSM2222* is answered with *Y* (YES)).

(4) The system file SYSLST receives the primary assignment again.

(5) The SHOW-FILE command displays the contents of logging file *LST.FILE*.

4.25 MODIFY-JOB-STREAM

Modify execution priority of stream task

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The MODIFY-JOB-STREAM command allows system administrators to change the task scheduling priority defined with the JMU DEFINE-JOB-STREAM statement and to modify stream-specific parameters.
The modifications are valid until the next MODIFY-JOB-STREAM command or until the end of the session.

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Format

MODIFY**-JOB-STR**EAM	Alias: **MDJSR**
STREAM-NAME = <name 1..8>	
,**RUN-PRIOR**ITY = ***UNCHA**NGED / <integer 30..255>	
,**STREAM-PAR**AMETER = ***UNCHA**NGED / ***NO** / <c-string 1..127>	

Operands

STREAM-NAME = <name 1..8>
Name of the job stream whose attributes are to be modified.

RUN-PRIORITY = *UNCHANGED / <integer 30..255>
Increases or decreases the program priority of the stream task.

STREAM-PARAMETER = *UNCHANGED / NO / <c-string 1..127>
Defines whether stream-specific parameters are to be interpreted.
In addition to the standard scheduler and individual job scheduler can also interpret this operand.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed
	132	JMS0620	Saturation reached

Example

/show-job-stream jsstd1

```
REQUESTED DETAILS OF JOB STREAM: JSSTD1
NAME.........:JSSTD1
FILE.........:SYSENT.JOBSCHED.170
RUN PRIORITY..:130
DEFAULT.......:YES
START........:AT-LOAD
STOP.........:AT-SHUTDOWN
STREAMPARAM   :JOB-PRIORITY=Y,CPU-TIME=Y,WAIT-TIME=Y,JOB-QUOTA=30,        LOGG
ING=NO
```

/mod-job-stream jsstd1,run-prio=100

```
%  JMS0022 '/MODIFY-JOB-STREAM' COMMAND PROCESSED
```

/show-job-stream jsstd1

```
REQUESTED DETAILS OF JOB STREAM: JSSTD1
NAME.........:JSSTD1
FILE.........:SYSENT.JOBSCHED.170
RUN PRIORITY..:100
DEFAULT.......:YES
START........:AT-LOAD
STOP.........:AT-SHUTDOWN
STREAMPARAM   :JOB-PRIORITY=Y,CPU-TIME=Y,WAIT-TIME=Y,JOB-QUOTA=30,        LOGG
ING=NO
```

4.26 MODIFY-JOB-SWITCHES

Toggle job switches

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the MODIFY-JOB-SWITCHES command, users can set (ON), clear (OFF) or invert (INVERT) their job switches.
For every job there are 32 job switches available (numbered 0 to 31). At the beginning of the job they are cleared and can be changed while the job is running:

- explicitly, with the MODIFY-JOB-SWITCHES command,
- implicitly, with the SET-JOB-STEP command (clears switches 16 to 31), or by means of utility routines (see section "Job switches").

At the end of a job, all job switches are again cleared.

The current settings of the job switches can be queried using SHOW-JOB-SWITCHES.

Format

MODIFY-**JOB-SW**ITCHES	Alias: **MDJSW**
ON = ***UNCHA**NGED / list-poss(32): <integer 0..31>	
,**OFF** = ***UNCHA**NGED / ***ALL** / list-poss(32): <integer 0..31>	
,**INVERT** = ***UNCHA**NGED / list-poss(32): <integer 0..31>	

Operands

ON = *UNCHANGED / list-poss(32): <integer 0..31>
Job switches to be set to ON.

OFF = *UNCHANGED / *ALL / list-poss(32): <integer 0..31>
Job switches to be set to OFF. Specifying OFF=*ALL sets all job switches to OFF.

INVERT = *UNCHANGED / list-poss(32): <integer 0..31>
Job switches to be inverted.
The job switches specified are set from ON to OFF, or from OFF to ON.

> In one MODIFY-JOB-SWITCHES command, a job switch cannot be explicitly modified, i.e. switched on or off or inverted, more than once.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Contradictory entries
	32	EXC0041	System error

Examples

/show-job-sw

```
    ALL TASK SWITCHES SET OFF
```

/mod-job-sw on=(4,5) ——————————————————————————————— **(1)**
/show-job-sw

```
    TASK SWITCHES ON EQUAL-
    4, 5
```

/mod-job-sw on=10,off=4,invert=1 ——————————————————————— **(2)**
/show-job-sw

```
    TASK SWITCHES ON EQUAL-
    1, 5, 10
```

(1) Job switches 4 and 5 are set to one.

(2) Job switch 10 is set to one, 4 is cleared, and 1 is inverted, i.e. changed from OFF to ON.

4.27 MODIFY-JV

Modify contents of job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	J

Function

The MODIFY-JV command modifies the contents of a job variable. All or part of the JV is given a new value (SET-VALUE operand). The value being set may be specified directly as a character string or derived from another JV.

Privileged functions

Privileged users (OPERATING privilege and the TSOS user ID) can modify the contents of any user job variable.

By default, systems support (TSOS privilege) is a co-owner of all the job variables (and therefore possesses the same access rights). When SECOS is used, this co-ownership can be restricted for permanent job variables.

Format

MODIFY**-JV** Alias: **MDJV**

JV-CONTENTS = <filename 1..54 without-gen-vers> / [***SUBSTR**ING](...) / ***LINK**(...)

[***SUBSTR**ING](...)

| **JV-NAME** = <filename 1..54 without-gen-vers>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

,**SET-VAL**UE = <c-string 1..254 with-low> / <x-string 1..508> /

<filename 1..54 without-gen-vers> / [***SUBSTR**ING](...) / ***LINK**(...)

[***SUBSTR**ING](...)

| **JV-NAME** = <filename 1..54 without-gen-vers>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

,**PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / ***SECRET**

Operands

JV-CONTENTS = <filename 1..54 without-gen-vers> / *SUBSTRING(...) / *LINK(...)
Specifies the job variable contents which are to be changed.
A JV can be identified by its name or by its link name. Optionally, a subarea may be specified. The contents of the JV, or the specified subarea, are changed to the value specified in the SET-VALUE operand.

JV-CONTENTS = <filename 1..54 without-gen-vers>
Name of the JV. The contents of the entire JV are modified.

JV-CONTENTS = *SUBSTRING(...)
The contents of the subarea identified by POSITION and LENGTH are modified. If POSITION and LENGTH are not specified, the contents of the entire JV are modified.

JV-NAME = <filename 1..54 without-gen-vers>
Name of the JV.

POSITION = 1 / <integer 1..256>
Position within the JV from which the change is to begin. An undefined area ahead of this position is filled with blanks.

LENGTH = *REST / <integer 1..256>
Number of characters to be changed.
The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257.

LENGTH = *REST
The length of the JV value starting from the position specified in the POSITION operand up to position 256 applies. If the number of characters transferred is less than the number specified by the *REST operand, no blank padding is performed; the subsequent area is (again) undefined.

JV-CONTENTS = *LINK(...)
The JV is identified by a link name. If POSITION and LENGTH are not specified, the contents of the entire JV are modified; if they are, the contents of the specified subarea are modified.

LINK-NAME = <alphanum-name 1..7>
Link name of the JV.

POSITION = 1 / <integer 1..256>
Position within the JV from which the change is to begin. An undefined area ahead of this position is filled with blanks.

LENGTH = *REST / <integer 1..256>
Number of characters to be changed.
The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257.

LENGTH = *REST
The length of the JV value starting from the position specified in the POSITION operand up to position 256 applies. If the number of characters transferred is less than the number specified by the *REST operand, no blank padding is performed; the subsequent area is (again) undefined.

SET-VALUE = <c-string 1..254 with-low> / <x-string 1..508> / <filename 1..54 without-gen-vers> / *SUBSTRING(...) / *LINK(...)
New value for the JV contents specified in the JV-CONTENTS operand. The value to be set may be

- It may be entered directly as a string (<c-string> or <x-string>); in the case of a C string the uppercase/lowercase distinction is significant.
- It may be derived from a JV identified by its name or its link name; a subarea may be specified.

If the value being supplied is longer than the value being changed, it is truncated; if it is shorter, it is padded with blanks.

The command is rejected if

- the JV specified does not exist

- the JV specified is not set (has no value)
- there is no access right for the specified JV
- the subarea of the JV indicated by POSITION and LENGTH is not fully defined.

SET-VALUE = <filename 1..54 without-gen-vers>
Name of the JV. The entire value of this JV is taken as the new value.

SET-VALUE = *SUBSTRING(...)
The contents of the subarea identified by POSITION and LENGTH are taken as the new value. If no subarea is specified, the contents of the entire JV are taken.

JV-NAME = <filename 1..54 without-gen-vers>
Name of the JV.

POSITION = 1 / <integer 1..256>
Position within the JV from which the transfer is to be made.

LENGTH = *REST / <integer 1..256>
Number of characters to be transferred.
The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257.

LENGTH = *REST
The length of the current JV value starting from the position specified in the POSITION operand applies.

SET-VALUE = *LINK(...)
The contents of a JV identified by its link name are taken as the new value. If no subarea is specified, the contents of the entire JV are taken; if a subarea is specified, the contents of the specified subarea are used

LINK-NAME = <alphanum-name 1..7>
Link name of the JV.

POSITION = 1 / <integer 1..256>
Position within the JV from which the transfer is to be made.

LENGTH = *REST / <integer 1..256>
Number of characters to be transferred.
The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257.

LENGTH = *REST
The length of the current JV value starting from the position specified in the POSITION operand applies.

PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483648> / *SECRET
Write or read password for the JV to be changed.
The PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Example

```
/mod-jv jv=hugo, set-val='I like SDF' ————————————————————————  (1)
/show-jv hugo
```

```
%I like SDF
```

```
/mod-jv jv=*link(lina),set-val=hugo  ————————————————————————  (2)
/show-jv *link(lina)
```

```
%I like SDF
```

```
/mod-jv jv=(hugo,8,4),set-val=*link(lora,128,4) ————————————  (3)
/show-jv hugo
```

```
%I like milk
```

```
/mod-jv jv=*link(lina,8,6),set-val=x'839686868585' ——————————  (4)
/show-jv *link(lina)
```

```
%I like coffee
```

(1) The job variable HUGO is set to the value 'I like SDF'.

(2) The contents of the job variable HUGO are transferred to the job variable identified by the link name LINA.

(3) The contents of bytes 128 - 131 of the job variable identified by the link name LORA are transferred to bytes 8 - 11 of the job variable HUGO.

(4) Bytes 8 - 13 of the job variable identified by the link name LINA are set to the value X’839686868585’.

4.28 MODIFY-JV-ATTRIBUTES

Modify job variable attributes

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The MODIFY-JV-ATTRIBUTES command modifies the catalog entry of a JV. The user can change the name of the JV (NEW-NAME), as well as redefine the protection attributes of a permanent JV:

- read/write access to the JV (ACCESS), component of standard access control,
- access by other user IDs (USER-ACCESS), part of standard access control,
- access rights which are assigned with the protection attribute BASIC-ACL, extended access control,
- protection by guards (GUARDS operand)
- passwords for the JV (WRITE-PASSWORD/READ-PASSWORD),
- retention period for the JV (RETENTION-PERIOD),
- release of the lock imposed on a monitoring JV (MONJV-PROTECTION).
- HSMS management class (MANAGEMENT-CLASS operand)

The catalog entry of a JV which is monitoring an executing job can only be modified if the lock is released. The catalog entry of a JV which is used in CJC commands and macros can likewise not be modified (information can be obtained via the SHOW-CJC-STATUS command).

Privileged functions

By default, systems support (TSOS privilege) is a co-owner of all the job variables (and can therefore also modify their catalog entries). When SECOS is used, this co-ownership can be restricted for permanent job variables.

Format

MODIFY**-JV-ATTR**IBUTES Alias: **MDJVA**

JV-NAME = <filename 1..54 without-gen-vers>

,**NEW-NAME** = ***SAME** / <filename 1..54 without-gen-vers>

,**PROT**ECTION = ***UNCHA**NGED / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **ACCESS** = ***UNCHA**NGED / ***WR**ITE / ***READ**

| ,**USER-ACCESS** = ***UNCHA**NGED / ***OWNER-ONLY** / ***ALL-USERS**

| ,**BASIC-ACL** = ***UNCHA**NGED / ***NONE** / ***PREV**IOUS / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **OWNER** = ***UNCHA**NGED / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***UNCHA**NGED / ***NO** / ***Y**ES

| | | ,**WR**ITE = ***UNCHA**NGED / ***NO** / ***Y**ES

| | ,**GR**OUP = ***UNCHA**NGED / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***UNCHA**NGED / ***NO** / ***Y**ES

| | | ,**WR**ITE = ***UNCHA**NGED / ***NO** / ***Y**ES

| | ,**OTHERS** = ***UNCHA**NGED / ***NO-ACCESS** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | **READ** = ***UNCHA**NGED / ***NO** / ***Y**ES

| | | ,**WR**ITE = ***UNCHA**NGED / ***NO** / ***Y**ES

| ,**GUARDS** = ***UNCHA**NGED / ***NONE** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **READ** = ***UNCHA**NGED / ***NONE** / <filename 1..18 without-cat-gen-vers>

| | ,**WR**ITE = ***UNCHA**NGED / ***NONE** / <filename 1..18 without-cat-gen-vers>

| ,**WR**ITE-**PASS**WORD = ***UNCHA**NGED / ***NONE** / <c-string 1..4> / <x-string 1..8> /

| <integer -2147483648..2147483647> / ***SECRET**

| ,**READ-PASS**WORD = ***UNCHA**NGED / ***NONE** / <c-string 1..4> / <x-string 1..8> /

| <integer -2147483648..2147483647> / ***SECRET**

| ,**RET**ENTION-**PER**IOD = ***UNCHA**NGED / <integer 0..32767 *days*>

| ,**MONJV-PRO**TECTION = ***UNCHA**NGED / ***NO**

,**MANAG**EMENT-**CLASS** = ***UNCHA**NGED / ***NONE** / <composed-name 1..8>

Operands

JV-NAME = <filename 1..54 without-gen-vers>
Existing name of the JV.
Nonprivileged users may specify their own user ID only.

NEW-NAME = *SAME / <filename 1..54 without-gen-vers>
New name for the JV. Default value *SAME, i.e. no new name for the JV.
A new name can be specified explicitly with catalog ID and user ID, but any attempt to change the previous catalog or user IDs is rejected as an error.
When renaming a permanent JV to a temporary JV, the protection attributes must be left at their default values (see the CREATE-JV command) or be set explicitly to the default values in the PROTECTION operand. Default settings for the protection attributes: ACCESS=*WRITE, USER-ACCESS=*OWNER-ONLY, BASIC-ACL=*NONE, WRITE-PASSWORD=*NONE, READ-PASSWORD=*NONE, RETENTION-PERIOD=0

PROTECTION =
Protection attributes of the JV.

PROTECTION = *UNCHANGED
The protection attributes remain unchanged.
A change in the protection attributes is not permissible for temporary JVs.

PROTECTION = *PARAMETERS(...)
Specifies which protection attributes are to be changed.
*UNCHANGED is the default value for all protection attributes: A protection attribute is only changed if the desired value is explicitly specified.
For temporary JVs, only the default values are permitted. Since only the creating job can access temporary JVs, no protection is required against foreign access.

If more than one access control mechanism is specified for a JV, the strongest mechanism activated applies. The table below lists the types of access control that exist, the corresponding protection attributes and their hierarchy (protection levels):

Access control method	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 65: Hierarchy of access control methods

All other protection attributes of the file (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

ACCESS = *UNCHANGED / *WRITE / *READ
Write access (implicit read access) or only read access to the JV.

USER-ACCESS = *UNCHANGED / *OWNER-ONLY / *ALL-USERS
Specifies whether external user IDs may access the JV.

BASIC-ACL = *UNCHANGED / *NONE / *PREVIOUS / *PARAMETERS(...)
Specifies whether a BACL is to be activated, changed or turned off for the job variable.

BASIC-ACL = *NONE
An activated basic ACL is turned off for the JV. The access control is thereby effected in accordance with the values of USER-ACCESS and ACCESS (standard access control).

BASIC-ACL = *PREVIOUS
An already existing BASIC-ACL entry is not changed.
If the JV is not protected by a basic ACL, a BASIC-ACL entry is created. Thereby the values of the standard access control (ACCESS and USER-ACCESS) are taken over into the BASIC-ACL entry in accordance with the following table:

Standard access control		BASIC-ACL protection					
USER-ACCESS	ACCESS	OWNER		GROUP		OTHERS	
		R	W	R	W	R	W
OWNER-ONLY	WRITE	Y	Y	N	N	N	N
OWNER-ONLY	READ	Y	N	N	N	N	N
ALL-USERS	WRITE	Y	Y	Y	Y	Y	Y
ALL-USERS	READ	Y	N	Y	N	Y	N

Table 66: Standard access control/BASIC-ACL

BASIC-ACL = *PARAMETERS(...)
The BACL is activated for the job variable or individual access rights of an existing BACL are changed. The read and write access rights can be explicitly set or denied for each user class. User classes are:

- OWNER, i.e. user ID of the owner and systems support
- GROUP, i.e. all user IDs which belong to the group of the owner (except the owner and systems support). Definition of user groups is possible only when the software product SECOS is used. With regard to the possible use of SECOS, the same rights should be allocated for GROUP as for OTHERS.
- OTHERS, i.e. all user IDs which do not belong to the group of the owner.

BASIC-ACL is activated if the value *NO-ACCESS or *PARAMETERS is specified for at least one authorized user. In this case, the corresponding access authorization is set to “no access right” for those authorized users for whom the value *UNCHANGED was not changed (corresponds to specifying *NO-ACCESS).

OWNER = *UNCHANGED / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for the owner. For a newly activated BASIC-ACL, *UNCHANGED is treated in the same way as *NO-ACCESS. With *NO-ACCESS, the owner has no access rights.

OWNER = *PARAMETERS(...)
The owner’s access rights are entered as specified:

READ = *UNCHANGED / *NO / *YES
Specifies whether read authorization is set.
*UNCHANGED is the default value, i.e. no read authorization (corresponds to *NO) when BASIC-ACL is reactivated.

WRITE = *UNCHANGED / *NO / *YES
Specifies whether write authorization is specified.
Write authorization does *not* imply read authorization. *UNCHANGED is the default value, i.e. no read authorization (corresponds to *NO) when BASIC-ACL is reactivated.

GROUP = *UNCHANGED / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for all user IDs from the group of the owner. Without SECOS, that is all user IDs which do not belong to a group other than that of the owner. For a newly activated BASIC-ACL, *UNCHANGED is treated in the same way as *NO-ACCESS. With *NO-ACCESS, GROUP has no access rights.

GROUP = *PARAMETERS(...)
Access rights are to be set as specified:

READ = *UNCHANGED / *NO / *YES
Specifies whether read authorization is set.
*UNCHANGED is the default value, i.e. no read authorization (corresponds to *NO) when BASIC-ACL is reactivated.

WRITE = *UNCHANGED / *NO / *YES
Specifies whether write authorization is specified.
Write authorization does *not* imply read authorization. *UNCHANGED is the default value, i.e. no read authorization (corresponds to *NO) when BASIC-ACL is reactivated.

OTHERS = *UNCHANGED / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights are to be set for user IDs which do not belong to the group of the owner. If SECOS is not used, access rights should be set as for
GROUP with regard to an analysis for future use of SECOS. For a newly activated BASIC-ACL, *UNCHANGED is treated in the same way as *NO-ACCESS. With *NO-ACCESS, OTHERS has no access rights.

OTHERS = *PARAMETERS(...)
Access rights are to be set as specified:

READ = *UNCHANGED / *NO / *YES
Specifies whether read authorization is set.
*UNCHANGED is the default value, i.e. no read authorization (corresponds to *NO) when BASIC-ACL is reactivated.

WRITE = *UNCHANGED / *NO / *YES
Specifies whether write authorization is specified.
Write authorization does *not* imply read authorization. *UNCHANGED is the default value, i.e. no read authorization (corresponds to *NO) when BASIC-ACL is reactivated.

GUARDS = *UNCHANGED / *NONE / *PARAMETERS(...)
Specifies whether access control via GUARDS is to be activated or modified for the JV.

GUARDS = *NONE
Access to the JV is not (is no longer) to be controlled via GUARDS.

GUARDS = *PARAMETERS(...)
Any existing access control via GUARDS for the JV is to be modified as specified. If no protection by guards has been defined for the JV, access control via GUARDS is activated only if a value other than *UNCHANGED is specified for at least one of the READ or WRITE operands.
Access to the file is controlled via a guard, i.e. a specific object identifying all the conditions subject to which access will be granted: such as date, time and user ID. The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard. Each guard is uniquely identified by its name. Guard names resemble JV names: they are made up of two parts, the user ID (optional) and the name part (up to 8 characters). If no user ID is specified explicitly, the user’s own ID is added implicitly. Each access mode can be controlled by a separate guard. If no guard is assigned for an access mode (*NONE), access control will refuse any corresponding access (e.g. WRITE=*NONE prevents all write access). Specifying GUARDS=*PARAMETERS defines access control via GUARDS with all access modes being set to the default value *NONE, i.e. neither read access to the JV nor write or execute access is allowed.

The GUARDS subsystem is not required in order to define access control via GUARDS. The appropriate checks by GUARDS are not performed until the JV is actually accessed: If a guard has been defined but is not available, all access of the type controlled by that guard is prohibited. No access at all is possible if the GUARDS subsystem is not available at the time of access.

READ = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling read access (up to 8 characters if no user ID is specified). The default value is *NONE, i.e. no read access is granted.

WRITE = *UNCHANGED / *NONE / <filename 1..18 without-cat-gen-vers>
Name of a guard controlling write access (up to 8 characters if no user ID is specified). The default value is *NONE, i.e. no write access is granted.

WRITE-PASSWORD = *UNCHANGED / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Write or read password for the JV to be modified. The WRITE-PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password .
- The password entered is not logged.

WRITE-PASSWORD = *NONE
No password for the JV. Any write password that may have been defined is removed.

READ-PASSWORD = *UNCHANGED / *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Password for protection against unauthorized reading. The READ-PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password .
- The password entered is not logged.

READ-PASSWORD = *NONE
No password for the JV. Any read password that may have been defined is removed.

RETENTION-PERIOD = *UNCHANGED / <integer 0..32767 *days* >
Retention period in days. In the catalog entry, the date in output field *EXPIR-DATE* is set to a value computed from the current date and the specified number of days. The JV is protected against being modified or deleted up to this date. The time for the defined expiration date is currently entered as 00:00:00 hours in the catalog. Specifying RETENTION-PERIOD=0 causes the expiration date to be set to the current date, thereby canceling any retention period set.

MONJV-PROTECTION = *UNCHANGED / *NO
Specifies whether the lock on the specified monitoring JV is to be retained. The system automatically locks monitoring job variables against write access until the job being monitored is ended.

MONJV-PROTECTION = *NO
Any lock present is to be removed. The user should ensure that the monitored job has already been removed from the job queue (SHOW-JOB-STATUS).

MANAGEMENT-CLASS = *UNCHANGED / *NONE / <composed-name 1..8>
Only for job variables on SM pubsets
Specifies whether the HSMS functions JV backup and (long-term) archival are to be controlled via a management class defined via HSMS. See the “HSMS, Volume 1” manual [18] for further details. Assignment of a management class is rejected in the following cases:

- the JV is to be created on an SF pubset
- the specified management class has not been defined for the SM pubset

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Example

```
/create-jv jv=test
/show-jv-attr jv=test,inf=*all-attr
```

```
%0000000 :LEO:$USER1.TEST
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% CRE-DATE   = 2012-01-09  EXPIR-DATE = 2012-01-09
% CRE-TIME   =   16:09:36  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%SUM   000001 JV'S; JV-VALUE = 00000000 BYTES
```

```
/mod-jv-attr jv=test,new-name=probe ———————————————————————— (1)
/mod-jv-attr jv=probe,prot=(user-access=*all-users,write-pass=c'fehl',
             ret-per=10) ——————————————————————————————————— (2)
/show-jv-attr jv=probe,inf=*all-attr
```

```
%0000000 :LEO:$USER1.PROBE
% USER-ACC   = ALL-USERS   ACCESS     = WRITE
% CRE-DATE   = 2012-01-09  EXPIR-DATE = 2012-01-19
% CRE-TIME   =   16:09:36  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = YES
%SUM   000001 JV'S; JV-VALUE = 00000000 BYTES
```

```
/add-pass pass=c'fehl' ———————————————————————————————————— (3)
/del-jv jv=probe ——————————————————————————————————————————— (4)
```

```
%  JVS04A3 ERROR WHEN DELETING JOB VARIABLE ':LEO:$USER1.PROBE'
%  JVS04B6 EXPIRATION DATE FOR JOB VARIABLE NOT YET REACHED. COMMAND REJECTED
/
```

(1) The job variable TEST is renamed PROBE.

(2) The JV PROBE is made accessible to all users and receives a write password. It also cannot be modified or deleted for a period of 10 days.

(3) The write password is added to the password table.

(4) Because of the retention period of 10 days, the DELETE-JV command is rejected.

4.29 MODIFY-JV-CONDITIONALLY

Conditionally modify JV contents and branch to label

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-JV-CONDITIONALLY command checks the contents of a JV subarea against a reference value (IF-VALUE operand). If it finds a match, it assigns the tested area a new value (SET-VALUE operand) and branches to the specified destination (LABEL operand). The value set in the event of a match may be specified directly as a character string or derived from another JV. If there is no match, the JV value remains unchanged and processing continues with the command following the MODIFY-JV-CONDITIONALLY command.

This command is permitted only in ENTER files and in procedures. In interactive mode it is rejected, and is therefore not offered as a menu option.

Note

During processing by MODIFY-JV-CONDITIONALLY (interval between comparing and modifying) the JV to be modified is protected against access by other jobs.

Format

MODIFY-**JV-COND**ITIONALL Alias: **MDJVC**

JV-CONTENTS = <filename 1..54 without-gen-vers> / [***SUBSTR**ING](...) / ***LINK**(...)

[***SUBSTR**ING](...)

| **JV-NAME** = <filename 1..54 without-gen-vers>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

,**IF-VAL**UE = <c-string 1..254 with-low> / <x-string 1..508>

,**SET-VAL**UE = <c-string 1..254 with-low> / <x-string 1..508> / <filename 1..54 without-gen-vers> / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

,**LABEL** = ***NONE** / <name 1..8>

,**PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / ***SECRET**

Operands

JV-CONTENTS = <filename 1..54 without-gen-vers> / *SUBSTRING(...) / *LINK(...)
Specifies the job variable contents which are to be checked and where appropriate changed.
A JV can be identified by its name or link name.
The specified subarea is checked against the reference value specified in the IF-VALUE operand. If there is a match, the tested area is changed to the value specified in the SET-VALUE operand. If there is no match, the JV contents remain unchanged.

JV-CONTENTS = <filename 1..54 without-gen-vers>
Name of the JV. Such entry is an abbreviation of `JV-CONTENTS=*SUBSTRING(<jv-name>, 1, *REST)`

JV-CONTENTS = *SUBSTRING(...)
The contents of the subarea identified by POSITION and LENGTH are checked and where appropriate changed.

JV-NAME = <filename 1..54 without-gen-vers>
Name of the JV.

POSITION = 1 / <integer 1..256>
Position within the JV at which checking and where appropriate changing is to begin.

LENGTH = *REST / <integer 1..256>
Number of characters to be checked and where appropriate changed.
The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257.

LENGTH = *REST
For the comparison, the length of the reference value applies; for the modification, the length of the JV value starting from the position specified in the POSITION operand up to position 256. If the value to be transferred is shorter, no blanks are appended but instead the area following is (again) undefined.

JV-CONTENTS = *LINK(...)
The JV is identified by its link name. If POSITION and LENGTH are not specified, the contents of the entire JV are checked and, if necessary, modified; if they are, the contents of the specified subarea are modified.

LINK-NAME = <alphanum-name 1..7>
Link name of the JV.

POSITION = 1 / <integer 1..256>
Position within the JV at which checking and where appropriate changing is to begin.

LENGTH = *REST / <integer 1..256>
Number of characters to be checked and where appropriate changed. The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257.

LENGTH = *REST
For the comparison, the length of the reference value applies; for the modification, the length of the JV value starting from the position specified in the POSITION operand up to position 256. If the value to be transferred is shorter, no blanks are appended but instead the area following is (again) undefined.

IF-VALUE = <c-string 1..254 with-low> / <x-string 1..508>
Reference value against which the JV contents specified in the JV-CONTENTS operand are to be checked. The reference value must be specified as a string (<c-string> or <xstring>); in the case of a C string the uppercase /lowercase distinction is significant. If the comparison value is longer than the number of characters to be compared, it is truncated; if it is shorter, it is padded with blanks.

SET-VALUE = <c-string 1..254 with-low> / <x-string 1..508> / <filename 1..54 without-gen-vers> / *LINK(...)
New value that the JV contents specified in the JV-CONTENTS operand will be given if the existing value matches the reference value (IF-VALUE). The value to be set may be

- specified directly as a character string (<c-string> or <x-string>); C strings are case-sensitive
- derived from a JV identified by name or link name.

If the value to be transferred is longer than the number of characters to be set, it is truncated; if it is shorter, it is padded with blanks.
The command is rejected if

- the JV specified does not exist
- the JV specified is not set (has no value)
- there is no access right for the specified JV.

SET-VALUE = <filename 1..54 without-gen-vers>
Name of the JV. The entire contents of this JV are taken as the new value.

SET-VALUE = *LINK(...)
The contents of a JV identified by its link name are taken as the new value.

LINK-NAME = <alphanum-name 1..7>
Link name of the JV.

LABEL = *NONE / <name 1..8>
(Non-S) label that identifies the command line (branch destination) at which processing is to be continued if the current JV value matches the reference value (IF-VALUE). If there is no match, processing continues with the next command. The default value is *NONE, i.e. processing resumes with the next command. In this case, the command result (condition satisfied or not satisfied) in S procedures or dialog blocks can be derived from the command return code. For evaluation purposes, the next command must be SAVE-RETURNCODE since no error condition is present.

PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Write or read password for the JV to be modified. The PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed because condition was satisfied
1	0	CMD0001	No action necessary as condition was not satisfied
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Note

Other than the ADD-CJC-ACTION, SKIP-COMMANDS and WAIT-EVENT commands, the MODIFY-JV-CONDITIONALLY command does not work with real conditional expressions. As a consequence, the result of the comparison will deviate in the following cases:

- If the JV range specified in the JV-CONTENTS operand is fully undefined, the command is rejected.
- If a JV substring is specified that is longer than the defined range, the comparison will still be performed with the specified length. Since it is not possible to specify unspecified characters in the IF-VALUE reference value, the result of the comparison is always “not equal”.

Example

```
......
......
/.RESRV  MOD-JV-COND JV=*LINK(LOCK,8,4),IF-VAL='FREE',-
/                    SET-VAL=$SYSJV.TSN,LABEL=RESRVD ————————————————————  (1)
/        WAIT-EVENT  UNTIL=*JV(TIME-LIMIT=10,TIMEOUT-LABEL=RESRV)————————  (2)
/.RESRVD REMARK      'Belegung erfolgreich'
......
......
```

(1) In bytes 8 -11 of the job variable identified by the link name LOCK the TSN of the user’s own task is entered, provided the old contents have the value ’FREE’. In this case, command processing is resumed at the label RESRVD.

(2) If the contents are checked and found not to be equal to the value ’FREE’, the MODIFY-JV-CONDITIONALLY command is called again after a wait time of 10 seconds.

4.30 MODIFY-MASTER-CATALOG-ENTRY

Delete entry from MRSCAT of home pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS
Routing code:	$

Function

The values for a catalog entry in the MRSCAT of the home pubset which are preset with the ADD-MASTER-CATALOG-ENTRY command can be modified using this command, both for single-feature pubsets (SF pubsets) and for system-managed pubsets (SM pubsets).

Note that this command cannot be used to change the pubset type or a volume set entry. Any changes that are made do not take effect until the next time the pubset is imported (IMPORT-PUBSET command).

The availability of the catalog can be governed with the IMPORT-PUBSET command.

The default value *UNCHANGED in the relevant operands indicates that the previous specification remains valid.

Format

MODIFY-**MAST**ER-CATALOG-ENTRY

ENTRY-NAME = <cat-id 1..4>

,**PUB**SET-**TYPE** = ***BY-PUB**SET / ***SINGLE-FEATURE**(...) / ***SYS**TEM-**MANAG**ED(...)

***SINGLE-FEATURE**(...)

| **START-SPEEDCAT** = ***UNCHA**NGED / ***NO** / ***SPEEDCAT-TASK** / ***OWN-TASK**

| ,**PHYS**ICAL-**ALLOC**ATION = ***UNCHA**NGED / ***ADM**INISTRATOR-**ONLY** / ***USER-ALLOW**ED

| ,**NEXT-CATALOG-EXPORT** = ***UNCHA**NGED / ***NO-CONVERSION** / ***V10-COMPATIBLE**

| ,**ALLOC**ATION = ***UNCHA**NGED / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **SAT**URATION-**LEVEL4** = ***UNCHA**NGED / ***STD** / <integer 66..2147483647 *2Kbyte*>

| | ,**PRIM**ARY-**ALLOC**ATION = ***UNCHA**NGED / ***STD** / <integer 1..16777215 *2Kbyte*>

| | ,**SEC**ONDARY-**ALLOC**ATION = ***UNCHA**NGED / ***STD** / <integer 1..32767 *2Kbyte*>

| | ,**MAX**IMAL-**ALLOC**ATION = ***UNCHA**NGED / ***STD** / <integer 1..32767 *2Kbyte*>

***SYS**TEM-**MANAG**ED(...)

```
        |   CONTROL-VOLUME-SET = *UNCHANGED / <cat-id 1..4>
,PARTNER-NAME = *UNCHANGED / <alphanum-name 1..8>
,ACCESS-FAILURE = *UNCHANGED / *HOLD-JOBS / *CANCEL-JOBS
,RESIDENT-BUFFERS = *UNCHANGED / *NO / *YES
,NUMBER-OF-BUFFERS = *UNCHANGED / <integer 1..255>
,BATCH-WAIT-TIME = *UNCHANGED / <integer 0..2147483647 seconds>
,DIALOG-WAIT-TIME = *UNCHANGED / <integer 0..2147483647 seconds>
,SHARED-PUBSET = *UNCHANGED / *YES / *NO
,ACCESS-CONTROLLED = *UNCHANGED / *NO / *YES(...)
    *YES(...)
        |   USER-IDENTIFICATION = *UNCHANGED / <alphanum-name 1..8> / *TSOS
,EAM = *UNCHANGED / *PARAMETERS(...)
    *PARAMETERS(...)
        |   MAXIMAL-SIZE = *UNCHANGED / *STD / <integer 12..193536 2Kbyte>
        |   ,MINIMAL-SIZE = *UNCHANGED / *STD / <integer 12..193536 2Kbyte>
        |   ,SECONDARY-ALLOCATION = *UNCHANGED / *STD / <integer 1..193536 2Kbyte>
        |   ,VIRTUAL-MEMORY = *UNCHANGED / *STD / <integer 0..8192 2Kbyte>
,REMOTE-IMPORT = *UNCHANGED / *BY-CONNECTION / *BY-COMMAND-ONLY
,XCS-CONFIGURATION = *UNCHANGED / *NO / *YES
,PUBRES-UNIT = *UNCHANGED / <alphanum-name 2..2> / <x-text 4..4>
```

Operands

ENTRY-NAME = <cat-id 1..4>
Catalog ID of the pubset for which the MRSCAT entry is to be modified.

PUBSET-TYPE = *BY-PUBSET / *SINGLE-FEATURE(...) / *SYSTEM-MANAGED(...)
Defines the type of pubset for which the MRSCAT entry is to be modified. The pubset type itself cannot be changed. The attributes specific to a pubset type cannot be modified unless the pubset type is specified explicitly.

PUBSET-TYPE = *BY-PUBSET
The pubset type is read from the MRSCAT entry.

PUBSET-TYPE = *SINGLE-FEATURE(...)
The pubset for which the MRSCAT entry is to be modified is an SF pubset.

START-SPEEDCAT = *UNCHANGED / *NO / *SPEEDCAT-TASK / *OWN-TASK
Specifies whether SCA should be started when this pubset is imported.

START-SPEEDCAT = *NO
SCA should not be started when this pubset is imported.

START-SPEEDCAT = *SPEEDCAT-TASK
SCA should be available and should run under a separate task, the SPEEDCAT task.

START-SPEEDCAT = *OWN-TASK
SCA should be available and should run under the user's task.

PHYSICAL-ALLOCATION = *UNCHANGED / *ADMINISTRATOR-ONLY / *USER-ALLOWED
Specifies whether users are allowed to make direct allocations to specific volumes of the pubset.

PHYSICAL-ALLOCATION = *ADMINISTRATOR-ONLY
Users may not directly allocate the volumes of the pubset. This right is reserved for the privileged caller under TSOS.

PHYSICAL-ALLOCATION = *USER-ALLOWED
On this pubset, nonprivileged users should also be permitted to allocate individual volumes directly.

NEXT-CATALOG-EXPORT = *UNCHANGED / *NO-CONVERSION / *V10-COMPATIBLE
This operand is only still available for reasons of compatibility.

ALLOCATION = *UNCHANGED / *PARAMETERS(...)
Specifies whether particular allocation parameters should be set for file processing on the pubset.

ALLOCATION = *PARAMETERS(...)
Specifies allocation parameters for the pubset, with the values which follow.

SATURATION-LEVEL4 = *UNCHANGED / *STD / <integer 66..2147483647 *2Kbyte* >
The allocation parameter is to be set for memory saturation level 4. If saturation levels have already been defined with the MODIFY-SPACE-SATURATION-LEVELS command, they should not be changed with the MODIFY-MASTER-CATALOG-ENTRY command because in that case there would be no checking of the saturation levels.

SATURATION-LEVEL4 = *STD
The value defined in the system parameter L4SPDEF is to apply.

SATURATION-LEVEL4 = <integer 66..2147483647 *2Kbyte* >
Value of memory saturation level 4 which is to apply to this pubset.

PRIMARY-ALLOCATION = *UNCHANGED / *STD / <integer 1..16777215 *2Kbyte* >
The allocation parameter, for the primary allocation when a storage space request is made (file processing), is to be set.

PRIMARY-ALLOCATION = *STD
The value defined in the system parameter DMPRALL is to apply.

PRIMARY-ALLOCATION = <integer 1..16777215 *2Kbyte* >
The value to be applied for this pubset, for primary storage space allocations during file processing. This value will apply as the default value for any user who does not specify a value for an initial allocation in a storage space request.

SECONDARY-ALLOCATION = *UNCHANGED / *STD / <integer 1..32767 *2Kbyte* >
The allocation parameter, for secondary allocations when a storage space request is made (file processing), is to be set.

SECONDARY-ALLOCATION = *STD
The value defined in the system parameter DMSCALL is to apply.

SECONDARY-ALLOCATION = <integer 1..32767 *2Kbyte* >
The value to be applied for this pubset, for secondary storage space allocations during file processing. This value will apply as the default value for any user who does not specify a value for another allocation in a storage space request.

MAXIMAL-ALLOCATION = *UNCHANGED / *STD / <integer 1..32767 *2Kbyte* >
The allocation parameter, for doubling the secondary allocation when a storage space request is made (file processing), is to be set.

MAXIMAL-ALLOCATION = *STD
The value defined in the system parameter DMMAXSC is to apply.

MAXIMAL-ALLOCATION = <integer 1..32767 *2Kbyte* >
The value to be applied for this pubset, for doubling of the secondary storage space allocation during file processing. This value will be the maximum value for any user, for whom the space remains inadequate even after a secondary allocation has been made. The value for the secondary allocation will be repeatedly doubled until the maximum value specified here is reached.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset for which the MRSCAT entry is to be modified is an SM pubset.

CONTROL-VOLUME-SET = *UNCHANGED / <cat-id 1..4>
Specifies which volume set is to be used as the control volume set when the SM pubset is imported.

CONTROL-VOLUME-SET = <cat-id 1..4>
Indicates the catalog ID of the volume set which is to be used as the control volume set when the SM pubset is imported. The specified volume set must also be recorded as a control volume set in the SM pubset's configuration file.

PARTNER-NAME = *UNCHANGED / <alphanum-name 1..8>
BCAM name of the processor for remote file access (RFA). A processor may only be specified if no MSCF connection exists, but remote file access is required.

ACCESS-FAILURE = *UNCHANGED / *HOLD-JOBS / *CANCEL-JOBS

Only for a shared pubset:
Defines the behavior if the MSCF connection to the master of an imported shared pubset is lost.

ACCESS-FAILURE = *HOLD JOBS
The pubset is set to the LOCAL-IMPORTED, QUIET state for the duration of the connection interruption. Tasks that access the pubset enter a wait state, the duration of which is defined by the BATCH-WAIT-TIME or DIALOG-WAIT-TIME parameter (see below).

ACCESS-FAILURE = *CANCEL-JOBS
The pubset is set to the INACC state for the duration of the connection interruption. Attempts to access the pubset are immediately rejected - at program level with a corresponding return code, at command level by triggering a spin-off. The parameters BATCH-WAIT-TIME and DIALOG-WAIT-TIME are not evaluated.

RESIDENT-BUFFERS = *UNCHANGED / *NO / *YES
Specifies whether resident or nonresident buffers are to be created. Please, note possible interaction with the NUMBER-OF-BUFFERS operand (see there).

RESIDENT-BUFFERS = *NO
Nonresident buffers are created.

RESIDENT-BUFFERS = *YES
Resident buffers are created.

NUMBER-OF-BUFFERS = *UNCHANGED / <integer 1..255>
Defines the number of buffers.

> If the CATBUFR and BMTNUM system parameters were entered in MRSCAT as potentially active (command `ADD-MASTER-CATALOG-ENTRY RESIDENT-BUFFERS=*SYSTEM-STD, NUMBER-OF-BUFFERS=*SYSTEM-STD`) and only one of both operands was modified via the MODIFY-MASTER-CATALOG-ENTRY command, so the other one will be given the default value: `RESIDENT-BUFFERS=*NO` , `NUMBER-OF-BUFFERS=32` regardless *UNCHANGED was specified.

The buffer specification is evaluated - according to the following hierarchy - only when the pubset is imported:

1. Explicit parameter specification in the IMPORT-PUBLIC-VOLUME-SET command
2. Specifications via the ADD- or MODIFY-MASTER-CATALOG-ENTRY command.

   If only one of the operands RESIDENT-BUFFERS or NUMBER-OF-BUFFERS is specified, the default value applies to the other operand (RESIDENT-BUFFERS=*NO, NUMBER-OF-BUFFERS=32).
3. Specification according to system parameters CATBUFR and BMTNUM.
4. If the specified value of NUMBER-OF-BUFFERS is less than 32, it is increased to 32.

BATCH-WAIT-TIME = *UNCHANGED / <integer 0..2147483647 *seconds* >
*Only for a shared pubset with the setting ACCESS-FAILURE=*HOLD-JOBS*
Time in seconds that batch jobs are to wait for the availability of pubsets that cannot be accessed due to a connection failure. If the time specified is exceeded, command processing is aborted with an error code and the spin-off mechanism is triggered.

DIALOG-WAIT-TIME = *UNCHANGED / <integer 0..2147483647 *seconds* >
*Only for a shared pubset with the setting ACCESS-FAILURE=*HOLD-JOBS*
As with batch jobs, defines the wait time spread in the event of interactive accesses to pubsets in the QUIET status. If the time specified is exceeded, the interactive job receives a message and is resumed. The default value here is 30 seconds.

SHARED-PUBSET = *UNCHANGED / *NO / *YES
Determines the shareability of the pubset for local processors.

ACCESS-CONTROLLED = *UNCHANGED / *NO / *YES(...)
Specifies whether access to the pubset is to be restricted to one user ID.

ACCESS-CONTROLLED = *NO
Access to the pubset is not subject to any restrictions.

ACCESS-CONTROLLED = *YES(...)
Access to the pubset is to be restricted to one user ID. The IMPORT-PUBSET command is rejected with an error in the case of a shared pubset flagged as ACCESS-CONTROLLED=*YES.

USER-IDENTIFICATION = *UNCHANGED / <alphanum-name 1..8> / TSOS
Specifies the user ID which is to have access to the pubset.

USER-IDENTIFICATION = <alphanum-name 1..8>
Specifies a user ID, in addition to the TSOS user ID, which is to be permitted access to the pubset.

EAM = *UNCHANGED / *PARAMETERS(...)
Specifies the SYSEAM file parameters specific to this pubset.

EAM = *PARAMETERS(...)
Specifies the SYSEAM parameters which follow for the pubset.

MAXIMAL-SIZE = *UNCHANGED / *STD / <integer 12..193536 *2Kbyte* >
This operand is only supported for reasons of compatibility and is no longer evaluated.

MINIMAL-SIZE = *UNCHANGED / *STD / <integer 12..193536 *2Kbyte* >
Specifies the minimum size (number of half pages) that the SYSEAM file may occupy in the specified pubset.

MINIMAL-SIZE = *STD
The value specified in the system parameter EAMMIN is to apply.

MINIMAL-SIZE = <integer 12..193536>
Minimum size (number of half pages) that the SYSEAM file may occupy in the pubset.

SECONDARY-ALLOCATION = *UNCHANGED / *STD / <integer 1..193536 *2Kbyte* >
Specifies the secondary allocation for the SYSEAM file, for this pubset.

SECONDARY-ALLOCATION = *STD
The value specified in the system parameter EAMSEC is to apply.

SECONDARY-ALLOCATION = <integer 1..193536 *2Kbyte* >
Value of the secondary allocation for the SYSEAM file (number of half pages). This value should be a multiple of 24.

VIRTUAL-MEMORY = *UNCHANGED / *STD / <integer 0..8192 *2Kbyte* >
Specifies the number of half pages to be used in determining the size of the EAM cache area in class 4 memory. A cache area can only be created for the SYSEAM file of the home pubset. The parameter has no effect for any other pubsets.

VIRTUAL-MEMORY = *STD
The size of the EAM cache area will be determined from the value of the system parameter EAMMEM.

VIRTUAL-MEMORY = <integer 0..8192 *2Kbyte* >
The number of half pages specified here determines the size of the EAM cache area.

REMOTE-IMPORT = *UNCHANGED / *BY-CONNECTION / *BY-COMMAND-ONLY
Defines how the remote import status can be changed.

REMOTE-IMPORT = *BY-CONNECTION
The change is made on connection setup.

REMOTE-IMPORT = *BY-COMMAND-ONLY
The remote import status can only be changed by a command.

XCS-CONFIGURATION = *UNCHANGED / *NO / *YES
For shared pubset only: Defines whether the pubset may be automatically imported as an XCS pubset when a new XCS network is established.

XCS-CONFIGURATION = *NO
The pubset must not be imported automatically as an XCS pubset. (The pubset may nonetheless be used as an XCS pubset using the SET-XCS-PUBSET command.)

XCS-CONFIGURATION = *YES
The pubset is to be imported automatically as an XCS pubset by the MSCF subsystem when a new XCS network is established.

PUBRES-UNIT = *UNCHANGED / <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device name (MN) of the pubres of the SF pubset or of the volres of the SM pubset. VM2000 requires this entry when the pubset is specified by means of its catalog ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	CMS0002	Disk error
	1	CMS0011	Syntax error
	1	CMS0314	Syntax error in entry name or error in wildcard specification
	32	CMD0221	Internal system error
	32	CMS031F	MRSCAT parameter error
	32	CMS0310	Error during privilege checking
	32	CMS0317	MRSCAT is locked
	32	CMS0318	Synchronization error
	64	CMS0010	No authorization for command
	64	CMS0312	MRSCAT entry not found
	64	CMS0319	Pubset type conflict

Note

For handling of the buffer specifications, see the notes under the IMPORT-PUBSET command.

Example

Locally modifying catalog entries and importing pubsets (MPVS)

A, BAD and DAT are pubsets which are to be accessed locally via a single host. A is the home pubset.

The following commands must be issued:

`/MOD-MAST ENTRY=`	`BAD,SHARE-PUB = *YES,` `DIALOG-WAIT = 30, BATCH-WAIT = 28800`
`/MOD-MAST ENTRY=`	`DAT`
`/IMP-PUB PUBSET =`	`BAD,USE=*SHARE`
`/IMP-PUB PUBSET =`	`DAT`

The MRSCAT catalog directory in the home pubset contains the following lines:

```
PUBSET    A:LOCAL-HOME
PUBSET  BAD:LOCAL-IMPORTED,SHARED,MASTER-HOST=OWN-HOST
PUBSET  DAT:LOCAL-IMPORTED
```

4.31 MODIFY-MEMORY-PARAMETERS

Modify settings for managing the big page memory

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	OPERATING TSOS
Routing code:	R

This command is rejected on /390 architecture (SUs /390 and S servers) with the message EMM2350.

Function

On SU x86, part of the main memory is made available as a big page memory for CISCFW compilation (1 big page is 4 Mbytes in size). When the system starts, BIG-PAGE-QUOTA in the MEMORY parameter set is used as a planned value for defining the percentage of the total main memory which is used as big page memory. The actual size of the big page memory is dependent on other factors, such as the possible number of logical machines (CPUs) and the minimum main memory.

The MODIFY-MEMORY-PARAMETERS command enables systems support to specify, while the system is operating, the management parameters of the big page memory from which the actual size of the big page memory is derived.

The following three management parameters can be modified using this command:

1. The percentage of main memory used for big pages (BIG-PAGE-QUOTA operand). This specification is a should-be value. When the value is modified the following must be taken into account:
   - An increase of this percentage can only lead to an increase of the big page memory during command execution if EXTEND-BIG-PAGES=*ON-QUOTA-DEFICIENCY is specified. Irrespective of the EXTEND-BIG-PAGES operand, increasing the percentage leads to an increase of the big page memory with a subsequent memory extension or increase of the minimum main memory under VM2000.
   - A reduction of this percentage can only lead to a reduction of the big page memory during command execution if REDUCE-BIG-PAGES=*ON-QUOTA-EXCESS is specified and unused big pages exist.
2. The specification of whether and in which situation big page memory can be reduced (REDUCE-BIG-PAGES operand). The following settings must be distinguished:
   - The big page memory may never be reduced.
   - The big page memory may only be reduced when there is a threat of core saturation.
   - The big page memory may only be reduced if its size exceeds the BIG-PAGE-QUOTA set. In this case big pages can be reduced within the command, in a subsequent command call with a lower percentage specification, or in the event of a memory reduction.

     The settings “threatened core saturation” and “BIG-PAGE-QUOTA exceeded” can also be combined. Used big pages can also be requested back by CISCFW and then reduced.

3. The specification of whether and in which situation big page memory can be extended (EXTEND-BIG-PAGES operand). The following settings must be distinguished:
   - The big page memory may never be extended.
   - The big page memory may only be extended if there is an insufficient number of free big pages.
   - The big page memory may only be extended if its size is below the specified BIG-PAGE-QUOTA. In this case big pages can be extended within the command, in a subsequent command call with a higher percentage specification, or in the event of a memory extension.

   The settings “insufficient number of free big pages” and “below BIG-PAGE-QUOTA” can also be combined. Used big pages can also be requested back by CISCFW and then reduced.

If big pages are reduced or extended during command execution, the message EMM2309 shows the new size of the big page memory.

Information on the configuration of the main memory, including the use of big pages, is provided by the SHOW-MEMORY-CONFIGURATION command.

Details of managing big pages are described in the context of main memory administration in the “Introduction to System Administration” [14].

Format

MODIFY-**MEM**ORY-**PAR**AMETERS
BIG-PAGE-**QUO**TA = ***UNCHA**NGED / <integer 0..99> ,**RED**UCE-**BIG-P**AGES = ***UNCHA**NGED / ***NO** / list-poss(2): ***ON-QUOTA-EXC**ESS / ***ON-CORE-SAT**URATION ,**EXT**END-**BIG-P**AGES= ***UNCHA**NGED / ***NO** / list-poss(2): ***ON-QUOTA-DEFICIENCY** / ***ON-BIG-PAGE-SAT**URATION

Operands

BIG-PAGE-QUOTA = *UNCHANGED / <integer 0..99>
Specifies the percentage of main memory which is to be used for big pages.

BIG-PAGE-QUOTA = *UNCHANGED
The percentage defined at system startup using the MEMORY parameter or using a preceding MODIFY-MEMORY-PARAMETERS command is not modified.

BIG-PAGE-QUOTA = <integer 0..99>
New percentage of main memory which is to be used for big pages.

REDUCE-BIG-PAGES = *UNCHANGED / *NO / list-poss(2): *ON-QUOTA-EXCESS / *ON-CORE-SATURATION
Specifies whether and in which situation big pages may be reduced and become available as normal main memory. The default is *UNCHANGED, i.e. the setting is not modified.

REDUCE-BIG-PAGES = *NO
Big pages are never reduced.

REDUCE-BIG-PAGES = *ON-QUOTA-EXCESS
Big pages are to be reduced if the existing size of the big page memory exceeds the percentage assigned (see BIG-PAGE-QUOTA).

REDUCE-BIG-PAGES = *ON-CORE-SATURATION
Big pages are to be reduced only if there is a threat of CORE saturation but this can be prevented by canceling a big page in the normal main memory. This value is also set at system startup.

The two reduction situations *ON-QUOTA-EXCESS and *ON-CORE-SATURATION can be combined by being specified in a list.

EXTEND-BIG-PAGES = *UNCHANGED / *NO / list-poss(2): *ON-QUOTA-DEFICIENCY / *ON-BIG-PAGE-SATURATION
Specifies if and in which situation big pages are expanded. Additional big pages reduce the available normal main memory accordingly.
The default is *UNCHANGED, i.e. the setting is not modified.

EXTEND-BIG-PAGES = *NO
Big pages should never be extended; that is, neither when below the BIG-PAGE-QUOTA nor in case of memory saturation of the big page memory.

EXTEND-BIG-PAGES = *ON-QUOTA-DEFICIENCY
Big pages are only to be extended if the existing size of the big page memory exceeds the percentage assigned (see BIG-PAGE-QUOTA).

EXTEND-BIG-PAGES = *ON-BIG-PAGE-SATURATION
Big pages are only to be extended if there is an insufficient number of free big pages. By this, however, the should-be value for big pages defined by the big page quota will not be exceeded, meaning the actual value is smaller than the should-be value because previously big pages were broken up due to a memory saturation or because the actual value has so far not reached the should-be value. The latter is dependent on the memory sizes under and over the memory minimum and/or the number of logical machines (CPU). This is also the value set at system startup.

The two reduction situations *ON-QUOTA-DEFICIENCY and *ON-BIG-PAGE-SATURATION can be combined by being specified in a list.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	Warning: Operation has already taken place for object or no action was required
2	0	CMD0001	Warning: Operation has already taken place for object but could have negative consequences
	1	CMD2201	Interface error between SDF and command server
	3	CMD2203	SDF version not supported
	32	EMM2800	Internal error Guaranteed message: EMM2828
	64	CMD0216	Privilege error
	130	EMM2807	Operation cannot be executed due to lack of resources Guaranteed message: EMM2829

4.32 MODIFY-MIP-OPTIONS

Modify the MIP diagnostic settings

Component:	MIP
Functional area:	Message processing
Domain:	MESSAGE-PROCESSING
Privileges:	TSOS

Function

The MODIFY-MIP-OPTIONS command enables you to modify the diagnostic settings for message processing. In MIP you can specify that a dump should be taken for diagnostic purposes when a particular message is issued. The following settings are possible:

- Activate/deactivate dump
- Specify triggering message code
- Specify maximum number of dumps
- Take user or system dump
- Continue or terminate triggering task

Format

MODIFY**-MIP-OPT**IONS

DUMP = ***UNCHA**NGED / ***NO** / ***Y**ES

,**DUMP-MSG** = ***UNCHA**NGED / <alphanum-name 7..7>

,**DUMP-LIMIT** = ***UNCHA**NGED / ***NO-LIMIT** / <integer 1..100>

,**DUMP-TYPE** = ***UNCHA**NGED / ***USER** / ***SYSTEM**

,**TASK-STOP** = ***UNCHA**NGED / ***Y**ES / ***NO**

Operands

DUMP = *UNCHANGED / *NO / *YES
Specifies whether a dump should be taken if a particular message is issued (specified in the DUMP-MSG operand). DUMP=*NO is preset for message processing at system startup.

DUMP-MSG = *UNCHANGED / <alphanum-name 7..7>
Determines, via the message code, the message which is to trigger a dump when DUMP=*YES is specified.

At system startup no message key for triggering a dump is specified.

DUMP-LIMIT = *UNCHANGED / *NO-LIMIT / <integer 1..100>
Specifies the maximum number of dumps which may be taken. No dump limit is specified at system startup (*NO-LIMIT).

DUMP-LIMIT = *NO-LIMIT
The number of dumps is unlimited.

DUMP-LIMIT = <integer 1..100>
Maximum number of dumps which can be taken.

DUMP-TYPE = *UNCHANGED / *USER / *SYSTEM
Determines whether a user or system dump is taken. User dumps are preset at system startup.

TASK-STOP = *UNCHANGED / *YES / *NO
Specifies whether the triggering task should be terminated. TASK-STOP=*NO is preset at system startup.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	64	CMD0216	Semantic error
	64	NMH1121	Internal error Guaranteed message: NMH1121

4.33 MODIFY-MIP-PARAMETERS

Create/modify MIP parameter file, add/remove message files

Component:	MIP
Functional area:	Message processing
Domain:	MESSAGE-PROCESSING
Privileges:	TSOS

Function

The MODIFY-MIP-PARAMETERS command is used to modify the message file allocation table and the MIP parameter file and to create a new MIP parameter file. It can also add message files to the system and remove them from it. Any changes that are made apply throughout the system.
The SHOW-MIP-PARAMETERS command supplies information on the current settings of the MIP parameter file.

Note

The command will be processed even if a message file specified for removal is not in the message file allocation table.

Format

MODIFY**-MIP-PAR**AMETERS

SCOPE = ***TEMP**ORARY / ***PERMANENT** / ***NEXT-SESSION**(...)

***NEXT-SESSION**(...)

| **PAR**AMETER**-FILE** = ***CURR**ENT / <filename 1..54 without-gen>

,**ADD-MSG-FILE** = ***NONE** / <filename 1..54 without-gen>

,**REM**OVE**-MSG-FILE** = ***NONE** / <filename 1..54 without-gen>

Operands

SCOPE = *TEMPORARY / *PERMANENT / *NEXT-SESSION(...)
Defines how long the modification will remain in effect.

SCOPE = *TEMPORARY
Only the *message file allocation table* which applies in the current system session is modified. That means that any changes that are made apply system-wide to the current system session only and have no effect on future sessions.

SCOPE = *PERMANENT
Both the message file allocation table and the default MIP parameter file are modified. That means that the changes apply system-wide both to the current session and to future sessions.

If it is not possible to modify the MIP parameter file owing to an error (e.g. MIP parameter file locked, not enough space on the disk, DMS error), only the message file allocation table will be modified. In this case, the cause of the error must be eliminated, and then the command must be issued again.

SCOPE = *NEXT-SESSION(...)
The specified MIP parameter file is modified. The name of the message file is stored in the MIP parameter file. No check is made to ensure that the message file actually exists and is in the correct format.
If it is not possible to modify the MIP parameter file owing to an error (e.g. MIP parameter file locked, not enough space on the disk, DMS error), the cause of the error must be eliminated, and then the command must be issued again.

PARAMETER-FILE = *CURRENT / <filename 1..54 without-gen>
Identifies the MIP parameter file that is to be modified.

PARAMETER-FILE = *CURRENT
The default MIP parameter file SYSPAR.MIP.vvv (vvv = current version) is to be modified.

PARAMETER-FILE = <filename 1..54 without-gen>
Name of the MIP parameter file that is to be modified. If there is no MIP parameter file by this name, a new file will be created.

ADD-MSG-FILE = *NONE / <filename 1..54 without-gen>
Specifies the name of the message file which is to be activated or added to a parameter file. If the command is issued for a message file which is already active or included in a MIP parameter file, the message file is activated again or assigned top priority in the MIP parameter file (first position in the message file allocation table or MIP parameter file).

ADD-MSG-FILE = <filename 1..54 without-gen>
A file name alias defined using ACS is expanded to the full file name (including catalog and user ID) and stored in that form in the message file allocation table or MIP parameter file. If the name is not an alias, the specified file name is stored in the MIP parameter file “as is” (i.e. without the catalog and user IDs if these have not been specified).

REMOVE-MSG-FILE = *NONE / <filename 1..54 without-gen>
Specifies the name of the message file which is to be deactivated.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	NMH1129	Warning
	32	NMH1121	Internal error
	32	NMH1125	System error
	32	NMH1181	System error
	64	CMD0216	Semantic error
	64	NMH1133	Semantic error

4.34 MODIFY-MONJV

Modify job monitoring JV

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The following elements in the system section of a job monitoring job variable can be modified with the MODIFY-MONJV command:

- Time stamp (operand TIMESTAMP)
- Name of the job to be monitored (operand DESCRIPTOR)
- Job-specific information (operand USER-INFORMATION)

The format and position of the elements in the system section are described in the “JV” manual [20].

The caller must have write privileges.
When no job variable is specified, the command affects the monitoring job variable of the job from which the command was issued.
The command is only executed when the job variable monitors a job.

Format

MODIFY**-MONJV** Alias: **MDMJV**

MONJV = ***SMONJVJ /** <filename 1..54 without-gen-vers>

,**TIMEST**AMP = ***UNCHA**NGED / ***SET**

,**DESC**RIPTOR = ***UNCHA**NGED / <c-string 1..8 with-low>

,**USER-INF**ORMATION = ***UNCHA**NGED / <c-string 1..58 with-low>

,**PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> /

***SECRET**

Operands

MONJV = *SMONJVJ / <filename 1..54 without-gen-vers>
Name of the monitoring job variable. The default value is *SMONJVJ, i.e. the job variable that monitors its own job (it was linked to the *SMONJVJ link name when the job was started, i.e. when the status was set to “$R”).

TIMESTAMP = *UNCHANGED / *SET
Specifies if a time stamp (in GMT time) is to be set for job monitoring
(format: yyyy-mm-ddhhmmss). The default value is *UNCHANGED, i.e. a new time stamp is not set.

DESCRIPTOR = *UNCHANGED / <c-string 1..8 with-low>
Specifies if the name of the application to be monitored is to be set. The default value is *UNCHANGED, i.e. no change is made. Right-justified input containing less than eight characters is padded with spaces.

USER-INFORMATION = *UNCHANGED / <c-string 1..58 with-low>
Specifies if application-specific information is to be set. The default value is *UNCHANGED, i.e. no change is made. Right-justified input containing less than 58 characters is padded with spaces.

PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer-2147483648..2147483647> / *SECRET
Password that may be required for write access to the job variable. The default value is *NONE, i.e. no password. The PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in an interactive dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^ permits concealed input of the password.
- The password entered is not logged.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Example

```
/set-logon-par user,12345678,'PASSWORD',monjv=test
/show-jv test
```

```
%$R 09WXU1OSH    J0312012-01-27102849
```

```
/mod-monjv test,timestamp=*set,desc='APPLICTN',user-inf='User Info' ——— (1)
/show-jv test   ————————————————————————————————————————————————— (2)
```

```
%$R 09WXU1OSH    J0312012-01-271028492012-01-27103438APPLICTN          User Info
```

(1) A time stamp is set in the job variable TEST, the DESCRIPTOR and USER-INFORMATION fields are supplied with any value you choose.

(2) The job variable TEST now contains the following values:

- TIMESTAMP: 2012-01-27103438
- DESCRIPTOR: 'APPLICTN'
- USER-INFORMATION='User Info'

4.35 MODIFY-MOUNT-PARAMETER

Set default values for mounting and dismounting

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

This command enables the operator to specify default values for mounting and dismounting tapes and disks. The operator can use the SHOW-MOUNT-PARAMETER command to find out which values are currently set.

Format

MODIFY**-MOUNT-PAR**AMETER

DISK-MOUNT = ***UNCHA**NGED / ***Y**ES / ***NO**

,**TAPE-MOUNT** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**ALLOC**ATE**-TAPE** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**UNL**OAD**-REL**EASED**-TAPE** = ***UNCHA**NGED / ***ACCORD**ING**-TO-USER-REQ**UEST /

***REGARDLESS-OF-USER-REQ**UEST(...) / ***IGNORE-USER-REQ**UEST

***REGARDLESS-OF-USER-REQ**UEST(...)

| **TAPE-FAMILY** = ***ALL** / ***MBK**

,**NEXT-TAPE-MOUNT** = ***UNCHA**NGED / ***BEST-GEN**ERATED**-DEV**ICE /

***LEAST-RECENTLY-USED-DEV**ICE / ***BY-CONTR**OLLER

,**PREM**OUNT**-MSG** = ***UNCHA**NGED / ***ACCORD**ING**-TO-USER-REQ**UEST / ***IGNORE-USER-REQ**UEST /

***PROC**ESS**-USER-REQ**UEST**-ASYNCH**

,**LOCATION** = ***ALL** / ***NONE** / <alphanum-name 1..8>

Operands

DISK-MOUNT =
Specifies whether the operator is ready to carry out disk mounting.
The system default is *YES.

DISK-MOUNT = *UNCHANGED
The value valid up to now (previous MOD-MOUNT-PAR or presetting) remains unchanged (default value).

DISK-MOUNT = *YES
The operator is ready to carry out disk mounting, i.e. allocation requests for unmounted private disks result in a MOUNT message.

DISK-MOUNT = *NO
The operator is not ready to carry out disk mounting. Allocation requests for private disks which are to be mounted are automatically rejected by the system. REMOUNT and INOP messages are still output and require appropriate responses.

TAPE-MOUNT =
Specifies whether the operator is ready to carry out tape mounting. The system default is *YES.

TAPE-MOUNT = *UNCHANGED
The value valid up to now (previous MOD-MOUNT-PAR or presetting) remains unchanged (default value).

TAPE-MOUNT = *YES
The operator is ready to carry out tape mounting, i.e. allocation requests for unmounted tapes result in a MOUNT message.

TAPE-MOUNT = *NO
The operator is not ready to carry out tape mounting. Allocation requests for tapes which are to be mounted are automatically rejected by the system. REMOUNT, INOP and WP-MISSING messages are still output and require appropriate responses.

ALLOCATE-TAPE =
Specifies whether the system can allocate tapes which are already online without operator support (without a MOUNT message). The system default is *YES.

ALLOCATE-TAPE = *UNCHANGED
The value valid up to now (previous MOD-MOUNT-PAR or presetting) remains unchanged (default value).

ALLOCATE-TAPE = *YES
The system responds automatically to PREMOUNT, MOUNT and REMOUNT messages if the tape is recognized as being online.

ALLOCATE-TAPE = *NO
The system does not respond to PREMOUNT, MOUNT and REMOUNT messages even if the appropriate tape is recognized as being online. The appropriate response must be entered by the operator.

UNLOAD-RELEASED-TAPE =
Specifies whether tapes are to be unloaded after their release if they have not already been unloaded by the user. The system default is *ACCORDING-TO-USER-REQUEST.
Note that tapes are unloaded only if they have actually been used (the value of VOLUME-PHASE was IN-USE).

UNLOAD-RELEASED-TAPE = *UNCHANGED
The value valid up to now (previous MOD-MOUNT-PAR or presetting) remains unchanged (default value).

UNLOAD-RELEASED-TAPE = *ACCORDING-TO-USER-REQUEST
When tapes are released, they are unloaded according to user request.

UNLOAD-RELEASED-TAPE = *REGARDLESS-OF-USER-REQUEST(...)
Tapes (streamer tapes and/or cartridges) are unloaded after their release if they were in use (PHASE = IN-USE).

TAPE-FAMILY = *ALL
All tapes (streamer tapes and cartridges) are unloaded after their release.

TAPE-FAMILY = *MBK
Only cartridges are unloaded after their release. Streamer tapes are unloaded after their release according to user request.

UNLOAD-RELEASED-TAPE = *IGNORE-USER-REQUEST
A request to unload a tape volume after its release is ignored. Unload requests for streamer tape devices are always ignored by NDM. Unload requests for tape cartridge devices are only ignored if the device is being used in the “manual” operating mode. This enables cartridges to be changed during unmanned operation if the stackers involved have a supply of cartridges for this purpose.

NEXT-TAPE-MOUNT =
Specifies the device selection mode to be used by NDM to select the free device during tape allocation.
The system default is *BEST-GENERATED-DEVICE.

NEXT-TAPE-MOUNT = *UNCHANGED
The device selection mode valid up to now remains unchanged.

NEXT-TAPE-MOUNT = *BEST-GENERATED-DEVICE
NDM searches through the device table from the beginning, i.e. in the order predefined at system generation, and selects the first suitable free device.

NEXT-TAPE-MOUNT = *LEAST-RECENTLY-USED-DEVICE
NDM searches through the device table and selects the least recently used device from the set of suitable free devices. This “wraparound” allocation enables tape devices to be used more evenly.

NEXT-TAPE-MOUNT = *BY-CONTROLLER
From the suitable free devices, NDM selects a device which is connected to a controller on which the fewest devices are in use. This ensures that the devices used are distributed evenly over the available controllers and channel paths. The device selection in NDM only takes the local device assignments into account. In conjunction with the DDAL function of the IORM subsystem (I/O Resource Manager, see the “Utility Routines” manual [9] (Related publications)), optimization is extended to all guest systems of a BS2000 server.

PREMOUNT-MSG =
Controls the output of PREMOUNT messages (NKVT012).

PREMOUNT-MSG = *UNCHANGED
The existing setting is left unchanged.

PREMOUNT-MSG = *ACCORDING-TO-USER-REQUEST
Output of PREMOUNT messages is as for versions up to and including
BS2000/OSD-BC V2.0.

PREMOUNT-MSG = *IGNORE-USER-REQUEST
PREMOUNT messages are suppressed.

PREMOUNT-MSG = *PROCESS-USER-REQUEST-ASYNCH
PREMOUNT messages are output as “normal” messages which do not require a response.

LOCATION =
Specifies whether the settings made or tapes are to depend on the storage location.

LOCATION = *ALL
The settings do not depend on the storage location.

LOCATION = *NONE
The settings only apply for devices which are not assigned to any storage location.

LOCATION = <alphanum-name 1..8>
The settings only apply for devices which are assigned to the specified storage location. The storage location must already be configured (see /ADD-DEVICE-DEPOT). After a storage location has been deleted, the storage-location-specific parameters are reset.
In the case of devices which are assigned to multiple storage locations with different parameters, the last specification made applies.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	130	NKVD002	Disk monitor not available
	130	NKVT002	Tape monitor not available

Note

If spoolout to tape is being used in the current session, UNLOAD-RELEASED-TAPE= *ACCORDING-TO-USER-REQUEST should always be set. This means that the spoolout tape will not be unloaded and have to be remounted every time a file is spooled out.

4.36 MODIFY-MSG-ATTRIBUTES

Define language for message output

Component:	MIP
Functional area:	Message processing
Domain:	MESSAGE-PROCESSING
Privileges:	STD-PROCESSING TSOS SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-MSG-ATTRIBUTES command is used to specify the language in which messages for his task are to be output. The user specifies which message files are to be searched for the message text in the required language. If these message texts are not found in the specified message files (activated system and/or task message files), messages will be output in the language defined in the MSGLPRI system parameter.
SDF output (such as data types and help texts) also takes the language code into account (see the “Introductory Guide to the SDF Dialog Interface” [15]).
The SHOW-MSG-FILE-ASSIGNMENT command displays the names of the activated system and task message files.

Format

MODIFY-**M**SG-**ATTR**IBUTES
TASK-LANGUAGE = ***UNCHA**NGED / ***STD** / ***NO** / <name 1..1>

Operands

TASK-LANGUAGE = *UNCHANGED / *STD / *NO / <name 1..1>
Specifies the language in which the messages are to be output.

TASK-LANGUAGE = *STD
Message output takes place in the language defined in the user entry (see output field *DEFAULT-MSG-LANGUAGE* , SHOW-USER-ATTRIBUTES command). If the user entry contains no corresponding value, the language defined by the class 2 system parameter MSGLPRI is assumed.
e.g. E = English, D = German.

TASK-LANGUAGE = *NO
Message output takes place in the language defined in the MSGLPRI system parameter.

TASK-LANGUAGE = <name 1..1>
Message output takes place in the language selected by the language code (e.g. TASK-LANGUAGE=E for English).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	NHM1174	Syntax error
	64	CMD0216	Semantic error

4.37 MODIFY-MSG-FILE-ASSIGNMENT

Define message files for task

Component:	MIP
Functional area:	Message processing
Domain:	MESSAGE-PROCESSING
Privileges:	STD-PROCESSING OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS
Routing code:	E

Function

The MODIFY-MSG-FILE-ASSIGNMENT command enables the user to activate and deactivate additional message files (task message files) for his task.
The SHOW-MSG-FILE-ASSIGNMENT command displays the activated message files. The user can set the language for message output task-specifically by means of the MODIFY-MSG-ATTRIBUTES command.

Privileged functions

Systems support (TSOS or OPERATING privilege) can use SCOPE=*SYSTEM to activate and deactivate message files on a system-global basis. Changes apply only to the current session (equivalent to the MODIFY-MIP-PARAMETERS command with SCOPE= *TEMPORARY). Systems support can use the MODIFY-MIP-PARAMETERS command to make permanent changes.

Format

MODIFY**-MSG-FILE-ASS**IGNMENT
ADD-FILE = ***NO** / list-poss(8): <filename 1..54 without-gen> ,**REM**OVE**-FILE** = ***NO** / list-poss(8): <filename 1..54 without-gen> ,**SCOPE** = ***STD** / ***SYS**TEM / ***TASK**

Operands

ADD-FILE = *NO / list-poss(8): <filename 1..54 without-gen>
Names of the message files to be activated. Up to 8 files may be specified. The message files activated in this way can be displayed via the SHOW-MSG-FILE-ASSIGNMENT command.
Message files are created by using the MSGMAKER utility routine (see the “Utility Routines” manual [9]).

REMOVE-FILE = *NO / list-poss(8): <filename 1..54 without-gen>
Names of the message files to be deactivated. Up to 8 files may be specified. Only files that are activated as message files can be deactivated.

SCOPE = *STD / *SYSTEM / *TASK
Applicability of the command.

SCOPE = *STD
The applicability of the command is *TASK for nonprivileged users and *SYSTEM for privileged users.

SCOPE = *TASK
The changes apply only to the calling task.

SCOPE = *SYSTEM
This value can only be specified by privileged users.
Specifies that the modifications made in the range assignment list are to have a global system effect and are not restricted to the calling task. The changes apply only to the current session. Systems support can use the MODIFY-MIP-PARAMETERS command to make permanent changes.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed messages: NMH1102, NMH1109, NMH1180, NMH1183
	1	NMH1174	Syntax error
	32	NMH1121	Internal error
	32	NMH1181	Error in file processing Guaranteed messages: NMH1103, NMH1104, NMH1105, NMH1106, NMH1108, NMH1181
	64	CMD0216	Semantic error
	64	NMH1150	No authorization for command

4.38 MODIFY-MSG-OPTIONS

Control reception of unsolicited messages

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the MODIFY-MSG-OPTIONS command, users can control the reception of unsolicited messages for their jobs. The messages in question are asynchronous messages and messages from systems support or a system task, capable of reaching the user but not necessarily directly related to command processing.

It is possible for a user to receive the following messages:

- job-related messages sent to that user by systems support using the INFORM-JOB command
- messages sent to all users by systems support using the INFORM-ALL-JOBS command (broadcasts)
- messages from system tasks (e.g. on completion of a file transfer)

Users can configure their message reception requirements separately for three types of message:

- for job-related messages in the OPERATOR-MSG operand
- for messages to all users in the OPERATOR-BROADCAST operand
- for messages from system tasks in the SYSTEM-MSG operand

Urgent messages, e.g. messages at system shutdown, are always output.

At the start of a task, the following settings apply:

Operand	Setting at start of task
OPERATOR-BROADCAST	*YES
OPERATOR-MSG	*YES
SYSTEM-MSG	*NO
INFO-OUTPUT	*STD

Table 67: Base settings for reception of unsolicited messages

The INFO-OUTPUT operand further allows the user to control exactly where on the terminal the messages are output.

The current settings can be displayed with the SHOW-MSG-OPTIONS command.

Accessing suppressed messages

While the MODIFY-MSG-OPTIONS command allows you to suppress the output of unsolicited messages if you find them irritating, the drawback is that you may fail to receive a message which is important to you.

You have the option of using the ASSIGN-SYSEVENT command to create an event stream to collect all the asynchronous messages sent to your interactive task, and then using the SHOW-SYSEVENT-LOG command to view its contents online. You can also page through the event stream.
A task with the OPERATING privilege can access the event stream directly (i.e. without assignment). However, in order also to receive the three message categories that can be suppressed with MODIFY-MSG-OPTIONS, the task must explicitly assign the system event stream using ASSIGN-SYSEVENT.

Format

MODIFY-**MSG-OPT**IONS
OPERATOR-**BROAD**CAST = ***UNCHA**NGED / ***Y**ES / ***NO**
,**OPER**ATOR-**MSG** = ***UNCHA**NGED / ***Y**ES / ***NO**
,**SYS**TEM-**MSG** = ***UNCHA**NGED / ***Y**ES / ***N**O
,**INFO-OUTPUT** = ***UNCHA**NGED / list-poss(2): ***STD** / ***SYSTEMLINE**

Operands

OPERATOR-BROADCAST = *UNCHANGED / *YES / *NO
Specifies whether the user wants to receive messages sent to all users by systems support using the INFORM-ALL-JOBS command.

OPERATOR-MSG = *UNCHANGED / *YES / *NO
Specifies whether the user wants to receive messages sent to him by systems support using the INFORM-JOB command.

SYSTEM-MSG = *UNCHANGED / *YES / *NO
Specifies whether the user wants to receive messages sent to him by a system task. Example: notification of file transfer completion.

INFO-OUTPUT = *UNCHANGED / list-poss(2): *STD / *SYSTEMLINE
Specifies how messages sent by systems support are to be output on the terminal.
If *STD is specified, the messages are output in the current screen line.
If *SYSTEMLINE is specified, the messages are output in the display line, i.e. the bottom line of the screen.
If both values are specified, the messages are output in both the current screen line and the display line.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	32	NBR0940	Command not executed because no entry in the TCB was possible

4.39 MODIFY-MSG-SUBSCRIPTION

Initiate or cancel message subscription

Component:	BS2000
Functional area:	Operator terminal control Message processing
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	E

Function

Logical BS2000 operator terminals (consoles) in particular may be required to respond to certain system messages. The MODIFY-MSG-SUBSCRIPTION command instructs the UCON message distribution mechanism to deliver certain system messages to a specific operator terminal (message subscription) or to cancel an existing subscription. A message subscription is not a request for messages to be output exclusively on a given operator terminal.
The command applies only to the operator terminal on which it is issued. It has no effect on other operator terminals.

The SHOW-MSG-SUBSCRIPTION command provides details of the current message subscription arrangements.

Format

MODIFY-**MSG-SUBSCRIPT**ION

ADD-MSG-ID = ***NONE** / list-poss (32): <name 1..7>

,REMOVE-MSG-ID = ***NONE** / ***ALL** / list-poss (32): <name 1..7>

,ADD-SENDER = ***NONE** / ***USER-ID**(...) / ***TSN**(...) / ***CONSOLE**(...)

***USER-ID**(...)

| USER-ID = ***NONE** / list-poss (32): <name 1..8>

***TSN**(...)

| TSN = ***NONE** / ***SYS**TEM-**TASKS** / list-poss (32): <alphanum-name 1..4>

***CONSOLE**(...)

| CONSOLE = ***NONE** / list-poss (32): <name 2..2> / <name 4..4>

,REMOVE-SENDER = ***NONE** / ***ALL** / ***USER-ID**(...) / ***TSN**(...) / ***CONSOLE**(...)

***USER-ID**(...)

| USER-ID = ***ALL** / list-poss (32): <name 1..8>

***TSN**(...)

| TSN = ***ALL** / ***SYS**TEM-**TASKS** / list-poss (32): <alphanum-name 1..4>

***CONSOLE**(...)

| CONSOLE = ***ALL** / list-poss (32): <name 2..2> / <name 4..4>

,DELIVER-OTHER-MSG = ***UNCHA**NGED / ***Y**ES / ***NO**

Operands

ADD-MSG-ID = *NONE / list-poss(32): <name 1..7>
Specifies whether a message subscription is required for the operator terminal.

Note

A message subscription can be suppressed in full or in part with the SET-MSG-SUPPRESSION command.

ADD-MSG-ID = list-poss(32): <name 1..7>
Specifies the name (ID) of the message which is to be delivered to the operator terminal under the message subscription mechanism. One message subscription is added for each name specified. A 7-character name matches exactly one message ID; a shorter name (1 to 6 characters) matches a group of message IDs all beginning with the specified string. It is not possible to subscribe to messages which required a response.

REMOVE-MSG-ID = *NONE / *ALL / list-poss(32): <name 1..7>
Specifies whether message subscriptions are to be canceled for the operator terminal.

REMOVE-MSG-ID = *ALL
All message subscriptions ordered for the operator terminal are canceled.

REMOVE-MSG-ID = list-poss(32): <name 1..7>
Specifies the names (message IDs) of the message subscriptions which are to be canceled. One message subscription is canceled for each name specified, provided the subscription actually exists.
To cancel a message subscription you must specify the same name as was used when the subscription was ordered. For example, a subscription to all messages beginning with the string ABC123 (corresponding to ADD-MSG-ID=ABC123) cannot be canceled with REMOVE-MSG-ID=ABC1.
Similarly, it is not possible to reduce the number of messages in a subscription by canceling a specific message, e. g. using REMOVE-MSG-ID=ABC1234. The SET-MSG-SUPPRESSION command is provided for this purpose.

ADD-SENDER = *NONE / *USER-ID(...) / *TSN(...) / *CONSOLE(...)
Messages from the users specified are to be routed to the console.
The operand is only allowed when input at a physical or logical operator terminal. Input form an interactive task with the OPERATING privilege is not allowed.

ADD-SENDER = *NONE
Default value.
No messages are added on the basis of sender attributes.

ADD-SENDER = *USER-ID(...)
Messages that are sent by user tasks or system tasks with the specified user ID (via MSG7[X] or TYPIO macro calls) are delivered.

USER-ID = *NONE / list-poss(32): <name 1..8>
One or several user IDs can be specified.
The default value is *NONE, i.e. messages are not delivered.

ADD-SENDER = *TSN(...)
Messages that are sent by user tasks or system tasks with the specified TSNs (via MSG7[X] or TYPIO macro calls) are delivered.

TSN = *NONE
Default value. Messages are not delivered.

TSN = *SYSTEM-TASKS
All console messages generated by system tasks are delivered.

TSN = list-poss(32): <alphanum-name 1..4>
Messages that are sent by user tasks or system tasks with the specified TSNs are delivered.
Leading zeroes do not have to be entered for the TSNs; TSN=AB is interpreted as ' AB' and not as '00AB'.

ADD-SENDER = *CONSOLE(...)
Messages sent by the specified physical or logical consoles are delivered.

CONSOLE = *NONE / list-poss(32): <name 2..2> / <name 4..4>
One or more consoles can be specified.

Physical consoles are specified through a two-position mnemonic name and logical consoles by means of a four-position authorization name.
The default value is *NONE, i.e. messages are not delivered.

REMOVE-SENDER = *NONE / *ALL / *USER-ID(...) / *TSN(...) / *CONSOLE(...)
Message subscriptions previously defined through the sender attributes with MODIFY-MSG-SUBSCRIPTION (ADD-SENDER operand) are removed.

The operand is only allowed when entered from a physical or logical console. Input from an interactive task with the OPERATING privilege is not allowed.

REMOVE-SENDER = *NONE
Default value. No message subscriptions are removed.

REMOVE-SENDER = *ALL
All message subscriptions that were previously defined via sender attributes (ADD-SENDER operand) are removed.

REMOVE-SENDER = *USER-ID(...)
Messages from specific user IDs that were previously defined via ADD-SENDER=*USER-ID(...) are removed.

USER-ID = *ALL / list-poss (32): <name 1..8>
One or several user IDs for which message subscription is to be removed can be specified.
The default value is *ALL, i.e. messages from all user IDs are removed.

REMOVE-SENDER = *TSN(...)
Messages from specific TSNs that were previously specified with ADD-SENDER=*TSN(...) are removed.

TSN = *ALL / *SYSTEM-TASKS / list-poss (32): <alphanum-name 1..4>
One or several TSNs for which message subscription is to be removed can be specified.
The default value is *ALL, i.e. messages from all TSNs are removed.

REMOVE-SENDER = *CONSOLE(...)
Messages from specific consoles that were previously specified with ADD-SENDER=*CONSOLE(...) are removed.

CONSOLE = *ALL / list-poss (32): <name 2..2> / <name 4..4>
One or several consoles for which message subscription is to be removed can be specified.
The default value is *ALL, i.e. messages from all consoles are removed.

DELIVER-OTHER-MSG = *UNCHANGED / *YES / *NO
Governs whether the delivery of other (nonsubscription) messages to the operator terminal is to be affected.
This operand is allowed only if the command is entered at a physical or logical operator terminal.

DELIVER-OTHER-MSG = *UNCHANGED
The delivery of other (nonsubscription) messages to the operator terminal is unchanged.

DELIVER-OTHER-MSG = *YES
Any previously imposed suppression of nonsubscription messages is canceled.

DELIVER-OTHER-MSG = *NO
Any nonsubscription messages are not delivered to the operator terminal, with the exception of messages requiring a response and messages directed explicitly to the operator terminal.

Notes

- The command can be issued at all operator terminals, which means at physical and logical operator terminals ($CONSOLE applications) and in interactive tasks with the OPERATING privilege. At physical and logical operator terminals the command affects the delivery of messages to the operator terminal from which the command was issued. In interactive tasks with the OPERATING privilege the command has consequences for the viewing of a system event stream (see the command SHOW-SYSEVENT-LOG TYPE=*SYSTEM). For that reason the DELIVER-OTHER-MSG operand is not available in an interactive task, as suppressing the display of undirected messages (value *NO) would in effect be identical with relinquishing all the operator roles for that task (see the RELEASE-OPERATOR-ROLE command).
- Suppression of the delivery of individual messages with the aid of the SET-MSG-SUPPRESSION command takes precedence over a message subscription initiated with the MODIFY-MSG-SUBSCRIPTION command. That means that it is possible to subscribe to a group of messages (e.g. all those with a message ID beginning with the string ABC) at an operator terminal and to exclude individual message IDs (e.g. message ABC1234) from the subscription set with the aid of the SET-MSG-SUPPRESSION command.
- The messages subscriptions specified with the REMOVE-MSG-ID and REMOVE-SENDER operands are always the first to be removed when the command is executed. The message subscriptions specified with the ADD-MSG-ID and ADD-SENDER operands are added to the subscription set.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	NBR0091	Some message IDs ignored
	1	CMD0202	Syntax error
	32	NBR0034	Error in command execution
	64	CMD0216	Required authorization not available

4.40 MODIFY-OPERATOR-ATTRIBUTES

Change assignment of operator roles to user IDs

Component:	SRPMNUC
Functional area:	Operator function control
Domain:	SECURITY-ADMINISTRATION
Privileges:	SECURITY-ADMINISTRATION

Function

This command is used to assign one or more operator roles to an operator identification, which is recorded in the user catalog for a pubset as a user ID. After this assignment has been made, an authorized application which is connected under this operator identification may then accept the specified operator role, and thus undertake a particular area of work within the operating function. The authorizations (work areas) which are linked to the operator role must have been specified beforehand by systems support, using a CREATE-OPERATOR-ROLE command.
It should be noted that when a MODIFY-OPERATOR-ATTRIBUTES command is executed both the user ID and the operator role must be recorded in the user catalog of the same pubset.
Systems support can obtain an overview of the roles which have been defined, and of their assignment to user IDs, by means of the commands SHOW-OPERATOR-ATTRIBUTES and SHOW-OPERATOR-ROLE.

Format

MODIFY**-OPER**ATOR**-ATTR**IBUTES

USER-IDENTIFICATION = <name 1..8>

,**PUBSET** = ***HOME** / <cat-id 1..4>

,**REM**OVE**-OPER**ATOR**-ROLE** = ***NONE** / ***ALL** / list-poss(48): <name 1..8>

,**ADD-OPER**ATOR**-ROLE** = ***NONE** / list-poss(48): <name 1..8>

Operands

USER-IDENTIFICATION = <name 1..8>
The user ID (name of the authorized application) for which an assignment to an operator role is to be specified or amended on the pubset concerned.

PUBSET =
Specifies the pubset in whose user catalog the user ID and the operator role are recorded.

PUBSET = *HOME
The assignment is to apply for the home pubset in the current session.

PUBSET = <cat-id 1..4>
Precise specification of the pubset to which the assignment is to apply.

REMOVE-OPERATOR-ROLE =
Specifies the operator roles which are to be withdrawn from the user ID on the specified pubset.

REMOVE-OPERATOR-ROLE = *NONE
Preset value: no operator roles are to be withdrawn from the user ID.

REMOVE-OPERATOR-ROLE = *ALL
All the operator roles previously assigned to the user ID on the nominated pubset are to be withdrawn.

REMOVE-OPERATOR-ROLE = list-poss(48): <name 1..8>
The exact specification of up to 48 operator roles which are to be withdrawn from the user ID.

ADD-OPERATOR-ROLE =
Specifies additional operator roles which are to be assigned to the user ID nominated, on the pubset.

ADD-OPERATOR-ROLE = *NONE
Preset value: no additional operator roles are to be assigned to the user ID.

ADD-OPERATOR-ROLE = list-poss(48): <name 1..8>
The exact specification of up to 48 additional operator roles which are to be assigned to the user ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

4.41 MODIFY-OPERATOR-ROLE

Change assignment of routing codes to operator role

Component:	SRPMNUC
Functional area:	Operator function control
Domain:	SECURITY-ADMINISTRATION
Privileges:	SECURITY-ADMINISTRATION

Function

This command is used to modify a list of routing (authorization) codes which have been assembled to form an “operator role”, and of which the specified pubset is aware. A modification involves either adding further routing codes to the existing operator role, from the list of up to 40 available codes, or withdrawing particular routing codes from the role.

Format

MODIFY-**OPER**ATOR-**ROLE**

OPERATOR-**ROLE** = <name 1..8>

,**PUBSET** = ***HOME** / <cat-id 1..4>

,**REM**OVE-**ROUT**ING-**CODES** = ***NONE** / ***ALL** / list-poss(40): * / <alphanum-name 1..1>

,**ADD-ROUT**ING-**CODES** = ***NONE** / ***ALL** / list-poss(40): * / <alphanum-name 1..1>

Operands

OPERATOR-ROLE = <name 1..8>
Specifies the name of the operator role which is to be amended. This is the name that an authorized user program must use whenever it wishes to undertake tasks (= routing codes) which are linked with this role.

PUBSET =
Specifies the pubset whose user catalog contains an entry for the role which is to be modified.

PUBSET = *HOME
The operator role is recorded in the user catalog of the home pubset.

PUBSET = <cat-id 1..4>
Precise specification of the pubset in whose user catalog the operator role is recorded.

REMOVE-ROUTING-CODES =
Specifies the routing codes, and hence the areas of work, which are to be withdrawn from the existing operator role.

REMOVE-ROUTING-CODES = *NONE
Preset value: no routing codes are to be withdrawn from the existing operator role.

REMOVE-ROUTING-CODES = *ALL
All the routing codes previously assigned to the role are to be withdrawn.

REMOVE-ROUTING-CODES = list-poss(40): * / <alphanum-name 1..1>
Precise specification of up to 40 routing codes which are to be withdrawn from the existing operator role. There is a table of the routing codes in the “Introduction to System Administration” [14].

ADD-ROUTING-CODES =
Specifies the additional routing codes, and hence the areas of work, which are to be assigned to the existing operator role.

ADD-ROUTING-CODES = *NONE
Preset value: no additional routing codes are to be assigned to the existing operator role.

ADD-ROUTING-CODES = *ALL
All the routing codes known to the system are to be assigned to the existing role.

ADD-ROUTING-CODES = list-poss(40): * / <alphanum-name 1..1>
Precise specification of up to 40 additional routing codes which are to be assigned to the existing operator role. There is a table of the routing codes in the “Introduction to System Administration” [14].

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

4.42 MODIFY-PAGING-AREA-ATTRIBUTES

Modify attributes of paging areas

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING SYSTEM-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The MODIFY-PAGING-AREA-ATTRIBUTES command is used to modify the attributes of one or more paging areas.

Format

MODIFY**-PAG**ING**-AREA-ATTR**IBUTES

VOLUME = ***ALL** / ***PUBSET**(...) / list-poss(256): <vsn 1..6>

***PUBSET**(...)

| PUBSET = list-poss(256): <cat-id 1..4>

,UTILIZATION = ***LOW** / ***MED**IUM / ***HIGH**

Operands

VOLUME = *ALL / *PUBSET(...) / list-poss(256): <vsn 1..6>
Specifies which paging files are to be changed.

VOLUME = *ALL
Changes the attributes of all used paging files on SF and SM pubsets of the system.

VOLUME = *PUBSET(...)
Specifies one or more SD pubsets. The attributes of the paging file are to be changed on each volume of the specified SF pubsets.

PUBSET = list-poss(256): <cat-id 1..4>
Specifies the SF pubsets via their catalog number.

VOLUME = <vsn 1..6>
Specifies the volume serial number (VSN) of the disk on which the paging file to be changed is located. Up to 256 disks can be specified.

UTILIZATION = *LOW / *MEDIUM / *HIGH
Specifies how a paging file is to be utilized. This affects both use of the paging file and the duration and I/O rate of a reduction of the paging files.

Paging management takes this specification into account as far as possible, but it cannot guarantee that a paging file will be utilized in the desired manner. This ultimately depends on the actual paging rate and on the behavior of the paging load over time.

UTILIZATION = *LOW
The paging file is to be utilized less intensively than envisaged in the paging strategy (the paging file will hold pages less frequently). This setting is particularly advisable if the paging file is intended to be removed from the paging area (paging file reduction) or if frequent DMS I/O is to be expected on the paging disk in addition to the paging I/O (typically applies to paging files in the home pubset).

UTILIZATION=*LOW applies to the paging files in the home pubset if they are added to the paging area at system startup. Paging files that are not on the home pubset and that are added to the paging area via the paging parameter service are covered by UTILIZATION=*MEDIUM.

UTILIZATION = *MEDIUM
The paging file is to be used in accordance with the paging strategy, which means that paging files will be utilized evenly in proportion with their size.

UTILIZATION = *HIGH
The paging file is to be utilized more intensively than envisaged in the paging strategy (the paging file will hold pages more frequently). This is typically helpful with small files, as it is a way to reduce the load on disks with large files, allowing the paging files to be utilized evenly, irrespective of size. It is also possible to cut the time required for the reduction of large paging files.

Notes

- Before the attributes can be redefined, the paging file must already have been added to the paging area. The pubset of the paging file which is having its attributes redefined need not have been imported.
- If a paging file which is being released is relatively heavily utilized, you must anticipate the command taking a long time to relocate the virtual pages to other paging files, heavy I/O traffic, and a high CPU load. To lessen these loads and to simplify the reduction process, it is advisable not to start reduction immediately, but first to minimize the paging utilization of the paging file in question (UTILIZATION operand, value *LOW). From then on the paging file in question will (as far as possible) no longer be used to hold virtual pages. Thereafter, through page access and release, the contents of the associated paging file will be diminished in size, with the result that less I/O is needed to swap the pages out in the actual reduction process. There is, however, a chance that it will not be possible to get by without swapping pages into the paging file because the paging rate is too high, or conversely that the pages in the paging file will not be accessed. In these cases the command will have no effect.
  Whether modifying the paging utilization to *LOW will bring the hoped-for success can be determined with the SHOW-PAGING-CONFIGURATION command: If the free size of the paging area concerned increases, the modification was successful. The SHOW-PAGING-CONFIGURATION command also indicates the time when the actual reduction process is to start. This may be after a few minutes, but periods of an hour or more are also conceivable.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	EMM2800	The function cannot be continued because of an internal error Guaranteed messages: EMM2818, EM2828
	64	EMM2804	The paging area on the specified volume is not in use Guaranteed message: EMM2851
	64	EMM2805	The MRSCAT entry of the pubset is missing Guaranteed message: EMM2824
	128	EMM2807	The function cannot be continued due to a lack of resources Guaranteed messages: EMM2819, EM2829

When lists are specified, command processing is aborted in the event of an error with a return code of EMM2800 or EMM2807. In all other cases processing continues.

Examples

The paging file on disk 2OSW.0 is to be utilized less intensively because reduction of the paging area is planned:

```
/MODIFY-PAGING-AREA-ATTRIBUTES VOLUME=2OSW.0, UTILIZATION=*LOW
```

4.43 MODIFY-POSIX-USER-ATTRIBUTES

Modify POSIX user attributes

Component:	SRPMNUC
Functional area:	User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING POSIX-ADMINISTRATION USER-ADMINISTRATION

Function

The MODIFY-POSIX-USER-ATTRIBUTES command modifies the POSIX user attributes of a BS2000 user ID in the user catalog of the specified pubset.

Each time a new BS2000 user ID is set up (with the ADD-USER command), its POSIX user attributes are automatically set to the POSIX defaults (as defined with the MODIFY-POSIX-USER-DEFAULTS command). Where necessary, these POSIX user attributes can be changed.
Systems support can configure a BS2000 user ID as a POSIX user with the ADD-POSIX-USER command.

The following users are authorized to do so:

- holders of the POSIX-ADMINISTRATION or USER-ADMINISTRATION privilege, for all BS2000 user IDs on all pubsets.
- group administrators, for the group and subgroup members they are in charge of on the pubset they manage. However, the following restrictions apply to group administrators:
  - A group administrator’s ADM-AUTHORITY authorization governs the POSIX user attributes which that administrator is allowed to modify.
  - The range of values a group administrator is allowed to assign to POSIX user attributes is limited.

  Details are given in the relevant operand descriptions.

The current POSIX default values can be displayed by means of the SHOW-POSIX-USER-ATTRIBUTES.

Format

MODIFY-**POSIX-USER-ATTR**IBUTES

USER-IDENTIFICATION = <name 1..8>

,**PUBSET** = ***HOME** / <cat-id 1..4>

,**USER-NUM**BER = ***UNCHA**NGED / ***BY-POSIX-USER-DEF**AULTS / ***HOME** / <integer 0..60002>

,**GR**OUP-**NUM**BER = ***UNCHA**NGED / ***BY-POSIX-USER-DEF**AULTS / ***GR**OUP-**ADM**INISTRATOR /
<integer 0..60002>

,**COMMENT** = ***UNCHA**NGED / ***BY-POSIX-USER-DEF**AULTS / ***NONE** / <c-string 1..255 with-low>

,**DIR**ECTORY = ***UNCHA**NGED / ***BY-POSIX-USER-DEF**AULTS / ***ROOT** /
<posix-pathname 1..1023 without-wild>

,**PROG**RAM = ***UNCHA**NGED / ***BY-POSIX-USER-DEF**AULTS / ***SHELL** /
<posix-pathname 1..1023 without-wild>

Operands

USER-IDENTIFICATION = <name 1..8>
BS2000 user ID for which the POSIX user attributes are to be changed.

PUBSET =
Pubset for which the POSIX user attributes in the user catalog are to be changed.

PUBSET = *HOME
The change affects the home pubset.

PUBSET = <cat-id 1..4>
The change affects the pubset with the specified catalog ID.

USER-NUMBER =
The user number which is automatically allocated when a BS2000 user ID is set up can be changed.
The USER-NUMBER attribute is a security issue, as the user number governs the associated privileges and determines who is the owner of a file. Group administrators cannot change the user number unless they have at least the group administrator privilege MANAGE-MEMBERS; and the range of values they can assign is restricted:

- They cannot allocate a user number of 0, which is the root privilege.
- They can only change the default user number.
- They can only allocate user numbers which are greater than the default user number.
- They cannot allocate duplicate user numbers.
- On a data pubset they can only assign the user number of the BS2000 user ID of the same name on the home pubset.

USER-NUMBER = *UNCHANGED
The user number is not changed.

USER-NUMBER = *BY-POSIX-USER-DEFAULTS
The user number is given the value of the corresponding POSIX default attribute as recorded in the user catalog of the specified pubset.

USER-NUMBER = *HOME
The user number of the BS2000 user ID of the same name on the home pubset is used. This value is meaningful only if the user number is being changed on a data pubset. It is redundant on the home pubset.

USER-NUMBER = <integer 0..60002>
The user number is given the specified value.

GROUP-NUMBER =
The group number which is automatically allocated when a BS2000 user ID is set up can be changed.

The GROUP-NUMBER attribute is a security issue, as POSIX does not check the admissibility of the BS2000 user /group combination against the POSIX group catalog when a user logs in.

Group administrators cannot change the group number unless they have at least the group administrator privilege MANAGE-MEMBERS, and the range of values they can assign is restricted:

- They can allocate only the default group number or the group number of the group administrator for the BS2000 user group to which the BS2000 user ID belongs.
- They cannot allocate a different group number for their own BS2000 user ID.

GROUP-NUMBER = *UNCHANGED
The group number is not changed.

GROUP-NUMBER = *BY-POSIX-USER-DEFAULTS
The group number is given the value of the corresponding POSIX default attribute as recorded in the user catalog of the specified pubset.

GROUP-NUMBER = *GROUP-ADMINISTRATOR
Allocates the group number owned by the group administrator of the BS2000 user group to which the BS2000 user ID belongs.

GROUP-NUMBER = <integer 0..60002>
The group number is given the specified value.

COMMENT =
The comment can be changed. Further information relating to the owner of the BS2000 user ID can be added as appropriate.

Note

This comment is used, for example, by mail programs to describe the sender.

COMMENT = *UNCHANGED
The comment is not changed.

COMMENT = *BY-POSIX-USER-DEFAULTS
The value is taken from the corresponding POSIX default attribute as recorded in the user catalog of the specified pubset.

COMMENT = *NONE
No comment is added.

COMMENT = <c-string 1..255 with-low>
The specified comment is added.

DIRECTORY =
The absolute path name of the user’s login directory can be changed. This attribute is not a security issue, as it governs only the value of the HOME shell variable and the initial value of the working directory. It cannot be used to bypass file and directory protection attributes.

DIRECTORY = *UNCHANGED
The absolute path name is not changed.

DIRECTORY = *BY-POSIX-USER-DEFAULTS
The value is taken from the corresponding POSIX default attribute as recorded in the user catalog of the specified pubset.

DIRECTORY = *ROOT
The root directory “/” is allocated.

DIRECTORY = <posix-pathname 1..1023 without-wild>
The specified path name is allocated.

PROGRAM =
The program which is run after a remote login or after the START-POSIX-SHELL command can be changed. This attribute is not a security issue, as only such programs as the user is allowed to execute can be run.

PROGRAM = *UNCHANGED
The program is not changed.

PROGRAM = *BY-POSIX-USER-DEFAULTS
The value is taken from the corresponding POSIX default attribute as recorded in the user catalog of the specified pubset.

PROGRAM = *SHELL
The default POSIX shell is started up.

PROGRAM = <posix-pathname 1..1023 without-wild>
The specified program is run.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	SRM6001	Command executed with warning
	32	SRM6020	Command rejected owing to system error
	64	SRM6040	Command rejected with error message
	130	SRM6030	Command rejected owing to insufficient resources

Examples

The POSIXTST user ID is to be allocated a user number of 55 and a group number of 66. The login directory (home directory) is to be */home/posixtst*. Following a POSIX login, the Bourne shell is to be started up.
There is to be a comment reading: “posix-user@posix-server.com”.

```
/MODIFY-POSIX-USER-ATTRIBUTES USER-ID=POSIXTST, -
/  USER-NUMBER=55, -
/  GROUP-NUMBER=66, -
/  DIRECTORY=/home/posixtst, -
/  PROGRAM=*SHELL, -
/  COMMENT='posix-user@posix-server.com'
```

The PSXROOT user ID is to have root privileges. Its home directory is to be */home/psxroot.*

```
/MODIFY-POSIX-USER-ATTRIBUTES USER-ID=PSXROOT, -
/  USER-NUMBER=0, -
/  GROUP-NUMBER=0, -
/  DIRECTORY=/home/psxroot,
```

4.44 MODIFY-POSIX-USER-DEFAULTS

Modify POSIX default attributes

Component:	SRPMNUC
Functional area:	User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING POSIX-ADMINISTRATION USER-ADMINISTRATION

Function

The MODIFY-POSIX-USER-DEFAULTS command modifies the POSIX default attributes in the user catalog of the specified pubset. It is available to the following users:

- holders of the POSIX-ADMINISTRATION or USER-ADMINISTRATION privilege, for all pubsets.
- group administrators of the *UNIVERSAL group on the pubset which they manage.

The POSIX default attributes are applied when a new user entry is created (with the ADD-USER command).

The current POSIX default values can be displayed by means of the SHOW-POSIX-USER-DEFAULTS command

Format

MODIFY**-POSIX-USER-DEF**AULTS

PUBSET = ***HOME** / <cat-id 1..4>

,**USER-NUM**BER = ***UNCHA**NGED / <integer 0..60002>

,**GR**OUP**-NUM**BER = ***UNCHA**NGED / <integer 0..60002>

,**COMMENT** = ***UNCHA**NGED / ***NONE** / <c-string 1..255 with-low>

,**DIR**ECTORY = ***UNCHA**NGED / ***ROOT** / <posix-pathname 1..1023 without-wild>

,**PROG**RAM = ***UNCHA**NGED / ***SHELL** / <posix-pathname 1..1023 without-wild>

Operands

PUBSET =
Pubset for which the POSIX default attributes in the user catalog are to be changed.

PUBSET = *HOME
The POSIX default attributes are changed in the user catalog of the home pubset.

PUBSET = <cat-id 1..4>
The POSIX default attributes are changed in the user catalog of the specified pubset.

USER-NUMBER =
The user number can be changed.

USER-NUMBER = *UNCHANGED
The user number is not changed.

USER-NUMBER = <integer 0..60002>
The user number is given the specified value.

GROUP-NUMBER =
The group number can be changed.

GROUP-NUMBER = *UNCHANGED
The group number is not changed.

GROUP-NUMBER = <integer 0..60002>
The group number is given the specified value.

COMMENT =
The comment can be changed.
Note

This comment is used, for example, by mail programs to describe the sender.

COMMENT = *UNCHANGED
The comment is not changed.

COMMENT = *NONE
No comment is added.

COMMENT = <c-string 1..255 with-low>
The specified comment is added.

DIRECTORY =
The absolute path name of the user’s login directory can be changed.

DIRECTORY = *UNCHANGED
The absolute path name is not changed.

DIRECTORY = *ROOT
The root directory / is assigned as login directory.

DIRECTORY = <posix-pathname 1..1023 without-wild>
The specified path name is assigned as login directory.

PROGRAM =
The program started up after the user logs in can be changed.

PROGRAM = *UNCHANGED
The program is not changed.

PROGRAM = *SHELL
The default POSIX shell is started up.

PROGRAM = <posix-pathname 1..1023 without-wild>
The specified program is run.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	SRM6001	Command executed with warning
	32	SRM6020	Command rejected owing to system error
	64	SRM6040	Command rejected with error message
	130	SRM6030	Command rejected owing to insufficient resources

4.45 MODIFY-PRINT-JOB-ATTRIBUTES

Modify parameters for print job

Component:	SPOOL
Functional area:	Controlling spoolout jobs
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION PRINT-SERVICE-ADMINISTRATION

Function

The MODIFY-PRINT-JOB-ATTRIBUTES command modifies the parameters of the PRINT-DOCUMENT command for a print job after the command has been accepted. The effect of this command is the same as issuing a new PRINT-DOCUMENT command with modified operands. However, some operands of the PRINT-DOCUMENT command cannot be modified. This depends on the status of the print job. For details see section "Notes".

If the default value *UNCHANGED is specified then no changes are made to the initial value of the parameter in question.

Note that print jobs that have the status PREPROCESSING or ACTIVE cannot be modified. There are also constraints on other statuses (see the section "Notes").

Privileged functions

RSO device administrators and spool and cluster administrators can modify the attributes of any print job scheduled for printing on any device that they manage. For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “Dprint” [10].

Format

MODIFY-PRINT-JOB-ATTRIBUTES

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...) / ***SERVER-TSN**(...) / ***CLIENT-TSN**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**CLUSTER-NAME** = ***LOCAL-CLUSTER** / <alphanum-name 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

***SERVER-TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**SERVER-NAME** = ***HOME** / <alphanum-name 1..8>

***CLIENT-TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**CLIENT-HOST** = <alphanum-name 1..8>

,**DOCUMENT-PART** = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **INPUT-SECTION** = ***UNCHA**NGED / ***WHOLE-FILE** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **SECT**ION-**ID**ENTIFIER = ***UNCHA**NGED / <c-string 1..60 with-low> / <x-string 1..120>

| | ,**POS**ITION = ***UNCHA**NGED / ***STD** / <integer 1..2047>

| ,**INPUT-PART** = ***UNCHA**NGED / ***ALL** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **FIRST-REC**ORD = ***UNCHA**NGED / ***BEG**IN-**OF-F**ILE / <integer 1..2147483647> /

| | ***BY-STRING-ID**(...)

| | ***BY-STRING-ID**(...)

| | | **STRING** = ***UNCHA**NGED / <c-string 1..60 with-low> / <x-string 1..120>

| | | ,**POS**ITION = ***UNCHA**NGED / ***STD** / <integer 1..2047>

| | | ,**OCCURRENCE** = ***UNCHA**NGED / <integer 1..32767>

| | ,**LAST-REC**ORD = ***UNCHA**NGED / ***END-OF-F**ILE / <integer 1..2147483647> /

| | ***BY-STRING-ID**(...)

```
        |           |       *BY-STRING-ID(...)
        |           |           |   STRING = *UNCHANGED / <c-string 1..60 with-low> / <x-string 1..120>
        |           |           |   ,POSITION = *UNCHANGED / *STD / <integer 1..2047>
        |           |           |   ,OCCURRENCE = *UNCHANGED / <integer 1..32767>
        |   ,RECORD-PART = *UNCHANGED / *ALL / *PARAMETERS(...)
        |       *PARAMETERS(...)
        |           |   FIRST-CHARACTER = *UNCHANGED / <integer 1..32767>
        |           |   ,LAST-CHARACTER = *UNCHANGED / *STD / <integer 1..32767>
        |   ,OUTPUT-PART = *UNCHANGED / *ALL / *RANGE(...) / *LAST(...)
        |       *RANGE(...)
        |           |   FROM = *UNCHANGED / *BEGIN-OF-FILE / <integer 1..2147483647>
        |           |   ,TO = *UNCHANGED / *END-OF-FILE / <integer 1..2147483647>
        |           |   ,DIMENSION = *UNCHANGED / *PAGES / *LINES
        |       *LAST(...)
        |           |   LAST = *UNCHANGED / <integer 1..2147483647>
        |           |   ,DIMENSION = *UNCHANGED / *PAGES / *LINES
,DOCUMENT-FORMAT = *UNCHANGED / *TEXT(...) / *PAGE-FORMAT(...) / *SPECIAL-FORMAT(...)
    *TEXT(...)
        |   LINE-PER-PAGE = *UNCHANGED / *STD / <integer 1..32767>
        |   ,LINE-SPACING = *UNCHANGED / 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) /
        |                               *BY-ASA-CONTROL(...)
        |       *BY-EBCDIC-CONTROL(...)
        |           |   CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
        |       *BY-IBM-CONTROL(...)
        |           |   CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
        |       *BY-ASA-CONTROL(...)
        |           |   CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
        |   ,HEADER-LINE = *UNCHANGED / *NO / *STD / list-poss(3): *DATE / *FIRST-RECORD /
        |                               *PAGE-NUMBER
        |   ,OUTPUT-FORMAT = *UNCHANGED / *CHARACTER / *HEXADECIMAL
    *PAGE-FORMAT(...)
```

```
        |  FORMAT-NAME = *UNCHANGED / *STD / <c-string 1..63 with-low>
        |  ,CONTROL-MODE = *UNCHANGED / *LINE-MODE / *PAGE-MODE(...) / *LOGICAL(...) /
        |                              *PHYSICAL(...) / *APA(...)
        |     *PAGE-MODE(...)
        |        |  PAGE-CONTROL-CHAR = *UNCHANGED / *YES / *NO
        |        |  ,CONTROL-TYPE = *UNCHANGED / *HP / *COMPATIBLE
        |        |  ,LINE-SPACING = *UNCHANGED / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
        |        |                              *BY-ASA-CONTROL
        |     *LOGICAL(...)
        |        |  LINE-PER-PAGE = *UNCHANGED / *STD / <integer 1..32767>
        |        |  ,LINE-SPACING = *UNCHANGED / 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) /
        |        |                              *BY-IBM-CONTROL(...) / *BY-ASA-CONTROL(...)
        |        |     *BY-EBCDIC-CONTROL(...)
        |        |        |  CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
        |        |     *BY-IBM-CONTROL(...)
        |        |        |  CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
        |        |     *BY-ASA-CONTROL(...)
        |        |        |  CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
        |     *PHYSICAL(...)
        |        |  LINE-SPACING = *UNCHANGED / *NO / 1 / 2 / 3 / *BY-EBCDIC-CONTROL /
        |        |                              *BY-IBM-CONTROL / *BY-ASA-CONTROL
        |     *APA(...)
        |        |  LINE-SPACING = *UNCHANGED / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
        |        |                              *BY-ASA-CONTROL
  *SPECIAL-FORMAT(...)
        |  FORMAT-NAME = *UNCHANGED / *NONE / *PCL / <c-string 1..63 with-low>
        |  ,LINE-SPACING = *UNCHANGED / *NO / 1 / 2 / 3 / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
        |                              *BY-ASA-CONTROL
,PRINT-JOB-CONTROL = *UNCHANGED / *PARAMETERS (...)
  *PARAMETERS(...)
        |  CHECKPOINT = *UNCHANGED / *ON-PAGES / *ON-SECTION-RECORDS
```

| ,**PRINT-JOB-NAME** = ***UNCHA**NGED / <alphanum-name 1..8> / <c-string 1..8 with-low>
| ,**PRINT-JOB-PRIORITY** = ***UNCHA**NGED / <integer 30..255>
| ,**PRINT-JOB-CLASS** = ***UNCHA**NGED / <integer 1..255>
| ,**FAIL**URE-**PROC**ESSING = ***UNCHA**NGED / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **MSG-PAGE** = ***UNCHA**NGED / ***Y**ES / ***NO**
| ,**SCHED**ULING-**TIME** = ***UNCHA**NGED / ***STD** / ***EARLIEST**(...)
| ***EARLIEST**(...)
| | **DATE** = ***UNCHA**NGED / ***TODAY** / <date with-compl>
| | ,**TIME** = ***UNCHA**NGED / <time>
| ,**ENCRYPTION** = ***UNCHA**NGED / ***Y**ES / ***NO**
,**LAYOUT-CONTR**OL = ***UNCHA**NGED / ***PAR**AMETERS(...)
***PAR**AMETERS(...)
| **PAGE-COP**IES = ***UNCHA**NGED / ***STD** / <integer 0..255>
| ,**LEFT-MARGIN** = ***UNCHA**NGED / ***STD** / <integer 0..31>
| ,**TWO-SIDED** = ***UNCHA**NGED / ***STD** / ***NO** / ***Y**ES / ***TUMBLE**
| ,**ROT**ATION = ***UNCHA**NGED / ***NO** / ***BY-CONTR**OL**-CODES** / **90** / **180** / **270** / **0-180** / **180-0** /
| **90-270** / **270-90**
| ,**COV**ER-**PAGE**S = ***UNCHA**NGED / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **HEAD**ER-**PAGE-TEXT** = ***UNCHA**NGED / ***NONE** / <c-string 1..32>
| | ,**HEAD**ER-**EXIT-NUM**BER = ***UNCHA**NGED / ***NO** / <integer 0..2147483639>
| | ,**TRAIL**ER-**EX**IT-**NUM**BER = ***UNCHA**NGED / ***NO** / <integer 0..2147483639>
| ,**TABLE-REFERENCE-CHAR** = ***UNCHA**NGED / ***NO** / ***Y**ES
| ,**LANGUAGE-EXTENSION** = ***UNCHA**NGED / ***NONE** / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **LANGUAGE-NAME** = ***UNCHA**NGED / ***ARABIC** / ***FARSI**
| | ,**LANGUAGE-MODE** = ***UNCHA**NGED / ***RIGHT-TO-LEFT** / ***LEFT-TO-RIGHT**
| ,**INPUT-TRAY-NUM**BER = ***UNCHA**NGED / ***STD** / ***IGNORE** / <integer 1..99> / ***BY-FORMAT**(...)
| ***BY-FORMAT**(...)
| | **INPUT-TRAY-FORMAT** = ***UNCHA**NGED / ***A3** / ***A4** / ***A5** / ***B4** / ***B5** / ***FOLIO** / ***INVOICE** /

```
        |       |                          *EXEC / *LEGAL / *LETTER / *DOUBLE-LETTER /
        |       |                          *MONARCH / *COMMERCIAL-10 / *DL / *C5 / *MANUAL /
        |       |                          *A3-UNCUT / *A4-UNCUT / LEDGER
        |   ,OUTPUT-TRAY-NUMBER = *UNCHANGED / *STD / *IGNORE / *SORTER(...) / <integer 1..99>
        |     *SORTER(...)
        |       |   SORT-MODE = *UNCHANGED / *NO / *GROUP / *COLLATE / *STACKER / *AUTOMATIC
        |   ,TOP-OFFSET = *UNCHANGED / *IGNORE / <integer -255..255>
        |   ,LEFT-OFFSET = *UNCHANGED / *IGNORE / <integer -255..255>
,RESOURCE-DESCRIPTION = *UNCHANGED / *PARAMETERS(...)
  *PARAMETERS(...)
      |   FORM-NAME = *UNCHANGED / *STD / <alphanum-name 1..6>
      |   ,LOOP-NAME = *UNCHANGED / *STD / <alphanum-name 1..3>
      |   ,ROTATION-LOOP-NAME = *UNCHANGED / *STD / <alphanum-name 1..3>
      |   ,CHARACTER-SETS = *UNCHANGED / *STD / *POOL(...) / *BY-EXTENDED-NAME(...) /
      |                          list-poss(16): <alphanum-name 1..3>
      |     *POOL(...)
      |       |   POOL-NAME = *UNCHANGED / <alphanum-name 1..4>
      |       |   ,POOL-INDEX = *UNCHANGED / <integer 0..64>
      |     *BY-EXTENDED-NAME(...)
      |       |   NAME = *UNCHANGED / list-poss(4): <alphanum-name 1..8>
      |   ,CHAR-SET-ATTRIBUTES = *UNCHANGED / *ALL / *RESTRICTED
      |   ,OVERLAY-RESOURCES = *UNCHANGED / *PARAMETERS(...)
      |     *PARAMETERS(...)
      |       |   ELECTRONIC-OVERLAY = *UNCHANGED / *NONE / <alphanum-name 2..2>
      |       |   ,OVERLAY = *UNCHANGED / *STD / *NONE / *PARAMETERS(...)
      |       |     *PARAMETERS(...)
      |       |       |   FACE-SIDE = *UNCHANGED / *NONE / <integer 1..127>
      |       |       |   ,REVERSE-SIDE = *UNCHANGED / *NONE / <integer 1..127>
      |       |   ,FORMS-OVERLAY-BUFFER = *UNCHANGED / *NONE / <alphanum-name 1..4>
      |   ,PAGE-DEFINITION = *UNCHANGED / *STD / <integer 1..50000> / <alphanum-name 1..8>
      |   ,FORM-DEFINITION = *UNCHANGED / *STD / <alphanum-name 1..8>
```

| ,**USER-RESOURCES-FILE** = ***UNCHA**NGED / ***STD** / <filename 1..44 without-gen-vers>

| ,**TRANSL**ATION-**TAB**LE = ***UNCHA**NGED / ***NONE** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **NAME** = ***UNCHA**NGED / <alphanum-name 1..8>

| | ,**FILE** = ***UNCHA**NGED / ***SYS**TEM / <filename 1..44 without-gen-vers>

| ,**RESOURCES-LOCATION** = ***UNCHA**NGED / ***STD** / ***HOME** / ***SERVER**

,**TO-PRINTER** = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **PRINTER-NAME** = ***UNCHA** NGED / ***STD** / <alphanum-name 1..8> / ***IPP**(...)

| ***IPP**(...)

| | **URL** = ***UNCHA**NGED / <c-string 1..1023 with-low>

| | ,**FQDN** = ***UNCHA**NGED / ***NONE** / <c-string 1..1023 with-low>

| ,**PRINTER-TYPE** = ***UNCHA**NGED / ***ANY** / ***HP-PRINT**ER / ***LP65-PRINT**ER / ***APA-PRINTER**

| ,**REDIRECTION-ALLOWED** = ***UNCHA**NGED / ***STD** / ***NO** / ***Y**ES

| ,**CLUSTER-NAME** = ***UNCHA**NGED / <alphanum-name 1..8>

| ,**OUTPUT-FORMAT** = ***UNCHA**NGED / ***NONE / <c-string 1..63 with-low>**

| ,**VIRTUAL-PRINTER** = ***UNCHA**NGED / ***STD** / ***ALLOWED** / ***NOT-ALLOWED** / ***MUST(...)**

| ***MUST**(...)

| | **NAME** = ***UNCHA**NGED / <alphanum-name 1..8>

| | ,**STRING** = ***UNCHA**NGED / ***NONE** / <c-string 1..32>

,**ADDITIONAL-COPIES** = ***UNCHA**NGED / <integer 0..255>

,**LOCK-F**ILE = ***UNCHA**NGED / ***Y**ES / ***NO**

,**DELETE-AFTER-PRINT** = ***UNCHA**NGED / ***NO** / ***Y**ES(...) / ***DESTROY**(...)

***Y**ES(...)

| **LINE-TRUNCATION** = ***UNCHA**NGED / ***STD** / ***DEL**ETE-**FILE** / ***KEEP-FILE**

***DESTROY**(...)

| **LINE-TRUNCATION** = ***UNCHA**NGED / ***STD** / ***DEL**ETE-**FILE** / ***KEEP-FILE**

Operands

JOB-IDENTIFICATION = *TSN(...) / *MONJV(...) / *SERVER-TSN(...) / *CLIENT-TSN(...)
Specifies how the job is identified.

JOB-IDENTIFICATION = *TSN(...)
The print job is identified by its local task sequence number (TSN).

TSN = <alphanum-name 1..4>
TSN of the job to be modified.

CLUSTER-NAME = *LOCAL-CLUSTER / <name 1..8>
Name of the cluster in which the print job is processed. If you specify a cluster name, the specified TSN is the TSN on the gateway host in the specified remote cluster. Only BS2000 clusters can be specified.

JOB-IDENTIFICATION = *MONJV(...)
The print job is identified by its monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>
This operand allows a print job to be addressed by means of its MONJV, provided the specified MONJV is accessible on the host at which the command is issued. Only print jobs in the local cluster can be addressed in this way.

JOB-IDENTIFICATION = *SERVER-TSN(...)
The print job is identified by its TSN (task sequence number) on the server. Only print jobs in the local cluster can be addressed in this way.

TSN = <alphanum-name 1..4>
Task sequence number of the job to be modified on the server.

SERVER-NAME = *HOME / <alphanum-name 1..8>
Name of the server on which the print job is being processed.

JOB-IDENTIFICATION = *CLIENT-TSN(...)
Only for the cluster administrator. The print job is identified by its TSN on the client. Only print jobs in the local cluster can be addressed in this way.

TSN = <alphanum-name 1..4>
Task sequence number of the job to be modified on the client.

CLIENT-HOST = <alphanum-name 1..8>
Name of the client on which the print job is being processed.

DOCUMENT-PART = *UNCHANGED / *PARAMETERS(...)
Allows you to limit processing of the print file to only a part of it and thus change what was specified in the PRINT-DOCUMENT command.
The file to be printed (the input file) consists of a sequence of records, each of which can be identified by SPOOL by means of its record number or a string it contains. SPOOL also allows you to structure the print file by using strings as file marks. These file marks divide the file up into sections. SPOOL takes into account all the options set by the user and converts the input file into a file edited for printing (an output file). This file consists of logical lines and pages. The delimitation of part or parts of a file can apply to either the input file or the output file. The following alternatives for defining parts of a file are available in the substructures of this operand:

- INPUT-SECTION: the input file can be subdivided into sections on the basis of a specified string, or the whole file can be processed.

- INPUT-PART: only a certain number of the input file's records are processed. You can specify the first and last record by means of a record number, a section number or a string.
- RECORD-PART: of the records selected by means of the above operands, only a specified part of each record is processed.
- OUTPUT-PART: the whole input file is edited for printing, but output is limited to a subset of all logical print pages.

DOCUMENT-PART = *PARAMETERS(...)
The part of the file to be processed can be specified in the following substructure.

INPUT-SECTION = *UNCHANGED / *WHOLE-FILE / *PARAMETERS(...)
Specifies whether the file is to be structured by means of file marks, and thus allows you to change what was specified in PRINT-DOCUMENT.

INPUT-SECTION = *WHOLE-FILE
The file is not structured. The whole input file is a single logical section.

INPUT-SECTION = *PARAMETERS(...)
The file is structured by means of file marks that can be specified in the following substructure. You use the INPUT-PART operand to specify which sections of the structured print file are to be output.

SECTION-IDENTIFIER = *UNCHANGED / <c-string 1..60 with-low> / <x-string 1..120>
Specifies the file marks by means of which the input file is to be structured. Any strings in the records can be used as file marks. These strings can be either in SECTION records, which are not printed, or in the print file's normal records, which are printed. A string can be specified in the form of printable characters or hexadecimal characters. You use the INPUT-PART operand to specify which sections of the structured print file are to be output. The search for the start of the section to be printed is executed in a separate "pseudo controller" task. Neither the user task nor the printer is locked while this is being done. A pseudo controller writes the address of the first record in the section to the SPOOL control block; the spoolout job can then be processed (PREPROCESSING). If the desired section is not found in the file, an error message appears on the trailer page (for the layout of this page see the "SPOOL" manual [43]).

POSITION = *UNCHANGED / *STD / <integer 1..2047>
Specifies the position at which the specified string begins in the SECTION record.

POSITION = *STD
The relevant string begins by default at the start of the record, i.e.:

- in a SAM file: at the first byte after the record length field
- in an ISAM file with KEY-POS=5: at the first byte after the key
- in an ISAM file with KEY-POS > 5: at the first byte after the record length field.

POSITION = <integer 1..2047>
The relevant string begins at the specified byte (after the record length field).

INPUT-PART = *UNCHANGED / *ALL / *PARAMETERS(...)
Specifies whether only a certain number of the input file's records are to be processed, and thus allows you to change what was specified in PRINT-DOCUMENT. You can specify the first and last record by means of a record number, a section number or a string.

INPUT-PART = *ALL
All the file's records are to be processed.

INPUT-PART = *PARAMETERS(...)
Only a certain number of the input file's records are to be processed. You can specify the first and last records.

FIRST-RECORD = *UNCHANGED / *BEGIN-OF-FILE / <integer 1..2147483647> /*BY-STRING-ID(...)
Specifies the record as of which the file is to be processed. You can specify the first record in the file, the number of a record or file mark, or a string in a record.

FIRST-RECORD = *BEGIN-OF-FILE
Output begins with the file's first record, even if SECTION records are specified.

FIRST-RECORD = <integer 1..2147483647>
Number of the SECTION record or normal record as of which a section of the file is to be output.

FIRST-RECORD = *BY-STRING-ID(...)
The record in which a specified string occurs is the first record to be output.

STRING = *UNCHANGED / <c-string 1..60 with-low> / <x-string 1..120>
Output begins with the record in which the specified string of printable or hexadecimal characters is found at a specific position.

POSITION = *UNCHANGED / STD / <integer 1..2047>
Position within the record at which the specified string of hexadecimal characters begins. By default (STD), the FIRST-RECORD string begins at the start of the record, i.e.:

- in a SAM file: at the first byte after the record length field
- in an ISAM file with KEY-POS=5: at the first byte after the key
- in an ISAM file with KEY-POS > 5: at the first byte after the record length field.

OCCURRENCE = *UNCHANGED / <integer 1..32767>
Specifies the record (containing the FIRST-RECORD string) as of which output is to start.

LAST-RECORD = *UNCHANGED / *END-OF-FILE / <integer 1..2147483647> /*BY-STRING-ID(...)
Specifies the last record in the part of the file to be output. You can specify the last record in the file, the number of a record or file mark, or any string in a record.

Note

If the LAST-RECORD record is found before the FIRST-RECORD record, the PRINT-DOCUMENT command aborts.

LAST-RECORD = *END-OF-FILE
Output continues until the end of the file, even if SECTION records are specified.

LAST-RECORD = <integer 1..2147483647>
Number of the last record (SECTION record or normal record) in the part of the file to be output.

LAST-RECORD = *BY-STRING-ID(...)
Specifies that the last record is to contain a specified string.

STRING = *UNCHANGED / <c-string 1..60 with-low> / <x-string 1..120>
Output ends with the record in which the specified string of printable or hexadecimal characters is found at a specific position in the file.

POSITION = *UNCHANGED / STD / <integer 1..2047>
Position within the record at which the specified string of hexadecimal characters begins. By default (STD), the LAST-RECORD string begins at the start of the record, i.e.:

- in a SAM file: at the first byte after the record length field
- in an ISAM file with KEY-POS=5: at the first byte after the key
- in an ISAM file with KEY-POS > 5: at the first byte after the record length field.

OCCURRENCE = *UNCHANGED / <integer 1..32767>
Specifies the occurrence of the record containing the LAST-RECORD string at which output is to stop.

RECORD-PART = *UNCHANGED / *ALL / *PARAMETERS(...)
Specifies whether only a specific part of each of the records selected by means of the above operands is to be processed.

RECORD-PART = *ALL
All of each selected record is to be processed.

RECORD-PART = *PARAMETERS(...)
Only a specific part of each record is to be processed.

FIRST-CHARACTER = *UNCHANGED / <integer 2..32767>
Allows a byte number (record column) to be specified indicating the point as of which the records of a file are to be output. (The bytes of a record are numbered consecutively from left to right starting with 1; ISAM keys and control characters are components of a record.) What happens depends on whether one of the values *BY-EBCDIC-CONTROL, *BY-IBM-CONTROL or *BY-ASA-CONTROL is specified in the LINE-SPACING operand.

If one of these values is specified:
Output starts with the data byte following the specified byte number. The feed control character is interpreted irrespective of the entry for FIRST-CHARACTER, provided the value for FIRST-CHARACTER is less than the length of the record. If the specified value is greater than the length of the record, it is ignored (i.e. printing does not take place, nor does line feed).

If none of these values is specified:
Output starts with the data byte corresponding to the specified byte number.
If the records are longer than the form definition allows, printing continues on the next line. If CONTROL-MODE=*PAGE-MODE is specified, an entry for FIRST-CHARACTER is problematical because SPOOL takes no account of the number of control characters in a record.

LAST-CHARACTER = *UNCHANGED / *STD / <integer 1..32767>
Specifies the byte indicating the point at which printing of each record is to stop. What happens depends on whether one of the values *BY-EBCDIC-CONTROL, *BY-IBM-CONTROL or *BY-ASA-CONTROL is specified in the LINE-SPACING operand.
If one of these values is specified:
Output ends with the data byte following the specified byte number (unless FIRST-CHARACTER is specified for an ISAM file with KEY-POSITION=5, in which case output ends with the data byte corresponding to the specified byte number).

If none of these values is specified:
Output ends with the data byte corresponding to the specified byte number.

If the records are longer than the form definition allows, printing continues on the next line. If CONTROL-MODE=*PHYSICAL is specified, an entry for LAST-CHARACTER is problematical because SPOOL takes no account of the number of control characters in a record.
Default (*STD):

- end of print line (136)
- 2048 for an EAM file, SYSLST or SYSOUT.

OUTPUT-PART = *UNCHANGED / *ALL / *RANGE(...) / *LAST(...)
Specifies that the whole input file is to be edited for printing but that output is to be limited to a subset of all logical print pages and thus allows you to change what was specified in PRINT-DOCUMENT.

OUTPUT-PART = *ALL
All logical print pages of the edited file are to be output.

OUTPUT-PART = *RANGE(...)
Part of the file is to be output.

FROM = *UNCHANGED / *BEGIN-OF-FILE / <integer 1..2147483647>
Allows a page or line number in the print file to be specified as of which output is to start, as specified by the DIMENSION operand. By default, output commences at the beginning of the file. The pages in a print file are defined as described for the LINE-PER-PAGE operand (unless a control character produces a premature page feed).

TO = *UNCHANGED / *END-OF-FILE / <integer 1..2147483647>
Allows a page or line number in the print file to be specified at which output is to end, as specified by the DIMENSION operand.
By default, output terminates at the end of the file. Pages in a print file
are defined by the LINE-PER-PAGE operand (unless a control character produces a premature page feed). The value specified here must be greater than that specified in the FROM operand.

DIMENSION = *UNCHANGED / *PAGES / *LINES
Specifies whether the values in the FROM and TO operands are to be interpreted as page or line numbers.

OUTPUT-PART = *LAST(...)
Only the last so many pages or lines of the print file are to be output.

LAST = *UNCHANGED / <integer 1..2147483647>
Number of pages or lines to be output, calculated from the end of the file. The DIMENSION operand indicates whether the value is to be interpreted as a page or line number. Pages in a print file are defined by the LINE-PER-PAGE operand (unless a control character produces a premature page feed).

DIMENSION = *UNCHANGED / *PAGES / *LINES
Specifies whether the value in the LAST operand is to be interpreted as a page or line number.

Example of SECTION processing:

The following sections of an ISAM file are to be output.

01000000		Line 0
02000000	*SECTION0001	
03000000		Line 1
04000000	*SECTION0002	
05000000		Line 2
06000000	*SECTION0003	
07000000		Line 4

Case: SECTION records in default positions.

```
PRINT-DOCUMENT datei, DOCUMENT-PART=*PAR(INPUT-SECTION = -
    *PAR(SECT-ID=C'*SECTION',POS=*STD), INPUT-PART= *PAR( -
    FIRST-RECORD=1, LAST-RECORD=3))
```

The following part of the file is printed:

e table below specifies how

03000000	Line 1
05000000	Line 2

DOCUMENT-FORMAT = *UNCHANGED / *TEXT(...) / *PAGE-FORMAT(...) / *SPECIAL-FORMAT(...)
Specifies the type of the document contents, i.e. the format of the file to be printed as regards the interpretation of feed control characters, printer control characters, font identifiers, RENO commands and/or VTSU codes. You can specify the following operands and the corresponding substructures here:

- *TEXT: the file has no printer-specific control characters except for feed control characters.
- *PAGE-FORMAT: the file has laser printer-specific control characters.
- *SPECIAL-FORMAT: the file has special printer-specific control characters.

DOCUMENT-FORMAT = *TEXT(...)
Except for feed control characters, the file has no printer-specific control characters. The position of the feed control character in the record can be specified in the substructure of the LINE-SPACING operand.
The data is sent to the printer unchanged. Since only the data to be printed is sent to the printer, records can be truncated.

The following applies to RSO:
Records of type A-1 or A-2 are to be printed (no control characters in the data stream); in other words, except for feed control characters in the first column of the records, no control characters are interpreted. This is also the reason why a font change is not possible. The form's default font or the first font specified for CHARACTER-SETS, if specified, is used. Nonprinting characters, i.e. characters with a hexadecimal value less than X'40', are output as

blanks. If the record length exceeds the maximum line length, the record is truncated in the printout. The maximum line length depends on the character spacing, which is defined by means of the font used (see the CHARACTER-SETS operand).

Note

RSO printer: The command evaluates only the first element of the font list if DOCUMENT-FORMAT=*TEXT has an associated font list (operand: CHARACTER-SETS=...).

LINE-PER-PAGE = *UNCHANGED / *STD / <integer 1..32767>
Specifies how many lines (including header and blank lines) are to be printed on a page.

LINE-PER-PAGE = *STD
If the operand is omitted, the number of lines per print page is calculated using the following formula, regardless of what has been specified for the HEADER-LINE operand: Number of lines = P * L - N - 6

The name sections have the following meanings:

P = paper size in inches
L = line density
N = number of line before the first channel 1

Printers with a loadable vertical format buffer

- The vertical tab “channel 1” controls the line on which printing is to start. Unless otherwise specified, 2 blank lines are set before printing starts; i.e. channel 1 (CHANNEL 01) is in the third line of the loop.
- If the value specified for the LINE-PER-PAGE operand is greater than the specified number of lines in the loop, the value in the loop is used.
- A value specified here must be at least three times as large as the line feed specified for LINE-SPACING=1 /2/3 if the LINE-PER-PAGE operand is specified together with the HEADER-LINE and LINE-SPACING operands.

LINE-SPACING = *UNCHANGED / 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) / *BY-ASA-CONTROL(...)
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = 1 / 2 / 3
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-IBM-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-ASA-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

HEADER-LINE = *UNCHANGED / *NO / *STD /list-poss(3): *DATE / *FIRST-RECORD / *PAGE-NUMBER
Specifies whether a header line is to be printed on every page (except the header and trailer pages).

HEADER-LINE = *NO
No header line is printed.

HEADER-LINE = *STD
The header has the following format:

Header	DATE yyyy-mm-dd	userid	nnnn	PAGE nnnn
Column	1	41(11,11)	60(21,67)	124 (77)

The first value in parentheses applies in the case of a form definition with a line length < 132 and >= 80 characters (with differing values). The second value in parentheses applies in the case of a form definition with a line length < 80 and >= 70 characters (with differing values).

jjjj-mm-tt	Year-Month-Day
userid	user ID
datei	file name
nnnn	Page number

Unless otherwise specified, the header line is followed by a blank line. The header is shifted in accordance with the LEFT-MARGIN operand, but the header line will be truncated at column 132.
DATE and PAGE are only present in the header line if the line size >= 032.

HEADER-LINE = list-poss(3): *DATE / *FIRST-RECORD / *PAGE-NUMBER
The header has the following format:

HEADER-LINE=	DATE	FIRST-RECORD	PAGE-NUMBER
Header	DATE yyyy-mm-dd (yyyy-mm-dd)	First record	PAGE nnnn (nnnn, nnnn)
Column	1	21	124 (77.67)

*DATE:
The value in parentheses applies in the case of a form definition with a line length < 132 and >= 70 characters (with differing values). *PAGE-NUMBER: The first value in parentheses applies in the case of a form definition with a line length < 132 and >= 80 characters (with differing values). The second value in parentheses applies in the case of a form definition with a line length < 80 and >= 70 characters (with differing values).

yyyy-mm-dd	Year-Month-Day
First record	First logical record of the file
nnnn	Page number

If *DATE, *FIRST-RECORD or *PAGE-NUMBER is omitted, the appropriate section is filled with blanks.
Unless otherwise specified, the header line is followed by a blank line.
The header is shifted in accordance with the LEFT-MARGIN operand, but the header line will be truncated at column 132.
*DATE and *PAGE are only present in the header line if the line size >= 032.

If *FIRST-RECORD is specified, the first record is regarded as not belonging to the date.

OUTPUT-FORMAT = *UNCHANGED / *CHARACTER / *HEXADECIMAL
Indicates whether the output format is character format only or character format and hexadecimal format.

OUTPUT-FORMAT = *CHARACTER
Outputs in character format only. Records which exceed the length of a print line are truncated.

OUTPUT-FORMAT = *HEXADECIMAL
Outputs the data records in character format and in hexadecimal format.

Output format
Each output line starts with an 8-byte prefix followed by data 50 bytes in length. Each output line is first printed using the appropriate font and then repeated in hexadecimal format.

Format of the output line

Column	Contents
1-4	Column number from which the data of the output record should begin
5-8	blank
From 9	Characters of the input record according to font; the individual characters are separated by a blank. The characters are repeated in hexadecimal format in the next line.

DOCUMENT-FORMAT = *PAGE-FORMAT(...)
The file contains specific control characters for laser printers, and thus changes what was originally specified in PRINT-DOCUMENT.

FORMAT-NAME = *UNCHANGED / *STD / <c-string 1..63 with-low>
Name of the format in which the output data is transferred to the printer. If no value was entered for FORMAT-NAME, a default value is automatically deducted from the value of the CONTROL-MODE operand. This leads to the following results:

CONTROL-MODE = *PAGE-MODE(...)	FORMAT-NAME = *HP
CONTROL-MODE = *APA(...)	FORMAT-NAME = *SPDS
CONTROL-MODE = *LOGICAL / *PHYSICAL / *LINEMODE	FORMAT-NAME = *STD

The value FORMAT-NAME = *STD means that the contents of the file to be printed out is irrelevant.

CONTROL-MODE = *UNCHANGED / *PAGE-MODE(...) / *LINE-MODE / *LOGICAL(...) / *PHYSICAL(...) / *APA(...)
Specifies how the control characters are to be interpreted.

CONTROL-MODE = *PAGE-MODE(...)
The control characters are suitable for processing on page printers.

PAGE-CONTROL-CHAR = *UNCHANGED / *YES / *NO
Specifies whether the control character list must be at the beginning of each page (i.e. always after branching to the vertical tab “channel 1” in the loop).

PAGE-CONTROL-CHAR = *YES
The control character list must be there.

PAGE-CONTROL-CHAR = *NO
No control character list at the beginning of the page. However, this means that the following functions cannot be controlled in the case of output to HP printers:

- Film overlays on individual pages in the file; specified in the MODIFY-PRINT-JOB-ATTRIBUTES command, a film overlay is used on each page of the print file of the spoolout job.
- Page copies for individual pages in the file; all the pages of the print file are output with as many copies as specified in the MODIFY-PRINT-JOB-ATTRIBUTES command.
- Column-oriented indentation on individual pages; the value specified in the MODIFY-PRINT-JOB-ATTRIBUTES command is valid for all the pages in the print file.
- FOB data overlay on individual pages in the file; specified in the MODIFY-PRINT-JOB-ATTRIBUTES command, an FOB data overlay is used on each page in the print file of the spoolout job.
- A copy reference number cannot be specified.
- Page rotation control for individual pages in the print file; all the pages are output in either portrait or landscape format, as specified in the MODIFY-PRINT-JOB-ATTRIBUTES command.

CONTROL-TYPE = *UNCHANGED / *HP / *COMPATIBLE
Specifies whether the control characters are suitable for processing on HP or HP90 printers or whether they have to be converted.

CONTROL-TYPE = *HP
The file contains HP or HP90 printer-specific control characters that can only be processed by these printers.

CONTROL-TYPE = *COMPATIBLE
The file does not contain HP or HP90 printer-specific control characters.SPOOL must convert the control characters.

LINE-SPACING = *UNCHANGED / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL / *BY-ASA-CONTROL
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = *BY-EBCDIC-CONTROL
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

LINE-SPACING = *BY-IBM-CONTROL
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

LINE-SPACING = *BY-ASA-CONTROL
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-MODE = *LINE-MODE
Only for RSO.
Records of type C (see the “SPOOL” manual [43]) are printed out. The records may contain data mixed with LINE-MODE control characters. LINE-MODE control characters are (in any combination):

- printer control characters (i.e. physical control character beginning with X'27' or X'3C')
- RENO commands
- VTSU codes

Control over record and file formats (including page and line feed with LINE-MODE control characters) rests solely with the user. With the 9025/9026 RENO page printer, users must also ensure that the printer is set to the correct start position on the paper. A loop is not interpreted. Nonprinting characters, i.e. characters with a hexadecimal value less than X'40', are output as blanks.
The spoolout job is executed with the default font of the form used until you change the font in the file with the aid of LINE-MODE control characters.

CONTROL-MODE = *LOGICAL(...)
Only for RSO printers.
Specifies that records of type B-1 or B-2 are to be printed out, i.e. records which, in addition to a feed control character in the first byte, may contain data mixed with font identifiers, printer control characters, RENO commands, and VTSU codes (see the “RSO” manual [32], record type B-1/B-2).

With the exception of the VTSU codes VPA, NP, VT, NL and CR, which are output as blanks, the above-mentioned control characters are interpreted. A font identifier, a VTSU code or a RENO command remains valid until a new control character is specified.

If the font identifier is omitted, the default font for the form is used.
Since page feed is implemented via a loop or constant line feed when CONTROL-MODE=LOGICAL is specified, the file should not contain the RENO commands \LF, \FF and \CR. Setting the form height is likewise not permitted.

LINE-PER-PAGE = *UNCHANGED / *STD / <integer 1..32767>
Specifies how many lines (including header and blank lines) are to be printed on a page.

LINE-PER-PAGE = *STD
If no value is specified, the number of lines per print page is calculated according to the following formula, regardless of the value in the HEADER-LINE operand:

Number of lines = P * L - N - 6

The name sections have the following meanings:

P = paper size in inches
L = line density
N = number of line before the first channel 1

If the value specified for the LINE-PER-PAGE operand is greater than the specified number of lines in the loop, the value in the loop is used. A value specified here must be at least three times as large as the line

feed specified for LINE-SPACING=1/2/3 if the LINE-PER-PAGE operand is specified together with the HEADER-LINE and LINE-SPACING operands.

LINE-SPACING = *UNCHANGED / 1 / 2 / 3 / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL / *BY-ASA-CONTROL
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = 1 / 2 / 3
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-IBM-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-ASA-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-CHAR-POS = *UNCHANGED / *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

CONTROL-MODE = *PHYSICAL(...)
Only for RSO.
Specifies that contrary to an original definition in the PRINT-DOCUMENT command

- laser printer-specific control characters (local SPOOL) or
- records of type D-1 / D-2 (RSO) - i.e. data mixed with VTSU codes, printer control characters and RENO commands - are to be interpreted.

Control characters contained in the print data are interpreted. In the case of HP printers, a record for a 13.6-inch form may be up to 700 bytes long (including control characters and the escape character X'FF'). If the number of characters to be printed per record exceeds the physical capacity of the laser printer, the spoolout job is terminated abnormally. The maximum line length depends on the character pitch (see table of valid character spacings). The interpretation of control characters must be activated in the first record of each print page.

Output to local SPOOL devices:
When CONTROL-MODE = *PAGE-MODE and CONTROL-TYPE = *COMPATIBLE are specified, the X'FF' characters are converted to X'1F'. Laser printer-specific control characters in the records are interpreted. The first character in each record is interpreted as a feed control character. For ISAM files the key must be at the start of each record.

The file can be printed out using more than one font. The appropriate control characters can occur in any position in the text. The LEFT-MARGIN, PAGE-COPIES and LINE-PER-PAGE operands are ignored if they are specified together with CONTROL-MODE=*PHYSICAL.

Output to RSO devices:
LINE-SPACING=*NO is set automatically, which means that you must implement page and line feeds with LINE-MODE control characters (i.e. VTSU codes, printer control characters and RENO commands) in the file itself. If you specify LINE-SPACING=*BY-EBCDIC-CONTROL for records of type D-2, the feed control character in the first byte is interpreted as a line or page feed control character. Nonprinting characters are also transferred to the printer (in contrast to CONTROL-MODE=*LINE-MODE). The user is responsible for inserting the correct control characters in the file (including line spacing characters).

LINE-SPACING = *UNCHANGED / *NO / 1 / 2 / 3 / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL / *BY-ASA-CONTROL
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = *NO
The contents of the first byte of each record are not interpreted as a control character.

LINE-SPACING = 1 / 2 / 3
Permitted only for RSO.
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

LINE-SPACING = *BY-IBM-CONTROL
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

LINE-SPACING = *BY-ASA-CONTROL
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-MODE = *APA(...)
Specifies that the file to be printed contains APA printer control characters that are to be interpreted, and thus changes what was specified in PRINT-DOCUMENT.

LINE-SPACING = *UNCHANGED / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL / *BY-ASA-CONTROL
Specifies the type of the printer control characters (E, I or A).

DOCUMENT-FORMAT = *SPECIAL-FORMAT(...)
Specifies that a printer-specific language is to be used in the document, and thus changes what was specified in PRINT-DOCUMENT. In this case, the SPOOL subsystem provides transparent control for the document. In other words, the file is transferred without interpretation.

FORMAT-NAME = *UNCHANGED / *NONE / *PCL / <c-string 1..63 with-low>
Specification of the format to be processed. The document is processed in transparent mode.

FORMAT-NAME = *NONE
The document is either processed by RSO in transparent mode or it is transferred to UNIX-based system without a specific format.
Data records of the types E-1 or E-2 are printed out by RSO (see the “RSO” manual [32]). With the exception of VTSU codes for RSO, the data records can contain optional characters. All characters of a data record are transferred by RSO to the printer without interpretation, with the exception of the line spacing control character in the first byte of the type E-2 data record.
The user is responsible for inserting the correct control characters in the file (including line spacing characters). If the LINE-SPACING operand is not specified, the default setting LINE-SPACING=*NO applies and you have to include page feeds and line feeds in the file yourself using LINE-MODE control characters. If

LINE-SPACING=*BY-EBCDIC-CONTROL is specified for type E-2 data records, the feed control character in the first byte is interpreted as a line feed or a page feed control character. If the LEFT-MARGIN operand is specified at the same time, blanks are included at the beginning of each data record and these indent the text by the desired number of columns when it is printed.

FORMAT-NAME = *PCL
This value is only still available for reasons of compatibility.

FORMAT-NAME = <c-string 1..63 with-low>
This operand specifies that the contents of the document to be processed are of a specific type (e.g. HP LASERJET).

In the case of jobs which are directed to a cluster, the operand value is determined by the document format attribute which is transferred to the cluster. It is interpreted by Xprint or the foreign print system as the “content type” attribute of the print job (xpadd -job -ct...). This document content type fulfills part of the relevant requirements of ISO DPA class 1, which is required for interoperability between the BS2000 Spool & Print subsystems and foreign spool and print subsystems.

Jobs to RSO are printed by an RSO printer if it supports the format name specified or if a filter is available which will convert the format name into a format name supported by the printer.

If the value of CLUSTER-NAME refers to a BS2000 cluster or if none was specified, the length of the format name may not exceed 8 characters. If the FORMAT-NAME value is longer, the command is rejected. The file is printed by a printer that supports the specified format name.

In all cases, the printer must have been defined together with the format name in the SPOOL parameter file.

LINE-SPACING = *UNCHANGED / *NO / 1 / 2 / 3 / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL / *BY-ASA-CONTROL
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = *NO
The contents of the first byte of each record are not interpreted as a control character.

LINE-SPACING = 1 / 2 / 3
Permitted only for RSO.
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL
Only for RSO.
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

LINE-SPACING = *BY-IBM-CONTROL
Only for RSO.
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

LINE-SPACING = *BY-ASA-CONTROL
Only for RSO.
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

PRINT-JOB-CONTROL = *UNCHANGED / *PARAMETERS(...)
Determines whether parameters for controlling print job management which were originally assigned for this print job in the PRINT-DOCUMENT command are to be modified.

PRINT-JOB-CONTROL = *PARAMETERS(...)

CHECKPOINT = *UNCHANGED / *ON-PAGES / *ON-SECTION-RECORDS
This operand is only still available for reasons of compatibility.

PRINT-JOB-NAME = *UNCHANGED / <alphanum-name 1..8> / <c-string 1..8 with-low>
Job name for the spoolout job.
The job name can be formed from a maximum of 8 characters from the set (A,...Z,0,...9,@, #,$,.,-) but must not start with a hyphen or end with a period. It may only start with a period if this is followed by an alpha character; in this case, the period itself as part of the job name is not printed on the header page. The special character string period and hyphen (.-) may only be specified in quotes.
The job name is printed on the header page in the third uppercase line and also appears in the output of the SHOW-PRINT-JOB-STATUS command. If this operand is omitted the job name from the SET-LOGON-PARAMETERS command is used instead.

PRINT-JOB-NAME = <alphanum-name 1..8> / <c-string 1..8 with-low>
Job name which is to be assigned to the spoolout job (and which will overwrite any job name already assigned to the job issuing the command).

PRINT-JOB-PRIORITY = *UNCHANGED / <integer 30..255>
Defines the urgency with which this spoolout job is started relative to other spoolout jobs.

PRINT-JOB-PRIORITY = <integer 30..255>
Priority to be assigned to the spoolout job. The highest priority you can assign is defined in the user catalog and can be displayed by means of the SHOW-USER-ATTRIBUTES command. If an invalid priority is entered (or no priority at all), the spoolout job is given the same priority as the job issuing the command.

PRINT-JOB-CLASS =
Defines the job class for the spoolout job.

PRINT-JOB-CLASS = *UNCHANGED
The value for the print job class is retained.

PRINT-JOB-CLASS = <integer 1..255>
Only the SPOOL administrator is allowed to select this value.
The specified job class is assigned to the spoolout job.

FAILURE-PROCESSING = *UNCHANGED / *PARAMETERS(...)
Specifies whether a specific message page is to be created when an error occurs during current processing on an APA printer.

FAILURE-PROCESSING = *PARAMETERS(...)
Specifies what happens in the event of an error.

#MSG-PAGE = *UNCHANGED / *YES / *NO
Specifies whether the APA message page is to be printed. The APA message page contains error messages and warnings. If an APA printer is not being used, this parameter is ignored.

SCHEDULING-TIME = *UNCHANGED / *STD / *EARLIEST(...)
Determines the scheduling time, i.e. the start time of the print job. When *STD is specified, the print job is started on the basis of printer availability and the processing rules for print jobs.

SCHEDULING-TIME = *EARLIEST(...)
The job is started at the earliest at the specified time on the specified date.

DATE = *UNCHANGED / *TODAY / <date with-compl>
Day on which the print job is started.

TIME = *UNCHANGED / <time>
Time at which the print job is started.

ENCRYPTION = *UNCHANGED / *YES / *NO
Specifies whether the print file is to be encrypted.

LAYOUT-CONTROL = *UNCHANGED / *PARAMETERS(...)
Contrary to original declarations, defines all parameters for describing the page layout in the PRINT-DOCUMENT command.

LAYOUT-CONTROL = *PARAMETERS(...)

PAGE-COPIES = *UNCHANGED / *STD / <integer 0..255>
In local SPOOL mode, only for the printer types HP, HP90 and LP65.
Number of page copies.
This specifies how many times each individual page is to be repeated. The ADDITIONAL-COPIES operand allows additional printouts of the whole file to be requested.
A PRINT-DOCUMENT command with the PAGE-COPIES operand is rejected if the line number specified in the LINE-PER-PAGE operand is greater than the number of lines in the loop record minus the number of lines before the line on which the vertical tab “channel 1” is defined.
On an HP or HP90 printer, a maximum of 255 copies of a page can be printed in succession. PAGE-COPIES=255 has the same effect as PAGE-COPIES=254: one original and 254 copies are printed.

PAGE-COPIES = *STD
For LP65 printers:
the number of page copies is as specified in the PCL file. For all other printer types:
PAGE-COPIES=0.

LEFT-MARGIN = *UNCHANGED / *STD / <integer 0..31>
Number of columns by which output is to be indented.

LEFT-MARGIN = *STD
For all printers with the exception of RSO printers: The output text is to be indented by the specified number of columns.

For all RSO printers:
the output text is to be indented by the specified number * 1/10 inch. The default value can be displayed by means of the SHOW-SPOOL-PARAMETERS command or SPSERVE statement; the information is given in the PRINT-CMD-DEFAULTS:...LEFT-MARGIN = ... output field. The LEFT-MARGIN operand is ignored if the operand CONTROL-MODE=*PHYSICAL is specified at the same time.

TWO-SIDED = *UNCHANGED / *STD / *NO / *YES / *TUMBLE
Specifies whether the LP65 printer is to print the paper on one side or two.

TWO-SIDED = *STD
The paper is printed on one side (simplex mode) or two (duplex mode), as defined in the PCL file.

TWO-SIDED = *NO
The paper is printed on one side (simplex mode).

TWO-SIDED = *YES
The paper is printed on two sides (duplex mode).

TWO-SIDED = *TUMBLE
The paper is printed on two sides (duplex mode), and the pages are turned over from top to bottom rather than

left to right.

Note

The TWO-SIDED, ELECTRONIC-OVERLAY and PAGE-COPIES functions are linked and part of the same printer command. If only one of the operands is defined, default values will be generated for the others.

ROTATION = *UNCHANGED / *NO / *BY-CONTROL-CODES /list-poss(2): 0 / 90 / 180 / 270 / 0-180 / 180-0 / 90-270 / 270-90
Specifies whether the pages to be printed from the spoolout job are to be rotated and if so by how many degrees. The print page set up in the printer is rotated (clockwise) by a certain number of degrees and printed on the form; for example, paper inserted in the printer in portrait format can be printed in landscape format. A separate loop is needed for pages rotated through 90^0/270^0 (see the LOOP-NAME operand). Unless ROTATION=NO is specified, output is directed (automatically) to HP and HP90 printers. SHOW-SPOOL-PARAMETERS indicates whether an HP or HP90 printer with a page rotation module is available in the current SPOOL configuration: output field DEVICE-TYPE:..., ROT=YES/NO.
Spoolout jobs with page rotation are displayed in the outputs for the commands SHOW-USER-STATUS and SHOW-PRINT-JOB-STATUS JOB-ID=*TSN(TSN=...).
The feed for rotated pages is always controlled via a separate loop (ROTATION-LOOP). If you have specified neither a ROTATION-LOOP for PRINT-DOCUMENT nor a form with a defined ROTATION-LOOP (see ADD-SPOOL-FORM), the default rotation loop R06 in the default form takes on feed control for the rotated pages. Header and trailer pages are not printed out in rotated format.

ROTATION = *NO
Page rotation is not performed. Any control characters for page rotation in the file are not interpreted.

ROTATION = *BY-CONTROL-CODES
Control characters for page rotation in the file are interpreted.

ROTATION = 0 / 90 / 180 / 270
Each print page is rotated by 90^0 / 180^0 / 270^0 (clockwise) and printed out. Control characters for page rotation contained in the file are not interpreted. A separate loop is needed for pages rotated through 90^0 / 270^0. You must check that output with the specified loop does not lead to errors. If an error occurs, the job is rejected.

ROTATION = 0-180 / 180-0 / 90-270 / 270-90
The odd pages (number before the hyphen) and even pages (number after the hyphen) are to be printed at different angles.

COVER-PAGES = *UNCHANGED / *PARAMETERS(...)
Parameters for system exit routines relating to the printing of header and trailer pages.

HEADER-PAGE-TEXT = *UNCHANGED / *NONE / <c-string 1..32>
The specified information (maximum of 32 characters) is stored in the SCB for processing the system exits. The first 8 characters are printed on the header page as an uppercase line under the mailing box. Only alpha characters, digits and a number of special characters are printed on the header page (in outsize type). All other character codes are automatically replaced by the printable character '?'.

Format of the header page:

1. User ID in outsize letters (10 lines + 2 blank lines)
2. Account number in outsize letters (10 lines + 2 blank lines)

3. Job name in outsize letters (10 lines + 2 blank lines)
4. Mailing box (address and identification field: 12 lines + 2 blank lines)
5. 'text' in outsize letters (10 lines + 2 blank lines)

Priority sequence:

a. Mailing box (address and identification field: 12 lines + 2 blank lines)
b. 'text' in outsize letters (10 lines + 2 blank lines)

HEADER-EXIT-NUMBER = *UNCHANGED / *NO / <integer 1..2147483639>
Number of header pages required.
The precise significance of this operand depends on the definitions made for the computer center. The default value is NO = 0.

TRAILER-EXIT-NUMBER = *UNCHANGED / *NO / <integer 1..2147483639>
Number of trailer pages required.
The precise significance of this operand depends on the definitions made for the computer center. The default value is NO = 0.

Note

The layout of the trailer page for local SPOOL is illustrated in the “SPOOL” manual [43].

TABLE-REFERENCE-CHAR = *UNCHANGED / *NO / *YES
Specifies whether users select fonts for print page layout by means of control characters in the text. The selection can be made with the aid of TRCs (table reference characters), which reference a list of fonts from within the records. The list can either be part of the page definition (PAGEDEF) or can be declared by means of the CHARACTER-SETS operand. For a detailed explanation of how to use the TRC, see the “SPOOL” manual [43].

TABLE-REFERENCE-CHAR = *NO
No font selection control characters (TRCs) are stored in the print file, or these characters are not to be evaluated.

TABLE-REFERENCE-CHAR = *YES
The print file contains font selection control characters (TRCs) that are to be evaluated by SPS. Each TRC value represents a specific font that is to be used to print out the relevant record. The individual values (from X'00' to X'0F') must either be linked to the entries in the font list in PAGE-DEFINITION, in the order in which they occur, or must be explicitly linked to the fonts specified in the CHARACTER-SETS operand in the order in which they occur. Regardless of the number of different TRC values in the file, up to four fonts, specified in the form of a list, can be used to print the records. TRC values greater than X‘03’ (corresponding to the fourth value in the list) automatically reference the first font in the list.

LANGUAGE-EXTENSION = *UNCHANGED / *NONE /*PARAMETERS(...)
This operand is only still available for reasons of compatibility.

INPUT-TRAY-NUMBER = *UNCHANGED / *STD / *IGNORE / <integer 1..99> / *BY-FORMAT(...)
Defines the paper input tray for the printer type LP65 or for the RSO printers 2030-PCL, 4011, 4812, 4813, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-EPLQ, 9000-EPSQ, 9000-PCL, 9004, 9011, 9012, 9013, 9014, 9015, 9021, 9022, 9022-200, 9025, 9026-PCL, 9026-RENO, 9097 and DJET. In the case of LP65 printers, the tray numbers 1 to 3 can be specified, whereas for RSO printers the tray numbers 1 to 99

can be specified.

Only for LP65 printers:
The paper input tray is to be selected by means of a PCL file or an entry at the printer control console. The PCL file can in turn select an input tray.
The order of priority for selecting an input tray is as follows:

1. the number of the input tray specified in PRINT-DOCUMENT
2. any selection via the PCL file specified in the PRINT-DOCUMENT command
3. any selection via the PCL file specified in the form definition in the SPOOL parameter file
4. the default values defined in the device record.

The following applies to all printers listed above:

- If a paper input tray is specified here, but is not applicable for the particular printer, the result is a printer error on most printer types.
- The PRINT-DOCUMENT command is rejected if the selected paper size is not available on the particular printer or if the paper size in the standard forms entries is larger than that for the selected paper.
- Printer resources such as prolog, epilog, DIA, member and font character files are sent before the paper input tray is selected.

INPUT-TRAY-NUMBER = *STD
Paper is taken from the input tray defined in the device record of the printer in the SPOOL parameter file (DEFAULT-TRAY-NUMBER operand of the ADD-SPOOL-DEVICE statement. It is not possible to specify the paper size in this statement operand). The input tray selection is valid for the entire spoolout process, i.e. including processing of the header and trailer pages. If a standard paper size is specified, the printer selects the first input tray that contains this paper size. If this paper is not available, the printer switches to offline and the operator is prompted in the printer channel to insert the selected paper.

INPUT-TRAY-NUMBER = *IGNORE
Only for RSO printers: Once this operand value is specified, RSO sends no further commands for input tray selection to the printer. The default setting of the printer is used.

INPUT-TRAY-NUMBER = <integer 1..99>
Number of the input tray from which the paper is taken for printing the file itself as well as the header page (HEADER-PAGE) and trailer page (TRAILER-PAGE). RSO does not check the specified value. Possible values: 1...99.

The following table shows the printer types and the corresponding maximum number of input trays (column headed “max.”).

printer	Max.	printer	Max.	printer	Max.	printer	Max.
2030-PCL	2	9000	0	9002	0	9022	2
4011	2	9000-PCL	2	9003	0	9022-200	2
4812	2	9000-PRO	0	9004	3	9025	2
4813	2	9000-PS	0	9011	2	9026-PCL	4
4818-PCL	2	9000-EPFX	0	9012	2	9026-RENO	4
4821-PCL	2	9000-EPLQ	2	9013	3	9045-ANSI	0
4822-PCL	3	9000-EPSQ	2	9014	3	9046	0
4824-PCL	2	9001	0	9015	2	9645	0
4825-PCL	3	9001-31	0	9021	2	DJET	1
8121	0						

Table 68: Printer types and the corresponding maximum number of input trays

The table below specifies how RSO processes specific operand values depending on the device definition:

- INPUT-TRAY-NUMBER operand of the PRINT-DOCUMENT command specified
- Device definition of the ADD-SPOOL-DEVICE statement with the operand FORM-FEED = *SINGLE-SHEET(DEFAULT-TRAY-NUMBER = ...)

Default in the device definition	Value of the INPUT-TRAY-NUMBER operand		
	*STD	1..99	*IGNORE
1..99	Sets default value (1) or value *LISTING (2)	Sets value (1) or value *LISTING (2)	Last tray specified is used
*IGNORE	Last tray specified is used	Sets value (1) or value *LISTING (2)	Last tray specified is used

(1) on single-sheet printers and printer type 9015 (list printer)

(2) on list printers other than printer type 9015

INPUT-TRAY-NUMBER = *BY-FORMAT(...)
Defines the input tray by specifying the paper format.

INPUT-TRAY-FORMAT = *UNCHANGED / *A3 / *A4 / *A5 / *B4 / *B5 / *FOLIO / *INVOICE / *EXEC / *LEGAL / *LETTER / *DOUBLE-LETTER / *MONARCH / *COMMERCIAL-10 / *DL / *C5 / *MANUAL / *A3-UNCUT / *A4-UNCUT / *LEDGER
Apart from *MANUAL, each operand value corresponds to a paper format. To ensure that the values for PAGE-SIZE and LINE-SIZE specified in the FORM operand do not exceed the permissible maximum values for the selected paper format, the values of the FORM operand are compared with the permissible

maximum values for the paper format. The table below contains the maximum permissible values for PAGE-SIZE and LINE-SIZE for each paper format and indicates which printers support the paper format. With all paper formats the sheets are taken from the first input tray which contains sheets in the given format.

paper format	max. PAGE-SIZE	max. LINE-SIZE	applicable to printers of the type
A3	165	116	9026-PCL und 9026-RENO
A4	116	82	9021, 9000-PCL, 9026-PCL, 9026-RENO, 2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
A5	82	58	4818-PCL, 4822-PCL, 4825-PCL, 9026-PCL and 9026-RENO
B4	143	101	2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4825-PCL, 9000-PCL, 9026-RENO
B5	101	71	9026-PCL and 9026-RENO
FOLIO	129	85	9026-RENO
INVOICE	85	55	9026-PCL and 9026-RENO
EXEC	105	72	9021, 9000-PCL, 9026-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
LEGAL	140	85	9021, 9000-PCL, 9026-PCL, 9026-RENO, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
LETTER	110	85	9021, 9000-PCL, 9026-PCL, 9026-RENO, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
DOUBLE-LETTER	150	117	9026-RENO
MONARCH	75	38	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL und 4825-PCL
COMMERCIAL-10	95	41	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
DL	86	43	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and4825-PCL
C5	90	63	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL

Table 69: Paper size

INPUT-TRAY-FORMAT = *MANUAL
Form feed is manual. You should, therefore, insert a new sheet each time a new page is to be printed or the printer prompts you to do so.
The following printers support manual feed: 9004, 9014, 9015, 9021, 9022, 9022-200, 9026-Reno, 9026-PCL, 2030-PCL, 4812, DJET, 4814-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL and 9000-PCL.

OUTPUT-TRAY-NUMBER = *UNCHANGED / *STD / *IGNORE / *SORTER(...) / <integer 1..99>
Specifies the paper output tray for LP65 printers and for the RSO printers 2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL, 9014, 9015, 9026-PCL and 9026-RENO.

OUTPUT-TRAY-NUMBER = *STD
Paper is output to the default tray defined in the device record (SPOOL parameter file). The output tray selection is valid for the entire spoolout process, i.e. including processing of header and trailer pages.
Only for LP65 printers:
Selection of the output tray by BS2000 can be prevented by a PCL file or by making an appropriate entry at the printer control console. In these cases, the entries for OUTPUT-TRAY-NUMBER have no effect. An output tray can also be defined in the PCL file.
The order of priority for selecting an output tray is as follows:

1. the output tray number specified in PRINT-DOCUMENT, provided this is not prevented by a PCL file or an entry at the printer console.
2. any selection via the PCL file specified in the PRINT-DOCUMENT command.
3. any selection via the PCL file specified in the form definition in the SPOOL parameter file.
4. the default values defined in the device record.any selection via the PCL file specified in the PRINT-DOCUMENT command.

OUTPUT-TRAY-NUMBER = *IGNORE
Only for RSO printers.
If this value is specified, the printer controller does not send an output tray selection code to the printer. This allows you to define the output tray in the prolog file.

OUTPUT-TRAY-NUMBER = <integer 1..99>

Specifies the output tray to be used for the current job. Only the values 1..3 are valid for LP65 printers.

RSO printer types	Output tray number	Output tray selection
2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL	1	Top output tray
	2	Bottom output tray
9014	1	Stacker
	2	Front output tray
9015	1	Uncut in rear output tray
	2	Cut in rear output tray
	3	Uncut in front output tray
	4	Cut in front output tray
9026-RENO	1..20	Appropriate output tray of the sort mechanism

OUTPUT-TRAY-NUMBER = *SORTER(...)

Only for RSO printers:

Specifies that the sort mechanism is to be used for the current job. OUTPUT-TRAY-NUMBER = *SORTER(...) is permissible for 9026-RENO, 4822-PCL and 4825-PCL printers. This sort mechanism can be used for up to 20 output trays. It cannot be controlled by the default values defined in the device record.

SORT-MODE = *UNCHANGED

The sorting mechanism is left unchanged.

SORT-MODE = *NO

All pages in the document are output to the sort trays from bottom to top. Exception 9026-RENO: here the pages are output to an output tray to provide optimum access.

SORT-MODE = *GROUP

Each copy of a particular page - if multiple copies are specified in PAGE-COPIES - is output to a separate sort tray. The printer does not return to the first sort tray until it is ready to start outputting the next page in sequence. When the print job is completed, each sort tray used contains a complete copy of the printed document.

Example

There are three pages in the file, and PAGE-COPIES=1 is specified:

Page 3 Page 2 Page 1	Page 3 Page 2 Page 1	
Tray 1	**Tray 2**	**Tray 3**

SORT-MODE = *COLLATE
All copies of a page - is multiple copies are specified in PAGE-COPIES - are collected in one sort tray. The copies of the next page are placed in the next sort tray. The sort trays are used from bottom to top.

Example

There are three pages in the file, and PAGE-COPIES=2 is specified:

Page 1 Page 1 Page 1	Page 2 Page 2 Page 2	Page 3 Page 3 Page 3
Tray 1	**Tray 2**	**Tray 3**

SORT-MODE = *STACKER
Cannot be used for the 9026 Printer.
All printed pages are output to the stacker of the sort mechanism, to a maximum of 500 pages. This mode is suitable if a single copy of a very long document is to be printed.

SORT-MODE = *AUTOMATIC
Applicable to the 9026 only. The sort mode is selected automatically depending on the number of copies per page requested in PAGE-COPIES and the number of sort trays available. The printed pages are output unsorted, as with *NO, if the number of copies specified in PAGE-COPIES is the same as the number of sort trays; they are grouped by document, as with *GROUP, if the number of copies specified in PAGE-COPIES is less than the number of sort trays; and they are collected a page at a time, as with *COLLATE, if the number of copies specified in PAGE-COPIES is greater than the number of sort trays.

Note

Header and trailer pages are printer resources such as prolog, epilog, DIA, member and font character file are sent before output tray selection and are therefore not included in sorting.

TOP-OFFSET = *UNCHANGED / *IGNORE / <integer -255..255>
Defines in millimeters the margin between the top of the physical sheet and the top of the print page. First the print page is positioned on the paper and only then is the lettering within the page rotated and positioned. This means that when the print page is moved with respect to the paper page the orientation of the text within the print page is ignored.
This operand is permissible only for 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL, 9021,

9022-200 and 2030-PCL printers.

Note

Only TOP-OFFSET=*IGNORE can be specified in conjunction with DOCUMENT-FORMAT=*SPECIAL-FORMAT.

TOP-OFFSET = *IGNORE
The printer controller does not set a margin between the first line and the top edge of the sheet. The preset printer value or the setting in the prolog file defines the margin that is effective when the document is printed.

TOP-OFFSET = <integer -255..255>
The permissible range of values is -255 to +255. Positive values move the first line down. Negative values move it up.

LEFT-OFFSET = *UNCHANGED / *IGNORE / <integer -255..255>
Defines in millimeters the margin between the left edge of the physical sheet and the left edge of the print page. First the print page is positioned on the paper and only then is the lettering within the page rotated and positioned. This means that when the print page is moved with respect to the paper page the orientation of the text within the print page is ignored.
This operand is permissible only for 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL, 9021, 9022-200, 9026-PCL and 2030-PCL printers.

Note

Only LEFT-OFFSET=*IGNORE can be specified in conjunction with DOCUMENT-FORMAT=*SPECIAL-FORMAT.

LEFT-OFFSET = *IGNORE
The printer controller does not set a margin between the print page and the left edge of the sheet. The preset printer value or the setting in the prolog file defines the margin that is effective when the document is printed.

LEFT-OFFSET = <integer -255..255>
The permissible range of values is -255 to +255. Positive values move the print page to the right. Negative values move it to the left.

RESOURCE-DESCRIPTION = *UNCHANGED / *PARAMETERS(...)
Contrary to original declarations, defines all print resources to be used for the printout in the PRINT-DOCUMENT command.

RESOURCE-DESCRIPTION = *PARAMETERS(...)

FORM-NAME = *UNCHANGED / *STD / <alphanum-name 1..6>
Specifies the paper (form) to be used for output (e.g. STD, STDSF1, STDWA4). Default forms must be defined in the SPOOL parameter file for all printer types. With SHOW-SPOOL-FORMS you can output the entries to SYSOUT. The SPOOL parameter file also specifies whether header and trailer pages are to be printed.

FORM-NAME = *STD
Default form.

FORM-NAME = <alphanum-name 1..6>
Name of the form with which the spoolout job is to be processed. A loop (or a page and format definition for

APA printers) is implicitly named when the form is specified. The associated loop (or the PAGEDEF and FORMATDEF) must be in a particular printer control file. The following table shows which printer control file must contain this loop (or the PAGEDEF and FORMDEF) for the relevant printer type:

Output device	Printer control file with loop for specified form
Printers 3337, 3338, 3339, 3348, 3349, 3365, LP-EMULATED	$SYSSPOOL.PRFILE
Printers: 3351, 3353, 2090, 2140, 2240	$SYSSPOOL.PRFILE or the PRFILE user specified in the USER-RESOURCES-FILE operand
APA printer	$SYSSPOOL.SYSPRT.SPS.<version> or the SPSLIB user specified in the USER-RESOURCES-FILE operand

The loop named implicitly via the FORM-NAME operand is ignored if the LOOP-NAME operand is specified at the same time. If the FORM-NAME and LOOP-NAME operands are omitted, the file is printed out using the default form entered for the printer type.

A loop explicitly specified in the LOOP-NAME operand must have the same length as the loop record assigned to the form used.

No loops can be specified for APA printers. If page and format specifications are made in the FORM-NAME operand, these are used for printing header, trailer and message pages, even if the PAGE-DEFINITION and FORM-DEFINITION operands are explicitly assigned.

LOOP-NAME = *UNCHANGED / *STD / <alphanum-name 1..3>
Name of the loop to be loaded into the feed information buffer (VFB/FCB). The loop name must not include the characters '$', '&' or '@'.

LOOP-NAME = *STD
Feed control for the spoolout job is to be implemented with the default loop of the form used.

LOOP-NAME = <alphanum-name 1..3>
Name of the loop which is to control line feed. The length of the specified loop must match the length of the default loop of the form used.
A loop for feed control is needed for the HP and HP90 printers (3351, 3353, 2090, 2140) and printers of types 3337, 3338, 3339, 3348, 3349 and 3365. Loops are stored in the PRFILE resource library. If no loop is specified, the implicit entries in the FORM-NAME operand are used. If the FORM-NAME or LOOP-NAME operand is omitted, default values apply.

ROTATION-LOOP-NAME = *UNCHANGED / *STD / <alphanum-name 1..3>
Only for HP and HP90 printers with a page rotation module.
Specifies the loop to control output in landscape format.
The loop name must not include the characters '$', '&' or '@'.

ROTATION-LOOP-NAME = *STD
Output of rotated pages is to be controlled by the default rotation loop of the specified form or the default rotation loop R06 of the default form (if no form was specified in the PRINT-DOCUMENT command).

ROTATION-LOOP-NAME = <alphanum-name 1..3>
Name of the loop with which line feed for the rotated pages is to be controlled.

CHARACTER-SETS = *UNCHANGED / *STD / *POOL(...) / *BY-EXTENDED-NAME(...) / list-poss(16): <alphanum-name 1..3>

Names of the fonts or font pools (only for HP and HP90 printers) to be used for output. Up to 4 fonts may be specified in the list for local SPOOL, up to 16 for RSO. For local SPOOL, the fonts must be contained in the $SYSSPOOL.PRFILE resource library or in a user PRFILE (specified by means of the USER-RESOURCES-FILE operand).
If more than four fonts are to be used, a font pool must be specified.
If more than one font is to be used in a spoolout job, CONTROL-MODE=*PAGE-MODE must be specified. For DOCUMENT-FORMAT=*TEXT, only the first specified font is used for printing the (entire) file. The name of the first font and the number of specified fonts are shown in the output for the command SHOW-PRINT-JOB-STATUS JOB-IDENTIFICATION=TSN(TSN=...).
If the HEADER-LINE operand is specified, the first font specified or the font pool specified with an index for CHARACTER-SETS=*POOL is used for the header line. The default value for CHARACTER-SETS for the form used can be displayed using SHOW-SPOOL-FORMS; the information is given in the C-S output field.
With HP printers the following must be borne in mind: Systems support can specify whether the header page is printed with the default font or with the font specified in CHARACTER-SETS. This default value can be displayed by means of the command or SPSERVE statement SHOW-SPOOL-PARAMETERS; the information is given in the HEADER-PAGE: CHARACTER-SET=... output field.

CHARACTER-SETS = *STD
The default font is selected for this printer type from the desired form. It can be displayed by means of SHOW-SPOOL-FORMS.

CHARACTER-SETS = *POOL(...)
Only PRFILEs may contain descriptions of font pools. If a font pool is specified, the spoolout job will be processed on an HP or HP90 printer.

POOL-NAME = *UNCHANGED / <alphanum-name 1..4>
Specifies a font pool (with a maximum of 64 fonts for an HP printer or 46 fonts for an HP90 printer) from which one or more fonts are to be used for output. All the fonts of this font pool are loaded into the font buffer when the spoolout job is executed.

POOL-INDEX = *UNCHANGED / <integer 0..64>
Number of the font from the font pool with which the spoolout job is to be processed. The number of the font is determined by its position in the definition of the font pool. The specified font is used if POOL-INDEX is specified together with CONTROL-MODE= *PAGE-MODE.

CHARACTER-SETS = *BY-EXTENDED-NAME(...)
Specifies the fonts to be interpreted by SPS when the TABLE-REFERENCE-CHAR operand is used.

NAME = *UNCHANGED / <alphanum-name 1..8>
Names of the fonts to be linked with the TRC value in the print file (each TRC value represents a specific font). Regardless of the number of different TRC values in the file, up to four fonts, specified in the form of a list, can be used to print the records. TRC values greater than X‘03’ (corresponding to the fourth value in the list) automatically reference the first font in the list.

CHARACTER-SETS = list-poss(16): <alphanum-name 1..3>
Names of the fonts with which the spoolout job is to be processed. For DOCUMENT-FORMAT=*TEXT (default), only the first specified font is used for printing.
For laser printers in local SPOOL mode, a maximum of four fonts may be specified. The printer control characters for changing fonts are only interpreted if CONTROL-MODE=*PAGE-MODE is also specified. In the case of RSO printers, a maximum of 16 fonts may be specified. Font identifiers (CSIs) in the text are only interpreted if CONTROL-MODE=*LOGICAL is specified at the same time. The command is rejected if a list of fonts is specified in conjunction with DOCUMENT-FORMAT=*TEXT.

CHAR-SET-ATTRIBUTES = *UNCHANGED / *ALL / *RESTRICTED
Only for RSO.
Specifies whether all or only selected font attributes are supported for the spoolout job. Such attributes are, for instance, character type, near letter quality (NLQ), color, etc. (see command or SPSERVE statement SHOW-SPOOL-CHARACTER-SETS). This operand does not apply to header and trailer pages.

CHAR-SET-ATTRIBUTES = *ALL
All the attributes of the fonts used for printout are supported for the current spoolout job.

CHAR-SET-ATTRIBUTES = *RESTRICTED
Only the following three attributes are supported:

- character type
- language
- NLQ (NEAR-LETTER-QUALITY)

OVERLAY-RESOURCES = *UNCHANGED / *PARAMETERS(...)
Specifies whether a film overlay - in the case of HP90 and 3365 printers an EFO data overlay - or an FOB data overlay is to be used for processing a spoolout job.

ELECTRONIC-OVERLAY = *UNCHANGED / *NONE / <alphanum-name 2..2>
Specifies whether a film overlay - in the case of HP90 and 3365 printers an EFO data overlay - is to be used for processing a spoolout job.

ELECTRONIC-OVERLAY = *NONE
No film overlay (HP90 and 3365: no EFO data overlay) is used for output.

ELECTRONIC-OVERLAY = <alphanum-name 2..2>
Name of the film overlay (HP90 and 3365: EFO data overlay) to be used for processing the spoolout job (the name must be agreed with systems support).

OVERLAY = *UNCHANGED / *STD / *NONE / *PARAMETERS(...)
Specifies for LP65 printers whether EFO data overlays are to be used on the recto and/or verso.
They must be stored in the printer memory. The OVERLAY, TWO-SIDED and PAGE-COPIES operands are part of one and the same LP65 printer command and are consequently linked to one another. If only the OVERLAY operand is specified, SPOOL will generate default values for the other two operands. These default values are overwritten by each value specified in a PCL file or at the printer control console.
For a summary of the possible combinations of these three linked functions, see the description of the LP65 printer type in the “SPOOL” manual [43].

OVERLAY = *STD
The EFO data overlays defined in the PCL file are used.

OVERLAY = *NONE
No EFO data overlays are used for output.

OVERLAY = *PARAMETERS(...)
The specified EFO data overlays are used for output.

FACE-SIDE = *UNCHANGED / *NONE / <integer 1..127>
Identification number of the overlay to be used on the recto.

REVERSE-SIDE = *UNCHANGED / *NONE / <integer 1..127>
Identification number of the overlay to be used on the verso.

FORMS-OVERLAY-BUFFER = *UNCHANGED / *NONE / <alphanum-name 1..4>
Specifies whether an FOB data overlay is to be used for processing the spoolout job (see the “SPOOL” manual [43] for a description of an overlay).

FORMS-OVERLAY-BUFFER = *NONE
o FOB data overlay is used for output.

FORMS-OVERLAY-BUFFER = <alphanum-name 1..4>
Name of the overlay to be used for processing the spoolout job.
If an overlay is specified, the file is printed out on an HP or HP90 printer.
Use of an overlay for the spoolout job is indicated in the output of the command SHOW-PRINT-JOB-STATUS JOB-IDENTIFICATION=TSN(TSN=...).

PAGE-DEFINITION = *UNCHANGED / *STD / <integer 1..50000> / <alphanum-name 1..8>
Specifies which page definition is to be used for output on LP65 or APA printers.

PAGE-DEFINITION = *STD
The standard definition specified in the SPSLIB is to be used (see the table of SPSLIB standard definitions in the “SPOOL” [43] manual).

PAGE-DEFINITION = <integer 1..50000>
Only for LP65 printers:
Number of the PCL file with which the print file is to be output.

PAGE-DEFINITION = <alphanum-name 1..8>
The page definition with the specified name is to be used. This must be in the SPSLIB.

> The first two characters of the specified name must be “P1”. If they are not, the command is rejected.

FORM-DEFINITION = *UNCHANGED / *STD / <alphanum-name 1..8>
Specifies which format definition is to be used for output on APA printers.

FORM-DEFINITION = *STD
The default definition specified in the SPSLIB is to be used.

FORM-DEFINITION = <alphanum-name 1..8>
The format definition with the specified name is to be used. This must be in the SPSLIB.

> The first two characters of the specified name must be “F1”. If they are not, the command is rejected.

USER-RESOURCES-FILE = *UNCHANGED / *STD / <filename 1..44 without-gen-vers>
Specifies a user file containing all the resources required for output on different printer types: user-defined loops, fonts, overlays, font pools, code translation tables, and SPS data stream definitions. The following can be specified:

- a user PRFILE containing loops, fonts, overlay entries (FORMS-OVERLAY-BUFFER operand) and font pool entries (CHARACTER-SETS operand)
- a user SPSLIB containing the PAGEDEFs (PAGE-DEFINITION operand), FORMDEFs (FORM-DEFINITION operand), fonts, page segments, overlays and raster image data

- a user RSOFILE (only for RSO) containing loops

USER-RESOURCES-FILE = *STD
If no user PRFILE, SPSLIB or RSOFILE is specified, the information is taken from the following files: $SYSSPOOL.PRFILE, $SYSSPOOL.SYSPRT.SPS.<version> or $SYSSPOOL.RSOFILE, respectively.

The required resources are taken from $SYSSPOOL.PRFILE, $SYSSPOOL.SYSPRT.SPS.<version> or $SYSSPOOL.RSOFILE.

USER-RESOURCES-FILE = <filename 1..44 without-gen-vers>
Name of a user PRFILE, SPSLIB or RSOFILE, which may contain a catalog ID and a user ID. SPOOL uses this file name with the suffix .PRFILE, .SPSLIB or .RSOFILE. The string can contain up to 28 characters without the catalog ID and user ID, to ensure that this user file can be called from any ID.
If the file name is specified without a user ID, the file is searched for under the user ID of the caller first, then under SYSSPOOL. If it is not found, the command is rejected. If a user ID is specified, the file is searched for under this ID only.

Example 1

```
PRINT-DOCUMENT DATEI,USER-RESOURCES-FILE=$XX.XX
```

A search is carried out for the $XX.XX.PRFILE file. If the file is not found, the command is rejected.

Example 2

If the catalog ID is specified, the search is limited to the specified pubset:

```
PRINT-DOCUMENT DATEI, USER-RESOURCES-FILE=:A:XXXXX
```

The file :A:$userid.XXXXX.PRFILE is searched for. If the relevant file is not found, the search for the file : A:$SYSSPOOL.XXXXX.PRFILE is continued. If this file is not found, the command is rejected.

Example 3

```
PRINT-DOCUMENT DATEI, USER-RESOURCES-FILE=:A:$XX.XXXXX
```

The file :A:$XX.XXXXX.PRFILE is searched for. If it is not found, the command is rejected.

If the file is on an exported PVS (EXPORT-PUBSET command), all spoolout jobs that require this PVS are placed in the KEEP queue. When the PVS becomes available again (IMPORT-PUBSET command), the spoolout jobs are restarted.

TRANSLATION-TABLE = *UNCHANGED / *NONE / *PARAMETERS(...)
Specifies whether a code translation table is to be used for processing the spoolout job. The code translation table is necessary if the default escape character 'FF' is to be replaced by a random character.

TRANSLATION-TABLE = *NONE
No code translation table is used.

TRANSLATION-TABLE = *PARAMETERS(...)
A code translation table is used.

NAME = *UNCHANGED / <alphanum-name 1..8>
Name of the code translation table to be used for processing the spoolout job.

FILE = *UNCHANGED / *SYSTEM / <filename 1..44 without-gen-vers>
The specified code translation table is by default taken from the $SYSSPOOL.PRFILE (*SYSTEM) file; for RSO printers a user RSOFILE can also be specified.

RESOURCES-LOCATION = *UNCHANGED / *STD / *HOME / *SERVER
Only for Dprint. Specifies, when the optional Distributed Print Services subsystem (Dprint) is used, whether the resources of the client or those of the server are to be used for printing the document.

RESOURCES-LOCATION = *STD
The value from the GEN record of the SPOOL parameter file is to be used.

RESOURCES-LOCATION = *HOME
The print job is to be executed using the print resources defined on the client system. In this case, an extract containing all the required print resources is taken from the resource file (i.e. a print resources container is created) and transferred to the selected server.

RESOURCES-LOCATION = *SERVER
The print job is to be executed using the print resources defined on the server system. In this case, no print resources container is created and transferred.

TO-PRINTER = *UNCHANGED / *PARAMETERS(...)
Modifying the original declarations specifies the requested target devices for the print output in the PRINT-DOCUMENT command.

TO-PRINTER = *PARAMETERS(...)

PRINTER-NAME = *UNCHANGED / *STD / <alphanum-name 1..8> / *IPP(...)
Specifies the requested target printer of the print job. You can specify a distributed local printer pool, a nondistributed local printer pool, an RSO printer pool or an RSO printer.

If you specify a printer pool:
The job is output on any printer in the specified device pool. The pool must be defined in the SPOOL parameter file and can contain up to 16 RSO devices or 16 local SPOOL devices, but not both at the same time.
Device pools are managed by means of the SPSERVE statements ADD-, MODIFY-, REMOVE-, and SHOW-PRINTER-POOL (see the “SPSERVE” manual [44]).

The spoolout job is rejected if:

- no printer type from the device pool is assigned in the PRINT-DOCUMENT command (see the SHOW-SPOOL-FORMS command or SPSERVE statement)
- the ELECTRONIC-OVERLAY operand is specified.

Please bear in mind that the pool can contain various types of devices: if the file to be printed contains control characters that are only interpreted by a certain printer type, a printer of this type should be specified (implicitly) in the MODIFY-PRINT-JOB-ATTRIBUTES command.

PRINTER-NAME = *STD
The spoolout job is to be processed on the default device type specified in the SPOOL parameters (PRINT-CMD-DEFAULTS).

PRINTER-NAME = <alphanum-name 1..8>
Only for RSO.
Symbolic name of the RSO device on which the spoolout job is to be processed.

PRINTER-NAME = *IPP(...)
Only for RSO.
The spoolout job is to be processed on an IPP printer.

URL = *UNCHANGED / <c-string 1..1023 with-low>
Specifies the Web address of the IPP printer.

FQDN = *UNCHANGED / *NONE / <c-string 1..1023 with-low>
Fully-qualified name of the domain to which the IPP printer is assigned.

PRINTER-TYPE = *UNCHANGED / *ANY / *HP-PRINTER / *LP65-PRINTER / *APA-PRINTER
Specifies which printer type is to process the print job. Only local printer types may be specified.

PRINTER-TYPE = *ANY
A specific printer type is not requested. In this case, the SPOOL subsystem automatically determines the permitted printer types that can process the user request. *ANY must be specified for output on RSO printers.

PRINTER-TYPE = *HP-PRINTER
The spoolout job is to be processed on an HP or HP90 printer.
*HP-PRINTER includes the following printer types: 2090/2140/2240(HP90). The control characters for HP and HP90 laser printers are identical; a spoolout job for an HP printer can be processed on an HP90 printer and vice versa.
Selection of the printer type is affected by whether the CONTROL-MODE operand is specified at the same time:

<table>
<tr><th>Printer selection</th><th>CONTROL-MODE = *PAGE-MODE (default value)</th><th>CONTROL-MODE =*PAGE-MODE (CONTROL-TYPE=*HP)</th></tr>
<tr><td rowspan="2">PRINTER-TYPE = *ANY</td><td>Output can take place to all printer types</td><td>Output can take place to HP or HP90 printers.
Other control characters are converted to HP/HP90 control characters.</td></tr>
<tr><td colspan="2">The following also applies for HP-/HP90 printers:
Conversion of the OVERPRINT functions to the LINE-MERGE function.</td></tr>
<tr><td rowspan="2">PRINTER-TYPE = *HP-PRINTER</td><td colspan="2">Output can only be processed on HP and HP90 printers. The OVERPRINT function is converted to the LINE-MERGE function.</td></tr>
<tr><td>Restrictions for PRFILE:
The file may not contain the character X’FF’.</td><td>Support of the HP-specific control characters.
Restriction:
The file may only contain the character X’FF’ as an escape character when control character evaluation is enabled (CHAR-SET-ATTRIBUTES = *ALL)</td></tr>
</table>

Note for HP/HP90 printers

If the entries in MODIFY-PRINT-JOB-ATTRIBUTES specify output to an HP or HP90 laser printer, a PRFILE must be available. If they are not, the command is rejected. If there is no HP/HP90 available in an installation, or only devices with insufficient configurations (not enough fonts, no graphics buffer for FOBs or no page rotation module, for example), the jobs can only be output to replay tape. Systems support can run the SHOW-SPOOL-JOB-STATUS command to obtain information on these jobs.

PRINTER-TYPE = *LP65-PRINTER
The spoolout job is to be processed on an LP65 printer.

PRINTER-TYPE = *APA-PRINTER
The spoolout job is to be processed on a 2050-APA-PRINTER, 2090-APA-PRINTER or 2090-TWIN-PRINTER.

REDIRECTION-ALLOWED = *UNCHANGED / *STD / *YES / *NO
Specifies whether a device administrator can redirect the spoolout job to a different printer. This does not affect the redirection of jobs by the user or by systems support.

REDIRECTION-ALLOWED = *STD
Means YES for RSO print jobs. SPOOL print jobs are ignored.

REDIRECTION-ALLOWED = *YES / *NO
Can only be specified for RSO print jobs, not for SPOOL print jobs.

CLUSTER-NAME = *UNCHANGED / <alphanum-name 1..8>
Specifies the cluster to which the print job is to be transferred.

Only for Dprint: To transfer the print job to a UNIX-based system, a cluster name defined in the Dprint configuration file must be specified. The remote clusters defined in the Dprint configuration file can be displayed by means of the SHOW-DPRINT-REMOTE-CLUSTERS command (for a detailed explanation, see the “Dprint” manual [10]).

Use of the CLUSTER-NAME operand is restricted to one print job from the local cluster or from the local SPOOL to a remote cluster. As soon as the remote cluster has accepted the print job, the resources of the remote cluster become effective. From this time the CLUSTER-NAME operand can no longer be applied to the redirected print job.

OUTPUT-FORMAT = *UNCHANGED / *NONE / <c-string 1..63 with-low>
Specifies which printer language is to be used for the print job.

OUTPUT-FORMAT = *NONE
No output format was specified. The format of the document is compatible with the printer language of the printer selected. If a cluster was specified in the CLUSTER-NAME operand, the value of the DOCUMENT-FORMAT operand is forwarded to the UNIX-based system.

OUTPUT-FORMAT = <c-string 1..63 with-low>
Specifies a specific content type (e.g. HP_LASERJET) for the document to be printed. The document format is incompatible with the format which is supported by the printer. Only when a cluster is supported in the CLUSTER-NAME operand is it permissible to specify OUTPUT-FORMAT=<c-string 1..63 with-low>. In this case the value of the OUTPUT-FORMAT operand is transferred to the UNIX-based system.

VIRTUAL-PRINTER = *UNCHANGED / *STD / *ALLOWED / *NOT-ALLOWED / MUST(...)
This operand enables the print job to be forwarded for processing to an application via a virtual printer.

VIRTUAL-PRINTER = *STD
The virtual printer which is to receive the print job is determined through the SPOOL parameter file. Assignment of the print job to a virtual printer is given precedence. If no virtual printer is active when the print job is added to the list of print jobs, the print job is assigned to a real printer.

VIRTUAL-PRINTER = *ALLOWED
This print job may be forwarded to an application program via a virtual printer. What virtual printer receives the

print job is only determined when the job is assigned. Assignment of the print job to a virtual printer is given precedence. If no virtual printer is active when the print job is added to the list of print jobs, the print job is assigned to a real printer.

VIRTUAL-PRINTER = *NOT-ALLOWED
This print job should not be transferred to an application program via a virtual device.

VIRTUAL-PRINTER = *MUST(...)
This print job is transferred to the virtual printer specified by the parameters in the brackets. If the printer's supervisor task is inactive, the print job waits.

NAME = <alphanum-name 1..8>
Specifies the device name which is linked to the supervisor. This device name appears in the device entry of the SPOOL parameter file.

STRING = *NONE / <c-string 1..32>
Passes a character string on to the application program.

ADDITIONAL-COPIES = *UNCHANGED / <integer 0..255>
Specifies how many additional times the file is to be printed.
The entry can also be made in parentheses. Each additional printout has its own header page. Default: 0 (no additional printouts).

LOCK-FILE = *UNCHANGED / *YES / *NO
Specifies whether the file is to be protected as long as the spoolout job is in the wait state (TYPE 4, see output of the SHOW-PRINT-JOB-STATUS command). During this time the file can only be read. As a rule, tape files are never locked. During processing of the spoolout job (TYPE 5, see output of the SHOW-PRINT-JOB-STATUS command), the file is protected irrespective of the setting of this operand.
A spoolout job is created even if the file to be output is reserved by a SECURE-RESOURCE-ALLOCATION command. This reservation must, however, be canceled by the time the spoolout job is processed; otherwise, the job is not executed. The file to be output is locked until the end of the session if the LOCK-FILE=*YES operand is specified in the PRINT-DOCUMENT command and the job cannot be executed owing to reservation.

LOCK-FILE = *YES
The file is protected while the spoolout job is in the wait state. LOCK-FILE=*YES is ignored if one of the values *OMF, *SYSLST or *SYSOUT is specified for the operand at the same time. A PRINT-DOCUMENT command for a library element with LOCK=*YES is rejected. File protection offered by LOCK-FILE=*YES remains in force even if the spoolout job is not processed until the next system run.

LOCK-FILE = *NO
The file is not protected while the spoolout job is in the wait state. The file can be deleted or modified before processing of the spoolout job commences.
LOCK-FILE=*NO is ignored for temporary files.

DELETE-AFTER-PRINT = *UNCHANGED / *NO / *YES(...) / *DESTROY(...)
Specifies whether the file is to be deleted after output has terminated and, if so, whether its catalog entry and the data are to be overwritten with X'00..0'. Default: the file is not deleted after printing and not overwritten with binary zeros. The user must have write access to the file. If the file to be output belongs to a file generation group (see the FROM-FILE operand), the DELETE-AFTER-PRINT operand is ignored. If a spoolout job is used to print several elements of a PLAM library with INPUT-SECTION(...), the DELETE-AFTER-PRINT operand is set to *NO (i.e. suppressed). This operand may not be specified in conjunction with *SYSLST, SYSLSTnn or *SYSOUT.

DELETE-AFTER-PRINT = *NO
The file is not to be deleted after printing (unless it is an EAM or system file).

DELETE-AFTER-PRINT = *YES(...)
The file is to be deleted as soon as output has been completed.

LINE-TRUNCATION = *UNCHANGED / *STD / *DELETE-FILE / *KEEP-FILE
Specifies what happens if lines are truncated.

LINE-TRUNCATION = *STD
The default value from the SPOOL parameter is valid. You can display this value by means of the SHOW-SPOOL-PARAMETERS command or SPSERVE statement (field: ERROR-PR=(TRUNC=)).

LINE-TRUNCATION = *DELETE-FILE
Processing of the spoolout job continues (i.e. DELETE-AFTER-PRINT=*YES is executed). An appropriate warning is printed on the trailer page.

LINE-TRUNCATION = *KEEP-FILE
Processing of the spoolout job is continued, but the file is not subsequently deleted.

DELETE-AFTER-PRINT = *DESTROY(...)
Not for EAM and cataloged system files.
Specifies that once the file has been printed both its catalog entry and the data itself are to be overwritten with binary zeros.

LINE-TRUNCATION = *UNCHANGED / *STD / *DELETE-FILE / *KEEP-FILE
Specifies what happens if lines are truncated.

LINE-TRUNCATION = *STD
The default value from the SPOOL parameter is valid. You can display this value by means of the SHOW-SPOOL-PARAMETERS command or SPSERVE statement (field: ERROR-PR=(TRUNC=)).

LINE-TRUNCATION = *DELETE-FILE
Processing of the spoolout job continues (i.e. DELETE-AFTER-PRINT=*DESTROY is executed). An appropriate warning is printed on the trailer page.

LINE-TRUNCATION = *KEEP-FILE
Processing of the spoolout job is continued, but neither the catalog entry nor the data of the file itself is overwritten with binary zeros.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed messages: SCP0894, SCP1032, SCP1031
2	0	SCP0897	TSN not found
2	0	SCP0930	PRFILE not available
2	0	SCP1000	JV processing error. MONJV ignored Guaranteed message: SCP1000
2	0	SCP1056	Error releasing the file
2	0	SCP1058	DELETE-FILE entry not permitted

2	0	SCP1061	Error during server access
2	0	SCP1069	Output restart from the beginning
2	0	SCP1070	Job cannot be released
2	0	SCP1076	No information available on this job
2	0	SPS0455	JVS error in SPOOL MONJV Guaranteed message: SPS0455
2	0	SPS0469	JV is already being used or has been destroyed Guaranteed message: SPS0469
2	0	SPS0464	JV subsystem not loaded
2	0	SPS0870	SLOT/SCB inconsistency
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command Guaranteed message: SCP0972
	64	SCP0976	Invalid operand value Guaranteed messages: SCP0858, SCP0995, SCP0997, SCP1030, SCP1028, SCP1029
	128	SCP0896	DPRINTCL not loaded Guaranteed message: SCP0896
	128	SCP0996	JV subsystem not available Guaranteed message: SCP0996
	128	SCP1049	RSO not loaded
	128	SPS0266	SPOOL subsystem in the wait state

Notes

1. If a value of an operand originally specified in the PRINT-DOCUMENT command is modified, this modification has an effect not only on the operand itself but also on the structures which are subordinate to this operand: All suboperands within the structure are preset with default values.
2. Jobs which were issued in an earlier SPOOL run < V3.0 and were taken over by means of a replay tape or warm startup, and print jobs which were initiated by the WRITE-SPOOL-TAPE command cannot be modified.
3. In the event of a command error (syntax, semantics or inadmissible modifications), the requested modifications are ignored.
4. The table below shows which operand modifications can be performed depending on the status of the print job, where the symbols used have the following meaning:

   x Modification permitted for the operand and all suboperands (operands which are included in substructures).

   - Modification not permitted

   (*) If the job is active on a synchronous virtual device, the application running under control of this virtual device can modify the job.

Operands of MOD-PRINT-JOB-ATTR	Print job statuses						
	WFT	FT	WP	PRE	WT	ACT	KP
DOCUMENT-FORMAT	x	x	x	-	x	(*)	x
PRINT-JOB-CONTROL	x	x	x	-	x	(*)	x
LAYOUT-CONTROL	x	x	x	-	x	(*)	x
RESOURCE-DESCRIPTION	x	x	x	-	x	(*)	x
TO-PRINTER	x	x	x	-	x	(*)	x

Table 70: Changes with MODIFY-PRINT-JOB-ATTRIBUTES contingent upon the job status

5. The file attributes must remain unchanged between acceptance of the print job (PRINT-DOCUMENT command) and termination of the output (actual output on the device). The MODIFY-PRINT-JOB-ATTRIBUTES command consequently ignores any change to the file attributes.
6. When at least one member of the FAMILY is active in the case of FAMILY processing, any modification of the print job is rejected.
7. Print jobs in the KEEP status remain in the KEEP status after being modified even if they have been redirected to another server by means of automatic server selection.
8. When a document has been partially printed and the corresponding print job is interrupted, any modification which includes a modification to the layout results in the print job being repeated from the start of the document.
9. Please refer to the “Dprint” manual [10] for Dprint-specific information for Dprint jobs.

4.46 MODIFY-PRINTER-OUTPUT-STATUS

Change administration parameters for printers

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-PRINTER-OUTPUT-STATUS command modifies the administration parameters for the specified printer.
If the default value *UNCHANGED is specified then no changes are made to the initial value of the parameter in question.

> Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high-performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
> The state of the printer in BS2000 has no effect on this forwarding. The MODIFY-PRINTER-OUTPUT-STATUS command is therefore now only relevant for RSO printers and virtual devices. For local printers, it is still accepted but has no effect.

Restrictions for APA printers

The following operands must not be specified for APA printers:

- FORMS-OVERLAY
- PRINT-SAMPLE
- ROTATION
- TWO-UP-PROCESSING
- FORMS-OVERLAY-BUFFER
- CHARACTER-SET-NUMBER

Privileged functions

RSO device administrators and spool and cluster administrators can modify the administration parameters of printers that they manage.
For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “Dprint” [10].
The following operands can only be used with the privilege TSOS or OPERATING:

- DEVICE-NAME=*ANY-LOCAL-PRINTER(...)
- ROTATION
- FORMS-OVERLAY-BUFFER
- CHARACTER-SET-NUMBER

Format

MODIFY**-PRINT**ER**-OUT**PUT**-STA**TUS

DEVICE**-NAME** = ***ANY-LOCAL-PRINTER**(...) / ***RSO-PRINT**ER(...)

***ANY-LOCAL-PRINTER**(...)

| **NAME** = list-poss(8): <alphanum-name 1..8>

| ,**DEST**INATION = ***UNCHA**NGED / ***NONE** / ***STD** / ***ADD**(...) / ***REMOVE**(...) /

| list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

| ***ADD**(...)

| | **DEST**INATION**-LIST** = list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

| ***REMOVE**(...)

| | **DEST**INATION**-LIST** = list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

| ,**FORM-NAME** = ***UNCHA**NGED / ***ALL** / ***STD** / ***EQU**IVALENT(...) / ***EXCEPT**(...) /

| ***EQU**IVALENT**-EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

| list-poss(16): <alphanum-name 1..6>

| ***EQU**IVALENT(...)

| | **EQU**IVALENT**-FORMS** = ***ALL** / list-poss(16): <alphanum-name 1..6>

| ***EXCEPT**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ***EQU**IVALENT**-EXCEPT**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ***ADD**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ***REMOVE**(...)

| | FORMS-LIST = list-poss(15): <alphanum-name 1..6>

| ,FORMS-OVERLAY = ***UNCHA**NGED / ***ALL** / ***NONE** / ***ONLY** / ***EXCEPT**(...) / ***ADD**(...) /

| ***REMOVE**(...) / list-poss(16): <alphanum-name 2..2>

| ***EXCEPT**(...)

| | FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>

| ***ADD**(...)

| | FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>

| ***REMOVE**(...)

| | FORMS-OVERLAY-LIST = list-poss(15): <alphanum-name 2..2>

| ,HOST-NAME = ***UNCHA**NGED / ***ALL-CLUSTERS** / ***LOCAL-CLUSTER / *HOME /**

| ***EXCEPT(...) / *ADD / *REMOVE**(...) / list-poss(16): <alphanum-name 1..8> /

| <c-string 1..8 with-low>

| ***EXCEPT**(...)

| | HOST-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

| ***ADD**(...)

| | HOST-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

| ***REMOVE**(...)

| | HOST-LIST = list-poss(15): <alphanum-name 1..8> / <c-string 1..8 with-low>

| ,PRINT-SAMPLE = ***UNCHA**NGED / ***NO** / ***Y**ES

| ,TRACE = ***UNCHA**NGED / ***NO** / ***Y**ES(...)

| ***Y**ES(...)

| | LEVEL = ***COMPL**ETE **/ *STA**TUS / ***BLOCK-CONTR**OL

***RSO-PRINT**ER(...)

| NAME = list-poss(8): <alphanum-name 1..8>

| ,**DEST**INATION = ***UNCHA**NGED / ***NONE** / ***STD** / ***ADD**(...) / ***REMOVE**(...) /

| list-poss(16): <alphanum-name 1..8>

| ***ADD**(...)

| | DEST**INATION-LIST** = list-poss(16): <alphanum-name 1..8>

| ***REMOVE**(...)

| | DEST**INATION-LIST** = list-poss(15): <alphanum-name 1..8>

| ,FORM-NAME = ***UNCHA**NGED / ***STD** / ***EQU**IVALENT(...) / ***EQU**IVALENT**-EXCEPT**(...) /

| <alphanum-name 1..6> / ***ADD**(...) / ***REMOVE**(...)

| ***EQU**IVALENT(...)

| | **EQU**IVALENT-**FORMS** = ***ALL** / list-poss(16): <alphanum-name 1..6>

| ***EQU**IVALENT-**EXCEPT**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ***ADD**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ***REMOVE**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ,**PRINT-SAMPLE** = ***UNCHA**NGED / ***NO** / ***Y**ES

| ,**TRACE** = ***UNCHA**NGED / ***NO** / ***Y**ES

| ,**ALLOWED-ACCESSES** = ***UNCHA**NGED / list-poss(4): <-c-string 1..4>

,**USER-ID**ENTIFICATION = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **USER-ID**ENT-**LIST** = list-poss(16): <name 1..8> / <c-string 1..8 with-low>

***ADD**(...)

| **USER-ID**ENT-**LIST** = list-poss(16): <name 1..8> / <c-string 1..8 with-low>

***REMOVE**(...)

| **USER-ID**ENT-**LIST** = list-poss(15): <name 1..8> / <c-string 1..8 with-low>

,**SP**OOLOUT-**CL**ASS = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <integer 1..255>

***EXCEPT**(...)

| **SP**OOLOUT-**CL**ASS-**LIST** = list-poss(16): <integer 1..255>

***ADD**(...)

| **SP**OOLOUT-**CL**ASS-**LIST** = list-poss(16): <integer 1..255>

***REMOVE**(...)

| **SP**OOLOUT-**CL**ASS-**LIST** = list-poss(15): <integer 1..255>

,**SP**OOLOUT-**NAME** = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **SP**OOLOUT-**NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***ADD**(...)

| **SP**OOLOUT-**NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***REMOVE**(...)

| **SP**OOLOUT-**NAME-LIST** = list-poss(15): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**ACCOUNT** = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /
list-poss(16): <alphanum-name 1..8>

***EXCEPT**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

***ADD**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

***REMOVE**(...)

| **ACCOUNT-LIST** = list-poss(15): <alphanum-name 1..8>

,**EXIT-ROUT**INES = ***UNCHA**NGED / ***NOT-ACT**IVE / ***ACTIVE**

,**ROT**ATION = ***UNCHA**NGED / ***ANY** / ***Y**ES / ***NO** / ***MANUAL**

,**TWO-UP-PROCESS**ING = ***UNCHA**NGED / ***ANY** / ***Y**ES / ***NO** / ***MODE-1** / ***MODE-2**

,**FORMS-O**VERLAY-**BUFFER** = ***UNCHA**NGED / ***ANY** / ***ONLY** / ***NO** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = ***UNCHA**NGED / <integer 0..32767>

| ,**HIGH** = ***UNCHA**NGED / <integer 0..32767>

,**PRIO**RITY = ***UNCHA**NGED / ***ALL** / ***RANGE**(...)

***RANGE**(...)

| **FROM** = ***UNCHA**NGED / <integer 30..255>

| ,**TO** = ***UNCHA**NGED / <integer 30..255>

,**CHAR**ACTER-**SET-NUM**BER = ***UNCHA**NGED / ***ALL** / ***ONE** / **RANGE**(...)

***RANGE**(...)

| **LOW** = ***UNCHA**NGED / <integer 1..32767>

| ,**HIGH** = ***UNCHA**NGED / <integer 1..32767>

,**REVIS**ION-**NUM**BER = ***ANY** / <integer 1..255>

Operands

DEVICE-NAME =
Output devices for which administration parameters are to be modified.

DEVICE-NAME = *ANY-LOCAL-PRINTER(...)
Administration parameters are to be modified for local printers which will be defined in greater detail below.

NAME = list-poss(8): <alphanum-name1..8>
Mnemonic or logical device names of the printers whose assignment parameters are to be modified for waiting spoolout jobs. A maximum of eight device names may be specified.

DESTINATION = *UNCHANGED / *NONE / *STD / *ADD(...) / *REMOVE(...) / list-poss(16): *CENTRAL / <alphanum-name 1..8>
Indicates whether and how the assignment of the specified local printers to a pool is modified.

DESTINATION = *NONE
The list of local pools for the specified printers is cleared, i.e. spoolout jobs for these pools are no longer processed.

DESTINATION = *STD
Standard pools for local printers.
The list of assigned pools for local printers is replaced by a list of standard pools containing the specified local printers (SPOOL parameter file).

DESTINATION = *ADD(...)
Pools for local printers which are to be added to an existing list of local pools to which spoolout jobs for the specified printers can be directed.

DESTINATION-LIST = list-poss(16): *CENTRAL / <alphanum-name 1..8>
List of pools for local printers to be added.

DESTINATION = *REMOVE(...)
Pools for local printers to be removed from an existing list of local pools to which spoolout jobs for the specified printers can be directed.

DESTINATION-LIST = list-poss(16): *CENTRAL / <alphanum-name 1..8>
List of pools for local printers to be removed.

DESTINATION = list-poss(16): *CENTRAL / <alphanum-name 1..8>
List of local pools to which spoolout jobs for the specified printers can be directed.

FORM-NAME = *UNCHANGED / *ALL / *STD / *EQUIVALENT(...) / *EXCEPT(...) / *EQUIVALENT-EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <alphanum-name 1..6>
Names of the forms with which spoolout jobs can be processed on the specified printers.

FORM-NAME = *ALL
Spoolout jobs can be processed on the specified printers irrespective of the form used.

FORM-NAME = *STD
Spoolout jobs can be processed on the specified printers with all the equivalent forms permitted in the SPOOL parameter file for the specified printers.

FORM-NAME = *EXCEPT(...)
Forms with which spoolout jobs cannot be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded forms.

FORM-NAME = *EQUIVALENT(...)
Spoolout jobs can be processed on the specified printers with equivalent forms. Printout is not interrupted when the form changes.

EQUIVALENT-FORMS = *ALL / list-poss(16): <alphanum-name 1..6>
List of equivalent forms.

FORM-NAME = *EQUIVALENT-EXCEPT(...)
Equivalent forms with which spoolout jobs cannot be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded equivalent forms.

FORM-NAME = *ADD(...)
Forms to be added to an existing list of forms with which spoolout jobs can be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of forms to be added.

FORM-NAME = *REMOVE(...)
Forms which are to be removed from an existing list of forms with which spoolout jobs can be processed on the specified printers.

FORMS-LIST = list-poss(15): <alphanum-name 1..6>
List of forms to be removed.

FORM-NAME = list-poss(16): <alphanum-name 1..6>
List of forms with which spoolout jobs can be processed on the specified printers. If there is already a (positive) list of forms for the specified printers it is replaced by this new list. Each time the form changes printout is interrupted and a message is displayed at the console.

FORMS-OVERLAY = *UNCHANGED / *ALL / *NONE / *ONLY / *EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <alphanum-name 2..2>
Film overlays with or without which spoolout jobs can be processed on the specified laser printers.

FORMS-OVERLAY = *ALL
Spoolout jobs can be processed on the specified laser printers irrespective of the film overlays specified.

FORMS-OVERLAY = *NONE
Only spoolout jobs which do not use film overlays can be processed on the specified printers.

FORMS-OVERLAY = *ONLY
Only spoolout jobs which use a film overlay (any) can be processed on the specified printers.

FORMS-OVERLAY = *EXCEPT(...)
Film overlays with which spoolout jobs cannot be processed on the specified laser printers.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of excluded film overlays.

FORMS-OVERLAY = *ADD(...)
Film overlays to be added to an existing list of overlays with which spoolout jobs can be processed on the specified laser printers.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of film overlays to be added.

FORMS-OVERLAY = *REMOVE(...)
Film overlays which are to be removed from an existing list of film overlays with which spoolout jobs can be processed on the specified laser printers.

FORMS-OVERLAY-LIST = list-poss(15): <alphanum-name 2..2>
List of film overlays to be removed.

FORMS-OVERLAY = list-poss(16): <alphanum-name 2..2>
List of film overlays with which spoolout jobs can be processed on the specified laser printers.
If there is already a (positive) list of film overlays for the specified printers, it is replaced by this new list.

HOST-NAME = *UNCHANGED / *ALL-CLUSTERS / *LOCAL-CLUSTER / *HOME / *EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <name 1..8> / <c-string 1..8 with-low>
Specifies for a local printer the hosts from which print jobs are processed.

HOST-NAME = *ALL-CLUSTERS
Print jobs from all hosts are processed on the specified printer.

HOST-NAME = *LOCAL-CLUSTER
Print jobs from all hosts in the local cluster are processed on the specified printer.

HOST-NAME = *HOME
Only print jobs from the local host are processed on the specified printer.

HOST-NAME = *EXCEPT(...)
Print jobs from all hosts except those specified in the EXCEPT list are processed on the specified printer.

HOST-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
BCAM names of the hosts whose jobs are not to be processed.

HOST-NAME = *ADD(...)
The specified hosts are added to the printer’s existing ACCEPT list of hosts from which print jobs are processed.

HOST-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
BCAM names of the hosts to be added.

HOST-NAME = *REMOVE(...)
The specified hosts are removed from the printer’s existing ACCEPT list of hosts from which print jobs are processed.

HOST-LIST = list-poss(15): <alphanum-name 1..8> / <c-string 1..8 with-low>
BCAM names of the hosts to be removed.

HOST-NAME = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Only print jobs from hosts in this ACCEPT list are processed on the specified printer.

PRINT-SAMPLE = *UNCHANGED / *NO / *YES
Indicates whether a print sample is to be produced for the first spoolout job to arrive for printout with modified assignment parameters. For printers of type LP65 (page printers) PRINT-SAMPLE=*YES is rejected.

TRACE = *UNCHANGED / *NO / *YES (...)
For APA printers only; switches trace on or off.

TRACE = *YES (...)

LEVEL = *COMPLETE / *STATUS / *BLOCK-CONTROL
Specifies which files should be written to the trace file.

LEVEL = *COMPLETE
Default value for local SPOOL devices. The trace should be logged in full, the trace file is $SYSSPOOL.SYSTRC.SPOOL.<dev-name>.yyy-mm-dd.hh-mm (see also the description of the trace data in the “SPOOL” manual [43]).

LEVEL = *STATUS
For APA jobs only: trace and status data should be logged.

LEVEL = *BLOCK-CONTROL
For APA jobs only: trace, status and block control data should be logged.

DEVICE-NAME = *RSO-PRINTER(...)
Administration parameters are to be modified for RSO printers to be defined in detail below.

NAME = list-poss(8): <alphanum-name 1..8>
Names of active RSO printers whose assignment parameters are to be modified for waiting spoolout jobs.
A maximum of eight names may be specified.

DESTINATION = *UNCHANGED / *NONE / *STD / *ADD(...) / *REMOVE(...) /
list-poss(16): <alphanum-name 1..8>
Indicates whether and how the assignment of the specified RSO printers to a pool is modified.

DESTINATION = *NONE
The list of RSO pools for the specified printers is cleared, i.e. spoolout jobs for these RSO pools are no longer processed.

DESTINATION = *STD
Standard RSO pools.
The list of assigned pools is replaced by a list of standard pools containing the specified RSO printers (SPOOL parameter file).

DESTINATION = *ADD(...)
RSO pools which are to be added to an existing list of RSO pools to which spoolout jobs for the specified printers can be directed.

DESTINATION-LIST = list-poss(16): <alphanum-name 1..8>
List of RSO pools to be added.

DESTINATION = *REMOVE(...)
RSO pools to be removed from an existing list of RSO pools to which spoolout jobs for the specified printers can be directed.

DESTINATION-LIST = list-poss(16): <alphanum-name 1..8>
List of RSO device pools to be removed.

DESTINATION = list-poss(16): <alphanum-name 1..8>
List of RSO pools to which spoolout jobs for the specified printers can be directed.

FORM-NAME = *UNCHANGED / *STD / *EQUIVALENT(...) / *EQUIVALENT-EXCEPT(...) / <alphanum-name 1..6> / *ADD(...) / *REMOVE(...)
Defines the forms with which spoolout jobs can be processed on the specified printers.

FORM-NAME = *STD
Spoolout jobs can be processed with all the equivalent forms permitted in the SPOOL parameter file for the relevant RSO printers.

FORM-NAME = *EQUIVALENT(...)
Spoolout jobs can be processed on the specified printers with equivalent forms.

EQUIVALENT-FORMS = *ALL / list-poss(16): <alphanum-name 1..6>
Spoolout jobs can be processed on the specified printers with all the equivalent forms or with one of the equivalent forms contained in the list.

FORM-NAME = *EQUIVALENT-EXCEPT(...)
Equivalent forms with which spoolout jobs cannot be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded equivalent forms.

FORM-NAME = list-poss(16): <alphanum-name 1..6>
Forms with which spoolout jobs can be processed on the specified printers.

FORM-NAME = *ADD(...)
Forms to be added to an existing list of forms with which spoolout jobs can be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of forms to be added.

FORM-NAME = *REMOVE(...)
Forms which are to be removed from an existing list of forms with which spoolout jobs can be processed on the specified printers.

FORMS-LIST = list-poss(15): <alphanum-name 1..6>
List of forms to be removed.

PRINT-SAMPLE = *UNCHANGED / *NO / *YES
Indicates whether a print sample is to be produced.
In RSO mode a print sample can be requested for public devices which print on continuous paper (not page printers).

TRACE = *UNCHANGED / *NO / *YES
Indicates whether a TRACE file is to be created.

ALLOWED-ACCESSES = *UNCHANGED / list-poss(4): <c-string 1..4>
This operand defines which accesses are allowed. It is permitted for any RSO printer.

ALLOWED-ACCESSES = *UNCHANGED
The current access mechanism is left unchanged.

ALLOWED-ACCESSES = list-poss(4): <c-string 1..4>
List of allowed accesses. The following values are possible:

`C'RSO'` RSO print jobs can be assigned to the active printer.
`C'UTM'` UTM print jobs can be assigned to the active printer.

USER-IDENTIFICATION = *UNCHANGED / *ALL / *EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <name 1..8> / <c-string 1..8 with-low>
User IDs under which spoolout jobs can be processed on the specified printers.

USER-IDENTIFICATION = *ALL
Spoolout jobs can be processed on the specified printers under all user IDs.

USER-IDENTIFICATION = *EXCEPT(...)
User IDs under which spoolout jobs cannot be processed on the specified printers.

USER-IDENT-LIST = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
List of excluded user IDs.

USER-IDENTIFICATION = *ADD(...)
User IDs to be added to an existing list of user IDs under which spoolout jobs can be processed on the specified printers.

USER-IDENT-LIST = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
List of user IDs to be added.

USER-IDENTIFICATION = *REMOVE(...)
User IDs which are to be removed from an existing list of user IDs under which spoolout jobs can be processed on the specified printers.

USER-IDENT-LIST = list-poss(15): <name 1..8> / <c-string 1..8 with-low>
List of user IDs to be removed.

USER-IDENTIFICATION = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
List of user IDs under which spoolout jobs can be processed on the specified printers.
If there is already a (positive) list of user IDs for the specified printers, it is replaced by this new list.

SPOOLOUT-CLASS = *UNCHANGED / *ALL / *EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <integer 1..255>
Spoolout classes from which spoolout jobs can be processed on the specified printers.

SPOOLOUT-CLASS = *ALL
Spoolout jobs from all spoolout classes can be processed on the specified printers.

SPOOLOUT-CLASS = *EXCEPT(...)
Spoolout classes from which spoolout jobs cannot be processed on the specified printers.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of excluded spoolout classes.

SPOOLOUT-CLASS = *ADD(...)
Spoolout classes to be added to an existing list of spoolout classes from which spoolout jobs can be processed on the specified printers.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of spoolout classes to be added.

SPOOLOUT-CLASS = *REMOVE(...)
Spoolout classes to be removed from an existing list of spoolout classes from which spoolout jobs can be processed on the specified printers.

SPOOLOUT-CLASS-LIST = list-poss(15): <integer 1..255>
List of spoolout classes to be removed.

SPOOLOUT-CLASS = list-poss(16): <integer 1..255>
List of spoolout classes from which spoolout jobs can be processed on the specified printers.
If there is already a (positive) list of spoolout classes for the specified printers, it is replaced by this new list.

SPOOLOUT-NAME = *UNCHANGED / *ALL / *EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Job names under which spoolout jobs can be processed on the specified printers.

SPOOLOUT-NAME = *ALL
Spoolout jobs can be processed on the specified printers irrespective of the job name.

SPOOLOUT-NAME = *EXCEPT(...)
Job names under which spoolout jobs cannot be processed on the specified printers.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of excluded job names.

SPOOLOUT-NAME = *ADD(...)
Job names to be added to an existing list of job names under which spoolout jobs can be processed on the specified printers.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names to be added.

SPOOLOUT-NAME = *REMOVE(...)
Job names which are to be removed from an existing list of job names under which spoolout jobs can be processed on the specified printers.

SPOOLOUT-NAME-LIST = list-poss(15): <alphanum-name 1..8> /<c-string 1..8 with-low>
List of job names to be removed.

SPOOLOUT-NAME = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names under which spoolout jobs can be processed on the specified printers.If there is already a (positive) list of job names for the specified printers, it is replaced by this new list.

ACCOUNT = *UNCHANGED / *ALL / *EXCEPT(...) / *ADD(...) / *REMOVE(...) / list-poss(16): <alphanum-name 1..8>
Account numbers with which spoolout jobs can be processed on the specified printers.

ACCOUNT = *ALL
Spoolout jobs can be processed on the specified printers irrespective of the account number.

ACCOUNT = *EXCEPT(...)
Account numbers under which spoolout jobs cannot be processed on the specified printers.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of excluded account numbers.

ACCOUNT = *ADD(...)
Account numbers to be added to an existing list of account numbers under which spoolout jobs can be processed on the specified printers.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of account numbers to be added.

ACCOUNT = *REMOVE(...)
Account numbers which are to be removed from an existing list of account numbers under which spoolout jobs can be processed on the specified printers.

ACCOUNT-LIST = list-poss(15): <alphanum-name 1..8>
List of account numbers to be removed.

ACCOUNT = list-poss(16): <alphanum-name 1..8>
List of account numbers under which spoolout jobs can be processed on the specified printers.
If there is already a (positive) list of account numbers for the specified printers it is replaced by this new list.

EXIT-ROUTINES = *UNCHANGED / *NOT-ACTIVE / *ACTIVE
Indicates whether EXIT routines are to be called for spoolout to the specified printers.

ROTATION = *UNCHANGED / *ANY / *YES / *NO / *MANUAL
Indicates whether spoolout jobs which require the page rotation module can be processed on the specified printers.

ROTATION = *ANY
Spoolout jobs can be processed on the specified printers whether they require the page rotation module or not.

ROTATION = *NO
Only spoolout jobs which do not require the page rotation module can be processed on the specified printers.

ROTATION = *YES
Only spoolout jobs which require the page rotation module can be processed on the specified printers.

ROTATION = *MANUAL
In contrast to the value *NO, the operator can access the page rotation module manually via hardware switches. In this case, all the pages are printed out in rotated form.

TWO-UP-PROCESSING = *UNCHANGED / *ANY / *YES / *NO / *MODE-1 / *MODE-2
This operand is only still available for reasons of compatibility.

FORMS-OVERLAY-BUFFER = *UNCHANGED / *ANY / *ONLY / *NO / *RANGE(...)
Indicates whether spoolout jobs which use an FOB data overlay can be processed on the specified virtual devices.

FORMS-OVERLAY-BUFFER = *ANY
Spoolout jobs with and without FOB data overlays can be processed on the specified virtual devices. The maximum possible FORMS-OVERLAY-BUFFER value is taken from the corresponding default device entry.

FORMS-OVERLAY-BUFFER = *ONLY
Only spoolout jobs which require an FOB data overlay can be processed on the specified virtual devices. The maximum possible FORMS-OVERLAY-BUFFER value is taken from the corresponding default device entry.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Only spoolout jobs with FOB data overlays which lie within the specified size range (in sublines) can be processed on the specified virtual devices.

LOW = *UNCHANGED / <integer 0..32767>
Lower limit of the range.

HIGH = *UNCHANGED / <integer 0..32767>
Upper limit of the range.

PRIORITY = *UNCHANGED / *ALL / *RANGE(...)
Priorities with which spoolout jobs can be processed on the specified printers.

PRIORITY = *ALL
Spoolout jobs can be processed on the specified printers irrespective of their priority.

PRIORITY = *RANGE(...)
Spoolout jobs with priorities within this range can be processed on the specified printers.

FROM = *UNCHANGED / <integer 30..255>
Lower limit of the range.

TO = *UNCHANGED / <integer 30..255>
Upper limit of the range.

CHARACTER-SET-NUMBER = *UNCHANGED / *ALL / *ONE / RANGE(...)
Spoolout jobs can be processed on the specified virtual devices according to the number of character sets required.

CHARACTER-SET-NUMBER = *ALL
Spoolout jobs can be processed on the specified virtual devices irrespective of the number of character sets required. The maximum possible number of required character sets is taken from the corresponding default device entry.

CHARACTER-SET-NUMBER = *ONE
Only spoolout jobs which require no more than one character set can be processed on the specified virtual devices.

CHARACTER-SET-NUMBER = *RANGE(...)
Spoolout jobs with a number of required character sets which falls within the range can be processed on the specified virtual devices.

LOW = *UNCHANGED / <integer 1..32767>
Minimum number of required character sets.

HIGH = *UNCHANGED / <integer 1..32767>
Maximum number of required character sets.

REVISION-NUMBER = *ANY / <integer 1..255>
Number of the revision.
The number given must match the current revision number.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed message: SPS0B06
2	0	SCP0915	Element to be deleted not found
2	0	SCP0954	Only first 100 pools activated for the device
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value Guaranteed messages: SCP0907, SCP0944, SCP0951, SCP0957, SCP0967, SPS0168
	128	SPS0896	Subsystem not loaded/ready Guaranteed message: SCP0896
	128	SCP0911	RSO subsystem in dump creation or restart phase
	128	SCP0992	SPS subsystem not loaded or not supported

4.47 MODIFY-PROCEDURE-OPTIONS

Modify procedure attributes during procedure execution

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-PROCEDURE-OPTIONS command allows most of the procedure attributes defined with SET-PROCEDURE-OPTIONS at the start of a procedure to be modified during procedure execution. The attributes that it cannot be used to modify are CALLER (permissible procedure call), INPUT-FORMAT (input record format) and SYSTEM-FILE-CONTEXT.

MODIFY-PROCEDURE-OPTIONS must not be called when the procedure is on hold (i.e. execution has been interrupted).

If MODIFY-PROCEDURE-OPTIONS is called from within an include procedure, its scope is restricted to that include procedure; in other words, modifications are not applied to the calling procedure.

The IMPLICIT-DECLARATION (implicit variable declaration) and JV-REPLACEMENT (job variable replacement) settings can also be modified interactively. At the start of the task the following settings apply in interactive mode:

```
IMPLICIT-DECLARATION = *YES
JV-REPLACEMENT = *AFTER-BUILTIN-FUNCTION
```

The default values (*UNCHANGED) mean that the existing setting is retained. The effects of the various settings are described in detail in the operand description section of the SET-PROCEDURE-OPTIONS command.

Restrictions

The SUPPRESS-SDP-MSG setting (SDF-P message suppression) can be modified at any time. The other settings can only be modified if the chargeable SDF-P subsystem is in use.

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Format

MODIFY-**PROC**EDURE-**OPT**IONS

IMPLICIT-**DECL**ARATION = ***UNCHA**NGED / ***Y**ES / ***NO**

,**LOG**GING-**ALLOW**ED = ***PAR**AMETERS(...) / ***NO** / ***Y**ES

***PAR**AMETERS(...)

| **CMD** = ***UNCHA**NGED / ***Y**ES / ***NO**

| ,**DATA** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**INTERRUPT-ALLOW**ED = ***UNCHA**NGED / ***Y**ES / ***NO**

,**DATA-ESC**APE-**CHAR** = ***UNCHA**NGED / ***NONE** / '&&' / '#' / '*' / '@' / '$' / ***STD**

,**DATA-ERROR**-HANDLING = ***UNCHA**NGED / ***Y**ES / ***NO**

,**JV-REPL**ACEMENT = ***UNCHA**NGED / ***NONE** / ***AFTER-BUILTIN-FUNCTION**

,**ERROR-MECH**ANISM = ***UNCHA**NGED / ***SPIN-OFF-COMPATIBLE** / ***BY-RETURNCODE**

,**SUP**PRESS-**SDP-MSG** = ***UNCHA**NGED / ***NONE** / ***ADD(**...) / ***REM**OVE**(**...)

***ADD**(...)

| **MSG-ID** = list-poss(2000): <alphanum-name 7..7>)

***REM**OVE(...)

| **MSG-ID** = list-poss(2000): <alphanum-name 7..7>)

Operands

IMPLICIT-DECLARATION = *UNCHANGED / *YES / *NO
This setting can only be modified in conjunction with SDF-P.
Specifies whether implicit declarations are allowed. Can also be specified interactively.

LOGGING-ALLOWED = *PARAMETERS(...) / *YES / *NO
This setting can only be modified in conjunction with SDF-P.
Governs whether procedure logging is allowed.

LOGGING-ALLOWED = *PARAMETERS(...)
The user can configure logging separately for commands and data records.

CMD = *UNCHANGED / *YES / *NO
This setting can only be modified in conjunction with SDF-P.
Specifies whether command logging is allowed.

DATA = *UNCHANGED / *YES / *NO
This setting can only be modified in conjunction with SDF-P.
Specifies whether data record logging is allowed.

INTERRUPT-ALLOWED = *UNCHANGED / *YES / *NO

This setting can only be modified in conjunction with SDF-P.

Specifies whether the procedure may be interrupted by means of the K2 key or the HOLD-PROCEDURE command.

DATA-ESCAPE-CHAR = *UNCHANGED / *NONE / '&&' / '#' / '*' / '@' / '$' / *STD

This setting can only be modified in conjunction with SDF-P.

Specifies whether variables are to be replaced and expressions evaluated in data records and defines the character with which the relevant variables or expressions begin. Permissible characters are &, #, *, @, and $. Specifying & is equivalent to specifying *STD (as on command level). If the character & is to be specified explicitly, it must be entered *twice*.

DATA-ERROR-HANDLING = *UNCHANGED / *YES *NO

This setting can only be modified in conjunction with SDF-P.

Specifies whether SDF-P error recovery is to be triggered in the following cases:

- data (without a leading slash or with a leading double slash) is found at a point where commands are expected
- *&<variable>* or *&* on its own occurs within data, and *<variable>* is not known either as an S variable or as a builtin function.

JV-REPLACEMENT = *UNCHANGED / *NONE / *AFTER-BUILTIN-FUNCTION

This setting can only be modified in conjunction with SDF-P.

Specifies whether job variable replacement is to be carried out.

ERROR-MECHANISM = *UNCHANGED / *SPIN-OFF-COMPATIBLE / *BY-RETURNCODE

This setting can only be modified in conjunction with SDF-P.

Specifies whether the error handling mechanism is to be compatible with spin-off for non-S procedures or whether nonzero subcode1 values are to be taken into account. This setting has no effect on error handling for statements.

SUPPRESS-SDP-MSG = *UNCHANGED / *NONE / *ADD(...) / *REMOVE(...)

Determines whether the setting governing the suppression of certain SDF-P messages (message class SDP) is to be modified. The option applies only to the calling procedure (it is not propagated).

SUPPRESS-SDP-MSG = *NONE

All SDF-P messages are output.

SUPPRESS-SDP-MSG = *ADD(...)

Set of SDF-P messages to be added to those which are not output.

MSG-ID=list-poss(2000): <alphanum-name 7..7>

List of message ID numbers (message class SDP).

SUPPRESS-SDP-MSG = *REMOVE(...)

Set of (suppressed) SDF-P messages which are now to be output again.

MSG-ID=list-poss(2000): <alphanum-name 7..7>

List of message ID numbers (message class SDP).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

Example

```
/SET-PROCEDURE-OPTIONS, LOGGING-ALLOWED=*NO
...
/MODIFY-PROCEDURE-OPTIONS, LOGGING-ALLOWED=*YES
...
```

At the start of the procedure, logging is not allowed, as defined in the SET-PROCEDURE-OPTIONS command. Once the MODIFY-PROCEDURE-OPTIONS command has been issued, command and data record logging is allowed.

4.48 MODIFY-PUBSET-CACHE-ATTRIBUTES

Modify PFA cache configuration for pubset

Component:	BS2000
Functional area:	Caching media control Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-PUBSET-CACHE-ATTRIBUTES command enables systems support to define or modify the configuration of a PFA cache, for use as a fast buffer for the data in an SF pubset or in a volume set of an SM pubset.

In addition, the system can be instructed how to behave in the following circumstances:

- On pubset startup or cache activation, the desired cache configuration cannot be made available at all or not with the required size (SIZE-TOLERANCE operand).
- On pubset startup, the SF pubset or the volume set of an SM pubset can no longer be linked to the cache area assigned in the previous pubset session (FORCE-IMPORT operand).

If the command refers to an SF pubset, there must already be an MRSCAT entry for the pubset. The pubset need not have been imported. The values specified in the command are stored in the pubset’s MRSCAT entry. When the MRSCAT entry is created, the values are assigned default settings.

If the command refers to an SM pubset, there are two different situations to consider:

- Modifying the cache configuration of a volume set: The SM pubset to which the volume set belongs must be online. In addition, the status of the volume set must be either “normal use” or “defined only”. The values are stored in the SM pubset’s configuration file. When the SM pubset is generated (or when a volume set is logically added with the MODIFY-PUBSET-DEFINITION-FILE command), the values are initialized with default settings.
- Modifying the control information for pubset startup: The SM pubset need not have been imported. The defined values are stored in the pubset’s MRSCAT entry, as they relate to the pubset as a whole and not just to specific volume sets.

The attributes configured with the MODIFY-PUBSET-CACHE-ATTRIBUTES command can be checked with the SHOW-PUBSET-CACHE-ATTRIBUTES command. This information is also contained in the output of the SHOW-PUBSET-PARAMETERS command.

A detailed description of the cache media main memory (*MAIN-MEMORY) will be found in the “DAB” manual [5].

Format

MODIFY-**PUB**SET-**CACHE-ATTR**IBUTES

PUBSET = <cat-id 1..4>

,**PUB**SET-**TYPE** = ***SINGLE-FEATURE** / ***SYS**TEM-**MANAG**ED(...)

***SYS**TEM-**MANAG**ED(...)

| **VOL**UME-**SET** = ***UNCHA**NGED / <cat-id 1..4>

,**CACHE-MEDIUM** = ***UNCHA**NGED / ***NO-CACHE** / ***MAIN-MEMORY**(...)

***MAIN-MEMORY**(...)

| **CACHE-SEGMENT-SIZE** = ***UNCHA**NGED / ***4KB** / ***8KB** / ***16KB** / ***32KB**

| ,**FORCE-OUT** = ***UNCHA**NGED / ***NO** / ***AT-LOW-FILL**ING / ***AT-HIGH-FILL**ING

| ,**CACHED-FILES** = ***UNCHA**NGED / ***BY-USER-SEL**ECTED / ***BY-SYSTEM** / ***ALL**

,**FORCE-IMPORT** = ***UNCHA**NGED / ***NO** / ***BY-OPER**ATOR

,**CACHE-SIZE** = ***UNCHA**NGED / <integer 1..32767>(...)

<integer 1..32767>(...)

| **DIM**ENSION = ***UNCHA**NGED / ***KILOBYTE** / ***MEGABYTE**

,**SIZE-TOLERANCE** = ***UNCHA**NGED / ***Y**ES / ***NO**

Operands

PUBSET = <cat-id 1..4>
ID of the pubset for which a cache configuration is to be defined or modified.

PUBSET-TYPE = *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Specifies the type of pubset for which a new entry is to be created in the MRSCAT.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset is an SF pubset.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. The PFA cache configuration is defined or modified for the volume set specified next.

VOLUME-SET = *UNCHANGED / <cat-id 1..4>
Identifies the volume set.

CACHE-MEDIUM = *UNCHANGED / *NO-CACHE / *MAIN-MEMORY(...)
Identifies the cache medium in which the cache area is to be created. The first prerequisite for this is that the hardware requirements are satisfied, and the second is that a cache handler (DAB), required to serve the cache, is available and is active.

CACHE-MEDIUM = *NO-CACHE
No cache medium is to be used for the specified pubset or volume set. This value is the default in the following cases:

- A new MRSCAT entry is created for an SF pubset (ADD-MASTER-CATALOG-ENTRY command).
- The initial values are defined for individual volume sets when an SM pubset is generated.
- A new volume set entry is generated in the course of dynamic pubset reconfiguration for an SM pubset (MODIFY-PUBSET-DEFINITION-FILE command).

CACHE-MEDIUM = *MAIN-MEMORY(...)
Main memory is to be used as the caching medium.
If there is a system failure, data inconsistencies can arise if the cache medium has also been used as a write cache.

CACHE-SEGMENT-SIZE = *UNCHANGED / *4KB / *8KB / *16KB / *32KB
Governs the size of a cache segment, i.e. the maximum size of the data areas swapped in by DAB in the event of a read miss in the cache. In automated caching (operand CACHED-FILES=*BY-SYSTEM), DAB performs the most favorable prefetch for the file and the current application (regardless of the segment size). In the case of nonautomated caching the following applies: large segments are particularly suitable for sequential processing and for applications with highly localized cache utilization.

Small segments are preferable for applications with a random pattern of access. CACHE-SEGMENT-SIZE=*32 KB is the default in the following cases:

- A new MRSCAT entry is created for an SF pubset (ADD-MASTER-CATALOG-ENTRY command).
- The initial values are defined for individual volume sets when an SM pubset is generated.
- A new volume set entry is generated in the course of dynamic pubset reconfiguration for an SM pubset (MODIFY-PUBSET-DEFINITION-FILE command).

FORCE-OUT = *UNCHANGED / *NO / *AT-LOW-FILLING / *AT-HIGH-FILLING
Defines the intervals at which the contents of the cache are written out to disk.

FORCE-OUT = *NO
The data in the cache is not written out to disk until the file is closed. If no further data can be forced from the cache, subsequent I/O operations can no longer be handled by the cache.

FORCE-OUT = *AT-LOW-FILLING
DAB uses a threshold value to control when the data in the cache is written out to disk. The threshold is when the cache is 25% full. This value is the default in the following cases:

- A new MRSCAT entry is created for an SF pubset (ADD-MASTER-CATALOG-ENTRY command).
- The initial values are defined for individual volume sets when an SM pubset is generated.
- A new volume set entry is generated in the course of dynamic pubset reconfiguration for an SM pubset (MODIFY-PUBSET-DEFINITION-FILE command).

FORCE-OUT = *AT-HIGH-FILLING
DAB uses a threshold value to control when the data in the cache is written out to disk. The threshold is when the cache is 75% full.

CACHED-FILES = *UNCHANGED / *BY-USER-SELECTED / *BY-SYSTEM / *ALL
Governs which files are earmarked for caching.

CACHED-FILES = *BY-USER-SELECTED
The user utilizes performance attributes to specify which files will use the cache. This value is the default in the following cases:

- A new MRSCAT entry is created for an SF pubset (ADD-MASTER-CATALOG-ENTRY command).
- The initial values are defined for individual volume sets when an SM pubset is generated.
- A new volume set entry is generated in the course of dynamic pubset reconfiguration for an SM pubset (MODIFY-PUBSET-DEFINITION-FILE command).

CACHED-FILES = *BY-SYSTEM
The automated, intelligent caching determines which DAB files have an impact on performance. The prefetch factor matching the access profile of the selected files is set and the files are monitored at regular intervals, in order to ensure optimum cache performance.

CACHED-FILES = *ALL
Except for a few system files (file catalog, user catalog, etc.), all the files in the pubset use the cache, which means that files with the performance attribute STD are treated like files with the performance attribute HIGH. The default caching mode is read/write. This form of “blanket caching” should be used only if it can be assumed to have a positive impact on overall performance.

FORCE-IMPORT = *UNCHANGED / *NO / *BY-OPERATOR
Specifies what the system is to do after a system crash, at the next IMPORT-PUBSET, if it is impossible to recreate the link to the cache area which was being used before the crash.

FORCE-IMPORT = *NO
If the link to the cache area is defective, import processing will be terminated. This value is the default setting when a new MRSCAT entry is added with the ADD-MASTER-CATALOG-ENTRY command.

FORCE-IMPORT = *BY-OPERATOR
If the link to the cache area is defective, either import processing will - if allowed by the operator - be continued without accessing the cache storage, or it will be terminated. If it is continued, it should be noted that data inconsistencies can occur in the pubset, and the old cache area will be cleared. Any files which are subject to data inconsistencies are appropriately marked, and can no longer be opened.

CACHE-SIZE = *UNCHANGED / <integer 1..32767>(...)
Indicates the number of storage units to be provided for the cache area in the selected medium.

CACHE-SIZE = <integer 1..32767>(...)
Specifies the number of storage units in kilobytes or megabytes which are to be provided for the cache area in the selected medium. Whether this number is in kilobytes or megabytes is indicated in the substructure below.

DIMENSION = *UNCHANGED / *KILOBYTE / *MEGABYTE
Indicates the dimension of the specified cache size. DIMENSION=*MEGABYTE applies for newly-created entries.

DIMENSION = *KILOBYTE
The value specified for CACHE-SIZE is given in kilobytes. A cache size of less than 32 KB is rounded up to 32 KB. Main memory is the only cache medium which can be sized in KB.

DIMENSION = *MEGABYTE
The value specified for CACHE-SIZE is given in megabytes.

SIZE-TOLERANCE = *UNCHANGED / *YES / *NO
Indicates whether the system is to tolerate a shortage of storage space in the cache when the cache area is created, so that there is less than the amount actually requested by the CACHE-SIZE operand.

SIZE-TOLERANCE = *YES
If the requested size of cache is unavailable (even if there is no cache available), a smaller size should be accepted. This value is the default setting when a new MRSCAT entry is added with the ADD-MASTER-CATALOG-ENTRY command.

SIZE-TOLERANCE = *NO
If the requested size of cache is unavailable, the import processing for this pubset should be terminated.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	CMS0002	Disk error
	1	CMS0011	Syntax error
	1	CMS0314	Syntax error for <cat-id>
	32	CMD0221	Internal system error
	32	CMS031F	MRS parameter error
	32	CMS0310	Error during privilege checking
	32	CMS0317	MRSCAT is locked
	32	CMS0318	Synchronization error
	64	CMS0010	No authorization for command
	64	CMS0312	MRSCAT entry not found
	64	CMS0319	Pubset type conflict

4.49 MODIFY-PUBSET-DEFINITION-FILE

Modify SM pubset definitions

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-PUBSET-DEFINITION-FILE command enables systems support to modify the configuration of a system-managed pubset (SM pubset) while the pubset is online. An entry in the pubset configuration file can be created, modified or deleted for each volume set in an SM pubset. When creating or modifying an entry, systems support can specify the following attributes of a volume set:

- usage mode as a file storage location for normal files or work files or as the S1 storage level of the HSMS subsystem (USAGE operand)
- level of file availability in terms of the availability of the volume set (AVAILABILITY operand)
- performance attributes of the volume set relative to file access (PERFORMANCE-ATTR attribute)

To modify the composition of pubsets and volume sets (to add a volume set, for example) you have to use the MODIFY-PUBSET-PROCESSING command.

The SHOW-PUBSET-DEFINITION-FILE command lists information on the current configuration. This information is also contained in the output of the SHOW-PUBSET-CONFIGURATION command.

The MODIFY-PUBSET-DEFINITION-FILE command is also supported for shared pubsets. In a shared-pubset network the command can be issued on the master system or on a slave system. A system message refers to the system issuing the command, unless preceded by message DMS136D. The latter includes the name of the system (master or slave) on which the error has occurred. If the command is entered on a slave system, the system name may also be the local system name.

Format

MODIFY-**PUB**SET-**DEFI**NITION-**FILE**

PUBSET = <cat-id 1..4>

,**VOL**UME-**SET-ENTRY** = ***UNCHA**NGED / ***ADD**(...) / ***MOD**IFY(...) / ***REMOVE**(...)

***ADD**(...)

| **VOL**UME-**SET** = <cat-id 1..4>

| ,**USAGE** = ***STD** / ***WORK** / ***HSMS-CONTR**OLLED

| ,**AVAIL**ABILITY = ***STD** / ***HIGH**

| ,**PERF**ORMANCE-**ATTR** = ***STD** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **PERFORMANCE** = list-poss (3): ***STD** / ***HIGH** / ***VERY-HIGH**

| | ,**WR**ITE-**CONSIST**ENCY = ***BY-CLOSE** / ***IMMED**IATE

***MOD**IFY(...)

| **VOL**UME-**SET** = <cat-id 1..4>

| ,**USAGE** = ***UNCHA**NGED / ***STD** / ***WORK** / ***HSMS-CONTR**OLLED

| ,**AVAIL**ABILITY = ***UNCHA**NGED / ***STD** / ***HIGH**

| ,**PERF**ORMANCE-**ATTR** = ***UNCHA**NGED / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **PERFORMANCE** = ***UNCHA**NGED / -list-poss (3): ***STD** / ***HIGH** / ***VERY-HIGH**

| | ,**WR**ITE-**CONSIST**ENCY = ***UNCHA**NGED / ***BY-CLOSE** / ***IMMED**IATE

***REMOVE**(...)

| **VOL**UME-**SET** = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset which is to have its configuration modified.

VOLUME-SET-ENTRY = *UNCHANGED / *ADD(...) / *MODIFY(...) / *REMOVE(...)
Specifies which operation is involved: defining the attributes of a new volume set, modifying those of an existing volume set, or deleting a volume set entry. The attributes of a volume set are stored in the form of an entry in the pubset configuration file.

VOLUME-SET-ENTRY = *ADD(...)
A new volume set is defined for the pubset. A new entry with the following attributes is added to the configuration file:

VOLUME-SET = <cat-id 1..4>
Identifies the volume set and hence the entry for it in the configuration file.

USAGE = *STD / *WORK / *HSMS-CONTROLLED
Specifies a usage mode for the volume set.

USAGE = *STD
The volume set is to be used as a storage location for normal files. Work files (file attribute WORK) must not be stored there.

USAGE = *WORK
The volume set is to be used as a storage location for work files only (file attribute WORK). These files may be deleted by systems support at freely selectable times. That makes it easier to remove the volume set from the pubset.

USAGE = *HSMS-CONTROLLED
The volume set is used by the HSMS subsystem to implement storage level S1 and the backup volume set of an SM pubset. Users are not allowed to store files there.

AVAILABILITY = *STD / *HIGH
Governs the level of availability for files, in terms of the availability of the volume set.

AVAILABILITY = *STD
The volume set does not offer enhanced availability.

AVAILABILITY = *HIGH
The volume set offers enhanced availability.

PERFORMANCE-ATTR = *STD / *PARAMETERS(...)
Governs the performance attributes of the volume set relative to file access. These are logical attributes which are taken into account in the allocation of storage space. The hardware (e.g. cache) which is being used is not taken into account.

PERFORMANCE-ATTR = *STD
No enhanced performance attributes are defined for the volume set.

PERFORMANCE-ATTR = *PARAMETERS(...)
The following enhanced performance attributes are defined for the volume set:

PERFORMANCE = list-poss(3): *STD / *HIGH / *VERY-HIGH
Determines the performance profile of the volume set with regard to I/O operations. Up to three values can be listed.

PERFORMANCE = *STD
The volume set does not offer enhanced performance.

PERFORMANCE = *HIGH
The volume set offers enhanced performance.

PERFORMANCE = *VERY-HIGH
The volume set offers very high performance.

WRITE-CONSISTENCY = *BY-CLOSE / *IMMEDIATE
Governs the point at which data consistency is required after write operations.

WRITE-CONSISTENCY = *BY-CLOSE
Data consistency is not required until after completion of CLOSE processing.

WRITE-CONSISTENCY = *IMMEDIATE
Data consistency is required immediately upon completion of the write operation.

VOLUME-SET-ENTRY = *MODIFY(...)
The attributes of an existing volume set are to be modified. The attributes specified next are modified in the entry in the configuration file. The default value of *UNCHANGED means that the existing setting is retained.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set and hence the entry which is to be modified in the configuration file.

USAGE = *UNCHANGED / *STD / *WORK / *HSMS-CONTROLLED
Specifies a usage mode for the volume set. In order for the usage mode to be modified, the volume set must be in DEFINED-ONLY status.

USAGE = *STD
The volume set is to be used as a storage location for normal files. Work files (file attribute WORK) must not be stored there.

USAGE = *WORK
The volume set is to be used as a storage location for work files only (file attribute WORK). These files may be deleted by systems support at freely selectable times. That makes it easier to remove the volume set from the pubset.

USAGE = *HSMS-CONTROLLED
The volume set is used by the HSMS subsystem to implement storage level S1 and the backup volume set of an SM pubset. Users are not allowed to store files there.

AVAILABILITY = *UNCHANGED / *STD / *HIGH
Governs the level of availability for files, in terms of the availability of the volume set.

AVAILABILITY = *STD
The volume set does not offer enhanced availability. Changing *HIGH to *STD is possible only if the volume set is in DEFINED-ONLY status or does not contain any files which require high availability.

AVAILABILITY = *HIGH
The volume set offers enhanced availability. It is always possible to change *STD to *HIGH. The files, however, are **not** implicitly relocated to a volume set offering enhanced availability.

PERFORMANCE-ATTR = *UNCHANGED / *PARAMETERS(...)
Governs the performance attributes of the volume set relative to file access. These are logical attributes which are taken into account in the allocation of storage space. The hardware (e.g. cache) which is being used is not taken into account.

PERFORMANCE-ATTR = *PARAMETERS(...)
The following enhanced performance attributes are modified for the volume set:

PERFORMANCE = *UNCHANGED / list-poss(3): *STD / *HIGH / *VERY-HIGH
Determines the performance profile of the volume set with regard to I/O operations. Up to three values can be listed.

PERFORMANCE = *STD
The volume set does not offer enhanced performance.

PERFORMANCE = *HIGH
The volume set offers enhanced performance.

PERFORMANCE = *VERY-HIGH
The volume set offers very high performance.

WRITE-CONSISTENCY = *UNCHANGED / *BY-CLOSE / *IMMEDIATE
Governs the point at which data consistency is required after write operations.

WRITE-CONSISTENCY = *BY-CLOSE
Data consistency is not required until after completion of CLOSE processing.

WRITE-CONSISTENCY = *IMMEDIATE
Data consistency is required immediately upon completion of the write operation.

VOLUME-SET-ENTRY = *REMOVE(...)
The entry for a volume set is to be removed from the configuration file. The volume set must at the time be in DEFINED-ONLY status.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set and hence the entry which is to be removed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	DMS138A	Internal parameter error
	32	DMS1398	Reconfiguration no longer possible
	64	CMD0216	No authorization to issue command
	64	DMS1381	Volume set conflict
	64	DMS1384	Operand not modifiable
	64	DMS1385	Control volume set cannot be removed
	64	DMS138B	Pubset does not exist
	64	DMS138C	Pubset not accessible
	64	DMS138D	Pubset type conflict
	64	DMS138E	Volume set not defined
	64	DMS1390	Earlier reconfiguration job not yet completed
	64	DMS1395	Maximum number of volume sets exceeded
	64	DMS1397	Reconfiguration of partner system not supported
	64	DMS1399	Maximum number of MRSCAT entries reached
	64	DMS139D	Volume not accessible
	128	DMS1386	Not enough class 4/5 memory
	128	DMS1389	Error in transmission to partner system
	128	DMS139A	Another pubset reconfiguration job is still in progress
	128	DMS139C	Pubset configuration file still locked

4.50 MODIFY-PUBSET-PROCESSING

Modify pubset composition

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-PUBSET-PROCESSING command enables systems support to modify the composition of pubsets:

- Individual disks (volumes) can be added to or removed from a single-feature pubset (SF pubset).
- Individual volume sets can be added to or removed from a system-managed pubset (SM pubset).
- Individual disks (volumes) can be added to or removed from a volume set which forms part of an SM pubset.

When individual volumes are added to a pubset or a volume set, they can at the same time be supplied with an allocation lock. Systems support can use the MODIFY-PUBSET-RESTRICTIONS command (q.v) to define other usage restrictions for volumes in an SF pubset or for volumes in a volume set which is part of an SM pubset.

The command is also supported for shared pubsets. In a shared-pubset network, the command can be issued on the master system or on a slave system. A system message refers to the system issuing the command, unless preceded by message `DMS136D`. The latter includes the name of the system (master or slave) on which the error has occurred. If the command is entered on a slave system, the system name may also be the local system name.

Pubset extension with homogeneity check

The homogeneity check is performed for the currently supported full replication types (for detailed information, please refer to the SHC-OSD manual [37]).

If in the course of pubset extension a volume is detected which has different mirroring properties from volumes which have already been processed, the answerable message `DMS1369` is output to SYSOUT. Depending on the caller’s answer, one of the following procedures is selected:

- Extension of the pubset is aborted.
- Extension of the pubset is continued despite the fact that the volume which has just been processed was recognized as inhomogeneous. Here the message `DMS136B` is output on the console for every further volume with different mirroring properties.

Format

MODIFY-**PUB**SET-**PROC**ESSING

PUBSET = <cat-id 1..4>

,**PUB**SET-**TYPE** = ***SINGLE-FEATURE** (...) / ***SYS**TEM-**MANAG**ED(...)

***SINGLE-FEATURE**(...)

| **VOL**UME-**ASSIGNMENT** = ***UNCHA**NGED / ***ADD**(...) / ***REMOVE**(...)

| ***ADD**(...)

| | **VOL**UME = <vsn 1..6>

| | ,**ALLOC**ATION-**ON-VOL**UME = ***NOT-RESTRICT** ED / ***NOT-ALLOW**ED

| | ,**CHECK-PUBSET-MIRRORS** = ***NO** / ***YES**

| ***REMOVE**(...)

| | **VOL**UME = <vsn 1..6>

***SYS**TEM-**MANAG**ED(...)

| **VOL**UME-**SET-SUPPORT** = ***UNCHA**NGED / ***ADD**(...) / ***REMOVE**(...) / ***MOD**IFY(...)

| ***ADD**(...)

| | **VOL**UME-**SET** = <cat-id 1..4>

| | ,**CHECK-PUBSET-MIRRORS** = ***NO** / ***YES**

| ***REMOVE**(...)

| | **VOL**UME-**SET** = <cat-id 1..4>

| | ,**COND**ITION = ***EMPTY-VOL**UME-**SET** / ***VOL**UME-**SET-DEFECTS**

| | ,**TERM**INATE-**JOBS** = ***NO** / ***Y**ES

| ***MOD**IFY(...)

| | **VOL**UME-**SET** = <cat-id 1..4>

| | ,**VOL**UME-**ASSIGNMENT** = ***UNCHA**NGED / ***ADD**(...) / ***REMOVE**(...)

| | ***ADD**(...)

| | | **VOL**UME = <vsn 1..6>

| | | ,**ALLOC**ATION-**ON-VOL**UME = ***NOT-RESTRICT** ED / ***NOT-ALLOW**ED

| | | ,**CHECK-PUBSET-MIRRORS** = ***NO** / ***YES**

| | ***REMOVE**(...)

| | | **VOL**UME = <vsn 1..6>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset which is to have its composition modified.

PUBSET-TYPE = *SINGLE-FEATURE(...) / *SYSTEM-MANAGED(...)
Specifies whether the pubset is an SF or SM pubset.

PUBSET-TYPE = *SINGLE-FEATURE(...)
The pubset is an SF pubset. Only individual volumes can be added or removed. An allocation lock can be imposed on volumes which are added.

VOLUME-ASSIGNMENT = *UNCHANGED / *ADD(...) / *REMOVE(...)
Specifies whether a volume is to be added or removed. The default is *UNCHANGED, i.e. the composition of the pubset is left unchanged.

VOLUME-ASSIGNMENT = *ADD(...)
A volume is to be added to the pubset. The volume serial number (VOLUME operand) must comply with the naming conventions for public volumes.

VOLUME = <vsn 1..6>
Identifies the volume by its volume serial number.

ALLOCATION-ON-VOLUME = *NOT-RESTRICTED / *NOT-ALLOWED
Governs the allocation options on the volume being added.

ALLOCATION-ON-VOLUME = *NOT-RESTRICTED
Storage space may be allocated on the volume being added.

ALLOCATION-ON-VOLUME = *NOT-ALLOWED
Storage space allocation on the volume being added is not allowed.

CHECK-PUBSET-MIRRORS = *NO / *YES
Determines whether the homogeneity of the pubset is to be checked. A pubset is homogeneous when all volumes of the pubset have the same mirroring properties.

CHECK-PUBSET-MIRRORS = *NO
No homogeneity check is performed.

CHECK-PUBSET-MIRRORS = *YES
A homogeneity check is performed when the volume is added.

VOLUME-ASSIGNMENT = *REMOVE(...)
A volume is to be removed from the pubset. The volume in question must be completely empty.

VOLUME = <vsn 1..6>
Identifies the volume by its volume serial number.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. Entire volume sets can be added or removed. Individual volumes can be added to or removed from assigned volume sets.

VOLUME-SET-SUPPORT = *UNCHANGED / *ADD(...) / *REMOVE(...) / *MODIFY(...)
Specifies whether a volume set is to be added or removed or whether the composition of a volume set which is already available is to be modified.

VOLUME-SET-SUPPORT = *ADD(...)
A volume set which has been entered to the pubset configuration file (see the MODIFY-PUBSET-DEFINITION-FILE command) is to be added to the pubset and thereby made available.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

CHECK-PUBSET-MIRRORS = *NO / *YES
Determines whether the homogeneity of the pubset is to be checked. A pubset is homogeneous when all volumes of the pubset have the same mirroring properties.

CHECK-PUBSET-MIRRORS = *NO
No homogeneity check is performed.

CHECK-PUBSET-MIRRORS = *YES
A homogeneity check is performed when the volume set is added.

VOLUME-SET-SUPPORT = *REMOVE(...)
A volume set which is available to the pubset is to be removed and thereby taken out of service. One of the following conditions must be met for this to be done:

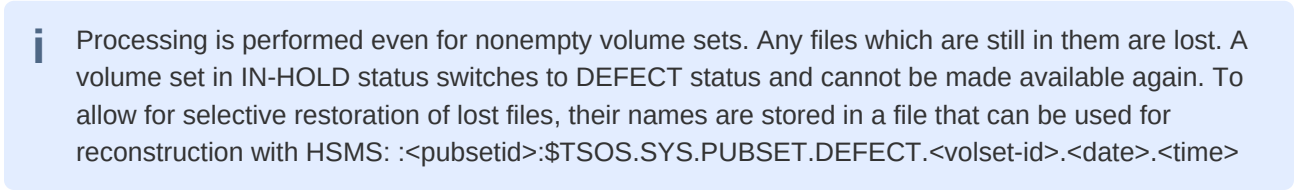
a. The volume set must be in NORMAL-USE status and must be empty, which means that it must contain no files other than the TSOSCAT file catalog. In addition, the volume set may not be the only one which supports the default file format. The NEW-FILE-ALLOCATION restriction must be set to *NOT-ALLOWED (see the MODIFY-PUBSET-RESTRICTIONS command).
b. The volume set is defective, which means that it must be in IN-HOLD or DEFECT status. It can be put into this status either by a system component (such as CMS) or by systems support using the MODIFY-PUBSET-RESTRICTIONS command (PROCESSING-STATE operand).

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

CONDITION = *EMPTY-VOLUME-SET / *VOLUME-SET-DEFECTS
Specifies which of the above conditions for volume set removal must be met.

CONDITION = *EMPTY-VOLUME-SET
The volume set cannot be removed unless condition a) is met. If this is not the case, processing terminates abnormally.

CONDITION = *VOLUME-SET-DEFECTS
The volume set cannot be removed unless condition b) is met. If this is not the case, processing terminates abnormally.



Processing is performed even for nonempty volume sets. Any files which are still in them are lost. A volume set in IN-HOLD status switches to DEFECT status and cannot be made available again. To allow for selective restoration of lost files, their names are stored in a file that can be used for reconstruction with HSMS: :<pubsetid>:$TSOS.SYS.PUBSET.DEFECT.<volset-id>.<date>.<time>

TERMINATE-JOBS = *NO / *YES
Governs whether processing is to continue if reservations for the volume set are still in existence.

TERMINATE-JOBS = *NO
Processing terminates abnormally if reservations for the volume set are still in existence.

TERMINATE-JOBS = *YES
If reservations for the volume set are still in existence, the jobs which hold the reservations are terminated by the system and processing continues.

VOLUME-SET-SUPPORT = *MODIFY(...)
A volume is to be added to or removed from a volume set which is already available in the SM pubset.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

VOLUME-ASSIGNMENT = *UNCHANGED / *ADD(...) / *REMOVE(...)
Specifies whether a volume is to be added or removed. The default is *UNCHANGED, which means that the volume set stays as it is.

VOLUME-ASSIGNMENT = *ADD(...)
A volume is to be added to the volume set.

VOLUME = <vsn 1..6>
Volume serial number of the volume which is to be added.

ALLOCATION-ON-VOLUME = *NOT-RESTRICTED / *NOT-ALLOWED
Governs the allocation options on the volume being added.

ALLOCATION-ON-VOLUME = *NOT-RESTRICTED
Storage space may be allocated on the volume being added.

ALLOCATION-ON-VOLUME = *NOT-ALLOWED
Storage space allocation on the volume being added is not allowed.

CHECK-PUBSET-MIRRORS = *NO / *YES
Determines whether the homogeneity of the pubset is to be checked. A pubset is homogeneous when all volumes of the pubset have the same mirroring properties.

CHECK-PUBSET-MIRRORS = *NO
No homogeneity check is performed.

CHECK-PUBSET-MIRRORS = *YES
A homogeneity check is performed when the volume is added.

VOLUME-ASSIGNMENT = *REMOVE(...)
A volume is to be removed from the volume set.

VOLUME = <vsn 1..6>
Volume serial number of the volume which is to be removed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error

	32	DMS138A	Internal parameter error
	32	DMS1398	Reconfiguration no longer possible
	64	CMD0216	No authorization to issue command
	64	DMS1355	Cache configuration invalid
	64	DMS1358	Disks already being cached through ADM PFA interfaces
	64	DMS135B	No more space on cache medium
	64	DMS135E	Cache management subsystem no longer available
	64	DMS1380	Pubset or volume set inconsistent
	64	DMS1381	Volume set conflict
	64	DMS1383	Volume inconsistent
	64	DMS1385	Volume set or volume cannot be removed
	64	DMS1387	Volume cannot be reserved
	64	DMS1388	Volume cannot be allocated to cache area
	64	DMS1389	Error in transmission to partner system
	64	DMS138B	Pubset does not exist
	64	DMS138C	Pubset not accessible
	64	DMS138D	Pubset type conflict
	64	DMS138E	Volume set not defined
	64	DMS138F	Volume set not accessible
	64	DMS1390	Earlier reconfiguration job not yet completed
	64	DMS1392	Invalid VSN
	64	DMS1395	Maximum number of volume sets exceeded or inhomogeneity of the pubset mirror detected
	64	DMS1397	Reconfiguration of partner system not supported
	64	DMS139D	Volume not accessible
	128	DMS1386	Not enough class 4/5 memory
	128	DMS139A	Another pubset reconfiguration job is still in progress
	128	DMS139B	Volume or volume set is reserved
	128	DMS139C	Pubset configuration file still locked

4.51 MODIFY-PUBSET-RESTRICTIONS

Modify usage restrictions for pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-PUBSET-RESTRICTIONS command enables systems support to impose and lift usage restrictions on single-feature pubsets (SF pubsets) and on system-managed pubsets (SM pubsets).
Only volume-specific restrictions can be imposed on SF pubsets. Restrictions on SM pubset may also relate to volume sets.
Volume-specific restrictions can be modified only if the associated volume set of the
SM pubset or the associated SF pubset is available.
Restrictions on volume sets relating to new file allocation (*NEW-FILE-ALLOCATION) and volume set access (*VOLUME-SET-ACCESS) can be modified even if the associated volume set is merely defined in the pubset configuration file (DEFINED-ONLY status).

The SHOW-PUBSET-RESTRICTIONS command lists information on the current configuration. This information is also contained in the output of the SHOW-PUBSET-CONFIGURATION command.

The command MODIFY-PUBSET-RESTRICTIONS is also supported for shared pubsets. In a shared-pubset network, the command can be issued on the master system or on a slave system. A system message refers to the system issuing the command, unless preceded by message DMS136D. The latter includes the name of the system (master or slave) on which the error has occurred. If the command is entered on a slave system, the system name may also be the local system name.

Format

MODIFY-**PUB**SET-**RESTRICT**IONS

PUBSET = <cat-id 1..4>

,**PUB**SET-**TYPE** = ***SINGLE-FEATURE** (...) / ***SYS**TEM-**MANAG**ED(...)

***SINGLE-FEATURE** (...)

| **ALLOC**ATION-**ON-VOL**UME = ***UNCHA**NGED / ***NOT-ALLOW**ED(...) / ***PHYS**ICA**L-ONLY**(...) /

| ***NOT-RESTRICT**ED(...)

| ***NOT-ALLOW**ED(...)

| | **VOL**UME = <vsn 1..6>

| ***PHYS**ICA**L-ONLY**(...)

| | **VOL**UME = <vsn 1..6>

| ***NOT-RESTRICT**ED(...)

| | **VOL**UME = ***ALL** / <vsn 1..6>

***SYS**TEM-**MANAG**ED(...)

| **VOL**UME-**SET** = <cat-id 1..4>

| ,**RESTRICT**ION = ***UNCHA**NGED / ***NEW-FILE-ALLOC**ATION(...) / ***VOL**UME-**SET-ACCESS**(...) /

| ***PROC**ESSING-**STATE**(...) / ***ALLOC**ATION-**ON-VOL**UME(...)

| ***NEW-FILE-ALLOC**ATION(...)

| | **MODE** = ***UNCHA**NGED / ***NOT-ALLOW**ED / ***PHYS**ICA**L-ONLY** / ***NOT-RESTRICT**ED

| ***VOL**UME-**SET-ACCESS**(...)

| | **MODE** = ***UNCHA**NGED / ***ADM**INISTRATOR-**ONLY** / ***NOT-RESTRICT**ED

| ***PROC**ESSING-**STATE**(...)

| | **MODE** = ***UNCHA**NGED / ***HOLD** / ***RESTART**

| ***ALLOC**ATION-**ON-VOL**UME(...)

| | **MODE** = ***UNCHA**NGED / ***NOT-ALLOW**ED(...) / ***PHYS**ICA**L-ONLY**(...) /

| | ***NOT-RESTRICT**ED(...)

| | ***NOT-ALLOW**ED(...)

| | | **VOL**UME = <vsn 1..6>

| | ***PHYS**ICA**L-ONLY**(...)

| | | **VOL**UME = <vsn 1..6>

| | | ***NOT-RESTRICT**ED(...)

| | | | **VOL**UME = ***ALL** / <vsn 1..6>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset which is to have its usage restrictions modified.

PUBSET-TYPE = *SINGLE-FEATURE(...) / *SYSTEM-MANAGED(...)
Specifies whether the pubset is an SF or SM pubset.

PUBSET-TYPE = *SINGLE-FEATURE(...)
The pubset is an SF pubset. Only usage restrictions on individual volumes can be modified.

ALLOCATION-ON-VOLUME = *UNCHANGED / *NOT-ALLOWED(...) / *PHYSICAL-ONLY(...) / *NOT-RESTRICTED(...)
Governs whether storage space can be allocated on a volume.

ALLOCATION-ON-VOLUME = *NOT-ALLOWED(...)
Storage space allocation on the volume specified next is not allowed.

VOLUME = <vsn 1..6>
Identifies the volume by its volume serial number.

ALLOCATION-ON-VOLUME = *PHYSICAL-ONLY(...)
Space allocation on the volume specified next is allowed only if the volume was specified explicitly when initially requested (see the VOLUME operand of the CREATE-FILE command, for example).

VOLUME = <vsn 1..6>
Identifies the volume by its volume serial number.

ALLOCATION-ON-VOLUME = *NOT-RESTRICTED(...)
The volume-specific restrictions are lifted for all volumes (default setting) or for the volume specified next.

VOLUME = *ALL / <vsn 1..6>
Identifies the volume by its volume serial number. The default is *ALL, which means the restrictions on all volumes are lifted.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. Usage restrictions on entire volume sets and on individual volumes can be modified.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

RESTRICTION = *UNCHANGED / *NEW-FILE-ALLOCATION(...) / *VOLUME-SET-ACCESS(...) / *PROCESSING-STATE(...) / *ALLOCATION-ON-VOLUME(...)
Defines the type of usage restriction. Restrictions may relate to the creation of new files on the volume set, access to the volume set, or the operating mode of the volume set, or they may be volume-specific restrictions.

RESTRICTION = *NEW-FILE-ALLOCATION(...)
Governs whether the creation of new files is allowed on the volume set.

MODE = *UNCHANGED / *NOT-ALLOWED / *PHYSICAL-ONLY / *NOT-RESTRICTED
Determines the scope of restrictions on new file allocation. The default is *UNCHANGED, which means that the existing setting is left unchanged.

MODE = *NOT-ALLOWED
New file allocation is not allowed on the volume set.

> Changing to *NOT-ALLOWED is not permitted if the volume set is the only one which supports the default file format.

MODE = *NOT-RESTRICTED
New files may also be created implicitly by the system on the volume set.

> Changing *NOT-ALLOWED to *PHYSICAL-ONLY or *NOT-RESTRICTED is allowed only if there is no restriction on access to the volume set (see RESTRICTION=*VOLUME-SET-ACCESS).

RESTRICTION = *VOLUME-SET-ACCESS(...)
Governs whether access to the volume set is possible.

MODE = *UNCHANGED / *ADMINISTRATOR-ONLY / *NOT-RESTRICTED
Defines who is to have access to the volume set.

MODE = *ADMINISTRATOR-ONLY
Only systems support has access to the volume set.

MODE = *NOT-RESTRICTED
Access to the volume set is unrestricted.

> Changing *NOT-RESTRICTED to *ADMINISTRATOR-ONLY is allowed only if there are restrictions on new file allocation on the volume set (see RESTRICTION=*NEW-FILE-ALLOCATION).

RESTRICTION = *PROCESSING-STATE(...)
Governs whether the volume set is operable and therefore available.

MODE = *UNCHANGED / *HOLD / *RESTART
Governs the operating mode of the volume set. The default is *UNCHANGED, i.e. the operating mode does not change.

MODE = *HOLD
The volume set is marked as temporarily inoperable (IN-HOLD status). This may be necessary if access to the volume set is no longer possible, typically due to channel errors, and the volume set needs to be removed from the SM pubset (see VOLUME-SET-SUPPORT=*REMOVE in the MODIFY-PUBSET-PROCESSING command). If errors occur, the volume set may also be switched to the comparable DEFECT status by a system component.

MODE = *RESTART
A temporarily inoperable volume set is to be made operable again.

RESTRICTION = *ALLOCATION-ON-VOLUME(...)
Governs whether space allocation is restricted on individual volumes of a volume set.

MODE = *UNCHANGED / *NOT-ALLOWED(...) / *PHYSICAL-ONLY(...) / *NOT-RESTRICTED(...)
Determines the scope of restrictions on space allocation on an individual volume. The default is *UNCHANGED, which means that the existing setting is left unchanged.

MODE = *NOT-ALLOWED(...)
Storage space allocation on the volume specified next is not allowed.

VOLUME = <vsn 1..6>
Identifies the volume by its volume serial number.

MODE = *PHYSICAL-ONLY(...)
Space allocation on the volume specified next is allowed only if the volume was specified explicitly when initially requested (see the VOLUME operand of the CREATE-FILE command, for example).

VOLUME = <vsn 1..6>
Identifies the volume by its volume serial number.

MODE = *NOT-RESTRICTED(...)
The volume-specific restrictions are lifted for all volumes (default setting) or for the volume specified next.

VOLUME = *ALL / <vsn 1..6>
Identifies the volume by its volume serial number. The default is *ALL, which means the restrictions on all volumes are lifted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	DMS138A	Internal parameter error
	32	DMS1398	Reconfiguration no longer possible
	64	CMD0216	No authorization to issue command
	64	DMS1381	Volume set conflict
	64	DMS1382	Volume not present
	64	DMS1384	Operand not modifiable
	64	DMS1389	Error in transmission to partner system
	64	DMS138B	Pubset does not exist
	64	DMS138C	Pubset not accessible
	64	DMS138D	Pubset type conflict
	64	DMS138E	Volume set not defined
	64	DMS1390	Earlier reconfiguration job not yet completed
	64	DMS1392	Invalid VSN
	64	DMS1397	Reconfiguration of partner system not supported
	64	DMS139D	Volume not accessible
	128	DMS1386	Not enough class 4/5 memory
	128	DMS139A	Another pubset reconfiguration job is still in progress
	128	DMS139C	Pubset configuration file still locked

4.52 MODIFY-PUBSET-SPACE-DEFAULTS

Modify disk space management defaults

Component:	BS2000
Functional area:	Pubset and MRSCAT management System control and optimization
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-PUBSET-SPACE-DEFAULTS command enables systems support to modify pubset-specific defaults for disk space management. The defaults that are set are for primary and secondary allocation, the maximum value for secondary allocation doubling, and the default file format for SM pubsets.

The pubset for which the defaults are to be modified generally has to be in service. In the case of SF pubsets, though, changes to values which are not to come into effect until the next startup can also be made when the pubset is not in service.

The SCOPE operand governs when modifications take effect and how long the effect lasts. With SF pubsets, a permanent change applies only to the system on which it was made. An exception is made when both immediate changes (with SCOPE=*TEMPORARY) and permanent changes (SCOPE=*PERMANENT) are made to SF pubsets requested by a slave system, in which case they apply only to the current master system.

In the case of a SM pubset which does not yet have any permanently configured values, suitable values are established when the pubset is taken into service. The settings of the DMPRALL, DMSCALL, and DMMAXSC system parameters are taken into account. Permanent settings of these values for an SF pubset can also be defined with the ADD-MASTER-CATALOG-ENTRY command.

Systems support can use the SHOW-PUBSET-SPACE-DEFAULTS command to find out which pubset-specific space management defaults are set. This information is also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Format

MODIFY-**PUB**SET-**SPACE-DEF**AULTS

PUBSET = <cat-id 1..4>

,**PUB**SET-**TYPE** = ***ANY** / ***SYS**TEM-**MANAG**ED(...)

***SYS**TEM-**MANAG**ED(...)

| **FILE-FORMAT** = ***UNCHA**NGED / ***K** / ***NK2** / ***NK4**

,**PRIM**ARY-**ALLOC**ATION = ***UNCHA**NGED / ***STD** / <integer 1..16777215 *2Kbyte*>

,**SEC**ONDARY-**ALLOC**ATION = ***UNCHA**NGED / ***STD** / <integer 1..32767 *2Kbyte*>

,**MAX**IMAL-**ALLOC**ATION = ***UNCHA**NGED / ***STD** / <integer 1..32767 *2Kbyte*>

,**SCOPE** = ***PERMANENT** / ***TEMP**ORARY / ***NEXT-PUB**SET-**SESSION**

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset which is to have its space management defaults modified.

PUBSET-TYPE = *ANY / *SYSTEM-MANAGED(...)
Specifies the pubset type. The default is *ANY, which means that the pubset type is irrelevant because only the defaults governing the size of the space allocation are to be changed.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is explicitly an SM pubset. This is the only case in which the default file format can also be changed.

FILE-FORMAT = *UNCHANGED / *K / *NK2 / *NK4
Governs the default file format. The system uses this value if the user does not explicitly specify a file format or specifies *BY-PUBSET-DEFAULT (see the FILE-PREFORMAT operand in the CREATE-FILE command). The default is *UNCHANGED, which means that the existing setting is left unchanged.

FILE-FORMAT = *K
If no file format is specified, files are created as K files.

FILE-FORMAT = *NK2
If no file format is specified, files are created as NK files in 2K format.

FILE-FORMAT = *NK4
If no file format is specified, files are created as NK files in 4K format.

PRIMARY-ALLOCATION = *UNCHANGED / *STD / <integer 1..16777215 *2Kbyte*>
Governs the default primary allocation for storage space requests. The system uses this value if the user does not specify a value explicitly or specifies *STD (see the operand SPACE=*STD in the CREATE-FILE command). The default is *UNCHANGED, which means that the existing setting is left unchanged.

PRIMARY-ALLOCATION = *STD
The value of the DMPRALL system parameter is used as the primary allocation default.

PRIMARY-ALLOCATION = <integer 1..16777215 *2Kbyte*>
Number of PAM pages to be set as the primary allocation default.

SECONDARY-ALLOCATION = *UNCHANGED / *STD / <integer 1..32767 *2Kbyte*>
Governs the default secondary allocation for storage space requests. The system uses this value if the user does not specify a value explicitly or specifies *STD (see the SPACE=*STD or SECONDARY-ALLOCATION=*STD operand in the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command). The default is *UNCHANGED, which means that the existing setting is left unchanged.

SECONDARY-ALLOCATION = *STD
The value of the DMSCALL system parameter is used as the secondary allocation default.

SECONDARY-ALLOCATION = <integer 1..32767 *2Kbyte*>
Number of PAM pages to be set as the secondary allocation default.

MAXIMAL-ALLOCATION = *UNCHANGED / *STD / <integer 1..32767 *2Kbyte*>
Governs the maximum value for secondary allocation doubling. The value of the secondary allocation for a file is doubled each time the reserved space is extended until the maximum value specified here is reached. The default is *UNCHANGED, which means that the existing setting is left unchanged.

MAXIMAL-ALLOCATION = *STD
The value of the DMMAXSC system parameter is used as the maximum allocation default.

MAXIMAL-ALLOCATION = <integer 1..327672 *2Kbyte*>
Number of PAM pages to be set as the maximum allocation default.

SCOPE = *PERMANENT / *TEMPORARY / *NEXT-PUBSET-SESSION
Defines how long the setting applies and when it comes into effect.

SCOPE = *PERMANENT
The setting takes immediate effect and applies until the next modification.

SCOPE = *TEMPORARY
The setting takes immediate effect and applies only for the duration of the current pubset session, i.e. until the pubset is taken out of service.

SCOPE = *NEXT-PUBSET-SESSION
The setting applies until the next permanent modification. However, the setting does not take effect until the start of the next pubset session.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	DMS1402	Action only partly successful
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	CMD0216	Required authorization not available
	64	DMS1401	File format not supported
	64	DMS140B	Pubset not available
	64	DMS140C	Pubset type conflict
	130	DMS140F	Not enough class 4/5 memory

4.53 MODIFY-RESOURCE-COLLECTION

Control secure queue and collector task selection

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	J

Function

The MODIFY-RESOURCE-COLLECTION command can be used by systems support to control the secure queue and selection of the collector task.

Format

MODIFY-**RES**OURCE-**COLL**ECTION
ACTION = ***ADD-COLLECTOR** / ***REM**OVE-**COLL**ECTOR / ***SET-COLL**ECTOR ,**TSN** = <alphanum-name 1..4>

Operands

ACTION =
Determines whether the specified job is taken into account when selecting the collector task.

ACTION = *ADD-COLLECTOR
The specified job is taken into account when selecting the collector task within the system. This state corresponds to the presetting at the time the job enters the secure queue. This command has no effect unless a MODIFY-RESOURCE-COLLECTION command specifying ACTION=*REMOVE-COLLECTOR has been issued for the same job.

ACTION = *REMOVE-COLLECTOR
The specified job is not taken into account when the collector task is selected by the system. If the specified job is the collector, it loses this collector attribute. However, this does not prevent the job in question from reserving resources; it merely cannot collect them one after the other, and instead must wait until all its requests can be met at once.

ACTION = *SET-COLLECTOR
The specified job becomes the collector task. If it is already the collector task, the command has no effect. If another job is the collector, it loses its collector attribute. The setting of the collector task has priority over its selection by the system.

TSN = <alphanum-name 1..4>
Specifies the task sequence number of the job for which the MOD-RES command has been issued.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
	64	NKS0023	Command not executed Task not in secure queue
	64	NKS0024	Command not executed with ACTION=*SET-COLL Establishment not confirmed by task
	64	NKS0026	Command not executed with ACTION=*REM-COLL Task currently being established as collector
	64	NKS0027	Command not executed with ACTION=*SET-COLL Collector currently being set up
	64	NKS0028	Command not executed with ACTION=*SET-COLL Task is already collector
	64	NKS0029	Command not executed with ACTION=*SET-COLL Task no longer in secure queue
	64	NKS0041	Control task for secure queue not active with TSN=NKS. Command not executed.
	64	NKS0043	Internal error in NKRORQH module

Notes

- If a job loses its collector attribute, all existing reservations are canceled. The job waits in the secure queue until all reservation requests can be met at once.
- The collector attributes can be modified for each job in the secure queue as often as required. These attributes (collector, noncollector, to be taken into account at selection, not to be taken into account) are, however, only valid as long as the job is contained in the secure queue. When a job leaves (or re-enters) the secure queue the default attributes apply (noncollector, to be taken into account at selection).
- Mount requests are only issued at the operator terminal (console) when all the resources required for the job have been reserved. The mounting of volumes takes place in a subsidiary phase of secure processing. The MODIFY-RESOURCE-COLLECTION command has, therefore, no effect on jobs waiting for a reply to a MOUNT message.
- The MODIFY-RESOURCE-COLLECTION command with the REMOVE or SET operand is rejected if at the time of command input a job is turned into a collector task.

4.54 MODIFY-SDF-OPTIONS

Activate user syntax file and change SDF option settings

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the MODIFY-SDF-OPTIONS command, the user can

- activate or deactivate user syntax files (user syntax files are generated using the SDF-A utility routine; see the “SDF-A” manual [33])
- change the settings of SDF options for specific tasks:
  - type of dialog guidance (GUIDANCE operand)
  - extent of logging (LOGGING)
  - input interface for utilities (UTILITY-INTERFACE operand)
  - syntax error dialog in procedures (PROCEDURE-DIALOGUE operand)
  - position of the continuation character (CONTINUATION operand)
  - syntax checking of commands (MODE operand)
  - syntax checking of statements (DEFAULT-PROGRAM-NAME operand)
  - selection of function key assignment (FUNCTION-KEYS operand)
  - storage of input (INPUT-HISTORY operand)

The settings of SDF options are taken from the global information of the activated system or group syntax file at the beginning of the task. If the user activates a user syntax file, the settings of SDF options are modified according to the global information contained in that file. When the OMNIS utility routine is used, however, the GUIDANCE=*EXPERT mode is set at the beginning of the task and if the user syntax file is switched.

In (temporarily) guided dialog the operand form of the MODIFY-SDF-OPTIONS command contains as preset values the current settings, which can also be queried using the SHOW-SDF-OPTIONS command. The *UNCHANGED operand states that the current setting is not to be modified.

In programs with an SDF interface, MODIFY-SDF-OPTIONS is available as a standard statement with the same syntax and functionality but without the MODE, DEFAULT-PROGRAM-NAME and COMMAND-STATISTICS operands.

Privileged functions

Systems support (privilege TSOS) can use the CMD-STATISTICS operand to activate and deactivate the statistical recording of all commands issued in the system. All commands contained in the system or subsystem syntax files are taken into account.

The statistics are recorded in the SYS.SDF.CMD.STATISTICS file. If the statistics routine is active (CMD-STATISTICS=*YES), SDF counts every command issued by running a counter for each command and each alias. If the statistics routine is deactivated (CMD-STATISTICS=*NO), SDF evaluates the count and writes the edited statistics to the above-named file. Any existing statistics file is overwritten. SDF then resets the command counter to zero.

The edited statistics file contains:

- a header showing the date and time when the statistics routine was activated and deactivated.
- for each subsystem a title containing the name of the subsystem
- for each command of a subsystem the command name and the count.

Format

MODIFY-**SDF-OPT**IONS Alias: **MDSDFO**

SYNTAX-FILE = ***UNCHA**NGED / ***ADD**(...) / ***REMOVE**(...) / ***NONE**

***ADD**(...)

| **ADD-NAME** = ***STD** / list-poss(2000): ***STD** / <filename 1..54>

***REM**OVE(...)

| **REM**OVE-**NAME** = ***LAST** / ***ALL** / ***BY-SEL**ECTION / list-poss(2000): <filename 1..54> / ***STD**

,**GUID**ANCE = ***UNCHA**NGED / ***EXPERT** / ***NO** / ***MAX**IMUM / ***MED**IUM / ***MIN**IMUM

,**LOG**GING = ***UNCHA**NGED / ***INPUT-FORM** / ***ACCEPT**ED-**FORM** / ***INVAR**IANT-**FORM**

,**UTILITY-INTERF**ACE = ***UNCHA**NGED / ***OLD-MODE** / ***NEW-MODE**

,**PROC**EDURE-**DIA**LOGUE = ***UNCHA**NGED / ***Y**ES / ***NO**

,**CONT**INUATION = ***UNCHA**NGED / ***OLD-MODE** / ***NEW-MODE**

,**MENU-LOG**GING = ***UNCHA**NGED / ***NO** / ***Y**ES

,**CMD-STATIS**TICS = ***UNCHA**NGED / ***NO** / ***Y**ES

,**MODE** = ***UNCHA**NGED / ***EXEC**UTION / ***TEST**(...)

***TEST**(...)

| **CHECK-PRIV**ILEGES = ***UNCHA**NGED / ***NO** / ***Y**ES

,**DEFAULT-PROG**RAM-**NAME** = ***UNCHA**NGED / ***NONE** / <structured-name 1..30>

,**FUNC**TION-**KEYS** = ***UNCHA**NGED / ***STYLE-GUIDE-MODE** / ***BY-TERMINAL-TYPE** / ***OLD-MODE**

,**INPUT-HISTORY** = ***UNCHA**NGED / ***ON**(...) / ***OFF** / ***RESET**

***ON**(...)

| **NUMBER-OF-INPUTS** = ***UNCHA**NGED / <integer 1..100>

| ,**PASS**WORD-**PROT**ECTION = ***UNCHA**NGED **/ *NO / *YES / *SDF-ONLY**

Operands

SYNTAX-FILE = *UNCHANGED / *ADD(...) / *REMOVE(...)
Indicates whether a user syntax file is to be activated or deactivated. Two or more user syntax files can be active at the same time.
A user syntax file to be activated must be accessible and shareable (if the job submitter is not the owner of the syntax file). If the syntax file is protected by basic ACL or GUARDS, the job submitter must have at least execute authorization (see the USER-ACCESS, BASIC-ACL and GUARDS operands in the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands respectively).
If the file is protected by an execute password, the password must be contained in the password table for the job (see ADD-PASSWORD command).

Note

For performance reasons, user syntax files which were created in an SDF version < V2.0A should be converted to the new syntax file format. This is done either while processing with SDF-A or by means of the SDF-I utility routine (CONVERT-SYNTAX-FILE statement).

SYNTAX-FILE = *UNCHANGED
The previous declaration continued to apply.

SYNTAX-FILE = *ADD(...)
One or more additional user syntax files are to be activated.

ADD-NAME = list-poss(2000): *STD / <filename 1..54>
Specifies the user syntax file to be activated.
A list of two or more syntax files can also be specified.

ADD-NAME = *STD
The user syntax file with the standard file name **SDF.USER.SYNTAX** is activated if it exists in the user ID.

ADD-NAME = <filename 1..54>
The specified user syntax file is activated.

SYNTAX-FILE = *REMOVE(...)
One or more user syntax files are to be deactivated.

REMOVE-NAME = *LAST / *ALL / list-poss(2000): <filename 1..54> / *STD
Specifies the user syntax file to be deactivated.
A list of two or more syntax files can also be specified.

REMOVE-NAME = *LAST
The last user syntax file activated is deactivated.

REMOVE-NAME = *ALL
All activated user syntax files are deactivated.

REMOVE-NAME = *BY-SELECTION
All activated user syntax files are displayed in a selection mask. Those which are to be deactivated can be marked in a mark column.

REMOVE-NAME = <filename 1..54>
The specified user syntax file is deactivated.

REMOVE-NAME = *STD
The user syntax file with the standard file name **SDF.USER.SYNTAX** is deactivated.

SYNTAX-FILE = *NONE
No user syntax file has been activated for the job.
Currently active user syntax files are deactivated.

GUIDANCE =
Specifies the type of dialog guidance.

GUIDANCE = *UNCHANGED
The previous declaration still applies.

GUIDANCE = *EXPERT
The EXPERT form of unguided dialog is set:
The system requests command input with “/” and statement input with “//”. No syntax error dialog is carried out. Blocked input of commands/statements is possible, i.e. several commands/statements, separated by logical end-of-line characters, can be issued at the same time.

GUIDANCE = *NO
The NO form of unguided dialog is set:
Depending on the language set (English (E) or German (D)), the system requests
command input with “%CMD:” or “%KDO:” and statement input with “%STMT:” or ”%ANW:”. A syntax error dialog allows input errors to be corrected without having to repeat the entire command/ statement. Blocked input of commands/statements is possible, i.e. several commands/statements, separated by logical-end-of-line characters, can be issued at the same time.

GUIDANCE = *MAXIMUM
Guided dialog, maximum help level, is set:
All alternative operand values with suffixes, and all help texts for the displayed application domains, commands, statements and operands are displayed.

GUIDANCE = *MEDIUM
Guided dialog, medium help level, is set:
All alternative operand values without suffixes, and all help texts for the displayed application domains, commands and statements are displayed.

GUIDANCE = *MINIMUM
Guided dialog, minimum help level, is set:
Only default values for operands without suffixes are displayed.

LOGGING =
Specifies how inputs are to be logged. Input for operands defined as “secret” (attribute SECRET=*YES) is never listed in a log.

LOGGING = *UNCHANGED
The previous declaration still applies.

LOGGING = *INPUT-FORM
In unguided dialog, input strings are logged exactly as entered. In guided dialog or following an error dialog, logging is performed as with *ACCEPTED-FORM.

LOGGING = *ACCEPTED-FORM
The following is logged:

- all names in their extended form
- all specified operands, each with its name and the specified value
- the final representation resulting from a correction dialog, if any.

Inputs of the guided dialog are concatenated to form a single string.

LOGGING = *INVARIANT-FORM
The following is logged:

- all names with the default names defined in the syntax file
- all specified operands, each with its name and the specified value
- all optional operands implicitly contained in the input, each with its name and its default value
- the final representation resulting from a correction dialog, if any.

Inputs of the guided dialog are concatenated to form a single string.

UTILITY-INTERFACE = *UNCHANGED / *OLD-MODE / *NEW-MODE
Controls the input interface of utility routines which offer an old and a new (SDF) interface in parallel.

PROCEDURE-DIALOGUE = *UNCHANGED / *YES / *NO
Specifies whether the user is to be requested to correct error procedure commands during the execution of a procedure (syntax error dialog in procedures). At the same time, the operand controls the help request (“?” in the input) within procedures.

CONTINUATION = *UNCHANGED / *OLD-MODE / *NEW-MODE
Determines the column in which the command continuation character is to be specified in procedure and ENTER files. If *OLD-MODE is set, the continuation character must be in column 72 precisely. If *NEW-MODE is set, it may be entered in any column from column 2 through 72.

MENU-LOGGING = *UNCHANGED / *NO / *YES
Specifies whether menus of the guided dialog are to be logged in their entirety. This operand is restricted to diagnostic purposes.

CMD-STATISTICS = *UNCHANGED / *NO / *YES
Only systems support can specify this operand (privilege TSOS):
Determines whether statistics on the issued commands are to be created from the system syntax file.

MODE = *UNCHANGED / *EXECUTION / *TEST(...)
Specifies whether test mode is activated or deactivated.

MODE = *EXECUTION
Test mode is deactivated.

MODE = *TEST(...)
Test mode is activated. Commands issued after the MODIFY-SDF-OPTIONS command are subjected to a syntax check but not executed. The MODIFY-SDF-OPTIONS and SHOW-SDF-OPTIONS commands are *always* executed. The lower-ranking CHECK-PRIVILEGES operand determines whether the user has the privileges necessary for the input.
The treatment of statements in test mode can be defined in the DEFAULT-PROGRAM-NAME operand.

In *S procedures*, SDF-P control flow commands are executed as well. This may cause errors, since commands declaring or setting S variables are not executed in test mode. The chargeable SDF-P subsystem offers a special debugger for S procedures (see the section dealing with debugging aids in the “SDF-P” manual [34]).

CHECK-PRIVILEGES = *UNCHANGED / *NO / *YES
Specifies whether the user’s privileges are checked in addition to the syntax check.

CHECK-PRIVILEGES = *NO
The user’s privileges are not checked. This setting may be necessary, for example, if the procedure to be tested is created for other users.

CHECK-PRIVILEGES = *YES
As well as the syntax check, SDF checks whether the user has the necessary privileges for the input.

DEFAULT-PROGRAM-NAME = *UNCHANGED / *NONE / <structured-name 1..30>
Determines whether in test mode (see MODE operand) SDF program statements (beginning with //) are to undergo a syntax check.
This check is performed on the basis of the syntax of the statements defined in the syntax file for the specified program name. The check is independent of the program call, since START-/LOAD-EXECUTABLE-PROGRAM commands (or START-/LOAD-PROGRAM) are not executed in test mode.

FUNCTION-KEYS = *UNCHANGED / *STYLE-GUIDE-MODE / *BY-TERMINAL-TYPE / *OLD-MODE
Determines the assignment of the function keys.

FUNCTION-KEYS = *STYLE-GUIDE-MODE
The function keys are assigned according to the Fujitsu Technology Solutions Style Guide.

[K2]	Interrupt function
[F1]	Help function
[F3]	Exit function
[F5]	Refresh function (only in guided dialog)
[F6]	Exit-all function
[F7]	Scroll backward (only in guided dialog)
[F8]	Scroll forward (only in guided dialog)
[F9]	Execute RESTORE-SDF-INPUT INPUT=*LAST
[F11]	Execute function (only in guided dialog)
[F12]	Cancel function

FUNCTION-KEYS = *BY-TERMINAL-TYPE
The function key assignment depends on the terminal type. If the terminal type supports the wider-ranging functionality of the Style Guide, SDF chooses the setting *STYLE-GUIDE-MODE. Otherwise, SDF chooses the setting *OLD-MODE.

Note

Such configuration evaluates the terminal type needed for calling terminal emulation. The type setting is defined by the description of the emulation program.

FUNCTION-KEYS = *OLD-MODE
The function keys are assigned in Old mode, which is supported by all terminal types.

[K1]	Exit function
[K2]	Interrupt function
[K3]	Refresh function (only in guided dialog)
[F1]	Exit-all function
[F2]	Test function (only in guided dialog)
[F3]	Execute function (only in guided dialog)

INPUT-HISTORY = *UNCHANGED / *ON(...) / *OFF / *RESET
Determines whether the input buffer is activated, deactivated or reset.

INPUT-HISTORY = *ON(...)
The input buffer is activated. SDF saves all syntactically correct inputs (commands and statements) to the input buffer. The commands or standard statements RESTORE-SDF-INPUT and SHOW-INPUT-HISTORY are not saved. Whether ISP commands are saved depends on what is specified in the PASSWORD-PROTECTION operand.
The SHOW-INPUT-HISTORY command (or standard statement) enables the user to display the saved inputs, while the RESTORE-SDF-INPUT command can be used to redisplay a specific input for entering again, either as it is or in modified form.

Note

Values specified for “secret” operands which match neither the default value nor a value defined via SECRET=*NO are stored in the input buffer with “^” or in plain text, depending on the PASSWORD-PROTECTION operand.
Values specified for operands which are not “secret” are always stored in the input buffer in plain text. In individual cases these inputs can contain sensitive information (e.g. procedure parameters). The following steps will prevent such inputs from being displayed again via SHOW-INPUT-HISTORY or RESTORE-SDF-INPUT:
Before entering sensitive input, the input buffer must be deactivated and then activated again. If the inputs have already been saved, the input buffer can be reset with *RESET, but it must be remembered that this will delete all saved inputs.

NUMBER-OF-INPUTS = *UNCHANGED / <integer 1..100>
Maximum number of inputs to be saved.

PASSWORD-PROTECTION = *UNCHANGED / *YES / *NO
This operand is not permitted in procedure mode.
For security reasons, this operand is only evaluated in interactive dialog and ignored otherwise.

PASSWORD-PROTECTION = *YES
Values specified for “secret” operands are saved with “^” (equivalent to the operand value *SECRET). ISP commands are not stored in the input buffer.

PASSWORD-PROTECTION = *NO
Values specified for “secret” operands are stored in plaintext. ISP commands are also stored in the input buffer.

PASSWORD-PROTECTION = *SDF-ONLY

Values specified for “secret” operands are saved with “^” and ISP commands are stored in the input buffer.

Note

Under this setting, passwords are displayed on the screen in plaintext with the SHOW-INPUT-HISTORY or RESTORE-SDF-INPUT command, and so may be seen by unauthorized users. Therefore, you should ensure that whenever you leave your terminal no unauthorized users can output the contents of the input buffer. If your terminal does not possess any appropriate security mechanisms (e.g. chipcard terminal), you should at least delete the input buffer before you leave.

INPUT-HISTORY = *OFF
The input buffer is deactivated. Subsequent inputs are not saved, but all previously saved inputs can still be accessed.

INPUT-HISTORY = *RESET
The input buffer is reset. The stored inputs are deleted and can no longer be accessed, while subsequent inputs are saved.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command terminated without errors
1	32	CMD0500	Syntax description in current syntax file invalid. Guaranteed message: CMD0500
	64	CMD0554	Command execution not successful. Guaranteed messages: CMD0300, CMD0302, CMD0490, CMD0508, CMD0509, CMD0552, CMD0554, CMD0555, CMD0579

Example

/show-sdf-opt ——————————————————————————— (1)

```
%SYNTAX FILES CURRENTLY ACTIVATED :
%  SYSTEM    : :1OSH:$TSOS.SYSSDF.SDF.048
%              VERSION : SESD04.8A00
%  SUBSYSTEM : :1OSH:$TSOS.SYSSDF.ACS.200
%              VERSION : SESD20.0A300
   .
   .
%  SUBSYSTEM : :1OSH:$TSOS.SYSSDF.SDF-A.041
%              VERSION : SESD04.1G100
%  SUBSYSTEM : :1OSH:$TSOS.SYSSDF.TASKDATE.190
%              VERSION : SESD19.0A000
%  GROUP     : *NONE
%  USER      : :2OSG:$USER1.SDF.USER.SYNTAX
%              VERSION : 13.01.2017
%CURRENT SDF OPTIONS :
%  GUIDANCE           : *EXPERT
%  LOGGING            : *INPUT-FORM
%  CONTINUATION       : *NEW-MODE
%  UTILITY-INTERFACE  : *NEW-MODE
%  PROCEDURE-DIALOGUE : *NO
%  MENU-LOGGING       : *NO
%  MODE               : *EXECUTION
%     CHECK-PRIVILEGES   : *YES
%  DEFAULT-PROGRAM-NAME : *NONE
%  FUNCTION-KEYS      : *STYLE-GUIDE-MODE
%  INPUT-HISTORY      : *ON
%     NUMBER-OF-INPUTS   : 20
%     PASSWORD-PROTECTION: *YES
```

/modify-sdf-opt syntax-file=*add(syssdf.example.03) — (2)
/show-sdf-opt information=*user ——————————————————— (3)

```
%  USER      : :2OSG:$USER1.SDF.USER.SYNTAX
%              VERSION : 13.01.2017
%  USER      : :2OSG:$USER1.SYSSDF.EXAMPLE.03
%              VERSION : 16.01.2017
%CURRENT SDF OPTIONS :
%  GUIDANCE           : *EXPERT
%  LOGGING            : *INPUT-FORM
%  CONTINUATION       : *NEW-MODE
%  UTILITY-INTERFACE  : *NEW-MODE
%  PROCEDURE-DIALOGUE : *NO
%  MENU-LOGGING       : *NO
%  MODE               : *EXECUTION
%     CHECK-PRIVILEGES   : *YES
%  DEFAULT-PROGRAM-NAME : *NONE
%  FUNCTION-KEYS      : *STYLE-GUIDE-MODE
%  INPUT-HISTORY      : *ON
%     NUMBER-OF-INPUTS   : 20
%     PASSWORD-PROTECTION: *YES
```

```
/modify-sdf-opt guid=*max ————————————————————————————  (4)
  .     (in guided dialog:)
  .     NEXT = mod-sdf-opt synt-file=*remove,guid=*expert —  (5)
  .
/show-sdf-opt information=*user ——————————————————————————  (6)
```

```
%  USER      : :2OSG:$USER1.SDF.USER.SYNTAX
%              VERSION : 13.01.2017
%CURRENT SDF OPTIONS :
%  GUIDANCE           : *EXPERT
%  LOGGING            : *INPUT-FORM
%  CONTINUATION       : *NEW-MODE
%  UTILITY-INTERFACE  : *NEW-MODE
%  PROCEDURE-DIALOGUE : *NO
%  MENU-LOGGING       : *NO
%  MODE               : *EXECUTION
%     CHECK-PRIVILEGES   : *YES
%  DEFAULT-PROGRAM-NAME : *NONE
%  FUNCTION-KEYS      : *STYLE-GUIDE-MODE
%  INPUT-HISTORY      : *ON
%     NUMBER-OF-INPUTS   : 20
%     PASSWORD-PROTECTION: *YES
```

(1) The SHOW-SDF-OPTIONS command provides information on all activated syntax files and the SDF options that are set. The output of the subsystem syntax files can be very extensive, depending on the number of activated subsystems. This example shows only an excerpt.

(2) A user syntax file SYSSDF.EXAMPLE.03 is additionally activated.

(3) The user-specific information is displayed. The old user syntax file SDF.USER.SYNTAX remains active and the user syntax file SYSSDF.EXAMPLE.03 is additionally activated. The command definitions from SYSSDF.EXAMPLE.03 are used for commands defined in both user syntax files, as these are activated last.

(4) The system switches to guided dialog mode.

(5) The most recently activated user syntax file is deactivated and the system switches back to unguided dialog mode.

(6) The repeated output of the user-specific SDF options shows that only the user syntax file SYSSDF.EXAMPLE.03 was deactivated.

4.55 MODIFY-SDF-PARAMETERS

Modify SDF parameters

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	TSOS
Routing code:	*

Function

The MODIFY-SDF-PARAMETERS command enables systems support to exchange the system syntax file or subsystem syntax files, to allocate group syntax files to users and to define system-wide LOGON or LOGOFF procedures (each consisting of a call procedure and an include procedure).
Systems support can also define when and for how long these declarations are to take effect:

- effective immediately for the current session only
- effective immediately for an unlimited time
- effective as of the next session for an unlimited time.

The definitions are entered in the SDF parameter file. The name of the SDF parameter file is defined in the DSSM catalog for SDF. If no SDF parameter file was entered there, the SDF parameter file with the default name $TSOS.SYSPAR.SDF is cataloged. If no SDF parameter file exists, it is created with the name from the DSSM catalog or with the default name.
A user is assigned a group syntax file indirectly with use of user catalog . A profile ID (PROFILE-ID operand in the ADD-USER/MODIFY-USER-ATTRIBUTES command; output in *PROFILE-ID* field via SHOW-USER-ATTRIBUTES) may be entered in the user catalog. The SDF parameter file contains the allocations of profile IDs to group syntax file, which are assigned to a user with the corresponding profile ID.
Since an assigned group syntax file is activated during LOGON processing, any modification in the SDF parameter file or in the user catalog is effective only for tasks whose LOGON is issued afterwards. An exchange of the system syntax file, however, also affects running tasks.

An SDF parameter file can be created or modified off-line using the SDF-PAR utility routine. This utility is described in the “SDF Dialog Interface” manual [15].

Format

MODIFY-**SDF-PAR**AMETERS

SCOPE = ***TEMP**ORARY / ***PERM**ANENT / ***NEXT**-SESSION(...)

***NEXT-SESSION**(...)

| **PAR**AMETER-**FILE-NAME** = ***CURR**ENT / <filename 1..54>

,**SYNTAX-F**ILE-**TYPE** = ***UNCHA**NGED / ***SYS**TEM(...) / ***GR**OUP(...) / ***SUBSYS**TEM(...)

***SYS**TEM(...)

| **NAME** = <filename 1..54>

***GR**OUP(...)

| **NAME** = ***NONE** / <filename 1..54>

| ,**PROF**ILE-**ID** = <structured-name 1..30>

| ,**HIERARCHY** = ***Y**ES / ***NO**

***SUBSYS**TEM(...)

| **NAME** = ***NONE** / <filename 1..54>

| ,**SUBSYS**TEM-NAME = <structured-name 1..8>

,**SYS**TEM-**LOGON-PROC** = ***UNCHA**NGED / ***NO** / ***STD** / <filename 1..54>

,**SYS**TEM-**LOGON-INCL** = ***UNCHA**NGED / ***NO** / ***STD** / <filename 1..54>

,**SYS**TEM-**LOGOFF-PROC** = ***UNCHA**NGED / ***NO** / ***STD** / <filename 1..54>

,**SYS**TEM-**LOGOFF-INCL** = ***UNCHA**NGED / ***NO** / ***STD** / <filename 1..54>

Operands

SCOPE =
Specifies the scope of the activation which is being made.
For SCOPE = *TEMPORARY or *PERMANENT, it is not possible to deactivate the group syntax file, which belongs to the systems support profile ID. For SCOPE=*PERMANENT or *NEXT-SESSION, an SDF parameter file is created if it does not already exist.

SCOPE = *TEMPORARY
For a system syntax file:
The specified subsystem syntax file is activated or deactivated system-wide for all user jobs. However, it is not entered in the SDF parameter file and is ignored for the subsequent session.

For a subsystem syntax file:
The specified subsystem syntax file is activated or deactivated system-wide for all user jobs. However, it is not entered in the SDF parameter file and is ignored for the subsequent session.

For a group syntax file:
The specified group syntax file is assigned to the specified profile ID. This assignment only takes effect for subsequent user jobs (from the next LOGON in the current session). User jobs which are already in progress are not affected by the change.
The specified group syntax file is not entered in the SDF parameter file and is therefore ignored for the subsequent session. In the case of a deactivation (*NONE), the existing profile ID and its associated group syntax file name are *not* deleted from the SDF parameter file.

*With SYSTEM-LOGON-PROC or SYSTEM-LOGON-INCL = *NO:*
Deactivates the system-wide LOGON procedure (call or include procedure) for the next LOGON processing activities in the current session. The SDF parameter file is not modified.

*With SYSTEM-LOGON-PROC or SYSTEM-LOGON-INCL = <filename 1..54> or *STD:*
Activates the specified system-wide LOGON procedure (call or include procedure) for the all subsequent LOGON processing activities in the current session. As the SDF parameter file is not modified, this specification will apply only for the current session.

*With SYSTEM-LOGOFF-PROC or SYSTEM-LOGOFF-INCL = *NO:*
The system-wide LOGOFF procedure is deactivated for all subsequent LOGOFF processing in the current session. The SDF parameter file is not changed.

*With SYSTEM-LOGOFF-PROC or SYSTEM-LOGOFF-INCL = <filename 1..54> or *STD:*
The specified system-wide LOGOFF procedure is activated for all subsequent LOGOFF processing in the current session. Since the SDF parameter file is not modified, the specification applies only to the current session.

SCOPE = *PERMANENT
For a system syntax file:
The specified system syntax file is activated system-wide for all user jobs. In addition, the system syntax file name is entered in the SDF parameter file. It is therefore used in the next session.

For a subsystem syntax file:
The specified subsystem syntax file is activated system-wide for all user tasks. In addition, the syntax file name is entered in the SDF parameter file; it is therefore used in the next session. If a subsystem syntax file is being deactivated, the names of the subsystem and the associated subsystem syntax file are deleted from the SDF parameter file.

For a group syntax file:
The specified group syntax file is assigned to the specified profile ID. This assignment only takes effect for subsequent user jobs (from the next LOGON in the current session). User jobs which are already in progress are not affected by the change.
The specified group syntax file is entered in the SDF parameter file and is therefore used in the next session. In the case of a deactivation (*NONE), the existing profile ID and its associated group syntax file name are deleted from the SDF parameter file.

*With SYSTEM-LOGON-PROC or SYSTEM-LOGON-INCL = *NO:*
Deactivates the system-wide LOGON procedure (call or include procedure) for the next LOGON processing activities in the current session. Its name is deleted from the SDF parameter file. If one is available, the system-wide LOGON procedure with the default name will be used, starting from the next session.

*With SYSTEM-LOGON-PROC or SYSTEM-LOGON-INCL = <filename 1..54> or *STD:*
Activates the specified system-wide LOGON procedure (call or include procedure) for the all subsequent LOGON processing activities in the current session. Its name is stored in the SDF parameter file, and will therefore be used again in the next session.

*With SYSTEM-LOGOFF-PROC or SYSTEM-LOGOFF-INCL = *NO:*
The system-wide LOGOFF procedure is deactivated for all subsequent LOGOFF processing in the current session. Its name is deleted from the SDF parameter file. If present, the system-wide LOGOFF procedure with the default name is used as of the next session.

*With SYSTEM-LOGOFF-PROC or SYSTEM-LOGOFF-INCL = <filename 1..54> or *STD:*
The specified system-wide LOGOFF procedure is activated for all subsequent LOGOFF processing in the current session. Its name is stored in the SDF parameter file and is therefore also evaluated in the following session.

SCOPE = *NEXT-SESSION(...)
For a system syntax file:
The specified system syntax file name is stored in the SDF parameter file, and will be used in the next session. The current session is not affected by this.

For a subsystem syntax file:
The specified subsystem syntax file name is stored in the SDF parameter file, and will be used in the next session. The current session is not affected by this. If a subsystem syntax file is being deactivated, the names of the subsystem and the associated subsystem syntax file are deleted from the SDF parameter file (the current session is not affected by this).

For a group syntax file:
The specified group syntax file is assigned to the specified profile ID in the SDF parameter file. This assignment only takes effect in the next session. User jobs which are already in progress, and subsequent ones in the present session, are not affected by the change. In the case of a deactivation (*NONE), the existing profile ID and its associated group syntax file name are removed from the SDF parameter file. The group syntax file which belongs to the systems administration profile ID need only be shareable if it will also be used by other user IDs.
The specified syntax file name is not checked before being stored in the SDF parameter file. Checking will take place in the next session.

*With SYSTEM-LOGON-PROC or SYSTEM-LOGON-INCL = *NO:*
The name of the system-wide LOGON procedure (call or include procedure) is deleted from the SDF parameter file. This has no effect on the current session. If one is available, the system-wide LOGON procedure with the default name will be used, starting from the next session.

*With SYSTEM-LOGON-PROC or SYSTEM-LOGON-INCL = <filename 1..54> or *STD:*
The name of the specified system-wide LOGON procedure (call or include procedure) is stored in the SDF parameter file. This specification will apply from the next session, and has no effect on the current session.

*With SYSTEM-LOGOFF-PROC or SYSTEM-LOGOFF-INCL = *NO:*
The name of the system-wide LOGOFF procedure is deleted from the SDF parameter file. If available, the system-wide LOGOFF procedure with the default name is used as of the next session. This specification does not affect the current session.

*With SYSTEM-LOGOFF-PROC or SYSTEM-LOGOFF-INCL = <filename 1..54> or *STD:*
The name of the specified system-wide LOGOFF procedure is stored in the SDF parameter file. The specification applies as of the next session and does not affect the current session.

PARAMETER-FILE-NAME = *CURRENT / <filename 1..54>
Specifies the name of the parameter file which is to be created or updated.

PARAMETER-FILE-NAME = *CURRENT
Identifies the parameter file name for the current session.

SYNTAX-FILE-TYPE =
Specifies the type of syntax file concerned.

SYNTAX-FILE-TYPE = *SYSTEM(...)
The syntax file is a system file.

NAME = <filename 1..54>
Specifies the name of the file to be used as the (basic) system syntax file.

SYNTAX-FILE-TYPE = *GROUP(...)
The syntax file is a group file.

NAME =
Specifies the name of the file to be used as the group syntax file.

NAME = *NONE
Deletes the assignment of the group syntax file to the specified profile ID.

NAME = <structured-name 1..30>
The specified group syntax file is assigned to the specified profile ID.

PROFILE-ID = <structured-name 1..30>
Defines the profile ID which was (or is to be) assigned to the group syntax file.

HIERARCHY =
Specifies whether the SDF file hierarchy is to be retained for the syntax analysis of the commands/statements in a user job with the specified profile ID, i.e. whether the system syntax file is to be referred to in making the syntax analysis.

HIERARCHY = *YES
By default, the system syntax file is activated when a user ID is set up.

HIERARCHY = *NO
The system syntax file is deactivated immediately after LOGON processing. For users with the specified profile ID, the definitions in the system syntax file then become irrelevant. The only definitions which apply are those stored in the assigned group syntax file. A group syntax file which is defined using HIERARCHY = *NO *must* contain, in addition to the global information, at least the EXIT-JOB or LOGOFF command. Otherwise, it is not possible to terminate a user job which has the specified profile ID assigned to it.

SYNTAX-FILE-TYPE = *SUBSYSTEM(...)
The syntax file is a subsystem syntax file.

NAME = *NONE / <filename 1..54>
Specifies the name of the file which is to be used as the subsystem syntax file. If *NONE is specified, the subsystem syntax file which belongs to SUBSYSTEM-NAME is deactivated.

SUBSYSTEM-NAME = <structured-name 1..8>
Specifies the name of the subsystem to which the subsystem syntax file belongs.

SYSTEM-LOGON-PROC =
Specifies whether a system-wide LOGON procedure is to run as a call procedure. The specifications made for a system-wide LOGON call procedure have different effects, depending on what is specified for the SCOPE operand.

SYSTEM-LOGON-PROC = *UNCHANGED
There is to be no change in the system-wide LOGON call procedure.

SYSTEM-LOGON-PROC = *STD
The system-wide LOGON call procedure with the default name TSOS.SYS.SDF.LOGON.SYSPROC is activated for all subsequent LOGON operations in the current session (see the SCOPE operand).

SYSTEM-LOGON-PROC = *NO
Deactivates the system-wide LOGON call procedure (see the SCOPE operand).

SYSTEM-LOGON-PROC = <filename 1..54>
Activates the specified system-wide LOGON call procedure (see the SCOPE operand).

SYSTEM-LOGON-INCL =
The specified system-wide LOGON include procedure is activated. The specifications for the system-wide LOGON include procedure have different effects depending on the SCOPE operand.

SYSTEM-LOGON-INCL = *UNCHANGED
There is to be no change in the system-wide LOGON include procedure.

SYSTEM-LOGON-INCL = *STD
The system-wide LOGON include procedure with the default name TSOS.SYS.SDF.LOGON.SYSINCL is activated for the next LOGON operations in the current session (see the SCOPE operand).

SYSTEM-LOGON-INCL = *NO
Deactivates the system-wide LOGON include procedure (see the SCOPE operand).

SYSTEM-LOGON-INCL = <filename 1..54>
Activates the specified system-wide LOGON include procedure (see the SCOPE operand).

SYSTEM-LOGOFF-PROC =
Specifies whether a system-wide LOGOFF procedure is to run as a call procedure. The specifications made for the system-wide LOGOFF call procedure have a different effect depending on the value of the SCOPE operand.

SYSTEM-LOGOFF-PROC = *UNCHANGED
No change to the system-wide LOGOFF call procedure.

SYSTEM-LOGOFF-PROC = *NO
The system-wide LOGOFF call procedure is deactivated (see also the description of the SCOPE operand).

SYSTEM-LOGOFF-PROC = *STD
The system-wide LOGOFF call procedure with the default name $TSOS.SYS.SDF.LOGOFF.SYSPROC is activated (see also the description of the SCOPE operand).

SYSTEM-LOGOFF-PROC = <filename 1..54>
The specified system-wide LOGOFF call procedure is activated (see also the description of the SCOPE operand).

SYSTEM-LOGOFF-INCL =
Specifies whether a system-wide LOGOFF procedure is to run as an include procedure. The specifications made for the system-wide LOGOFF include procedure have a different effect depending on the value of the SCOPE operand.

SYSTEM-LOGOFF-INCL = *UNCHANGED
No change of the system-wide LOGOFF include procedure.

SYSTEM-LOGOFF-INCL = *NO
The system-wide LOGOFF include procedure is deactivated (see also the description of the SCOPE operand).

SYSTEM-LOGOFF-INCL = *STD
The system-wide LOGOFF include procedure with the default name $TSOS.SYS.SDF.LOGOFF.SYSINCL is activated (see also the description of the SCOPE operand).

SYSTEM-LOGOFF-INCL = <filename 1..54>
The specified system-wide LOGOFF include procedure is activated (see also the description of the SCOPE operand).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
2	0	CMD0677	Access rights for the system syntax file have been changed (warning) Guaranteed message: CMD0677
2	0	CMD0689	HIERARCHY=*NO is not included in the current parameter file Guaranteed message: CMD0689
1	32	CMD0500	Invalid syntax specification in the current syntax file Guaranteed message: CMD0500
	64	CMD0556	Command executed unsuccessfully Guaranteed messages: CMD0300, CMD0302, CMD0490, CMD0508, CMD0509, CMD0556, CMD0557, CMD0671, CMD0672, CMD0674, CMD0678, CMD0679, CMD0681, CMD0682, CMD0687, CMD0688, CMD0690, CMD0814, CMD0815
1	64	CMD0601	Command reserved for use by systems support Guaranteed message: CMD0601

Notes

- Access to the SDF parameter file (MODIFY-SDF-PARAMETERS command) is possible only for a task under the TSOS ID. Concurrent accesses of further tasks are rejected with an error message.
- The group syntax file allocated to the profile ID of user ID TSOS need not be shareable unless it is used by other user IDs. If the file is protected by BASIC-ACL or GUARDS, the user IDs must have at least execute permission.
- If SCOPE=*NEXT-SESSION is specified, specified syntax file names and the procedure names are stored in the parameter file without being checked. Checking does not take place until the start of the next session.
- File names specified without a user ID are given the current catalog ID or user ID of the task.
- When replacing alias names, only the real file names are entered.
- Global information from subsystem syntax files is ignored.
- If SCOPE=*TEMPORARY or *PERMANENT is specified, the TSOS group syntax file cannot be deactivated.
- A subsystem syntax file may also be activated automatically by DSSM when the subsystem is started (defined in the subsystem declarations). If a subsystem syntax file has already been declared and hence activated for the subsystem in the SDF parameter file, only the last syntax file activated for the subsystem is evaluated. A syntax file automatically activated by DSSM cannot be removed for the subsystem by means of MODIFY-SDF-PARAMETERS; it can only be exchanged. Syntax files automatically activated by DSSM are deactivated again

by DSSM when the subsystem is shut down. Syntax files activated by means of the SDF parameter file must in all cases be deactivated with a suitable MODIFY-SDF-PARAMETERS command.

4.56 MODIFY-SPACE-SATURATION-LEVELS

Modify space saturation thresholds

Component:	BS2000
Functional area:	Pubset and MRSCAT management System control and optimization
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS
Routing code:	$

Function

The MODIFY-SPACE-SATURATION-LEVELS command enables systems support to modify the threshold levels for storage space saturation monitoring on pubsets. The threshold settings are pubset-specific for single-feature pubsets (SF pubsets). With system-managed pubsets (SM pubsets) the thresholds are defined for each volume set.

A defined disk space saturation threshold is reached when the number of free PAM pages on an SF pubset or in a volume set on an SM pubset falls below the figure set for the saturation level. When a saturation level is reached, assigned console messages are output. From saturation level 4, requests for space from certain jobs are rejected. A system reserve (ZIP level) can be kept free for pubsets needed at system startup. The reserved space is not released for allocation until a ZIP start is performed (see the “Introduction to System Administration” [14]).

The pubset for which the saturation thresholds are to be modified generally has to be in service. In the case of SF pubsets, though, changes to values which are not to come into effect until the next startup can also be made when the pubset is not in service.

The SCOPE operand governs when modifications take effect and how long the effect lasts. With SF pubsets, a permanent change applies only to the system on which it was made. An exception is made when the change is requested from a slave system, in which case it applies only to the current master system.

In the case of a pubset which does not yet have any permanently configured values, suitable values are calculated when the pubset is taken into service. The setting of the L4SPDEF system parameter and the current capacity of the SF pubset, or that of the individual volume sets in the case of an SM pubset, are taken into account.

> ¡ Permanent settings of saturation level 4 for an SF pubset can also be defined with the ADD-MASTER-CATALOG-ENTRY command. If settings have already been defined with MODIFY-SPACE-SATURATION-LEVELS, they should not be changed with the MODIFY-MASTER-CATALOG-ENTRY command because in that case the threshold condition checking described below would not be performed.

When setting thresholds, make sure that the values for saturation levels 1 through 5 and the system reserve which is equivalent to saturation level 6 form a descending sequence; in other words, the following condition must be met:

LEVEL-1 >= LEVEL-2 >= LEVEL-3 >= LEVEL-4 >= LEVEL-5 >= ZIP-LEVEL

If threshold settings are to take immediate effect, the specified values must also not exceed the current capacity of the SF pubset or of the volume sets in the SM pubset.

Systems support can use the SHOW-SPACE-SATURATION-LEVELS command to find out which thresholds are currently set. This information is also contained in the output of the SHOW-PUBSET-PARAMETERS command. The SHOW-PUBSET-SPACE-ALLOCATION command provides information on how space is currently allocated.

Format

MODIFY-**SPACE-SAT**URATION-**LEV**ELS

PUBSET = <cat-id 1..4>

, **PUB**SET-**TYPE** = ***SINGLE-FEATURE** / **SYS**TEM-**MANAG**ED(...)

SYSTEM-**MANAG**ED(...)

| **VOL**UME-**SET** = <cat-id 1..4>

, **LEVEL-1** = ***UNCHA**NGED / ***STD** / <integer 1..2147483647 *2Kbyte*>

, **LEVEL-2** = ***UNCHA**NGED / ***STD** / <integer 1..2147483647 *2Kbyte*>

, **LEVEL-3** = ***UNCHA**NGED / ***STD** / <integer 1..2147483647 *2Kbyte*>

, **LEVEL-4** = ***UNCHA**NGED / ***STD** / <integer 1..2147483647 *2Kbyte*>

, **LEVEL-5** = ***UNCHA**NGED / ***STD** / <integer 1..2147483647 *2Kbyte*>

, **ZIP-LEV**EL = ***UNCHA**NGED / ***STD** / <integer 0..2147483647 *2Kbyte*>

, **SCOPE** = ***PERMANENT** / ***TEMP**ORARY / ***NEXT-PUB**SET-**SESSION**

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset which is to have its space saturation monitoring thresholds modified.

PUBSET-TYPE = *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Specifies whether the pubset is an SF or SM pubset.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset is an SF pubset. The thresholds are defined on a pubset-global basis.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. The thresholds are defined for the volume set specified next.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set.

LEVEL-1 = *UNCHANGED / *STD / <integer 1..2147483647 *2Kbyte* >
Defines the threshold for saturation level 1. If the number of free PAM pages falls below the specified figure, saturation level 1 has been reached. The default is *UNCHANGED, which means that the existing setting is left unchanged.

LEVEL-1 = *STD
The threshold for saturation level 1 is calculated by the system.

LEVEL-2 = *UNCHANGED / *STD / <integer 1..2147483647 *2Kbyte* >
Defines the threshold for saturation level 2. If the number of free PAM pages falls below the specified figure, saturation level 2 has been reached. The default is *UNCHANGED, which means that the existing setting is left unchanged.

LEVEL-2 = *STD
The threshold for saturation level 2 is calculated by the system.

LEVEL-3 = *UNCHANGED / *STD / <integer 1..2147483647 *2Kbyte* >
Defines the threshold for saturation level 3. If the number of free PAM pages falls below the specified figure, saturation level 3 has been reached. The default is *UNCHANGED, which means that the existing setting is left unchanged.

LEVEL-3 = *STD
The threshold for saturation level 3 is calculated by the system.

LEVEL-4 = *UNCHANGED / *STD / <integer 1..2147483647 *2Kbyte* >
Defines the threshold for saturation level 4. If the number of free PAM pages falls below the specified figure, saturation level 4 has been reached. The default is *UNCHANGED, which means that the existing setting is left unchanged.

LEVEL-4 = *STD
The value of the L4SPDEF system parameter is set as the threshold for saturation level 4.

LEVEL-4 = <integer 1..2147483647 *2Kbyte* >
Number of nonreserved PAM pages.

LEVEL-5 = *UNCHANGED / *STD / <integer 1..2147483647 *2Kbyte* >
Defines the threshold for saturation level 5. If the number of free PAM pages falls below the specified figure, saturation level 5 has been reached. The default is *UNCHANGED, which means that the existing setting is left unchanged.

LEVEL-5 = *STD
The threshold for saturation level 5 is calculated by the system.

ZIP-LEVEL = *UNCHANGED / *STD / <integer 0..2147483647 *2Kbyte* >
Defines a system reserve of nonreserved space. This space can only be allocated if system startup takes the form of a ZIP start. The system reserve should be set to zero for pubsets which are never used at system startup. The default is *UNCHANGED, which means that the existing setting is left unchanged.

ZIP-LEVEL = *STD
A system reserve of 66 PAM pages is kept free for SF pubsets. No system reserve (equivalent to ZIP-LEVEL=0) is kept free for SM pubsets because they cannot be used at system startup.

ZIP-LEVEL = <integer 0..2147483647 *2Kbyte* >
Number of PAM pages to be kept free as a system reserve.

SCOPE = *PERMANENT / *TEMPORARY / *NEXT-PUBSET-SESSION
Defines how long the setting applies and when it comes into effect.

SCOPE = *PERMANENT
The setting takes immediate effect and applies until the next modification.

SCOPE = *TEMPORARY
The setting takes immediate effect and applies only for the duration of the current pubset session, i.e. until the pubset is taken out of service.

SCOPE = *NEXT-PUBSET-SESSION
The setting applies until the next permanent modification. However, the setting does not take effect until the start of the next pubset session.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
2	0	DMS1402	Action only partly successful
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	CMD0216	User does not have the necessary privilege
	64	DMS140B	Pubset not available
	64	DMS140C	Pubset type conflict
	64	DMS140D	Volume set not available
	64	DMS140E	Specified values not in descending sequence
	64	DMS1403	Level higher than capacity
	64	DMS1404	Values do not match the previously set temporary values
	64	DMS1405	Values do not match the previously set defined values
	130	DMS140F	Not enough class 4/5 memory

4.57 MODIFY-SPOOLOUT-OPTIONS

Compress SPOOL output

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

This command compresses printouts by reducing line feeds.

The MODIFY-SPOOLOUT-OPTIONS command affects the way in which feed control characters in files edited for printing are handled during printout. You can define the degree of compression. Entries made here affect all subsequent PRINT-DOCUMENT commands in which interpretation of the feed control character has been explicitly requested (LINE-SPACING operand).
The entries lose their effect at the end of the job or when the MODIFY-SPOOLOUT-OPTIONS command is issued with corresponding arguments.

Format

MODIFY-**SPOOLOUT-OPT**IONS
COMPRESS-OUTPUT = ***UNCHA**NGED / ***NO** / ***MIN**IMUM / ***MAX**IMUM

Operands

COMPRESS-OUTPUT =
Degree of compression.

> The COMPRESS-OUTPUT operand is ignored if the LINE-SPACING operand has not been specified with a value of *BY-EBCDIC-CONTROL, *BY-IBM-CONTROL or *BY-ASA-CONTROL in the PRINT-DOCUMENT command.

COMPRESS-OUTPUT = *UNCHANGED
The existing entry is valid (= *NO at the start of a job).

COMPRESS-OUTPUT = *NO
No compression, i.e. the entries in the PRINT-DOCUMENT command (LINE-SPACING operand) are not changed.

COMPRESS-OUTPUT = *MINIMUM

Interprets the feed control characters in the edited file as follows:

Feed control character for	Line feed
1 line	1 line
2 lines	1 line
3 lines	2 lines
> 3 lines	3 lines

COMPRESS-OUTPUT = *MAXIMUM

Selects a 1-line feed (minimum space requirement) for the output of edited files.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error

4.58 MODIFY-STORAGE-CLASS

Modify storage class definition

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-STORAGE-CLASS command enables systems support to modify the definition of an existing storage class.
The SM pubset for which the storage class is defined must have been imported to the local system (in exclusive or shared mode).

All the file attributes which are modified for the storage class initially apply to new files assigned to the storage class. An existing file which belongs to the storage class will not be given the modified file attributes of the storage class until they are reassigned to the file in a MODIFY-FILE-ATTRIBUTES command which specifies STORAGE-CLASS=*UPDATE.

Format

MODIFY**-STOR**AGE**-CLASS**

STORAGE**-CLASS-NAME** = <composed-name 1..8>

,**PUBSET** = <cat-id 1..4>

,**FILE-ATTR**IBUTES = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **IO-ATTR**IBUTES = ***UNCHA**NGED / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **PERFORMANCE** = ***UNCHA**NGED / ***STD** / ***HIGH** / ***VERY-HIGH**

| | ,**USAGE** = ***UNCHA**NGED / ***READ-WRITE** / ***WR**ITE / ***READ**

| ,**DISK-WRITE** = ***UNCHA**NGED / ***STD** / ***IMMED**IATE / ***BY-CLOSE**

| ,**AVAIL**ABILITY = ***UNCHA**NGED / ***STD** / ***HIGH**

| ,**FILE-PREFORMAT** = ***UNCHA**NGED / ***BY-PUB**SET**-DEF**AULT / ***K** / ***NK2** / ***NK4**

| ,**WORK-FILE** = ***UNCHA**NGED / ***NO** / ***Y**ES

,**STOR**AGE**-CLASS-INFO** = ***UNCHA**NGED / ***NONE** / <c-string 1..720 with-low>

,**PROT**ECTION = ***UNCHA**NGED / ***NONE** / ***BY-GUARDS**(...)

***BY-GUARDS**(...)

| **GUARD-NAME** = <filename 1..18 without-cat-gen-vers>

,**VOL**UME-**SET-LIST** = ***UNCHA**NGED / ***NONE** / <composed-name 1..8>

Operands

STORAGE-CLASS-NAME = <composed-name 1..8>
Name of the storage class which is to have its definition modified.

PUBSET = <cat-id 1..4>
Identifies the pubset for which the storage class was created. The pubset must have been imported to the local system (in exclusive or shared mode).

FILE-ATTRIBUTES = *UNCHANGED / *PARAMETERS(...)
Specifies which pubset management requirements, representable in the form of file attributes, are to be modified. These file attributes apply to all new files to which the user assigns the storage class instead of explicit attributes (see the STORAGE-CLASS operand of the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command).

An existing file which belongs to the storage class will not be given the modified file attributes of the storage class until they are reassigned to the file in a MODIFY-FILE-ATTRIBUTES command which specifies STORAGE-CLASS=*UPDATE.
The default value, *UNCHANGED, means that the existing setting of the file attributes in question is left unchanged.

FILE-ATTRIBUTES = *PARAMETERS(...)
Specifies which file attributes are to be modified for files in the given storage class.

IO-ATTRIBUTES = *UNCHANGED / *PARAMETERS(...)
Specifies which performance requirements are to be modified for files in this storage class.
The default value, *UNCHANGED, means that the existing setting of the file attributes in question is left unchanged.

IO-ATTRIBUTES = *PARAMETERS(...)
Performance attributes are determined by the values of the PERFORMANCE and USAGE operands.

PERFORMANCE = *UNCHANGED / *STD / *HIGH / *VERY-HIGH
Specifies the performance attribute for files in this storage class. It indicates the priority required for the I/O operations selected in the USAGE operand.

PERFORMANCE = *STD
No performance requirements are defined for files in this storage class. In this case the USAGE operand has no impact on file processing.

PERFORMANCE = *HIGH
A cache should be used to process files in this storage class (high performance priority).

PERFORMANCE = *VERY-HIGH
A cache should be used to process files in this storage class, and if possible the entire file should be kept permanently in the cache (highest performance priority, only available in the GS cache medium).

USAGE = *UNCHANGED / *READ-WRITE / *WRITE / *READ
Specifies the I/O operations for which enhanced performance (caching) is required. The default is *READ-WRITE, i.e. the requirement applies to both read and write operations.
The requirement may also be applied only to write operations (*WRITE) or only to read operations

(*READ).
If the file has no special performance attribute (PERFORMANCE=*STD), the USAGE operand has no impact on processing.

DISK-WRITE = *UNCHANGED / *STD / *IMMEDIATE / *BY-CLOSE
Specifies the time at which data consistency is required for files in this storage class after a write operation.

DISK-WRITE = *STD
The default setting of *STD is equivalent to *IMMEDIATE for permanent files and to *BY-CLOSE for temporary files.

DISK-WRITE = *IMMEDIATE
The data in a file must be in a consistent state immediately on completion of a write operation, so a volatile write cache should not be used to process files in this storage class.

DISK-WRITE = *BY-CLOSE
The data in a file does not have to be in a consistent state until after CLOSE processing, so a volatile write cache may be used to process files in this storage class.

AVAILABILITY = *UNCHANGED / *STD / *HIGH
Specifies availability requirements for files in this storage class.

AVAILABILITY = *STD
There are no special availability requirements.

AVAILABILITY = *HIGH
Files in this storage class are required to have high availability (e.g. storage on mirrored disks).

FILE-PREFORMAT = *UNCHANGED / *BY-PUBSET-DEFAULT / *K / *NK2 / *NK4
Governs the preferred file format for files in this storage class. This specification only applies when the catalog entry is created; it is used to determine the storage location automatically.
As long as the file does not yet have a creation date (CRE-DATE=NONE), the storage location is provisional and may still change in the course of OPEN processing.

FILE-PREFORMAT = *BY-PUBSET-DEFAULT
The pubset-global default applies.

FILE-PREFORMAT = *K
File in this storage class are to be created as K files.

FILE-PREFORMAT = *NK2
File in this storage class are to be created as NK2 files.

FILE-PREFORMAT = *NK4
File in this storage class are to be created as NK4 files.

WORK-FILE = *UNCHANGED / *NO / *YES
Specifies whether files in this storage class are work files.

WORK-FILE = *NO
Files in this storage class are created as normal files.

WORK-FILE = *YES
Files in this storage class are created as work files. Systems support can delete work files at appointed times.

STORAGE-CLASS-INFO = *UNCHANGED / *NONE / <c-string 1..720 with-low>
Systems support can compose a brief text describing storage class attributes. It will typically relate to special pubset

management requirements which are defined by systems support but cannot be represented in the form of file attributes. This brief text is included in the output of the SHOW-STORAGE-CLASS command to inform the user of any special properties of the storage class.

STORAGE-CLASS-INFO = *NONE
There is to be no explanatory text for the storage class. If one already exists, it is deleted.

STORAGE-CLASS-INFO = <c-string 1..720 with-low>
A brief text describing special properties of the storage class as defined by systems support. Any existing explanatory text is overwritten.

PROTECTION = *UNCHANGED / *NONE / *BY-GUARDS(...)
Specifies whether access to the storage class is to be controlled by guards.

PROTECTION = *NONE
Access to the storage class is not to be controlled by guards. Any existing guards protection is canceled.

PROTECTION = *BY-GUARDS(...)
Allocation to the storage class and the listing of the storage class definitions are to be controlled by a guard. The guard named next defines conditions under which a user is allowed to access the storage class.

GUARD-NAME = <filename 1..18 without-cat-gen-vers>
Name of the guard.

VOLUME-SET-LIST = *UNCHANGED / *NONE / <composed-name 1..8>
Specifies whether a volume set list is to be assigned to the storage class.

VOLUME-SET-LIST = *NONE
No volume set list is to be assigned to the storage class. Any existing assignment is canceled.

VOLUME-SET-LIST = <composed-name 1..8>
The specifies volume set list is assigned to the storage class. Any existing assignment is canceled.
The volume set list must already exist for this SM pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization to issue command
	64	DMS148A	Storage class not defined
	64	DMS1497	Invalid file attribute combination
	64	DMS148B	Volume set list not defined
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS1490	Storage class management not available for this pubset
	64	DMS1483	Storage class catalog invalid
	64	DMS1481	Error accessing storage class catalog
	64	DMS1484	Volume set list catalog invalid
	64	DMS1482	Error accessing volume set list catalog
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready

4.59 MODIFY-SUBSYSTEM-PARAMETER

Modify subsystem parameters

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

A user with the SUBSYSTEM-MANAGEMENT privilege can run this command to modify the parameters governing a subsystem; only the parameters explicitly specified are changed.

The command modifies only the dynamic subsystem catalog, not the static catalog. Consequently, any changes that are made do not remain in effect at the next startup. To prevent the changes being lost, the SAVE-SUBSYSTEM-CATALOG command can be used to store them in a static catalog. Note, however, that changes which are useful for the current session may be pointless or even counter-productive after the next startup. (For example, a message file is assigned to a subsystem which has BEFORE-DSSM-LOAD as its activation point. If the subsystem is restarted during the current session, this may well be a useful change to make; but it cannot be implemented the next time the system is started up.)

> ¡ Before using this command it is essential to be well-informed about the subsystem that is being modified, as the command is capable of making far-reaching changes to the subsystem attributes.

The command has three different types of operand:

- operands which have their value stored in the dynamic subsystem catalog and take immediate effect (such as VERSION-COEXISTENCE).
- operands which have their value stored in the dynamic subsystem catalog but do not take effect until the next START-SUBSYSTEM command (such as LIBRARY).
- operands which are accepted only if the subsystem is not currently running (such as MESSAGE-FILE).

For further information see the “Subsystem Management” manual [49].

Format

MODIFY-**SUBSYS**TEM-**PAR**AMETER

SUBSYSTEM-**NAME** = <structured-name 1..8>

,**VERSION** = <product-version mandatory-man-corr> / <product-version without-man-corr>

,**INSTALL**ATION-**UNIT** = ***UNCHA**NGED / ***NONE** / ***STD** / <text 1..30>

,**INSTALL**ATION-**USERID** = ***UNCHA**NGED / ***NONE** / <name 1..8> / ***DEF**AULT-**USERID**

,**COPYRIGHT** = ***UNCHA**NGED / ***NONE** / <c-string 1..54>(...)

<c-string 1..54>(...)

| **YEAR** = ***YEAR-1990** / <c-string 4..4>

,**SUBSYS**TEM-**LIB**RARY = ***UNCHA**NGED / ***STD** / ***INSTALLED**(...) / <filename 1..54 without-gen-vers>

***INSTALLED**(...)

| **LOGICAL-ID** = ***UNCHA**NGED / ***REFRESH** / <filename 1..30 without-catid-userid-gen-vers>

| ,**DEFAULT-NAME** = ***UNCHA**NGED / <filename 1..54>

,**SUBSYS**TEM-**LOAD-MODE** = ***UNCHA**NGED / ***STD** / ***ADVANCED**

,**REP-FILE** = ***UNCHA**NGED / ***STD** / ***NO** / ***INSTALLED**(...) / <filename 1..54 without-gen-vers>

***INSTALLED**(...)

| **LOGICAL-ID** = ***UNCHA**NGED / ***REFRESH** / <filename 1..30 without-catid-userid-gen-vers>

| ,**DEFAULT-NAME** = ***UNCHA**NGED / ***NONE** / <filename 1..54>

,**REP-FILE-MAND**ATORY = ***UNCHA**NGED / ***NO** / ***Y**ES

,**MES**SAGE-**FILE** = ***UNCHA**NGED / ***NO** / ***INSTALLED**(...) / <filename 1..54 without-gen-vers>

***INSTALLED**(...)

| **LOGICAL-ID** = ***UNCHA**NGED / ***REFRESH** / <filename 1..30 without-catid-userid-gen-vers>

| ,**DEFAULT-NAME** = ***UNCHA**NGED / ***NONE** / <filename 1..54>

,**SUBSYS**TEM-**INFO-FILE** = ***UNCHA**NGED / ***NO** / ***INSTALLED**(...) / <filename 1..54 without-gen-vers>

***INSTALLED**(...)

| **LOGICAL-ID** = ***UNCHA**NGED / ***REFRESH** / <filename 1..30 without-catid-userid-gen-vers>

| ,**DEFAULT-NAME** = ***UNCHA**NGED / ***NONE** / <filename 1..54>

,**SYNTAX-F**ILE = ***UNCHA**NGED / ***NO** / ***INSTALLED**(...) / <filename 1..54 without-gen-vers>

***INSTALLED**(...)

| **LOGICAL-ID** = ***UNCHA**NGED / ***REFRESH** / <filename 1..30 without-catid-userid-gen-vers>

| ,**DEFAULT-NAME** = ***UNCHA**NGED / ***NONE** / <filename 1..54>

,**DYN**AMIC**-CHECK-ENTRY** = ***UNCHA**NGED / ***STD** / ***NO** / <text 1..8 without-sep>

,**CRE**ATION**-TIME** = ***UNCHA**NGED / ***AT-CRE**ATION**-REQ**UEST / ***AT-SUBSYS**TEM**-CALL**(...) /
***AT-DSSM-LOAD** / ***MAND**ATORY**-AT-STARTUP** / ***BEF**ORE**-SYS**TEM**-READY** /
***AFTER-SYS**TEM**-READY**

***AT-SUBSYS**TEM**-CALL**(...)

| **ON-ACTION** = ***STD** / ***ISL-CALL** / ***ALL**

,**INIT-ROUTINE** = ***UNCHA**NGED / ***NO** / <text 1..8 without-sep>

,**CLOSE-CTRL-ROUTINE** = ***UNCHA**NGED / ***NO** / ***DYN**AMIC / <text 1..8 without-sep>

,**STOPCOM-ROUTINE** = ***UNCHA**NGED / ***NO** / ***DYN**AMIC / <text 1..8 without-sep>

,**DEINIT-ROUTINE** = ***UNCHA**NGED / ***NO** / ***DYN**AMIC / <text 1..8 without-sep>

,**STOP-AT-SHUTD**OWN = ***UNCHA**NGED / ***NO** / ***Y**ES

,**INTERF**ACE**-VERS**ION = ***UNCHA**NGED / ***NO** / <text 1..8 without-sep>

,**SUBSYS**TEM**-HOLD** = ***UNCHA**NGED / ***ALLOW**ED / ***FORBID**DEN

,**STATE-CHA**NGE**-CMDS** = ***UNCHA**NGED / ***ALLOW**ED / ***FORBID**DEN / ***BY-ADM**INISTRATOR**-ONLY**

,**FORCED-STATE-CHA**NGE = ***UNCHA**NGED / ***ALLOW**ED / ***FORBID**DEN

,**RESET** = ***UNCHA**NGED / ***ALLOW**ED / ***FORBID**DEN

,**RESTART-REQUIRED** = ***UNCHA**NGED / ***NO** / ***Y**ES

,**VERSION-COEXIST**ENCE = ***UNCHA**NGED / ***FORBID**DEN / ***ALLOW**ED

,**VERSION-EXCHA**NGE = ***UNCHA**NGED / ***FORBID**DEN / ***ALLOW**ED

,**MEM**ORY**-CLASS** = ***UNCHA**NGED / ***SYS**TEM**-GLOBAL**(...) / ***LOCAL-UNPRIVIL**EGED(...) /
***BY-SLICE**(...)

***SYS**TEM**-GLOBAL**(...)

| **SUBSYS**TEM**-ACCESS** = ***LOW** / ***HIGH**

***LOCAL-UNPRIVIL**EGED(...)

| **SIZE** = ***UNCHA**NGED / <integer 1..32767 *4Kbyte*>

| ,**SUBSYS**TEM**-ACCESS** = ***UNCHA**NGED / ***LOW** / ***HIGH**

| ,**START-ADDR**ESS = ***UNCHA**NGED / ***ANY** / <x-string 7..8>

***BY-SLICE**(...)

```
        |   SIZE = <integer 1..32767 4Kbyte>

,LINK-ENTRY = *UNCHANGED (...) / <text 1..8 without-sep>(...)

    *UNCHANGED(...)

        |   AUTOLINK = *UNCHANGED / *ALLOWED / *FORBIDDEN

    <text 1..8 without-sep>(...)

        |   AUTOLINK = *ALLOWED / *FORBIDDEN

,UNRESOLVED-EXTERNALS = *UNCHANGED / *ALLOWED / *FORBIDDEN

,CHECK-REFERENCES = *UNCHANGED / *YES / *NO

,CHANGE-STATE = *UNCHANGED / *YES / *NO
```

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Specifies the name of the subsystem for which the parameters are to be changed.

VERSION = <product-version mandatory-man-corr> / <product-version without-man-corr>
Identifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; cf. SDF metasyntax).

INSTALLATION-UNIT =
Defines a name for the installed release unit. A value other than *NONE must be specified for all subsystems installed using IMON if *INSTALLED(LOGICAL-ID=...) is the value specified for any of the following operands: SUBSYSTEM-LIBRARY, REP-FILE, SUBSYSTEM-INFO-FILE, MESSAGE-FILE or SYNTAX-FILE.

INSTALLATION-UNIT = *UNCHANGED
The name of the installed release unit remains unchanged.

INSTALLATION-UNIT = *NONE
No name is allocated. This value is not allowed for any subsystem installed using IMON.

INSTALLATION-UNIT = *STD
The name specified in the SUBSYSTEM-NAME operand is used as the name of the installed release unit.

INSTALLATION-UNIT = <text 1..30>
New name for the installed release unit.

INSTALLATION-USERID = *UNCHANGED / *NONE / <name 1..8> / *DEFAULT-USERID
Changes the default user ID of the files associated with the subsystem (REP-FILE, SUBSYSTEM-LIBRARY, SYNTAX-FILE and MESSAGE-FILE, SUBSYSTEM-INFO-FILE operands). File names specified without a user ID are assumed to belong to the new installation user ID defined here.
A change to the installation user ID is rejected if the subsystem is active and there is a message file (MESSAGE-FILE operand) or a syntax file (SYNTAX-FILE operand) assigned to it with no user ID specified.
The change takes effect immediately.

INSTALLATION-USERID = *UNCHANGED
The installation user ID is not changed.

INSTALLATION-USERID = *NONE
Removes the installation user ID.
If an installation user ID existed before the command was issued, it is stripped from all files to which it was assigned.

INSTALLATION-USERID = <name 1..8>
The user ID given here will be the new installation user ID. The name of the user ID must be given without its dollar sign prefix '$'.

INSTALLATION-USERID = *DEFAULT-USERID
Selects the system default user ID as the installation user ID (which means that file names begin with '$.').

COPYRIGHT = *UNCHANGED / *NONE / <c-string 1..54>(...)
Changes the copyright notice displayed when the subsystem is loaded.
The change takes effect as soon as the subsystem is restarted (START-SUBSYSTEM command).

COPYRIGHT = *UNCHANGED
The copyright notice is not changed.

COPYRIGHT = *NONE
No copyright notice is displayed.

COPYRIGHT = <c-string 1..54>(...)
Changes the copyright notice displayed when the subsystem is loaded.

> **YEAR = *YEAR-1990 / <c-string 4..4>**
> Defines the year displayed as the first production year in the copyright notice. The default year is 1990. Any other year must be specified explicitly. Note that the operand value is not subjected to semantic validity checking.

SUBSYSTEM-LIBRARY = *UNCHANGED / *STD / *INSTALLED(...) /<filename 1..54 without-gen-vers>
Changes the module library assignment for the specified subsystem (LIBRARY parameter). The module library supplies the code which is loaded for a subsystem which is not yet running.
The change takes effect as soon as the subsystem is restarted (START-SUBSYSTEM command).

SUBSYSTEM-LIBRARY = *UNCHANGED
The setting is left unchanged.

SUBSYSTEM-LIBRARY = *STD
Assigns the following default library name:
SYSLNK.<subsysname>.<subsysvers#>
The value of “subsysvers#” comprises three digits, which are the “mmn” elements specified in the SUBSYSTEM-NAME=...(VERSION=...) operand.

SUBSYSTEM-LIBRARY = *INSTALLED(...)
The library name is determined by the invocation of IMON-GPN (the installation path manager).

> **LOGICAL-ID =**
> Defines the logical program or object module library name by which the library is known to IMON-GPN.
>
> **LOGICAL-ID = *UNCHANGED**
> The logical name of the program or object module library is left unchanged.
>
> **LOGICAL-ID = *REFRESH**
> The path name associated with the logical name has been changed and is now to be updated in the catalog. The logical name itself is left unchanged.

LOGICAL-ID = <filename 1..30 without-catid-userid-gen-vers>
New logical name for the program or object module library.

DEFAULT-NAME =
Name of the library if IMON-GPN is not available or if the logical ID is unknown.

DEFAULT-NAME = *UNCHANGED
The library name is left unchanged.

DEFAULT-NAME = <filename 1..54>
New library name.

SUBSYSTEM-LIBRARY = <filename 1..54 without-gen-vers>
The fully qualified file name specified here is defined as the new library name (see Note 3).

SUBSYSTEM-LOAD-MODE = *UNCHANGED / *STD / *ADVANCED
Defines how the subsystem is loaded.

SUBSYSTEM-LOAD-MODE = *UNCHANGED
The subsystem loading mode is left unchanged.

SUBSYSTEM-LOAD-MODE = *STD
BLS is invoked in STD run mode (via the BLS-DSSM interface $PBBND1) to load the subsystem code as an object module.

SUBSYSTEM-LOAD-MODE = *ADVANCED
BLS is invoked in ADVANCED run mode (via the BLS-DSSM interface $PBBND1) to load the subsystem code as a link-and-load module.

REP-FILE = *UNCHANGED / *STD / *NO / *INSTALLED(...) /<filename 1..54 without-gen-vers>
Changes the REP patch file assignment for the specified subsystem version. REP patch files are designed to incorporate module updates in a subsystem which is not currently running.
The change takes effect as soon as the subsystem is restarted (START-SUBSYSTEM command).

REP-FILE = *UNCHANGED
The REP patch file parameters are not changed.

REP-FILE = *STD
Assigns the following default name for the REP patch file:
SYSREP.<subsysname>.<subsysvers#>
The value of “subsysvers#” comprises three digits, which are the “mmn” elements specified in the SUBSYSTEM-NAME=...(VERSION=...) operand.

REP-FILE = *NO
There is no REP patch file for the subsystem.

REP-FILE = *INSTALLED(...)
The name of the REP file is determined by the invocation of IMON-GPN (the installation path manager).

LOGICAL-ID =
Defines the logical REP file name by which the file is known to IMON-GPN.

LOGICAL-ID = *UNCHANGED
The logical name of the REP file is left unchanged.

LOGICAL-ID = *REFRESH
The path name associated with the logical name has been changed and is now to be updated in the catalog. The logical name itself is left unchanged.

LOGICAL-ID = <filename 1..30 without-catid-userid-gen-vers>
New logical name for the REP file.

DEFAULT-NAME =
Name of the REP file if IMON-GPN is not available or if the logical ID is unknown.

DEFAULT-NAME = *UNCHANGED
The REP file name is left unchanged.

DEFAULT-NAME = *NONE
No default name is assigned to the REP file.

DEFAULT-NAME = <filename 1..54>
New name for the REP file.

REP-FILE = <filename 1..54 without-gen-vers>
The fully qualified file name specified here is defined as the new REP patch file name (see Note 3).

REP-FILE-MANDATORY = *UNCHANGED / *NO / *YES
Defines whether the subsystem is started if errors occur while the REP patch file is being processed.
The change takes effect as soon as the subsystem is restarted (START-SUBSYSTEM command).

REP-FILE-MANDATORY = *UNCHANGED
The current setting is left unchanged.

REP-FILE-MANDATORY = *NO
Errors during processing of the REP patch file have no effect on subsystem loading.

REP-FILE-MANDATORY = *YES
Dynamic subsystem management (DSSM) inhibits subsystem loading in the following cases:

- DMS errors during REP patch file processing
  (e.g. REP file not cataloged)
- errors during REP file validation
- REP file incorrectly named
- DMS errors during NOREF file processing

MESSAGE-FILE = *UNCHANGED / *NO / *INSTALLED / <filename 1..54 without-gen-vers>
Changes the message file definition associated with the specified subsystem version. The subsystem version must not be running at the time.
DMS file naming requirements are not checked.

MESSAGE-FILE = *UNCHANGED
The current setting is left unchanged.

MESSAGE-FILE = *NO
No subsystem-specific message file is available.
This setting is needed for cases where BEFORE-DSSM-LOAD is defined as the activation point for the subsystem.

MESSAGE-FILE = *INSTALLED(...)
The name of the message file is determined by the invocation of IMON-GPN (the installation path manager).

LOGICAL-ID =
Defines the logical message file name by which the file is known to IMON-GPN.

LOGICAL-ID = *UNCHANGED
The logical name of the message file is left unchanged.

LOGICAL-ID = *REFRESH
The path name associated with the logical name has been changed and is now to be updated in the catalog. The logical name itself is left unchanged.

LOGICAL-ID = <filename 1..30 without-catid-userid-gen-vers>
New logical name for the message file.

DEFAULT-NAME =
Name of the message file if IMON-GPN is not available or if the logical ID is unknown.

DEFAULT-NAME = *UNCHANGED
The message file name is left unchanged.

DEFAULT-NAME = *NONE
No default name is assigned to the message file.

DEFAULT-NAME = <filename 1..54>
New name for the message file.

MESSAGE-FILE = <filename 1..54 without-gen-vers>
The fully qualified file name specified here is defined as the new message file name (see Note 3).

SUBSYSTEM-INFO-FILE = *UNCHANGED / *NO / *INSTALLED(...) / <filename 1..54 without-gen-vers>
Specifies which information file to use for the specified subsystem version.

SUBSYSTEM-INFO-FILE = *UNCHANGED
The current setting is left unchanged.

SUBSYSTEM-INFO-FILE = *NO
No information file is available.

SUBSYSTEM-INFO-FILE = *INSTALLED(...)
The information file name is determined by the invocation of IMON-GPN (the installation path manager).

LOGICAL-ID =
Defines the logical information file name by which the file is known to IMON-GPN.

LOGICAL-ID = *UNCHANGED
The logical name of the information file is left unchanged.

LOGICAL-ID = *REFRESH
The path name associated with the logical name has been changed and is now to be updated in the catalog. The logical name itself is left unchanged.

LOGICAL-ID = <filename 1..30 without-catid-userid-gen-vers>
New logical name for the information file.

DEFAULT-NAME =
Name of the information file if IMON-GPN is not available or if the logical ID is unknown.

DEFAULT-NAME = *UNCHANGED
The name of the information file is left unchanged.

DEFAULT-NAME = *NONE
No default name is assigned to the information file.

DEFAULT-NAME = <filename 1..54>
New name for the information file.

SUBSYSTEM-INFO-FILE = <filename 1..54 without-gen-vers>
The fully qualified file name specified here is defined as the new information file name (see Note 3).

SYNTAX-FILE = *UNCHANGED / *NO / *INSTALLED(...) / <filename 1..54 without-gen-vers>
Changes the syntax file definition associated with the specified subsystem version.
The syntax file contains the applicable command and operand values for the subsystem version.
The subsystem version must not be running when the command is issued.
DMS file naming requirements are not checked.

SYNTAX-FILE = *UNCHANGED
The current setting is left unchanged.

SYNTAX-FILE = *NO
No information file is available.
This setting is needed for cases where BEFORE-DSSM-LOAD or AT-DSSM-LOAD is defined as the activation point for the subsystem.

SYNTAX-FILE = *INSTALLED(...)
The name of the syntax file is determined by the invocation of IMON-GPN (the installation path manager).

LOGICAL-ID =
Defines the logical syntax file name by which the file is known to IMON-GPN.

LOGICAL-ID = *UNCHANGED
The logical name of the syntax file is left unchanged.

LOGICAL-ID = *REFRESH
The path name associated with the logical name has been changed and is now to be updated in the catalog.
The logical name itself is left unchanged.

LOGICAL-ID = <filename 1..30 without-catid-userid-gen-vers>
New logical name for the syntax file.

DEFAULT-NAME =
Name of the syntax file if IMON-GPN is not available or if the logical ID is unknown.

DEFAULT-NAME = *UNCHANGED
The syntax file name is left unchanged.

DEFAULT-NAME = *NONE
No default name is assigned to the syntax file.

DEFAULT-NAME = <filename 1..54>
New name for the syntax file.

SYNTAX-FILE = <filename 1..54 without-gen-vers>
The fully qualified file name specified here is defined as the new syntax file name (see Note 3).

DYNAMIC-CHECK-ENTRY = *UNCHANGED / *STD / *NO / <text 1..8 without-sep>
Changes the reference address used to check that the loaded encoding for the subsystem is correct.

DYNAMIC-CHECK-ENTRY = *UNCHANGED
The current setting is left unchanged.

DYNAMIC-CHECK-ENTRY = *STD
The reference address specified in the LINK-ENTRY operand is used as the reference address for dynamic checking.

DYNAMIC-CHECK-ENTRY = *NO
No checking is performed. This setting is not allowed if the activation point defined for the subsystem is BEFORE-DSSM-LOAD.

DYNAMIC-CHECK-ENTRY = <text 1..8 without-sep>
The address specified here is defined as the new reference address for dynamic checking.

CREATION-TIME = *UNCHANGED / *AT-CREATION-REQUEST / *AT-SUBSYSTEM-CALL / *AT-DSSM-LOAD / *MANDATORY-AT-STARTUP / *BEFORE-SYSTEM-READY / *AFTER-SYSTEM-READY
Changes the subsystem startup time.

CREATION-TIME = *UNCHANGED
The current setting is left unchanged.

CREATION-TIME = *AT-CREATION-REQUEST
The subsystem startup time is reset to the (generation) default setting of “Startup on START-SUBSYSTEM invocation”.

CREATION-TIME = *AT-SUBSYSTEM-CALL(...)
The subsystem startup time is changed to the value AT-SUBSYSTEM-CALL. That means that the subsystem starts up automatically in response to the first SVC or ISL call.
This operand value is available only for subsystems called by the SVC or ISL mechanism.

This operand value can be assigned to the specified subsystem version after it has been withdrawn, if necessary, from another subsystem version. If no other version has this attribute, it is directly transferred to the specified subsystem version. If some other subsystem version has this attribute, it is withdrawn from that subsystem, either immediately (if the subsystem is not running) or after the subsystem has closed down (if it is currently running). Subsystems with the attribute VERSION-COEXISTENCE=*ALLOWED are an exception to this rule. Here, different versions of the same subsystem can have the attribute CREATION-TIME=*AT-SUBSYSTEM-CALL at the same time.
As with SSCM, this attribute can only be allocated to a subsystem where the CALL entry is set to MODE=*SVC/*ISL.

ON-ACTION =
Determines what causes automatic loading of the subsystem.

ON-ACTION = *STD
Default: loading begins when any SVC entry point belonging to the subsystem is called.

ON-ACTION = *ISL-CALL
Loading begins when any ISL entry point belonging to the subsystem is called.

ON-ACTION = *ANY
Loading begins when any SVC or ISL entry point belonging to the subsystem is called.

CREATION-TIME = *AT-DSSM-LOAD
The subsystem is to be loaded under the control of the DSSM task during system initialization. It must be a privileged subsystem, and any address and dependency relations it has must be with subsystems which also have this startup attribute or the BEFORE-DSSM-STARTUP attribute.
The file name for this subsystem must be located on the home pubset under the TSOS user ID, as at startup time the user catalog is not accessible and IMPORT-PUBSET processing has not been completed.
These subsystems are not allowed to have a syntax file attached.

CREATION-TIME = *MANDATORY-AT-STARTUP
The subsystem must be loaded during system initialization (Phase 2: after DSSM has been loaded). As with BEFORE-SYSTEM-READY, subsystem activation is initiated synchronously; but in this case, as opposed to BEFORE-SYSTEM-READY, loading of the subsystem must be completed **successfully**. Otherwise, the startup routine is sent a message indicating that a mandatory subsystem could not be loaded. The startup routine then decides whether to continue or abort processing.
The subsystem must be a privileged subsystem, and any address and dependency relations it has must be with subsystems which have the same startup attribute or either BEFORE-DSSM-STARTUP or AT-DSSM-LOAD. The file name for this subsystem must be cataloged on the home pubset.

CREATION-TIME = *BEFORE-SYSTEM-READY
The subsystem is to be loaded during system initialization (Phase 2). Activation is initiated synchronously; control is not returned to the startup routine until after completion of loading (or a loading error). Once the startup routine has regained control, it can report SYSTEM READY.
The subsystem must be a privileged subsystem, and any address and dependency relations it has must be with subsystems which have the same startup attribute or one of BEFORE-DSSM-STARTUP, AT-DSSM-LOAD or MANDATORY-AT-STARTUP.
The file name for this subsystem must be cataloged on the home pubset.

CREATION-TIME = *AFTER-SYSTEM-READY
Loading of the subsystem is initiated during system initialization (Phase 2). Loading is not synchronized with the startup routine, which can report SYSTEM-READY before loading of this subsystem has been completed.
Any address and dependency relations the subsystem has must be with subsystems which have the same startup attribute or one of BEFORE-DSSM-STARTUP, AT-DSSM-LOAD, MANDATORY-AT-STARTUP or BEFORE-SYSTEM-READY.
The files for the subsystem must be cataloged on the home pubset.

INIT-ROUTINE = *UNCHANGED / *NO / <text 1..8 without-sep>
Changes the subsystem initialization routine, provided that this does not affect the manner in which the subsystem functions.
The change takes effect immediately to allow the subsystem to be reconstructed if necessary.

INIT-ROUTINE = *UNCHANGED
The current setting is left unchanged.

INIT-ROUTINE = *NO
No initialization routine is carried out.

INIT-ROUTINE = <text 1..8 without-sep>
The name specified here is defined as the new reference address name for the subsystem (see Note 4).

CLOSE-CTRL-ROUTINE = *UNCHANGED / *NO / *DYNAMIC / <text 1..8 without-sep>
Changes the subsystem's CLOSE-CTRL routine, provided that this does not affect the manner in which the subsystem functions.
The change takes effect immediately.

CLOSE-CTRL-ROUTINE = *UNCHANGED
The current setting is left unchanged.

CLOSE-CTRL-ROUTINE = *NO
DSSM processes the STOP-SUBSYSTEM and HOLD-SUBSYSTEM commands without invoking a CLOSE-CTRL routine.

CLOSE-CTRL-ROUTINE = *DYNAMIC
The subsystem dynamically invokes the CLOSE-CTRL routine at the end of the initialization (INIT) routine. A reference address name must have been defined for the CLOSE-CTRL routine.

CLOSE-CTRL-ROUTINE = <text 1..8 without-sep>
The name specified here is defined as the new reference address name for the CLOSE-CTRL routine (see Note 4).

STOPCOM-ROUTINE = *UNCHANGED / *NO / *DYNAMIC / <text 1..8 without-sep>
Changes the subsystem's STOPCOM routine, provided that this does not affect the manner in which the subsystem functions.
The change takes effect immediately.

STOPCOM-ROUTINE = *UNCHANGED
The current setting is left unchanged.

STOPCOM-ROUTINE = *NO
DSSM processes the STOP-SUBSYSTEM and HOLD-SUBSYSTEM commands without invoking a STOPCOM routine.

STOPCOM-ROUTINE = *DYNAMIC
The subsystem dynamically invokes the STOPCOM routine at the end of the CLOSE-CTRL routine or, if no CLOSE-CTRL routine is defined, at the end of the initialization (INIT) routine.

STOPCOM-ROUTINE = <text 1..8 without-sep>
The name specified here is defined as the new reference address name for the STOPCOM routine (see Note 4).

DEINIT-ROUTINE = *UNCHANGED / *NO / *DYNAMIC / <text 1..8 without-sep>
Changes the subsystem's DEINIT routine, provided that this does not affect the manner in which the subsystem functions.
The change takes effect immediately.

DEINIT-ROUTINE = *UNCHANGED
The current setting is left unchanged.

DEINIT-ROUTINE = *NO
DSSM processes the STOP-SUBSYSTEM and HOLD-SUBSYSTEM commands without invoking a DEINIT routine.

DEINIT-ROUTINE = *DYNAMIC
The subsystem dynamically invokes the DEINIT routine at the end of the STOPCOM routine or, if no STOPCOM routine is defined, at the end of the CLOSE-CTRL routine. If no CLOSE-CTRL routine is defined either, the DEINIT routine is invoked at the end of the initialization (INIT) routine.

DEINIT-ROUTINE = <text 1..8 without-sep>
The name specified here is defined as the new reference address name for the DEINIT routine (see Note 4).

STOP-AT-SHUTDOWN = *UNCHANGED / *NO / *YES
Causes DSSM to close down the subsystem automatically as soon as the SHUTDOWN (terminate session) command is issued.
The change takes effect immediately.

STOP-AT-SHUTDOWN = *UNCHANGED
The current setting is left unchanged.

STOP-AT-SHUTDOWN = *NO
DSMM ignores the subsystem when the SHUTDOWN command is issued.

STOP-AT-SHUTDOWN = *YES
DSSM closes down the subsystem as soon as the SHUTDOWN command is issued (as with the STOP-SUBSYSTEM command).

INTERFACE-VERSION = *UNCHANGED / *NO / <text 1..8 without-sep>
Designates the entry point through which DSSM can access the interface version used for decoupled calling of the INIT, CLOSE-CTRL, STOPCOM and DEINIT routines.
The change takes effect immediately.

INTERFACE-VERSION = *UNCHANGED
The current setting is left unchanged.

INTERFACE-VERSION = *NO
None of the following entry point names is available:
INIT, DEINIT, STOPCOM, CLOSE-CTRL-ROUTINE.

INTERFACE-VERSION = <text 1..8 without-sep>
The name specified here is defined as the new entry point.

SUBSYSTEM-HOLD = *UNCHANGED / *ALLOWED / *FORBIDDEN
Defines whether a command or macro can be used to halt or unload the subsystem. The change takes effect immediately.

SUBSYSTEM-HOLD = *UNCHANGED
The current setting is left unchanged.

SUBSYSTEM-HOLD = *ALLOWED
A command or macro can be used to halt or unload the subsystem.

SUBSYSTEM-HOLD = *FORBIDDEN
As with the STOP-AT-SHUTDOWN operand value, the subsystem cannot be unloaded until the BS2000 system is closed down with the SHUTDOWN command.

STATE-CHANGE-CMDS = *UNCHANGED / *ALLOWED / *FORBIDDEN / *BY-ADMINISTRATOR-ONLY
Defines whether the DSSM commands START-SUBSYSTEM, RESUME-SUBSYSTEM, STOP-SUBSYSTEM and HOLD-SUBSYSTEM are allowed for the subsystem.
The change takes effect immediately.
In the event of a version change, this setting applies only to the new version being activated. The other, “old” version will always be deactivated.

STATE-CHANGE-CMDS = *UNCHANGED
The current setting is left unchanged.

STATE-CHANGE-CMDS = *ALLOWED
The listed commands can be issued from the console or under a user ID with the SUBSYSTEM-MANAGEMENT privilege.

STATE-CHANGE-CMDS = *FORBIDDEN
The listed commands cannot be issued either from the console or under a user ID with the SUBSYSTEM-MANAGEMENT privilege.

STATE-CHANGE-CMDS = *BY-ADMINISTRATOR-ONLY
The listed commands can be issued under a user ID with the SUBSYSTEM-MANAGEMENT privilege but not from the console.

FORCED-STATE-CHANGE = *UNCHANGED / *ALLOWED / *FORBIDDEN
Defines whether the FORCED operand of the DSSM STOP-SUBSYSTEM and HOLD-SUBSYSTEM commands is allowed for the subsystem.
The change takes effect immediately.

FORCED-STATE-CHANGE = *UNCHANGED
The current setting is left unchanged.

FORCED-STATE-CHANGE = *ALLOWED
Use of the FORCED operand in these commands is allowed.

FORCED-STATE-CHANGE = *FORBIDDEN
Use of the FORCED operand is forbidden.

RESET = *UNCHANGED / *ALLOWED / *FORBIDDEN
Defines whether the RESET=*YES operand of the DSSM START-SUBSYSTEM and RESUME-SUBSYSTEM commands is allowed for the subsystem.
The change takes effect immediately.

RESET = *UNCHANGED
The current setting is left unchanged.

RESET = *ALLOWED
The DSSM START-SUBSYSTEM and RESUME-SUBSYSTEM commands are accepted if issued with the operand RESET=*YES.

RESET = *FORBIDDEN
The DSSM START-SUBSYSTEM and RESUME-SUBSYSTEM commands are rejected if issued with the operand RESET=*YES.

RESTART-REQUIRED = *UNCHANGED / *NO / *YES
Defines whether the initialization (INIT) routine is invoked to restart the subsystem in the event of abnormal holder task termination.
The initialization routine is invoked during reconstruction of the holder task.
The change takes effect immediately.

RESTART-REQUIRED = *UNCHANGED
The current setting is left unchanged.

RESTART-REQUIRED = *NO
In the event of abnormal holder task termination, the subsystem is locked during reconstruction of the holder task.

RESTART-REQUIRED = *YES
The initialization routine is invoked to restart the system.

VERSION-COEXISTENCE = *UNCHANGED / *FORBIDDEN / *ALLOWED
Defines whether different versions of the subsystem can be active at the same time. The change takes effect immediately.

VERSION-COEXISTENCE = *UNCHANGED
The current setting is left unchanged.

VERSION-COEXISTENCE = *FORBIDDEN
Only one version of the subsystem can be active.

VERSION-COEXISTENCE = *ALLOWED
Different versions of the subsystem can be active at the same time.

VERSION-EXCHANGE = *UNCHANGED / *FORBIDDEN / *ALLOWED
Defines whether a new subsystem version can be activated without the need to delete the old version.
The change takes effect immediately.

VERSION-EXCHANGE = *UNCHANGED
The current setting is left unchanged.

VERSION-EXCHANGE = *FORBIDDEN
A new subsystem version cannot be activated unless the old version has been totally deleted.

VERSION-EXCHANGE = *ALLOWED
A subsystem version can be activated without the need to delete the other version.

MEMORY-CLASS = *UNCHANGED / *SYSTEM-GLOBAL(...) / *LOCAL-UNPRIVILEGED(...) / *BY-SLICE(...)
Changes the subsystem's memory class or defines the subsystem's position in main memory (above or below 16 megabytes). Note the following:

- A privileged subsystem cannot be changed to a nonprivileged subsystem.
- If the memory class is changed, all suboperands must be specified.
- A subsystem cannot be made LOCAL-UNPRIVILEGED if there is an address overlap between two LOCAL-UNPRIVILEGED subsystems sharing the same holder task.

The change takes effect as soon as the subsystem is restarted (START-SUBSYSTEM command).

MEMORY-CLASS = *UNCHANGED
The current setting is left unchanged.

MEMORY-CLASS = *SYSTEM-GLOBAL(...)
The memory class of the subsystem is changed to class 3 or class 4 memory.

> **SUBSYSTEM-ACCESS = *LOW / *HIGH**
> Defines the rights of access to the requested space and the location of the requested space in the address space.

SUBSYSTEM-ACCESS = *LOW
Defines the rights of access to the requested space and the location of the requested space in the address space.

SUBSYSTEM-ACCESS = *HIGH
Nonprivileged address space up to 2 gigabytes is requested.

MEMORY-CLASS = *LOCAL-UNPRIVILEGED(...)
The memory pool is set up as class 5 memory (only for subsystems which are to be executed in the same way as programs).

SIZE = *UNCHANGED / <integer 1..32767 *4Kbyte*>
Defines the size of the address space required for the memory pool in 4K pages. The defined value must large enough to hold the subsystem and all the units and load units dynamically loaded by the subsystem.

SIZE = *UNCHANGED
The current setting is left unchanged.

SIZE = <integer 1..32767 *4Kbyte*>
The address space specified here defines the size of the memory pool.

SUBSYSTEM-ACCESS = *UNCHANGED / *LOW / *HIGH
Defines the rights of access to the requested space and the location of the requested space in address space.

SUBSYSTEM-ACCESS = *UNCHANGED
The current setting is left unchanged.

SUBSYSTEM-ACCESS = *SYSTEM
Privileged address space is requested. The load address is above 16 MB.

SUBSYSTEM-ACCESS = *LOW
Nonprivileged address space is requested. The load address is below 16 MB.

SUBSYSTEM-ACCESS = *HIGH
Nonprivileged address space up to 2 gigabytes is requested.

START-ADDRESS = *UNCHANGED / *ANY / <x-string 7..8>
Defines the base address of the subsystem. It must be a multiple of X'100000'. The user is responsible for specifying an address which references class 6 memory.

START-ADDRESS = *UNCHANGED
The current setting is left unchanged.

START-ADDRESS = *ANY
The location of the subsystem in class 6 memory is defined by DSSM

START-ADDRESS = <x-string 7..8>
Address in the segment raster at which the base address of the subsystem is to be located. The address must be a multiple of X'100000'.

MEMORY-CLASS = *BY-SLICE(...)
The specified subsystem is a no-privileged subsystem consisting of an LLM which is made up of shareable code (program area) and nonshareable code (data area).
The program area is loaded into shareable address space (equivalent to MEMORY-CLASS= *SYSTEM-GLOBAL).

The data area is loaded into the user address space of the holder task and copied into the private user address spaces of the connected tasks at the same address.
If the subsystem is defined using *BY-SLICE, note the following:

- If reserved address space designed to hold the data area already exists, the command is not executed unless there is enough space free within this reserved address area to hold the modified subsystem.
- If there is no such reserved address space, it will be created by the system. The tasks which are connected to the subsystem at the time when this reserved address space is created are not able to use the data area.
  When a task is first connected to a subsystem that was defined with *BY-SLICE, DSSM informs the BLSSERV subsystem that the copy of the data area in the private user address space can be accessed with the VSVI1 macro.
  The VSVI1 macro informs the user about entries in the DBL tables. See the “BLSSERV” manual [3] for details on the macro.
  When the last connection is shut down, DSSM informs the BLSSERV subsystem that this private area can no longer be accessed.
  DSSM only accepts an address space change in the new *BY-SLICE attribute if MODE=*LINK was specified for the type of specified incoming job for the subsystem and CONNECTION-SCOPE=*TASK / *PROGRAM was specified for all subsystem entries.

  SIZE = <integer 1..32767 *4Kbyte*>
  Specifies the size of the requested space for the data area in 4K pages.

LINK-ENTRY = *UNCHANGED(...) / <text 1..8 without-sep>(...)
Changes the reference address used for subsystem loading. It is also possible to specify whether automatic linking of modules in phases (AUTOLINK) is allowed.
The change takes effect as soon as the subsystem is restarted (START-SUBSYSTEM command).

LINK-ENTRY = *UNCHANGED(...)
The current setting is left unchanged.

AUTOLINK = *UNCHANGED / *ALLOWED / *FORBIDDEN
Defines whether automatic linking of modules in phases (AUTOLINK) is allowed

AUTOLINK = *UNCHANGED
The current setting is left unchanged.

AUTOLINK = *ALLOWED
AUTOLINK is allowed.

AUTOLINK = *FORBIDDEN
AUTOLINK is not allowed.

LINK-ENTRY = <text 1..8 without-sep>(...)
The address specified here is used as the new reference address for subsystem loading.

AUTOLINK = *ALLOWED / *FORBIDDEN
Defines whether automatic linking of modules in phases (AUTOLINK) is allowed

AUTOLINK = *ALLOWED
AUTOLINK is not allowed.

AUTOLINK = *FORBIDDEN
AUTOLINK is allowed.

UNRESOLVED-EXTERNALS = *UNCHANGED / *ALLOWED / *FORBIDDEN
Defines whether unresolved external references prevent subsystem startup.

UNRESOLVED-EXTERNALS = *UNCHANGED
The current setting is left unchanged.

UNRESOLVED-EXTERNALS = *ALLOWED
Unresolved external reference does not prevent subsystem startup.
This setting is intended for debugging purposes only.

UNRESOLVED-EXTERNALS = *FORBIDDEN
Unresolved external reference prevent subsystem startup.

CHECK-REFERENCES = *UNCHANGED / *YES / *NO
Defines whether DSSM is to check the status of subsystems with which there is a dependency relation. The status of these subsystems may determine whether loading or unloading of the subsystem is allowed.
The change takes effect immediately.

CHECK-REFERENCES = *UNCHANGED
The current setting is left unchanged.

CHECK-REFERENCES = *YES
DSSM checks the status of subsystems with which there is a dependency relation. Depending on the status of these subsystems, DSSM decides whether the subsystem referred to by this command can be loaded or unloaded.

CHECK-REFERENCES = *NO
If the subsystem referred to by this command has a dependency relation with another subsystem, DSSM checks that the latter subsystem is loaded. If it is, the former subsystem can be loaded, even if the other subsystem is not yet runnable (the reference is held to be resolved).
The RESUME-SUBSYSTEM, STOP-SUBSYSTEM and HOLD-SUBSYSTEM commands are executed regardless of any dependency relations which may exist.

CHANGE-STATE = *UNCHANGED / *YES / *NO
Restricts the use of subsystem control commands, or cancels a restriction currently in force. This operand is particularly significant in relation to a malfunctioning subsystem, as it can be used to prevent loading, activation, and deactivation of the subsystem for as long as it takes to eliminate the malfunction.

The change takes effect immediately. It is applicable only to the current session (it is not stored in the catalog referenced by the SAVE-SUBSYSTEM-CATALOG command). The next time the subsystem is started up, the operand value is set to *NO.

CHANGE-STATE = *UNCHANGED
The current setting is left unchanged.

CHANGE-STATE = *YES
The commands locked by an operand value of CHANGE-STATE=*NO in an earlier MODIFY-SUBSYSTEM-PARAMETER command are released for use, thus restoring full control of the subsystem.

CHANGE-STATE = *NO
Prevents subsystem loading, activation, deactivation, suspending, resuming and unlocking. The following commands are locked until the next time the MODIFY-SUBSYSTEM-PARAMETER command is entered with CHANGE-STATE set to *YES:

- START-SUBSYSTEM

- RESUME-SUBSYSTEM
- STOP-SUBSYSTEM
- HOLD-SUBSYSTEM
- REMOVE-SUBSYSTEM
- UNLOCK-SUBSYSTEM

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error Guaranteed message: ESM0254
	0	CMD0001	Command executed with warnings Guaranteed message: ESM0647
1	0	CMD0001	Command executed with warnings (no LOGICAL-ID found or message file (de) activated)
	1	ESM0414	Syntax error: invalid version specified
	1	ESM0415	Syntax error: invalid INSTALLATION-UNIT name specified
	1	ESM0653	Syntax error: invalid job entry name specified
	32	ESM0646	Internal DSSM problem during processing
	32	ESM0646	Internal error
	64	ESM0201	Subsystem not found
	64	ESM0269	Subsystem without SVC or ISL entry point
	64	ESM0280	Command not executed to avoid inconsistencies in the subsystem catalog
	64	ESM0340	Reserved address-space exhausted for subsystems with MEMORY-CLASS=*BY-SLICE
	64	ESM0613	Changes to the message or syntax file or the installation user ID not allowed. Subsystem must first be removed with STOP-SUBSYSTEM.
	64	ESM0617	Memory class changed; all parameters must be specified

Notes

1. If the command changes subsystem attributes in such a way that they are given values that they already had before the command was issued, no change is made, but message ESM0647 is nonetheless issued to indicate that changes have been made. This can be avoided by using the default values (generally *UNCHANGED).
2. The CREATION-TIME operand is designed to modify the parameters of subsystems added by means of ADD-SUBSYSTEM commands.
3. If file names are specified without a user ID in the SUBSYSTEM-LIBRARY, MESSAGE-FILE, SYNTAX-FILE, REP-FILE and SUBSYSTEM-INFO-FILE operands, the subsystem's installation user ID is searched for the files.
4. Changes to the INIT-ROUTINE, CLOSE-CTRL-ROUTINE, STOPCOM-ROUTINE and DEINIT-ROUTINE operands are accepted only if they do not impair the functioning of the subsystem.
5. If a change cannot be made, a message to that effect is sent to SYSOUT. Messages relating to accepted changes are written to the CONSLOG file.

Example

Version 9.0 of the ARCHIVE subsystem is to be started up automatically as soon as the first SVC call is issued:

```
/MODIFY-SUBSYSTEM-PARAMETER SUBSYSTEM-NAME=ARCHIVE,VERSION='09.0', -
/    CREATION-TIME=*AT-SUBSYSTEM-CALL
```

4.60 MODIFY-SYSFILE-OPTIONS

Define maximum length of log output records

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB
Privileges:	STD-PROCESSING

Function

With the MODIFY-SYSFILE-OPTIONS command, users can specify the maximum length of log output records. Logging is set with the MODIFY-JOB-OPTIONS command. The command has effect only if the log is directed to a cataloged file (SYSOUT is assigned to a file) and to SYSLST. Outputs to terminal are not influenced.
The user can determine whether output is to be additionally directed into a file which is accessible while library elements are output to SYSLST or SYSOUT.

Effect of maximum output record length

Output records exceeding the specified record length are distributed over several lines when logged. These lines do not exceed the specified record line. The length of the output records also contains the “prefix” (e.g. blanks, the character strings *(IN)* or *(OUT)*), which precedes each record to be logged.

Format

MODIFY-**SYSF**ILE-**OPT**IONS
LOGGING-**LINE-SIZE** = ***UNCHA**NGED / ***STD** / <integer 18..2044> ,**LIB**RARY-**OUTPUT-COPY** = ***UNCHA**NGED / ***Y**ES / ***NO** / ***BY-SYS**TEM-**PAR**AMETER

Operands

LOGGING-LINE-SIZE = *UNCHANGED
The default is *UNCHANGED, i.e. the setting remains unchanged. At the beginning of a job, the default value of 132 is set. During logging, output records exceeding 132 characters in length are spread over two or more lines containing a maximum of 132 characters. Each continuation line thus created also contains a “prefix”.

Example

With LOGGING-LINE-SIZE=132, a 1000-byte-long data record is spread over eight lines for SYSOUT output to a cataloged file and over nine lines for hardcopy output.

LOGGING-LINE-SIZE = *STD
The *STD entry sets line size to the default value of 132.

LOGGING-LINE-SIZE = <integer 16..2044>
Sets the specified value. The largest specifiable value depends on the attributes of the file assigned: A SAM file with BUF-LEN=STD(1) on an NK disk can contain no more than one record with a length of 2032 bytes.

LIBRARY-OUTPUT-COPY = *UNCHANGED / *YES / *NO / *BY-SYSTEM-PARAMETER
Specifies whether the output records are additionally written into a file when SYSLST or SYSOUT is assigned to a PLAM library element. When a task starts, the SSMMILOG system parameter setting applies.
The default value is *UNCHANGED, i.e. the current setting remains unchanged.

LIBRARY-OUTPUT-COPY = *YES
In each assignment of SYSLST or SYSOUT to a PLAM library element, a file is generated as a copy and each output record is also written into that file. The copy is assigned the following name:

```
S.LST.<lib>.<elem>.<tsn>.<counter>
```

or

```
S.OUT.<lib>.<elem>.<tsn>.<counter>
```

The name sections have the following meanings:

lib:	the first 7 characters of the PLAM library
elem:	the first 7 characters of the element
tsn:	the task's TSN
counter:	4-position counter

LIBRARY-OUTPUT-COPY = *NO
Output records are not copied.

LIBRARY-OUTPUT-COPY = *BY-SYSTEM-PARAMETER
The setting of the SSMMILOG system parameter applies.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	64	CMD0216	Semantic error

4.61 MODIFY-SYSTEM-BIAS

Change maximum value for resident main memory pages

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING
Privileges:	TSOS OPERATING
Routing code:	R

Function

After system initialization there are by default no more than 24 resident main memory pages available to all users together. The MODIFY-SYSTEM-BIAS command can be used to change the limit during system operation. A reasonable value must be chosen, as appropriate to the load and the types of job being performed. The value must at least comply with the condition specified in the MAX-RESIDENT-PAGES operand. A suitable method for determining an “optimum” value (resulting in no performance degradation) is described in the “Performance Handbook” [27].

Systems support can use the SHOW-SYSTEM-STATUS command, operand INFORMATION=*SYSTEM-PARAMETERS to display the currently valid values.

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Format

MODIFY-**SYS**TEM-BIAS
MAX-RESIDENT-PAGES = ***UNCHA**NGED / <integer 0..2147483639 *4Kbyte*>

Operands

MAX-RESIDENT-PAGES = *UNCHANGED / <integer 0..2147483647 *4Kbyte*>
Maximum number of resident main memory pages available for user jobs.
The value must comply with the following condition:

0 <= n <= w - x - y - 256

where:
- w — number of main memory pages
- x — number of class 1 memory pages
- y — number of class 3 memory pages
- 256 — saturation criterion

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	3	CMD0202	Function or unit not supported
	3	EXC0450	Parameter error
	3	EXC0451	Missing privilege
	3	EXC0452	Insufficient storage space available

4.62 MODIFY-SYSTEM-PARAMETERS

Modify system parameters

Component: BS2000

Functional area: System control and optimization

Domain: SYSTEM-TUNING

Privileges: TSOS

Function

The systems support staff can modify the following parameters of the BS2000 system while it is operational with the aid of the MODIFY-SYSTEM-PARAMETERS command:

BLSCOPYN	JTSHMEM	SSMAPRI
BLSCOPYR	JTSTDMEM	SSMASEC
BLSLDPXS	MIGHOST	SSMCOPT
BLSOPENX	NBLOGT0	SSMMILOG
CONSDDE7	NBMSGCSD	SSMOUT
DIATTL	NETCODE	SSMPNOQ
DUMPCL5P	NRTKILL	SSMSDEVB
DUMPCTRL	NUMBACK	SSMSDEVD
DUMPSD#	PWACTIVE	SYSGJASL
DUMPSEPA	PWENTERD	SYSGJCPU
DUMPSREF	PWERRORS	SYSGJPRI
EACTETYP	PWPENTI	TCHOFLO
FILECRYP	RDTESTPR	TCHREAD
FST32GB	SDPINTLN	TCHTACK
ISBLKCTL	SHUTARCH	VMGIORAL
ISBLKVAL	SHUTCTL	WRTESTPR
JTABSMEM	SHUTPROC	
JTMAXMEM	SNAPTIME	

System parameters have default values that can be modified using the parameter service while the system is being started. The system parameters define the character of the BS2000 system. The SHOW-SYSTEM-PARAMETERS command provides information on the current setting of the system parameters.

The system parameters and the possible settings are described with the SHOW-SYSTEM-PARAMETERS command.

Format

MODIFY-**SYS**TEM-**PAR**AMETERS
PARAMETER = <name 1..8> ,**VALUE** = <c-string 1..128> / <x-string 1..8> / <integer 0..2147483647>

Operands

PARAMETER = <name 1..8>
Name of the system parameter to be modified. Only system parameters that can be modified while the system is operational are allowed.

VALUE = <c-string 1..128> / <x-string 1..8> / <integer 0..2147483647>
New value to be assigned to the system parameter. Note the value ranges allowed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMD2201	Parameter error (see SYSOUT message NSI6260 for details)
	64	CMD0216	Requisite privilege missing

4.63 MODIFY-TAPE-OUTPUT-STATUS

Change administration parameters for tape devices

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	OPERATING PRINT-SERVICE-ADMINISTRATION
Routing code:	S

Function

The MODIFY-TAPE-OUTPUT-STATUS command changes the administration parameters for the specified tape devices.
If the default value *UNCHANGED is specified then no changes are made to the initial value of the parameter in question.

Format

MODIFY**-TAPE-OUT**PUT**-STA**TUS

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>

,**DEST**INATION = ***UNCHA**NGED / ***NONE** / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <alphanum-name 1..8> / ***CENTRAL**

***ADD**(...)

| **DEST**INATION**-LIST** = list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

***REMOVE**(...)

| **DEST**INATION**-LIST** = list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

,**FORM-NAME** = ***UNCHA**NGED / ***ALL** / ***STD** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <alphanum-name 1..6>

***EXCEPT**(...)

| **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

***ADD**(...)

| **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

***REMOVE**(...)

| **FORMS-LIST** = list-poss(15): <alphanum-name 1..6>

,**FORMS-OVERLAY** = ***UNCHA**NGED / ***ALL** / ***NONE** / ***ONLY** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <alphanum-name 2..2>

***EXCEPT**(...)

| **FORMS-O**VERLAY**-LIST** = list-poss(16): <alphanum-name 2..2>

***ADD**(...)

| **FORMS-O**VERLAY**-LIST** = list-poss(16): <alphanum-name 2..2>

***REMOVE**(...)

| **FORMS-O**VERLAY**-LIST** = list-poss(15): <alphanum-name 2..2>

,**USER-ID**ENTIFICATION = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <name 1..8>

***EXCEPT**(...)

| **USER-ID**ENT**-LIST** = list-poss(16): <name 1..8>

***ADD**(...)

| **USER-ID**ENT**-LIST** = list-poss(16): <name 1..8>

***REMOVE**(...)

| **USER-ID**ENT**-LIST** = list-poss(15): <name 1..8>

,**SP**OOLOUT**-CL**ASS = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <integer 1..255>

***EXCEPT**(...)

| **SP**OOLOUT**-CL**ASS**-LIST** = list-poss(16): <integer 1..255>

***ADD**(...)

| **SP**OOLOUT**-CL**ASS**-LIST** = list-poss(16): <integer 1..255>

***REMOVE**(...)

| **SP**OOLOUT**-CL**ASS**-LIST** = list-poss(15): <integer 1..255>

,**SP**OOLOUT**-NAME** = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **SP**OOLOUT**-NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***ADD**(...)

| **SP**OOLOUT**-NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***REMOVE**(...)

| **SP**OOLOUT**-NAME-LIST** = list-poss(15): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**ACCOUNT** = ***UNCHA**NGED / ***ALL** / ***EXCEPT**(...) / ***ADD**(...) / ***REMOVE**(...) /

list-poss(16): <alphanum-name 1..8>

***EXCEPT**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

***ADD**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

***REMOVE**(...)

| **ACCOUNT-LIST** = list-poss(15): <alphanum-name 1..8>

,**ROT**ATION = ***UNCHA**NGED / ***ANY** / ***NO / *Y**ES

,**TWO-UP-PROCESS**ING = ***UNCHA**NGED / ***ANY** / ***Y**ES / ***NO** / ***MODE-1** / ***MODE-2**

,**FORMS-O**VERLAY**-BUFFER** = ***UNCHA**NGED / ***ANY** / ***ONLY** / ***NO** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = ***UNCHA**NGED / <integer 0..32767>

| ,**HIGH** = ***UNCHA**NGED / <integer 0..32767>

,**PRIO**RITY = ***UNCHA**NGED / ***ALL** / ***RANGE**(...)

***RANGE**(...)

| **FROM** = ***UNCHA**NGED / <integer 30..255>

| ,**TO** = ***UNCHA**NGED / <integer 30..255>

,**CHAR**ACTER**-SET-NUM**BER = ***UNCHA**NGED / ***ALL** / ***ONE** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = ***UNCHA**NGED / <integer 1..32767>

| ,**HIGH** = ***UNCHA**NGED / <integer 1..32767>

,**SP**OOLOUT**-TYPE** = ***UNCHA**NGED / ***ALL** / ***HP-PRINT**ER / ***PRINT**ER /

***PAGE-PRINT**ER / ***BUF**FER**-LINE-PRINT**ER / ***LIST**(...)

***LIST**(...)

| **SEL**ECTION**-TYPE** = ***MAY** / ***MUST**

| ,**DEV**ICE**-TYPE** = list-poss(8): ***HP-PRINT**ER / ***LP-PRINT**ER / ***LP48-PRINT**ER /

| ***LP65-PRINT**ER / ***HP90-PRINT**ER / ***LP-EMULATED-PRINT**ER /

| ***2090-APA**-PRINTER / ***2050-APA**-PRINTER / ***2090-TWIN-PRINT**ER / ***PCL-PRINT**ER

,**REVIS**ION-**NUM**BER = ***ANY** / <integer 1..255>

Operands

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic device names of the tape devices whose assignment parameters are to be modified for waiting spoolout jobs.

DESTINATION =
Defines the device pools for which the spoolout jobs which can be processed on the specified tape devices are intended.

DESTINATION = *NONE
The list of local pools is cleared, i.e. spoolout jobs for local device pools are no longer processed on the specified tape devices.

DESTINATION = *ADD(...)
Device pools which are to be added to an existing list of local pools for which the spoolout jobs which can be processed on the specified tape devices are intended.

> **DESTINATION-LIST = list-poss(16): *CENTRAL / <alphanum-name 1..8>**
> List of local device pools to be added.

DESTINATION = *REMOVE(...)
Local device pools which are to be removed from an existing list of pools for which the spoolout jobs which can be processed on the specified tape devices are intended.

> **DESTINATION-LIST = list-poss(16): *CENTRAL / <alphanum-name 1..8>**
> List of local device pools to be removed.

DESTINATION = list-poss(16): <alphanum-name 1..8> / *CENTRAL
List of local device pools for which the spoolout jobs which can be processed on the specified tape devices are intended.

FORM-NAME =
Names of the forms with which spoolout jobs can be processed on the specified tape devices.

FORM-NAME = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the form used.

FORM-NAME = *STD
Only spoolout jobs with FORM=*STD can be processed on the specified tape devices.

FORM-NAME = *EXCEPT(...)
Forms with which spoolout jobs cannot be processed on the specified tape devices.

> **FORMS-LIST = list-poss(16): <alphanum-name 2..2>**
> List of excluded forms.

FORM-NAME = *ADD(...)
Forms to be added to an existing list of forms with which spoolout jobs can be processed on the specified tape devices.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of forms to be added.

FORM-NAME = *REMOVE(...)
Forms which are to be removed from an existing list of forms with which spoolout jobs can be processed on the specified tape devices.

FORMS-LIST = list-poss(15): <alphanum-name 1..6>
List of forms to be removed.

FORM-NAME = list-poss(16): <alphanum-name 1..6>
List of forms with which spoolout jobs can be processed on the specified tape devices.
If there is already a (positive) list of forms for the specified tape devices it is replaced by this new list.

FORMS-OVERLAY =
Film overlays with which spoolout jobs can be processed on the specified tape devices.

FORMS-OVERLAY = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the film overlays specified.

FORMS-OVERLAY = *NONE
Only spoolout jobs which do not use film overlays can be processed on the specified tape devices.

FORMS-OVERLAY = *ONLY
Only spoolout jobs which use (any) film overlay can be processed on the specified devices.

FORMS-OVERLAY = *EXCEPT(...)
Film overlays with which spoolout jobs cannot be processed on the specified tape devices.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of excluded film overlays.

FORMS-OVERLAY = *ADD(...)
Film overlays to be added to an existing list with which spoolout jobs can be processed on the specified tape devices.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of film overlays to be added.

FORMS-OVERLAY = *REMOVE(...)
Film overlays which are to be removed from an existing list with which spoolout jobs can be processed on the specified tape devices.

FORMS-OVERLAY-LIST = list-poss(15): <alphanum-name 2..2>
List of film overlays to be removed.

FORMS-OVERLAY = list-poss(16): <alphanum-name 2..2>
List of film overlays with which spoolout jobs can be processed on the specified tape devices.

USER-IDENTIFICATION =
User IDs under which spoolout jobs can be processed on the specified tape devices.

USER-IDENTIFICATION = *ALL
Spoolout jobs can be processed on the specified tape devices under all user IDs.

USER-IDENTIFICATION = *EXCEPT(...)
User IDs under which spoolout jobs cannot be processed on the specified tape devices.

USER-IDENT-LIST = list-poss(16): <name 1..8>
List of excluded user IDs.

USER-IDENTIFICATION = *ADD(...)
User IDs to be added to an existing list of user IDs under which spoolout jobs can be processed on the specified tape devices.

USER-IDENT-LIST = list-poss(16): <name 1..8>
List of user IDs to be added.

USER-IDENTIFICATION = *REMOVE(...)
User IDs which are to be removed from an existing list of user IDs under which spoolout jobs can be processed on the specified tape devices.

USER-IDENT-LIST = list-poss(15): <name 1..8>
List of user IDs to be removed.

USER-IDENTIFICATION = list-poss(16): <name 1..8>
List of user IDs under which spoolout jobs can be processed on the specified tape devices.If there is already a (positive) list of user IDs for the specified tape devices, it is replaced by this new list.

SPOOLOUT-CLASS =
Spoolout classes from which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-CLASS = *ALL
Spoolout jobs from all spoolout classes can be processed on the specified tape devices.

SPOOLOUT-CLASS = *EXCEPT(...)
Spoolout classes from which spoolout jobs cannot be processed on the specified tape devices.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of excluded spoolout classes.

SPOOLOUT-CLASS = *ADD(...)
Spoolout classes to be added to an existing list of spoolout classes from which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of spoolout classes to be added.

SPOOLOUT-CLASS = *REMOVE(...)
Spoolout classes to be removed from an existing list of spoolout classes from which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-CLASS-LIST = list-poss(15): <integer 1..255>
List of spoolout classes to be removed.

SPOOLOUT-CLASS = list-poss(16): <name 1..8>
List of spoolout classes from which spoolout jobs can be processed on the specified tape devices.
If there is already a (positive) list of spoolout classes for the specified tape devices, it is replaced by this new list.

SPOOLOUT-NAME =
Job names under which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-NAME = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the job name.

SPOOLOUT-NAME = *EXCEPT(...)
Job names under which spoolout jobs cannot be processed on the specified tape devices.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of excluded job names.

SPOOLOUT-NAME = *ADD(...)
Job names to be added to an existing list of job names under which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names to be added.

SPOOLOUT-NAME = *REMOVE(...)
Job names which are to be removed from an existing list of job names under which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-NAME-LIST = list-poss(15): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names to be removed.

SPOOLOUT-NAME = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names under which spoolout jobs can be processed on the specified floppy disk devices.
If there is already a (positive) list of job names for the specified tape devices it is replaced by this new list.

ACCOUNT =
Account numbers with which spoolout jobs can be processed on the specified tape devices.

ACCOUNT = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the account number.

ACCOUNT = *EXCEPT(...)
Account numbers under which spoolout jobs cannot be processed on the specified tape devices.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of excluded account numbers.

ACCOUNT = *ADD(...)
Account numbers to be added to an existing list of account numbers under which spoolout jobs can be processed on the specified tape devices.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of account numbers to be added.

ACCOUNT = *REMOVE(...)
Account numbers which are to be removed from an existing list of account numbers under which spoolout jobs can be processed on the specified tape devices.

ACCOUNT-LIST = list-poss(15): <alphanum-name 1..8>
List of account numbers to be removed.

ACCOUNT = list-poss(16): <name 1..8>
List of account numbers under which spoolout jobs can be processed on the specified tape devices.
If there is already a (positive) list of account numbers for the specified tape devices it is replaced by this new list.

ROTATION =
Indicates whether spoolout jobs which require the page rotation module can be processed on the specified tape devices.

ROTATION = *ANY
Spoolout jobs can be output on the specified tape devices whether they require the page rotation module or not.

ROTATION = *NO
Only spoolout jobs which do not require the page rotation module can be processed on the specified tape devices.

ROTATION = *YES
Only spoolout jobs which require the page rotation module can be processed on the specified tape devices.

TWO-UP-PROCESSING = *UNCHANGED / *ANY / *YES / *NO / *MODE-1 / *MODE-2
Specifies 'TWO-UP' processing for the specified HP90 (2090, 2140) printers (see the “SPOOL” manual [43]).

FORMS-OVERLAY-BUFFER =
Indicates whether spoolout jobs which use an FOB overlay can be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER = *ANY
Spoolout jobs with and without FOB overlays can be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER = *ONLY
Only spoolout jobs which require an FOB overlay can be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Only spoolout jobs with FOB overlays which lie within the specified size range can be processed on the specified tape devices.

LOW = *UNCHANGED / <integer 0..32767>
Lower limit of the range.

HIGH = *UNCHANGED / <integer 0..32767>
Upper limit of the range.

PRIORITY =
Priorities with which spoolout jobs can be processed on the specified tape devices.

PRIORITY = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of their priority.

PRIORITY = *RANGE(...)
Spoolout jobs with priorities within this range can be processed on the specified tape devices.

FROM = *UNCHANGED / <integer 30..255>
Lower limit of the range.

TO = *UNCHANGED / <integer 30..255>
Upper limit of the range.

CHARACTER-SET-NUMBER =
Spoolout jobs can be processed on the specified tape devices according to the number of character sets required.

CHARACTER-SET-NUMBER = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the number of character sets required.

CHARACTER-SET-NUMBER = *ONE
Only spoolout jobs which require no more than one character set can be processed on the specified tape devices.

CHARACTER-SET-NUMBER = *RANGE(...)
Spoolout jobs with a number of required character sets which falls within the range can be processed on the specified tape devices.

LOW = *UNCHANGED / <integer 1..32767>
Lower limit of the range.

HIGH = *UNCHANGED / <integer 1..32767>
Upper limit of the range.

SPOOLOUT-TYPE =
Spoolout jobs for certain types of output device can be processed on the specified tape devices.

SPOOLOUT-TYPE = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the type of output device for which they were created.

SPOOLOUT-TYPE = *HP-PRINTER
Only spoolout jobs for printers of type 3351/3353 can be processed on the specified tape devices.

SPOOLOUT-TYPE = *PRINTER
Only spoolout jobs for printers can be processed on the specified tape devices.

SPOOLOUT-TYPE = *PAGE-PRINTER
Only spoolout jobs for laser printers can be processed on the specified tape devices.

SPOOLOUT-TYPE = *BUFFER-LINE-PRINTER
Only spoolout jobs for line printers with loadable buffers (3337, 3338, 3339, 3348, 3349) can be processed on the specified tape devices.

SPOOLOUT-TYPE = *LIST(...)
Spoolout jobs for the specified list of device types can be processed on the specified tape devices.

SELECTION-TYPE = *MAY / *MUST
The selection of spoolout jobs

- is restricted to those which at least may be output on one of the specified device types (*MAY)
- is restricted to those which must be output on one of the specified device types and may not be output on any device type than the ones specified (*MUST).

DEVICE-TYPE = list-poss(8): *HP-PRINTER / *LP-PRINTER / *LP48-PRINTER / *LP65-PRINTER / *HP90-PRINTER / *LP-EMULATED-PRINTER / *2090-APA-PRINTER / *2050-APA-PRINTER / *2090-TWIN-PRINTER / *PCL-PRINTER
List of device types. For the symbolic names see the “SPOOL” manual [42].

REVISION-NUMBER = *ANY / <integer 1..255>
The number given must match the current revision number.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SCP0915	Element to be deleted not found
2	0	SCP0954	Only first 100 pools activated for the device
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value

4.64 MODIFY-TASK-CATEGORIES

Control allocation of CPU, main memory and I/O processor resources to tasks

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING
Privileges:	TSOS OPERATING
Routing code:	R

Function

Systems support staff can use the MODIFY-TASK-CATEGORIES command to define the number of tasks per category which are competing for the resources CPU, main memory and I/O processor (active tasks), to decide on the priorities of the categories, and to assign I/O priorities for the tasks of a category.
Together with the CHANGE-TASK-PRIORITY command, this command enables systems support staff to specify the distribution of the resources CPU and main memory to the individual tasks. In addition to the four categories with the standard names TP, DIALOG, BATCH and SYS, the task management also supports 12 further categories whose names are declared with the JMU utility routine.

Systems support can modify the assignment of individual tasks to a category using the MOVE-TASK-TO-CATEGORY command.

Systems support defines in the user catalog and job classes allocated to the user the task attributes the user can add on to his tasks.

The I/O priorities are evaluated solely by the IORM subsystem for task-specific control of inputs/outputs, with runtime control both by PRIOR and by the PCS subsystem.

The current values for resource distribution can be displayed by means of the SHOW-SYSTEM-STATUS command.

Format

MODIFY**-TASK**-CATEGORIES

CATEGORY**-NAME** = <name 1..7> / ***DIALOG** / ***BATCH** / ***TP**

,**WEIGHT-CODE** = ***UNCHA**NGED / <integer 1..511>

,**MIN**IMUM**-ACT**IVE-TASKS = ***UNCHA**NGED / <integer 0..4095>

,**MAX**IMUM**-ACT**IVE**-TASK**S = ***UNCHA**NGED / <integer 0..4095>

,**IO-PRIO**RITY = ***UNCHA**NGED / ***NONE** / ***LOW** / ***MED**IUM / ***HIGH**

Operands

CATEGORY-NAME = <name 1..7> / *DIALOG / *BATCH / *TP
Name of the category.

WEIGHT-CODE = *UNCHANGED / <integer 1..511>
This operand serves to weight the categories and controls task activation and task initiation (CPU allocation). It influences the relationships in which tasks are activated from categories. In addition, it is taken into consideration when setting the internal task priority which controls the CPU allocation.
A high value indicates a high degree of urgency.

MINIMUM-ACTIVE-TASKS = *UNCHANGED / <integer 0..4095>
Minimum number of tasks in the specified category which must be active. This ensures a minimum workload per category.

MAXIMUM-ACTIVE-TASKS = *UNCHANGED / <integer 0..4095>
Maximum number of tasks in the specified category which must be active. This operand establishes a workload limit in cases of overload.

IO-PRIORITY = *UNCHANGED / *NONE / *LOW / *MEDIUM / *HIGH
Determines the I/O priority of all tasks of the specified category. This value is evaluated only if the IORM subsystem has been started and priority control is active (IORM statement IOPT_SET_ON=YES). The default *NONE means that all tasks of this category are assigned an I/O priority which is derived from the task priority (implicit I/O priority).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	EXC049B	The PCS subsystem, is active; details will only be stored for PRIOR
	64	EXC045D	Invalid parameter
	64	EXC046B	Invalid category name
	64	EXC046C	No access to the SYS category
	64	CMD0216	Privilege infringement

Example

/show-sys-sta inf=*category

```
CATEGORY  MIN  MAX  WT  #EXIS #ACT #READY #RDY NOT  IO-PRIO
NAME      MPL  MPL      TING       INACT  ADMITTED
SYS       0030 0064 512 0101  0028 0000   0000      NONE
DIALOG    0001 0999 001 0001  0001 0000   0000      NONE
BATCH     0001 0999 001 0006  0000 0000   0000      NONE
TP        0001 0999 001 0007  0001 0000   0000      NONE
BATCHF    0001 0999 001 0005  0002 0000   0000      NONE
```

/mod-task category-name=dialog,min-act=10,max-act=100

```
%  EXC046D PROCESSING OF /MODIFY-TASK-CATEGORIES COMPLETED
```

/show-sys-sta inf=*category

```
CATEGORY  MIN  MAX  WT  #EXIS #ACT #READY #RDY NOT  IO-PRIO
NAME      MPL  MPL      TING       INACT  ADMITTED
SYS       0030 0064 512 0101  0025 0000   0000      NONE
DIALOG    0010 0100 001 0001  0001 0000   0000      NONE
BATCH     0001 0999 001 0006  0000 0000   0000      NONE
TP        0001 0999 001 0007  0001 0000   0000      NONE
BATCHF    0001 0999 001 0005  0002 0000   0000      NONE
BATCHF    0001 0999 001 0002  0002 0000   0000      NONE
```

4.65 MODIFY-TERMINAL-OPTIONS

Modify logical terminal properties

Component:	TIAM
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-TERMINAL-OPTIONS command allows users to change the logical properties of their terminals. This command may be used only in timesharing mode. The logical properties of the terminal are defined in the system by setting system parameters, by the (emulated) type of the terminal and through VTSU operating parameters.

> Real data display terminals can no longer be connected to modern servers. All currently used “data display terminals” are realized through emulation programs like MT9750 by FUJITSU. It is possible that some of the many available emulations have settings that were never available on the real data display terminals and are therefore not described in the BS2000 manuals. If in doubt, please refer to the manual of your data display terminal emulation.

The user can obtain information on the current settings and terminal attributes with the aid of the SHOW-TERMINAL-ATTRIBUTES command.

The user can set the following logical properties:

Logical property	Operand	Preset by
Type of control of screen overflow.	OVERFLOW-CONTROL	System parameter TCHOFLO
Number of lines after which screen overflow occurs	MAXIMUM-LINES	Emulated terminal type
End-of-line character.	LINE-END-CHARACTER	VTSU operating parameter
Controls the display of outputs and the type of input	WRITE-READ-MODE	System parameter TCHREAD
Case-sensitive	LOWER-CASE	Emulated terminal type
Use of graphics characters	GRAPHICS	Emulated terminal type
Use of an APL character set	APL-CHARACTER-SET	Emulated terminal type
Support of a hardcopy printer	HARDCOPY	Emulated terminal type
Substitute characters for displaying nonprinting characters	SUBSTITUTE-CHARACTER	Dependent on terminal type: • X'07' for all supported types (“smudge character”)
Acknowledgment procedure	ACKNOWLEDGE-OUTPUT	System parameter TCHTACK
Code table	CODED-CHARACTER-SET	Dependent upon • terminal type • user entry • VTSU operating parameter (see table below)
System input prompt	SYSTEM-PROMPT	Default is a slash(/)
Program input prompt (read with RDATA)	PROGRAM-PROMPT	Default is an asterisk (*)
Terminal roll-up mode	ROLL-UP	VTSU operating parameter TERMROLL

Table 71: Logical properties of the terminal (operand and presetting)

The following table shows the preset code tables for CODED-CHARACTER-SET, dependent of the terminal type, the user entry for the standard code, and the VTSU operating parameter TIAM-PERM8.

Terminal type / Terminal mode	**7-bit**	**8-bit**	**8-bit / Unicode**	**8-bit / Unicode**
Standard CCS	**-**	**EDF03IRV**	**EDFxxx**	**EDFxxx**
TIAM-PERM8	**-**	**-**	**N**[1]	**Y**[2]
Code table(setting after system startup)	EDF03iRV	EDF03IRV	EDF03IRV	EDFxxx

Table 72: Logical properties of the terminal (preset values for the code table)

[1] corresponds to /MODIFY-TERM-OPTIONS CODED-CHARACTER-SET=*7-BIT

[2] corresponds to /MODIFY-TERM-OPTIONS CODED-CHARACTER-SET=*8-BIT-DEFAULT

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Format

MODIFY-**TERM**INAL-OPTIONS

OVERFLOW-**CONTR**OL = ***UNCHA**NGED / ***NO-CONTR**OL / ***USER-ACK**NOWLEDGE / ***TIME**(...)

***TIME**(...)

| **TIMEOUT** = ***STD** / <integer 0..60>

,**MAX**IMUM-**LINES** = ***UNCHA**NGED / <integer 3..255>

,**LINE-END**-CHARACTER = ***UNCHA**NGED / ***NONE** / <c-string 1..1>

,**WR**ITE-**READ-MODE** = ***UNCHA**NGED / ***MOD**IFIED-**FIELD**S / ***NO-FIELD**S

,**LOW**ER-**CASE** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**GRAPHICS** = ***UNCHA**NGED / ***Y**ES / ***NO**

,**APL-CHAR**ACTER-SET = ***UNCHA**NGED / ***Y**ES / ***NO**

,**HARDCOPY** = ***UNCHA**NGED / ***NO** / ***LOC**AL / ***CENTR**AL

,**SUBST**ITUTE-**CHAR**ACTER = ***UNCHA**NGED / ***STD** / <c-string 1..1> / <x-string 1..2>

,**ACK**NOWLEDGE-**OUTP**UT = ***UNCHA**NGED / ***Y**ES / ***NO**

,**CODED-CHAR**ACTER-**SET** = ***UNCHA**NGED / ***7-BIT** / ***8-BIT-DEF**AULT / <name 1..8>

,**SYS**TEM-**PROMPT** = ***UNCHA**NGED / ***STD** / <c-string 1..32 with-low>

,**PROG**RAM-**PROMPT** = ***UNCHA**NGED / ***STD** / <c-string 1..32 with-low>

,**ROLL-UP** = ***UNCHA**NGED / ***STD** / ***Y**ES / ***NO**

Operands

OVERFLOW-CONTROL = *UNCHANGED / *NO-CONTROL / *USER-ACKNOWLEDGE / *TIME(...)
Type of control in the event of screen overflow.
An overflow is assumed by the system whenever the number of screen lines (still) to be output exceeds the maximum number of lines (MAXIMUM-LINES). At the start of an output the last user input is taken into consideration in calculating the screen overflow. If the overflow control is effected through acknowledgments (*USER-ACKNOWLEDGE), the acknowledgment request issued by the system is included in the maximum number of screen lines to be output.

OVERFLOW-CONTROL = *NO-CONTROL
No overflow control. In cases of long screen outputs, the system takes no steps to enable the ESCAPE function (K2 key) or to prevent the premature overwriting of data on the screen.

OVERFLOW-CONTROL = *USER-ACKNOWLEDGE
Overflow control by means of acknowledgments. When screen overflow occurs, the system requests the terminal user with the message `% PLEASE ACKNOWLEDGE` to enter an acknowledgment. The user can thus determine when the output is to be continued following a screen overflow. Any input other than ESCAPE and BREAK counts as an acknowledgment. After an acknowledgment is received, output is continued with the next screen.

OVERFLOW-CONTROL = *TIME(...)
Overflow control is effected on a time basis. The screen output is continued after the specified delay time has elapsed. When the last screen line is reached, the screen contents displayed are “scrolled” up appropriately with each further output line, and input or output data at the top of the screen is overwritten.

> **TIMEOUT = *STD / <integer 0..60>**
> Delay time, in seconds, that is to pass when screen overflow has occurred before further output is displayed.
>
> **TIMEOUT = *STD**
> The last value defined by the user applies. If the user does not specify a value, a wait time of 6 seconds is set.

Note

> The value set for time-based control (TIMEOUT) applies even when there is a switch in screen mode (e.g. a switch on termination of a line-mode output back to the formatted input mode of guided dialog).

MAXIMUM-LINES = *UNCHANGED / <integer 3..255>
Maximum number of lines that may be displayed until the next overflow control.

LINE-END-CHARACTER = *UNCHANGED / *NONE / <c-string 1..1>
The operand only exists for reasons of compatibility and has no effect on any supported data display terminal types currently supported.

WRITE-READ-MODE = *UNCHANGED / *MODIFIED-FIELDS / *NO-FIELDS
Controls the display of output messages and the type of input.

WRITE-READ-MODE = *MODIFIED-FIELDS
Reads modified fields. Data is displayed on the screen in fields. Only the modified fields are transferred to the system.

WRITE-READ-MODE = *NO-FIELDS
Reads unprotected fields. Data is displayed on the screen without fields, input takes place from the beginning of the screen or from the cursor position.

LOWER-CASE = *UNCHANGED / *YES / *NO
Specifies whether output of lowercase letters is to be possible.

GRAPHICS = *UNCHANGED / *YES / *NO
Specifies whether a graphics option can be used.

APL-CHARACTER-SET = *UNCHANGED / *YES / *NO
Specifies whether an APL character set can be used.

HARDCOPY = *UNCHANGED / *NO / *LOCAL / *CENTRAL
Specifies what type of hardcopy logging is to be possible.

HARDCOPY = *NO
No hardcopy printer.

HARDCOPY = *LOCAL
Local hardcopy printer, operable directly at the terminal. This operand is interpreted only if a local hardcopy device was assigned when the connection was established. Otherwise, the operand is ignored.

HARDCOPY = *CENTRAL
The operand value only exists for reasons of compatibility and is equivalent to HARDCOPY=*NO.

SUBSTITUTE-CHARACTER = *UNCHANGED / *STD / <c-string 1..1> / <x-string 1..2>
Substitute character to be used in place of nonprinting characters. In output texts, nonprinting characters are replaced by the specified substitute character.

SUBSTITUTE-CHARACTER = *STD
A device-specific smudge character is used as the substitute character.

ACKNOWLEDGE-OUTPUT = *UNCHANGED / *YES / *NO
Specifies whether terminal output is to be acknowledged within the system. The value set explicitly for ACKNOWLEDGE-OUTPUT applies for all subsequent output in program and system mode until a new setting is made with MODIFY-TERMINAL-OPTIONS or until EXIT-JOB/LOGOFF.

ACKNOWLEDGE-OUTPUT = *NO
No internal acknowledgment.
Messages that are output immediately prior to EXIT-JOB or LOGOFF may be lost due to the connection being cleared down.

CODED-CHARACTER-SET = *UNCHANGED / *7-BIT / *8-BIT-DEFAULT / <name 1..8>
Specifies whether the terminal is to operate in 7-bit or 8-bit mode.

CODED-CHARACTER-SET = *7-BIT
The terminal operates in 7-bit mode.

CODED-CHARACTER-SET = *8-BIT-DEFAULT
Activates the 8-bit code table of the user entry provided the entry contains an 8-bit code table. The terminal then operates in 8-bit mode. If the user entry contains no 8-bit code table, the terminal continues to operate in 7-bit mode.

CODED-CHARACTER-SET = <name 1..8>

Name of a code table (CCS). Depending on the explicit specification of a code in the VTSUCB (VTSU Control Block), the following situations may arise:

Standard CCS	7	7	7	7	7	7	name	name	$name_1$	name	name	$name_1$
8-bit terminal	n	n	n	j	j	j	n	n	n	j	j	j
MOD-TERM-OPT C-C-S =	7	8	name	7	8	name	7	8	$name_2$	7	8	$name_2$
Result	1)	2)	2)	3)	4)	7)	1)	2)	2)	5)	6)	8)

1. The command is accepted.

   The terminal works in 7-bit mode. First item of information supplied by TSTAT: blank Second item of information supplied by TSTAT: blank

2. The command is rejected.

   The terminal works in 7-bit mode. First item of information supplied by TSTAT: blank Second item of information supplied by TSTAT: blank

3. The command is accepted.

   The terminal works in 7-bit mode, if no VTSUCB is used or if blanks were detected in the VTSUCB. First item of information supplied by TSTAT: blank Second item of information supplied by TSTAT: blank

4. The command is rejected.

   The terminal works in 7-bit mode, if no VTSUCB is used or if blanks were detected in the VTSUCB. First item of information supplied by TSTAT: blank Second item of information supplied by TSTAT: blank

5. The command is accepted.

   The terminal works in 7-bit mode, if no VTSUCB is used or if blanks were detected in the VTSUCB. The terminal works in 8-bit mode if a valid extended code name or *EXTEND was defined in the VTSUCB. In this case, the standard CCS name is used. First item of information supplied by TSTAT: name Second item of information supplied by TSTAT: blank

6. The command is accepted.

   The terminal works in 8-bit mode (with the character set name) if no VTSUCB is used or if blanks were detected in the VTSUCB. It likewise works in 8-bit mode if a valid character set name or *EXTEND was detected in the VTSUCB. In this case, the character set name is used. First item of information supplied by TSTAT: name Second item of information supplied by TSTAT: name

7. The command is accepted if the name is supported by the terminal.

   The terminal works in 8-bit mode (with the character set name) if no VTSUCB is used or if no character set name is specified in the VTSUCB. First item of information supplied by TSTAT: blank Second item of information supplied by TSTAT: name

8. The command is accepted if $name_2$ is supported by the terminal.

   The terminal works in 8-bit mode (with the character set $name_2$) if no VTSUCB is used or if no character set name is specified in the VTSUCB First item of information supplied by TSTAT: $name_1$ Second item of information supplied by TSTAT: $name_2$

Working with Unicode code tables

The Unicode variant UTFE (CODED-CHARACTER-SET=UTFE specification) permits Unicode code tables to be used. To select this variant, the terminal mode must be *Unicode* and the terminal type *DSS9763*.

The CODED-CHARACTER-SET=UTFE specification is rejected if this variant cannot be selected. The entry is possible if the output of the SHOW-TERMINAL-ATTRIBUTES command displays the value 240 in one of the up to 16 code tables which are possible (see CHARACTER-SET-i output field in the CAPABILITIES information block, where i=1 to 16).

SYSTEM-PROMPT = *UNCHANGED / *STD / <c-string 1..32 with-low>
Specifies with which type of prompt the system requests command input.

SYSTEM-PROMPT = *STD
The system prompt is a slash (/). This is the value set when the task is started.

SYSTEM-PROMPT = <c-string 1..32 with-low>
The system prompts input with this character string. A maximum of 32 characters may be entered. The string may contain wildcards for which the relevant value will be substituted:

Wildcard	Value substituted
#H	Host name
#J	Job name
#P	Processor name
#S	Station name
#U	user ID

PROGRAM-PROMPT = *UNCHANGED / *STD / <c-string 1..32 with-low>
Specifies with which type of prompt programs will request input read with RDATA.

PROGRAM-PROMPT = *STD
Program entries read with RDATA are prompted with an asterisk (*). This is the value set when the task is started.

PROGRAM-PROMPT = <c-string 1..32 with-low>
Program entries read with RDATA are prompted with this character string. A maximum of 32 characters may be entered. The string may contain wildcards for which the relevant value will be substituted (see SYSTEM-PROMPT operand).

ROLL-UP = *UNCHANGED / *STD / *YES / *NO
Specifies how “old” screen contents is to be treated (terminal roll-up mode).

ROLL-UP = *STD
The value defined in the VTSU operating parameter TERMROLL in the VTSU parameter file applies.

ROLL-UP = *YES
Old screen contents is rolled up.

ROLL-UP = *NO
The old screen contents is deleted up to the write mark when reissued.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
1	0	CMD2201	Command not effective until the overflow control has been reactivated
2	0	TIA0500	Command executed with warning; at least one entry has been ignored because of a semantic error
	1	TIA0502	Syntax error
	32	TIA0122	Unrecoverable VTSU-B error
	64	CMD0216	Privilege error

Example

/show-file proc.time ——————————————————————————————— (1)

```
/SET-PROC-OPT     ERROR-MECHANISM=*BY-RETURNCODE
/DECL-VAR         LOOP
/FOR-1:  FOR  LOOP = *COUNTER(1,10,1)
/             WRITE-TEXT '** Es ist jetzt &(TIME()) Uhr.'
/        END-FOR
/EXIT:  EXIT-PROC
/ERROR: IF-BLOCK-ERROR
/       WRITE-TEXT '** Fehler mit Subcode1 &(SC1)  und Subcode2 (SC2) *'
/       HELP-MSG MSG-ID=&(MC)
/       END-IF




%  SHO0301 WARNING: END OF FILE REACHED
e                                                        S*SOF+     1(     1)
```

```
%  SHO0500 ':2OSG:$USERXY01.PROC.TIME' CLOSED
```

/mod-term-opt overflow-control=*no ——————————————————— (2)
/call-proc proc.time ——————————————————————————— (3)

```
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
** Es ist jetzt 14:19:50 Uhr.
```

```
/mod-term-opt system-prompt='Host07:'   ————————————————————————  (4)
Host07:mod-term-opt overflow-control=*user-ack,max-lines=3    ————————————  (5)
Host07:call-proc proc.time                  ————————————————————————————  (6)
```

```
** Es ist jetzt 14:23:43 Uhr.
%PLEASE ACKNOWLEDGE
** Es ist jetzt 14:23:43 Uhr.
** Es ist jetzt 14:23:49 Uhr.
%PLEASE ACKNOWLEDGE
** Es ist jetzt 14:23:49 Uhr.
** Es ist jetzt 14:23:58 Uhr.
%PLEASE ACKNOWLEDGE
** Es ist jetzt 14:23:58 Uhr.
** Es ist jetzt 14:23:59 Uhr.
%PLEASE ACKNOWLEDGE
** Es ist jetzt 14:23:59 Uhr.
** Es ist jetzt 14:24:01 Uhr.
%PLEASE ACKNOWLEDGE
** Es ist jetzt 14:24:01 Uhr.
```

```
Host07:mod-term-opt overflow-control=*time(timeout=30)    ————————— (7)
Host07:call-proc proc.time                  ———————————————————————— (8)
```

```
** Es ist jetzt 14:24:46 Uhr.
** Es ist jetzt 14:24:46 Uhr.
** Es ist jetzt 14:24:46 Uhr.
** Es ist jetzt 14:25:16 Uhr.
** Es ist jetzt 14:25:16 Uhr.
** Es ist jetzt 14:25:16 Uhr.
** Es ist jetzt 14:25:46 Uhr.
** Es ist jetzt 14:25:46 Uhr.
** Es ist jetzt 14:25:46 Uhr.
** Es ist jetzt 14:26:16 Uhr.
```

(1) The SHOW-FILE command displays the contents of the file *PROC.TIME*. This is an S procedure which determines the current time ten times (builtin function TIME()) and outputs it to SYSOUT by means of the WRITE-TEXT command. *E* (END) terminates the output of the SHOW-FILE command.

(2) Overflow control is deactivated (*OVERFLOW-CONTROL=*NO-CONTROL*).

(3) Calls the procedure *PROC.TIME*. Since no screen overflow occurs, the message giving the time is output ten times in succession. The time displayed does not change on account of the instantaneous output.

(4) The character string *Host07:* is defined as the input prompt for commands.

(5) Overflow control is set to **USER-ACKNOWLEDGE* with a maximum of 3 output lines.

(6) Calls the procedure *PROC.TIME*. After every 3 lines the system requests an acknowledgment from the user. The first overflow occurs immediately after the first time output since the procedure call and acknowledgment request are included in calculating the maximum number of lines. The user acknowledges, for example by pressing the [DUE] key. The output then continues. Different times are displayed on account of the delay.

(7) Overflow control is set to a delay of 30 seconds. The maximum number of lines is not changed.

(8) Calls the procedure *PROC.TIME*. A delay of 30 seconds elapses after every 3 lines. The delay can be seen from the output time: the time advances 30 seconds after every three output lines.

4.66 MODIFY-TEST-OPTIONS

Modify task-specific settings for testing and diagnostics

Component:	AIDSYSA
Functional area:	Program control
Domain:	PROGRAM
Privileges:	all privileges bar OPERATING

Function

The MODIFY-TEST-OPTIONS command allows the user to modify the task-specific test and diagnostic options:

- The test and diagnostic privilege values can be modified for the user's own tasks (PRIVILEGE operand). The maximum possible test privilege values for AID are defined in the user entry and cannot be exceeded.
- Users can control the options for requests for user and area dumps for their own tasks and tasks under their own user IDs (USERDUMP-OPTIONS operands). Users can specify whether a dump is to be generated in response to an event that is capable of generating a dump. They can specify the pubset on which the created dumps are to be stored, whether duplicates of dumps are to be suppressed and the maximum number of dumps that are to be created. They can also specify whether a dump is to contain DIV windows and data spaces and swapped in areas of POSIX memory mapping.
- Users can permit or prohibit the use of the hardware or linkage audits for their own tasks (AUDIT operand).
- The static AID test with a lower test privilege can be permitted or prohibited for other tasks running under the user's own user ID (OWN-UID-DEBUGGING operand). If testing with reduced privileges is permitted then, in the case of read access to another task, the same test privileges as for the user's own task are sufficient. In the case of write access, a write privilege >= 2 is required.

Privileged functions

Privileged users (TSOS privilege) can control the dump request options for any task (TSN operand).

Format

MODIFY-**TEST**-OPTIONS Alias: **MDTSO**

PRIVILEGE = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **READ** = <integer 1..9>

| ,**WR**ITE = <integer 1..9>

,**USERDUMP-OPT**IONS = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **TSN** = ***OWN** / <alphanum-name 1..4> / <c-string 1..4>

| ,**DUMP** = ***UNCHA**NGED / ***STD** / ***Y**ES / ***NO** / ***SYSTEM**

| ,**DUMP-CONTENTS** = ***UNCHA**NGED / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **DATA-IN-VIRTUAL** = ***STD** / ***NO** / ***Y**ES

| | ,**DATA-SPACES** = ***STD** / ***NO** / ***Y**ES

| | ,**MEMORY-MAP** = ***STD** / ***NO** / ***Y**ES

| ,**OUT**PUT-**PUB**SET = ***UNCHA**NGED / ***DEF**AULT-**PUB**SET / <cat-id 1..4>

| ,**MAX**IMUM-**NUM**BER = ***UNCHA**NGED / ***UNLIMITED** / <integer 1..255>

| ,**SUPPR**ESS-**DUP**LICATES = ***UNCHA**NGED / ***NO** / ***Y**ES

,**AUDIT** = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **HARDWARE-AUDIT** = ***UNCHA**NGED / ***NOT-ALLOW**ED / ***ALLOW**ED

| ,**LINKAGE-AUDIT** = ***UNCHA**NGED / ***NOT-ALLOW**ED / ***ALLOW**ED

,**OWN-UID-DEBUG**GING = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **ACCEPT-ACCESS** = ***UNCHA**NGED / ***NO** / ***Y**ES(...)

| ***Y**ES(...)

| | **PASSW**ORD = ***NONE** / <c-string 1..8>

| ,**ENABLE-ACCESS** = ***UNCHA**NGED / ***NO** / ***Y**ES(...)

| ***Y**ES(...)

| | | **PASSW**ORD = <c-string 1..8>

Operands

PRIVILEGE = *UNCHANGED / *PARAMETERS(...)
Test privilege values for testing and diagnostics.
This operand is primarily required for testing using AID.
Values specified here must not exceed the maximum values specified in the user entry. In addition, in the user entry, systems support may specify whether consent of the operator is necessary to increase the values.
See SHOW-USER-ATTRIBUTES command, output fields *READ-PRIVILEGE*, *WRITE-PRIVILEGE* and *MODIFICATION*, grouped under *TEST-OPTIONS*.

PRIVILEGE = *UNCHANGED
The current specification applies, i.e. the values last set in MODIFY-TEST-OPTIONS, otherwise, the standard system values apply.

PRIVILEGE = *PARAMETERS(...)

READ = <integer 1..9>
Value for read privilege. Default value: 1

WRITE = <integer 1..9>
Value for write privilege. Default value: 1

USERDUMP-OPTIONS = *UNCHANGED / *PARAMETERS(...)
Controls the output of user and area dumps for the user's own tasks and tasks under the user's own user ID.

USERDUMP-OPTIONS = *PARAMETERS(...)

TSN = *OWN / <alphanum-name 1..4> / <c-string 1..4>
Specifies the task for which the output of user dumps is to be modified.

TSN = *OWN
The modifications apply to the user's own task.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN of the task to which the modifications are to apply. Nonprivileged callers may only specify tasks running under their own user IDs.

DUMP = *UNCHANGED / *STD / *YES / *NO / *SYSTEM
Specifies whether a user or area dump is actually to be created in the event of a dump request.

DUMP = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. In case no specification was made, the default system setting will be effective (corresponds to the operand value *STD).

DUMP = *STD
The standard control is in effect:
In interactive mode, the system asks: `DUMP DESIRED? REPLY (Y=YES, N=NO)`
If the user answers "N", the memory dump is suppressed. If the answer is "Y", the system outputs the memory dump and issues the message

```
DUMP IN PROGRESS, PLEASE WAIT
```

In batch mode and in procedures, the memory dump is suppressed and the following message is issued:
`SYSTEM REGULATIONS PROHIBIT DUMP`

DUMP = *YES
Every memory dump is output.

DUMP = *NO
No memory dump is to be output if cause for one occurs during the current job.

DUMP = *SYSTEM
A system dump is generated instead of a user or area dump. However, this conversion to a system dump is performed only if one of the following conditions relating to test privileges is fulfilled:

- The task making the DUMP=*SYSTEM setting possesses a read privilege >= 3.
- The task in which the dump occurs possesses a read privilege >= 3.

A converted dump is handled in the same way as a genuine system dump, i.e. the control mechanisms that apply to system dumps also apply to such dumps (instead of those applying to user and area dumps).

DUMP-CONTENTS = *UNCHANGED / *PARAMETERS(...)
Determines the content of user dumps for the specified task. These settings do not apply to area dumps.

DUMP-CONTENTS = *PARAMETERS(...)

DATA-IN-VIRTUAL = *STD / *NO / *YES
Specifies whether user dumps also contain DIV windows. The default value is *STD, i.e. DIV windows are included in user dumps if no entry was made in the CDUMP macro.

DATA-SPACES = *STD / *NO / *YES
Specifies whether user dumps also contain data spaces. The default value is *STD, i.e. data spaces are included in user dumps if no entry was made in the CDUMP macro.

MEMORY-MAP = *STD / *NO / *YES
Specifies whether user dumps contain swapped in areas of POSIX memory mapping. The default value is *STD, i.e. POSIX mapping pages are issued in the user dumps if no particular specifications are made in the dump request.

OUTPUT-PUBSET = *UNCHANGED / *DEFAULT-PUBSET / <cat-id 1..4>
Defines the pubset on which any user or area dumps resulting from the specified task are to be created. They are stored on the corresponding pubset either under the task's user ID or, if the task involves protected data, under the SYSUSER user ID.

OUTPUT-PUBSET = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. If no setting was made then the system defaults apply (OUTPUT-PUBSET=*DEFAULT-PUBSET).

OUTPUT-PUBSET = *DEFAULT-PUBSET
User or area dumps are stored on the default pubset declared for the user ID of the specified task in the user catalog. Dumps involving protected data are stored under the SYSUSER user ID on the default pubset.

OUTPUT-PUBSET = <cat-id 1..4>
Catalog ID of the pubset on which user or area dumps are to be stored.

MAXIMUM-NUMBER = *UNCHANGED / *UNLIMITED / <integer 1..255>
Defines the maximum number of user or area dumps that are to be generated for the specified task.

MAXIMUM-NUMBER = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. If no setting was made then the system defaults apply (MAXIMUM-NUMBER=*UNLIMITED).

MAXIMUM-NUMBER = *UNLIMITED
There is no restriction on the maximum number of user or area dumps.

MAXIMUM-NUMBER = <integer 1..255>
Maximum number of user or area dumps.

SUPPRESS-DUPLICATES = *UNCHANGED / *NO / *YES
Specifies whether the output of a user or area dump for the specified task should be suppressed if these represent duplicates of dumps that have already been created. A dump is treated as a duplicate if a dump with the same interrupt weight has already occurred at the same point within the same program.

SUPPRESS-DUPLICATES = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. If no setting was made then the system defaults apply (SUPPRESS-DUPLICATES=*NO).

SUPPRESS-DUPLICATES = *NO
The output of dump duplicates should not be suppressed.

SUPPRESS-DUPLICATES = *YES
The output of dump duplicates should be suppressed.

AUDIT = *UNCHANGED / *PARAMETERS(...)
Specifies whether hardware audits and linkage audits may be controlled using commands within a task.

HARDWARE-AUDIT = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
Specifies whether the hardware audit may be controlled using commands within the task.

HARDWARE-AUDIT = *NOT-ALLOWED
The hardware audit may not be controlled using commands within the task.

HARDWARE-AUDIT = *ALLOWED
The hardware audit may be controlled using commands within the task. Use of the hardware audit has to be allowed for the user ID.

LINKAGE-AUDIT = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
Specifies whether the linkage audit may be controlled using commands within the task.

LINKAGE-AUDIT = *NOT-ALLOWED
The linkage audit may not be controlled using commands within the task.

LINKAGE-AUDIT = *ALLOWED
The linkage audit may be controlled using commands within the task. Use of the hardware audit has to be allowed for the user ID.

OWN-UID-DEBUGGING = *UNCHANGED / *PARAMETERS(...)
Controls the static AID test with lower test privileges for other tasks running under the user’s own user ID.
If testing with reduced privileges is permitted then, in the case of read access to another task, the same test privileges as for the user’s own task are sufficient. In the case of write access, a write privilege >= 2 is required.
If testing with lower privileges is not permitted then test privilege 8 is required for both reading and writing.

OWN-UID-DEBUGGING = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. If no setting was made then the system defaults apply (ACCEPT-ACCESS=*NO and ENABLE-ACCESS=*NO).

OWN-UID-DEBUGGING = *PARAMETERS(...)

ACCEPT-ACCESS = *UNCHANGED / *NO / *YES(...)
Specifies whether the user's own task permits testing with lower test privileges by other tasks running under the user's ID.

ACCEPT-ACCESS = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. If no setting was made then the system defaults apply (ACCEPT-ACCESS=*NO).

ACCEPT-ACCESS = *NO
The user's own task prohibits testing with a lower test privilege by other tasks running under the user's own ID.

ACCEPT-ACCESS = *YES(...)
The user's own task prohibits testing with a lower test privilege by other tasks running under the user's own ID (observer tasks). It therefore declares itself as the test task.

PASSWORD = *NONE / <c-string 1..8>
Specifies whether a password has to be entered in the event of testing by another task (observer task).

PASSWORD = *NONE
No password is declared. Observer tasks do not have to log on explicitly at the test tasks.

PASSWORD = <c-string 1..8>
Password that has to be used by an observer task for testing (see the ENABLE-ACCESS operand). Only the password last specified by the test task can be used for logon.

ENABLE-ACCESS = *UNCHANGED / *NO / *YES(...)
Specifies whether the user's own task can identify itself to a test task running under the user's own ID as an observer task for testing with lower privileges.

ENABLE-ACCESS = *UNCHANGED
The current setting applies, i.e. the most recent setting for the specified task made using MODIFY-TEST-OPTIONS. If no setting was made then the system default applies (ACCEPT-ACCESS=*NO). (ENABLE-ACCESS=*NO).

ENABLE-ACCESS = *NO
Observer task identification is revoked. This makes all previously specified passwords invalid.

ENABLE-ACCESS = *YES(...)
The user's own task identifies itself to a test task running under the user's own ID as an observer task. Such a task is only permitted to observe a test task if the test task has not declared any password protection (in this case the setting ENABLE-
ACCESS=*YES is obsolete) or if one of the last 8 passwords entered for observation purposes corresponds to the password of the test task.

PASSWORD = <c-string 1..8>
Password used to identify the task to a test task.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	1	CMD2201	Error in function call: function invalid
	3	CMD2203	Error in function call: version invalid
	1	IDA0300	Syntax error
	32	CMD0221	System error
	64	CMD0216	Error: command privilege missing
	64	IDA0301	Semantic error

4.67 MODIFY-USER-ATTRIBUTES

Modify catalog entry for user

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION
Routing code:	$

Function

If an entry for the user catalog of the home pubset is modified, the access rights to BS2000 (e.g. account number, password of the user ID, etc.) and the access rights to a pubset (default catalog ID) can be reassigned. These specifications are only checked in the user catalog of the home pubset for user compliance (logon validation).

The command modifies user attributes on SF or SM pubsets, which means that the user catalog entry is modified for the associated ID.

If an entry is created in a user catalog of an imported pubset, pubset-specific information must be stored. Systems support must define an upper limit for the user up to which the user may occupy storage space on this pubset. In addition, it can grant the user permission to exceed this limit. These new declarations, however, take effect only after the user logs on again, not for current tasks.

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies.

Restriction

The only nonprivileged users (STD-PROCESSING privilege) authorized to issue this command are those designated as group administrators. The actions a group administrator can take are defined by systems support. For information on setting up and managing user groups see the “SECOS” manual [35].

Format

MODIFY-**USER**-ATTRIBUTES

USER-IDENTIFICATION = <name 1..8>

,**PROT**ECTION-**ATTR**IBUTE = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **LOGON-PASS**WORD = ***UNCHA**NGED / ***NONE** / <c-string 1..8> / <c-string 9..32> /

| ,**PASS**WORD-**ENCR**YPTION = ***Y**ES / ***NO**

| ,**PASS**WORD-**MANAG**EMENT = ***UNCHA**NGED / ***BY-USER** / ***BY-ADM**INISTRATOR /

| ,**TAPE-ACCESS** = ***UNCHA**NGED / ***STD** / ***PRIVIL**EGED / ***READ** / ***BYPASS-LABEL** / ***ALL**

| ,**F**ILE-**AUD**IT = ***UNCHA**NGED / ***NO** / ***ALLOW**ED

,**MAIL**ING-**ADDR**ESS = ***UNCHA**NGED / ***NONE** / <c-string 1..64 with-low> / <x-string 1..128>

,**EMAIL-ADDR**ESS = ***UNCHA**NGED / ***NONE** / <composed-name 1..1800> /

<c-string 1..1800 with-low> / <x-string 1..3600> / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **ADD-EMAIL-ADDRESS = *NONE /** list-poss(16): <composed-name 1..100> /

| <c-string 1..100 with-low> / <x-string 1..200>

| **REMOVE-EMAIL-ADDRESS = *NONE /** list-poss(16): <composed-name 1..100 with-wild> /

| <c-string 1..100 with-low> / <x-string 1..200>

,**PUB**LIC-**SPACE-LIM**IT = ***UNCHA**NGED / ***MAX**IMUM / ***STD** / <integer 0..2147483647 *2Kbyte*>

,**PUB**LIC-**SPACE-EXC**ESS = ***UNCHA**NGED / ***NO** / ***ALLOW**ED / ***TEMP**ORARILY-**ALLOW**ED

,**ADDR**ESS-**SPACE**-LIMIT = ***UNCHA**NGED / ***STD** / <integer 1..2147483647 *Mbyte*>

,**MAX-ACC**OUNT-**REC**ORDS = ***UNCHA**NGED / ***NO-LIM**IT / <integer 0..32767>

,**PROF**ILE-**ID** = ***UNCHA**NGED / ***NONE** / <structured-name 1..30>

,**PUBSET** = ***HOME** / <cat-id 1..4>

,**RESID**ENT-**PAGE**S = ***UNCHA**NGED / ***STD** / ***MAX**IMUM / <integer 0..2147483647 *4Kbyte*>

,**CSTMP**-MACRO-ALLOWED = ***UNCHA**NGED / ***NO** / ***Y**ES

,**DEF**AULT-**PUB**SET = ***UNCHA**NGED / ***HOME** / <cat-id 1..4>

,**TEST-OPT**IONS = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

```
    |       READ-PRIVILEGE = *UNCHANGED / <integer 1..9>
    |       ,WRITE-PRIVILEGE = *UNCHANGED / <integer 1..9>
    |       ,MODIFICATION = *UNCHANGED / *CONTROLLED / *UNCONTROLLED
,AUDIT = *PARAMETERS (...)
    *PARAMETERS(...)
    |       HARDWARE-AUDIT = *UNCHANGED / *ALLOWED / *NOT-ALLOWED
    |       ,LINKAGE-AUDIT = *UNCHANGED / *ALLOWED / *NOT-ALLOWED
,DEFAULT-MSG-LANGUAGE = *UNCHANGED / <name 1..1> / *STD
,FILE-NUMBER-LIMIT = *UNCHANGED / *MAXIMUM / <integer 0..16777215>
,JV-NUMBER-LIMIT = *UNCHANGED / *MAXIMUM / <integer 0..16777215>
,TEMP-SPACE-LIMIT = *UNCHANGED / *MAXIMUM / <integer 0..2147483647 2Kbyte>
,DMS-TUNING-RESOURCES = *UNCHANGED / *NONE / *CONCURRENT-USE / *EXCLUSIVE-USE
,CODED-CHARACTER-SET = *UNCHANGED / *STD / <name 1..8>
,PHYSICAL-ALLOCATION = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
,CRYPTO-SESSION-LIMIT = *UNCHANGED / *STD / *MAXIMUM / <integer 0..32767>
,NET-STORAGE-USAGE = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
,NET-CODED-CHAR-SET = *UNCHANGED / *STD / *ISO / *NO-CONVERSION / <name 1..8>
,ACCOUNT-ATTRIBUTES = *UNCHANGED / *ADD(...) / *MODIFY(...) / *REMOVE(...)
    *ADD(...)
    |       ACCOUNT = <alphanum-name 1..8>
    |       ,CPU-LIMIT = *STD / *MAXIMUM / <integer 0..2147483647 seconds>
    |       ,SPOOLOUT-CLASS = 0 / *STD / <integer 0..255>
    |       ,MAXIMUM-RUN-PRIORITY = *STD / <integer 30..255>
    |       ,MAX-ALLOWED-CATEGORY = *STD / *TP / *SYSTEM
    |       ,PRIVILEGE = *NO / *PARAMETERS(...) / list-poss(3): *NO-CPU-LIMIT /
    |                       *START-IMMEDIATE / *INHIBIT-DEACTIVATION
    |       *PARAMETERS(...)
    |       |   NO-CPU-LIMIT = *NO / *YES
    |       |   ,START-IMMEDIATE = *NO / *YES
    |       |   ,INHIBIT-DEACTIVATION = *NO / *YES
```

```
|       ,POSIX-RLOGIN-DEFAULT = *NO / *YES
|       ,LOGON-DEFAULT = *NO / *YES
*MODIFY(...)
|       ACCOUNT = <alphanum-name 1..8>
|       ,CPU-LIMIT = *UNCHANGED / STD / *MAXIMUM / <integer 0..2147483647 seconds>
|       ,SPOOLOUT-CLASS = *UNCHANGED / *STD / <integer 0..255>
|       ,MAXIMUM-RUN-PRIORITY = *UNCHANGED / <integer 30..255>
|       ,MAX-ALLOWED-CATEGORY = *UNCHANGED / *STD / *TP / *SYSTEM
|       ,PRIVILEGE = *UNCHANGED / *NO / *PARAMETERS(...) / list-poss(3): *NO-CPU-LIMIT /
|                    *START-IMMEDIATE / *INHIBIT-DEACTIVATION
|       *PARAMETERS(...)
|       |  NO-CPU-LIMIT = *UNCHANGED / *NO / *YES
|       |  ,START-IMMEDIATE = *UNCHANGED / *NO / *YES
|       |  ,INHIBIT-DEACTIVATION = *UNCHANGED / *NO / *YES
|       ,POSIX-RLOGIN-DEFAULT = *UNCHANGED / *NO / *YES
|       ,LOGON-DEFAULT = *UNCHANGED / *NO / *YES
*REMOVE(...)
|       ACCOUNT = list-poss(10): <alphanum-name 1..8>
```

Operands

USER-IDENTIFICATION = <name 1..8>
Defines the name of the user ID for which the entry is to be modified.

PROTECTION-ATTRIBUTE = *UNCHANGED / *PARAMETERS(...)
Defines protection attributes.

PROTECTION-ATTRIBUTE = *PARAMETERS(...)
Individual protection attributes are to be modified.

LOGON-PASSWORD = *UNCHANGED / *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
Password protecting the user ID from unauthorized access (long password (<c-string 9..32>), see the MODIFY-USER-PROTECTION command).

PASSWORD-ENCRYPTION = *YES / *NO
The password of the user ID is encrypted after entry or is stored in its original form. Password encryption presupposes that the system parameter ENCRYPT=Y is set in the parameter file (see the “Introduction to System Administration” [14]).

PASSWORD-MANAGEMENT = *UNCHANGED / *BY-USER / *BY-ADMINISTRATOR / *USER-CHANGE-ONLY

Specifies the user’s rights with regard to modification of his password.

> ! If SECOS is being used, the PASSWORD-MANAGEMENT is preset with the SECOS specific value *LOGON-DEFAULT. This value cannot be changed using /MODIFY-USER-ATTRIBUTES. Changes with /MODIFY-USER-ATTRIBUTES are only possible if a value not equal *LOGON-DEFAULT was assigned to the PASSWORD-MANAGEMENT with the SECOS command MODIFY-LOGON-PROTECTION (see the “SECOS, Volume 1” manual [35]).

PASSWORD-MANAGEMENT = *BY-USER
The user may define, modify or delete a password.

PASSWORD-MANAGEMENT = *BY-ADMINISTRATOR
Only systems support staff may define, modify or delete the password for the user ID.

PASSWORD-MANAGEMENT = *USER-CHANGE-ONLY
The user may define and modify a password.
Deletion of the password, i.e. cancellation of access rights, is not permissible.

TAPE-ACCESS = *UNCHANGED / *STD / *PRIVILEGED / *BYPASS-LABEL / *ALL
Defines whether error messages generated during label checking of tapes may be ignored for the user concerned.

TAPE-ACCESS = *STD
Error messages must not be ignored.

TAPE-ACCESS = *PRIVILEGED
The following error messages for input and output files may be ignored by the owner of the tape or by systems support staff:

- invalid volume serial number (VSN)
- tape is write-protected
- incorrect file set identifier in the HDR1 label of the tape

TAPE-ACCESS = *READ
The user may ignore error messages relating to input files; label checking is not deactivated. The following errors may result in messages during tape processing:

- invalid volume serial number (VSN)
- invalid file name
- invalid label on tape
- invalid access method
- invalid file sequence number on tape
- tape mark instead of end-of-volume label on tape
- double tape mark instead of end-of-volume label on tape

TAPE-ACCESS = *BYPASS-LABEL
Label checking and thus any data protection for tape files is deactivated for tapes processed in INPUT or REVERSE mode. This privilege implies the TAPE-ACCESS=*READ function.

TAPE-ACCESS = *ALL
All error messages which have “I” (ignore) as a possible response may be ignored. This privilege implies the TAPE-ACCESS=*PRIVILEGED and TAPE-ACCESS=*BYPASS-LABEL functions.

FILE-AUDIT = *UNCHANGED / *NO / *ALLOWED
Defines whether the user is authorized to activate the AUDIT mode. This mode serves to monitor DMS accesses to files and file generations via system exit routines or, if the SECOS software product is used, by the SAT component.

MAILING-ADDRESS = *UNCHANGED / <c-string 1..64 with-low> / <x-string 1..128>
Mailing address for spoolout lists.

EMAIL-ADDRESS = *UNCHANGED / *NONE / <composed-name 1..1800> / <c-string 1..1800 with-low> / <x-string 1..3600>
Specifies an email address or a list of email addresses for the users of this user ID. The addresses must be entered in the format '<local-part>@<domain>[,...]'. Optionally an address can also be prefixed by an address name in parentheses (see Example in chapter "Volume 2: ACTIVATE-SNAPSHOT - DECRYPT-FILE " in section "ADD-USER"). A list consists of multiple addresses separated by a comma and can only be specified as a string (c or x string).
The address or address list entered is evaluated when a file is sent by email (see the MAIL-FILE command).

EMAIL-ADDRESS = *PARAMETERS(...)
This functionality allows you to add or remove the recipient's e-mail address or the list of recipient e-mail addresses. The addresses must be separated by commas in the list. You specify the addresses in the following format: '<local part>@<domain>[,...]'.

ADD-EMAIL-ADDRESS = *NONE / list-poss(16): <composed-name 1..100> / <c-string 1..100 with-low> / <x-string 1..200>

The list of e-mail addresses can be added in this place. A maximum of 16 e-mail addresses can be specified in the list. The default *NONE means that no e-mail address are added.

REMOVE-EMAIL-ADDRESS = *NONE / list-poss(16): <composed-name 1..100 with-wild> / <c-string 1..100 with-low> / <x-string 1..200>

The list of e-mail addresses can be removed in this place. A maximum of 16 e-mail addresses can be included in the list. The default *NONE means that no e-mail address are removed.

PUBLIC-SPACE-LIMIT = *UNCHANGED / *STD / *MAXIMUM / <integer 0..2147483647 *2Kbyte*>
Assigns the maximum storage space the user may occupy for his files on public volumes on the pubset allocated with the PUBSET operand.

PUBLIC-SPACE-LIMIT = *STD
Allocates the user 16,777,215 PAM pages.

PUBLIC-SPACE-LIMIT = *MAXIMUM
Allocates the user 2,147,483,647 PAM pages.

PUBLIC-SPACE-EXCESS = *UNCHANGED / *NO / *TEMPORARILY-ALLOWED / *ALLOWED
Defines whether the user may exceed the limit defined by the PUBLIC-SPACE-LIMIT operand for the storage space on the allocated pubset. This authorization is restricted to user jobs started before this limit was reached.

PUBLIC-SPACE-EXCESS = *TEMPORARILY-ALLOWED
The storage space limit may be exceeded, provided that the upper limit had not been reached at the time of the SET-LOGON-PARAMETERS command.

ADDRESS-SPACE-LIMIT = *UNCHANGED / *STD / <integer 1..2147483647 *Mbyte*>
Defines how much user memory a task can request under this user ID. The user memory comprises both conventional class-6 memory (program space) and (data spaces). The maximum user memory depends on the size of the virtual memory and can be less than the value specified here.

ADDRESS-SPACE-LIMIT = *STD
The value of the system parameter SYSGJASL is assigned (the system parameter SYSGJASL has the default value 16 MB).

MAX-ACCOUNT-RECORDS = *UNCHANGED / *NO-LIMIT / <integer 0..32767>
Defines how many user-specific accounting records for each job or program are allowed to be written into the accounting file of the system.

MAX-ACCOUNT-RECORDS = *NO-LIMIT
The user is authorized to write any number of user-specific accounting records and accounting records of his own in the accounting file.

MAX-ACCOUNT-RECORDS = <integer 0..32767>
Defines how many user-specific accounting records can be written in the system accounting file for each job or program. The user is not authorized to add accounting records of his own.

PROFILE-ID = *UNCHANGED / *NONE / <structured-name 1..30>
Determines whether the user ID is assigned an SDF-PROFILE-ID. This PROFILE-ID characterizes a (SDF) group of user IDs which use a common group syntax file. Systems support can effect direct assignment of a user ID to a group syntax file by means of a suitable entry in the SDF parameter file.

PROFILE-ID = *NONE
The user is not assigned a PROFILE-ID and thus no group syntax file.

PROFILE-ID = <structured-name 1..30>
Defines the name of the PROFILE-ID which can be assigned to a group syntax file in the SDF parameter file.

PUBSET =
Defines the pubset whose user catalog is to accept the entry.

PUBSET = *HOME
The entry is made in the user catalog of the home pubset.
As a result, system access authorizations are redefined.

PUBSET = <cat-id 1..4>
Catalog identifier of the pubset whose user catalog is to accept the entry.

RESIDENT-PAGES = *UNCHANGED / *STD / *MAXIMUM / <integer 0..2147483647 *4Kbyte*>
Defines the maximum number of resident main memory pages available to the user ID.

RESIDENT-PAGES = *STD
The user may use 32,767 resident main memory pages.

RESIDENT-PAGES = *MAXIMUM
The user may use 2,147,483,647 resident main memory pages.

CSTMP-MACRO-ALLOWED = *UNCHANGED / *NO / *YES
Determines whether the user may use the CSTMP macro in his programs. The user can use the CSTMP macro to write-protect a memory pool (in class 6 memory) that can be shared by multiple users or explicitly cancel this protection. The macro is described in detail in the “Executive Macros” manual [22].

DEFAULT-PUBSET = *UNCHANGED / *HOME / <cat-id 1..4>
Assigns the user ID a default pubset on which the user can store his files and request storage space. Systems support can change the DEFAULT-PUBSET operand in any user catalog of an imported pubset. However, the user default pubset is determined only with the aid of the user catalog of the home pubset. For the TSOS user ID, the value of DEFAULT-PUBSET must be identical to the value of PUBSET.
User jobs which have the status HELD-BY-PUBSET due to the nonavailability of a default pubset are released for restart once the newly defined default pubset is available.

DEFAULT-PUBSET = *HOME
Defines the home pubset to be the user default pubset.

DEFAULT-PUBSET = <cat-id 1..4>
Catalog identifier of the pubset to be used as the user default pubset of the user ID.

TEST-OPTIONS = *UNCHANGED / *PARAMETERS(...)
Defines the maximum possible privilege for testing and diagnostic analysis of programs. The test privilege is interpreted by the software products AID and DAMP (access method ANITA).

TEST-OPTIONS = *PARAMETERS(...)
Defines the maximum permitted privilege levels for read and write access. Even at privilege level 2 the user has access to task-specific, sensitive data (system tables and control blocks). Higher values should be allocated only on request and for a limit period to selected user IDs. The values possible for this and a description can be found in section "Overview of test privileges".

READ-PRIVILEGE = *UNCHANGED / <integer 1..9>
Defines the maximum read privilege.

WRITE-PRIVILEGE = *UNCHANGED / <integer 1..9>
Defines the maximum write privilege.

MODIFICATION = *UNCHANGED / *UNCONTROLLED / *CONTROLLED
Specifies whether the user requires the operator’s permission to modify his/her current test privilege.

MODIFICATION = *UNCONTROLLED
The user does not require the operator’s permission.

MODIFICATION = *CONTROLLED
The user requires the operator’s permission.

AUDIT = *PARAMETERS(...)
Defines user-specific audit authorization. Authorization may be assigned to users separately for hardware audit and linkage audit. System-wide availability of the audit function is defined via the AUDALLOW system parameter.

Note

Hardware audit is only supported on /390 architecture (SUs /390 and S servers).

HARDWARE-AUDIT = *UNCHANGED / *ALLOWED / *NOT-ALLOWED
Specifies whether a user is authorized to control the hardware audit mode. The audit mode can be controlled by means of the START-, STOP-, HOLD- and RESUME-HARDWARE-AUDIT commands and via the AUDIT macro for the function states
TU (task unprivileged) and TPR (task privileged). Modifications only affect the user ID’s new tasks.

HARDWARE-AUDIT = *ALLOWED
The user is allowed to control the hardware audit mode, provided the audit function is available throughout the system.

HARDWARE-AUDIT = *NOT-ALLOWED
The user is not allowed to control the hardware audit mode.

LINKAGE-AUDIT = *UNCHANGED / *ALLOWED / *NOT-ALLOWED
Specifies whether a user is authorized to control the linkage audit mode. The audit mode can be controlled by means of the START-, STOP-, HOLD- and RESUME-LINKAGE-AUDIT commands and via the AUDIT macro for the function states TU (task unprivileged), TPR (task privileged) and SIH (system interrupt handling). Modifications only affect the user ID's new tasks.

LINKAGE-AUDIT = *ALLOWED
The user is allowed to control the linkage audit mode, provided the audit function is available throughout the system.

LINKAGE-AUDIT = *NOT-ALLOWED
The user is not allowed to control the linkage audit mode.

DEFAULT-MSG-LANGUAGE = *UNCHANGED / *STD / <name 1..1>
Specifies the language in which messages are output by default.

DEFAULT-MSG-LANGUAGE = *STD
The language defined using the MSGLPRI system parameter is used.

FILE-NUMBER-LIMIT =
Specifies the maximum number of files that may be created. This upper limit, or any lower value, may be assigned to subgroups or group members.

FILE-NUMBER-LIMIT = *MAXIMUM
The maximum number of files is 16,777,215.

FILE-NUMBER-LIMIT = <integer 0..16777215>
Specifies the maximum possible number of catalog entries as an exact number.

JV-NUMBER-LIMIT =
Specifies the maximum number of job variables that may be created. This upper limit, or any lower value, may be assigned to subgroups or group members.

JV-NUMBER-LIMIT = *MAXIMUM
The maximum number of job variables is 16,777,215.

JV-NUMBER-LIMIT = <integer 0..16777215>
Specifies the maximum possible number of job variables as an exact number.

TEMP-SPACE-LIMIT =
Specifies the maximum amount of temporary storage space which may be occupied on the shared volumes specified in the PUBSET operand.

TEMP-SPACE-LIMIT = *MAXIMUM
The maximum amount of storage space is 2,147,483,647 PAM pages.

TEMP-SPACE-LIMIT = <integer 0..2147483647 *2Kbyte*>
Specifies exactly the amount of temporary storage space.

DMS-TUNING-RESOURCES =
Specifies which performance measures may be utilized, and the form in which they may be used.

DMS-TUNING-RESOURCES = *NONE
No tuning measures may be utilized.

DMS-TUNING-RESOURCES = *CONCURRENT-USE
The user may reserve preferred resources, but in doing so competes with all other users who have the same authorization.

DMS-TUNING-RESOURCES = *EXCLUSIVE-USE
The user may make exclusive reservations of preferred resources.

Permitted performance measures for the home and data pubsets

PUBSET = *HOME				
DMS-TUNING-RESOURCES=	**Resident ISAM pools**	**Resident FASTPAM environment**	**File attribute PERFORMANCE**	
			= HIGH	**=*VERY-HIGH**
NONE:	no	no	no	-
*CONCURRENT-USE	yes	no	-	-
*EXCLUSIVE-USE	yes	yes	-	-

PUBSET = <data pubset>				
DMS-TUNING-RESOURCES=	**Resident ISAM pools**	**Resident FASTPAM environment**	**File attribute PERFORMANCE**	
			= HIGH	**=*VERY-HIGH**
NONE:	-	-	no	no
*CONCURRENT-USE	-	-	yes	no
*EXCLUSIVE-USE	-	-	yes	yes

Table 73: Permitted performance measures (ADD-USER command)

CODED-CHARACTER-SET = *UNCHANGED / *STD / <name 1..8>
Specifies which CODED-CHARACTER-SET (CCS) is to be used. A name should only be specified here if the one required differs from the one preset by the system (*STD). The specified CCS should be an EBCDIC character set.

PHYSICAL-ALLOCATION = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
Governs whether the user is allowed to perform physical space allocation (direct allocation) for the pubset.

PHYSICAL-ALLOCATION = *UNCHANGED
The current status is to be retained.

PHYSICAL-ALLOCATION = *NOT-ALLOWED
The user is no longer allowed to perform physical space allocation for the pubset.

PHYSICAL-ALLOCATION = *ALLOWED
The user is now allowed to perform physical space allocation for the pubset.

CRYPTO-SESSION-LIMIT = *UNCHANGED / *STD / *MAXIMUM / <integer 0..32767>
Defines the maximum number of openCRYPT sessions within a BS2000 session. The number of openCRYPT sessions already used is set to 0 at the start of a BS2000. The values *STD and *MAXIMUM define the maximum number of 128 or 32767 openCRYPT sessions.

NET-STORAGE-USAGE = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
Specifies whether the user may occupy space on Net-Storage volumes.

NET-STORAGE-USAGE = *UNCHANGED
The current status is to be retained.

NET-STORAGE-USAGE = *NOT-ALLOWED
The user is not permitted to use Net-Storage volumes.

NET-STORAGE-USAGE = *ALLOWED
The user is permitted to use Net-Storage volumes. The space occupied on the Net-Storage volume is not counted toward the user's PUBLIC-SPACE-LIMIT.

NET-CODED-CHAR-SET = *UNCHANGED / *STD / *ISO / *NO-CONVERSION / <name 1..8>
Defines which Net-Storage-Coded-Character-Set (NETCCSN) is to be used for node files on Net-Storage A character set conversion is only performed for SAM node files.

NET-CODED-CHAR-SET = *STD
The setting of the NETCODE system parameter applies.

NET-CODED-CHAR-SET = *ISO
A suitable ISO character set is used. For details on character set conversion see the CREATE-FILE command or the “Introductory Guide to DVS” manual [13].

NET-CODED-CHAR-SET = *NO-CONVERSION
There is no code conversion for SAM node files.

NET-CODED-CHAR-SET = <name 1..8>
Name of the character set to be used. It should be an ASCII character set.

ACCOUNT-ATTRIBUTES = *UNCHANGED / *ADD(...) / *MODIFY(...) / *REMOVE(...)
Specifies whether an account number is to be added, changed or deleted.

ACCOUNT-ATTRIBUTES = *ADD(...)
A new account number and specific attributes for the user ID is to be added.

ACCOUNT = <alphanum-name 1..8>
Account number of the user ID which is to be entered in the user catalog and to which the following data relate:

CPU-LIMIT = *STD / *MAXIMUM / <integer 0..2147483647 *seconds*>
Total CPU time available for user jobs under the account number.

CPU-LIMIT = *STD
The default value specified in the SYSGJCPU system parameter is available.

CPU-LIMIT = *MAXIMUM
2,147,483,647 CPU seconds are available to the user ID.

SPOOLOUT-CLASS = 0 / <integer 0..255> / *STD
Spoolout class for the account number of the user ID.

SPOOLOUT-CLASS = *STD
The default value specified in the SYSGJCLA system parameter is available.

MAXIMUM-RUN-PRIORITY = *STD / <integer 30..255>
Defines the highest priority that may be assigned to jobs of the user ID (see Note on section "MODIFY-USER-ATTRIBUTES").

MAXIMUM-RUN-PRIORITY = *STD
The default value specified in the SYSGJPRI system parameter is available.

MAX-ALLOWED-CATEGORY =
This operand defines which task attributes user jobs are allowed to attain. If the user employs the TINF macro in his/her programs, a check is made in both the job class used by the job concerned and in the user catalog to see whether the right to use the task attribute TP was assigned to the user under the specified account number.

MAX-ALLOWED-CATEGORY = *STD
The tasks of the user can attain the task attributes BATCH and DIALOG.

MAX-ALLOWED-CATEGORY = *TP
The user jobs may attain the task attributes BATCH, DIALOG and TP.

MAX-ALLOWED-CATEGORY = *SYSTEM
All task attributes are permitted for the tasks of the user.

PRIVILEGE = *NO / *PARAMETERS(...) / list-poss(3): *NO-CPU-LIMT / *START-IMMEDIATE / *INHIBIT-DEACTIVATION
Defines privileges of job management.

PRIVILEGE = *NO
The user ID does not receive any job management privileges.

PRIVILEGE = *PARAMETERS(...)
Defines a sequence of job management privileges.

NO-CPU-LIMIT = *NO / *YES
Defines whether the user is allowed to run batch jobs without a time limitation.

NO-CPU-LIMIT = *YES
The user is authorized to run batch jobs without time limitation under the specified account number. This applies even if the job class assigned to the job does not permit this start attribute. If the user specified the CPU-LIMIT=*NO operand in the SET-LOGON-PARAMETERS or ENTER-JOB command and this function is authorized neither in the user catalog nor in the job class assigned to the job, the batch job is rejected with an error message.
In the case of tasks without a time limit, the user's CPU account is not debited.

START-IMMEDIATE = *NO / *YES
Defines whether the use is authorized to use the job express function.

START-IMMEDIATE = *YES
The user is authorized to use the job express function. With this authorization batch jobs are started immediately, even if the class limit of the job class in which the job concerned is to be started has been reached. This applies even if the definition of the job class does not permit this start attribute. If the EXPRESS function is not permitted either in the user catalog or in the job class definition, the batch job is accepted, but it is not started as an EXPRESS job.

INHIBIT-DEACTIVATION = *NO / *YES
Defines whether the user is authorized to inhibit deactivation.

INHIBIT-DEACTIVATION = *YES
The user ID is authorized to inhibit deactivation. The user's jobs are thus independent of the PRIOR function, by means of which jobs are placed in subordinate queues according to their system service requirements (macro time slice).

PRIVILEGE = *NO-CPU-LIMIT
The user is authorized to run batch jobs without time limitation under the specified account number.

PRIVILEGE = *START-IMMEDIATE
The user is authorized to use the job express function.

PRIVILEGE = *INHIBIT-DEACTIVATION
The user ID is authorized to inhibit deactivation.

POSIX-RLOGIN-DEFAULT = *NO / *YES
Defines whether the account number being added is to be used for accounting of a POSIX remote login session. The POSIX remote login account number is unique within a user ID. The user administration system automatically performs a comparison with existing account numbers, and the declaration of a different account number as the POSIX account number overrides any earlier declaration. The old account number can from then on be used for BS2000 sessions only.

LOGON-DEFAULT = *NO / *YES
Defines whether the designated account number is to be used as the default account number for BS2000 timesharing mode if no account number is specified in the case of dialog or batch access.

ACCOUNT-ATTRIBUTES = *MODIFY(...)
An existing account number or the corresponding attributes are to be modified. The account number is recreated if necessary.

ACCOUNT = <alphanum-name 1..8>
Account number of the user ID for which the following values are to be modified in the user catalog.

CPU-LIMIT = *UNCHANGED / *STD / *MAXIMUM / <integer 0..2147483647 *seconds*>
Total CPU time available for user jobs under an existing account number.

CPU-LIMIT = *STD
The default value specified in the SYSGJCPU system parameter is available.

CPU-LIMIT = *MAXIMUM
The CPU time for the existing accounting number is changed to the value of 2,147,483,647 seconds.

SPOOLOUT-CLASS = *UNCHANGED / <integer 0..255> / *STD
Spoolout class for the account number of the user ID.

SPOOLOUT-CLASS = *STD
The default value specified in the SYSGJCLA system parameter is available.

MAXIMUM-RUN-PRIORITY = *UNCHANGED / <integer 30..255>
Defines the highest priority that may be assigned to jobs of the user ID (see note on section "MODIFY-USER-ATTRIBUTES").

MAX-ALLOWED-CATEGORY = *UNCHANGED / *STD / *TP / *SYSTEM
This operand defines which task attributes user jobs are allowed to attain. If the user employs the TINF macro in his /her programs, a check is made in both the job class used by the job concerned and in the user catalog to see whether the right to use the task attribute TP was assigned to the user under the specified account number.

MAX-ALLOWED-CATEGORY = *STD
The tasks of the user can attain the task attributes BATCH and DIALOG.

MAX-ALLOWED-CATEGORY = *TP
The user jobs may attain the task attributes BATCH, DIALOG and TP.

MAX-ALLOWED-CATEGORY = *SYSTEM
All task attributes are permitted for the tasks of the user.

PRIVILEGE = *UNCHANGED / *PARAMETERS(...) / list-poss(3): *NO-CPU-LIMIT / *START-IMMEDIATE / *INHIBIT-DEACTIVATION
Defines privileges of job management.

PRIVILEGE = *PARAMETERS(...)
Defines a sequence of job management privileges.

NO-CPU-LIMIT = *UNCHANGED / *NO / *YES
Defines whether the user is allowed to run batch jobs without a time limitation.

NO-CPU-LIMIT = *YES
The user is authorized to run batch jobs without time limitation under the specified account number. This applies even if the job class assigned to the job does not permit this start attribute. If the user specified the CPU-LIMIT=*NO operand in the SET-LOGON-PARAMETERS or ENTER-JOB command and this function is authorized neither in the user catalog nor in the job class assigned to the job, the batch job is rejected with an error message.
In the case of tasks without a time limit, the user’s CPU account is not debited.

START-IMMEDIATE = *UNCHANGED / *NO / *YES
Defines whether the use is authorized to use the job express function.

START-IMMEDIATE = *YES
The user is authorized to use the job express function. With this authorization batch jobs are started immediately, even if the class limit of the job class in which the job concerned is to be started has been reached. This applies even if the definition of the job class does not permit this start attribute. If the EXPRESS

function is not permitted either in the user catalog or in the job class definition, the batch job is accepted, but it is not started as an EXPRESS job.

INHIBIT-DEACTIVATION = *UNCHANGED / *NO / *YES
Defines whether the user is authorized to inhibit deactivation.

INHIBIT-DEACTIVATION = *YES
The user ID is authorized to inhibit deactivation. The user's jobs are thus independent of the PRIOR function, by means of which jobs are placed in subordinate queues according to their system service requirements (macro time slice).

PRIVILEGE = *NO-CPU-LIMIT
The user is authorized to run batch jobs without time limitation under the specified account number. This applies even if the job class assigned to the job does not permit this start attribute. If the user specified the CPU-LIMIT=*NO operand in the SET-LOGON-PARAMETERS or ENTER-JOB command and this function is authorized neither in the user catalog nor in the job class assigned to the job, the batch job is rejected with an error message.
In the case of tasks without a time limit, the user's CPU account is not debited.

PRIVILEGE = *START-IMMEDIATE
The user is authorized to use the job express function. With this authorization batch jobs are started immediately, even if the class limit of the job class in which the job concerned is to be started has been reached. This applies even if the definition of the job class does not permit this start attribute. If the EXPRESS function is not permitted either in the user catalog or in the job class definition, the batch job is accepted, but it is not started as an EXPRESS job.

PRIVILEGE = *INHIBIT-DEACTIVATION
The user ID is authorized to inhibit deactivation. The user's jobs are thus independent of the PRIOR function, by means of which jobs are placed in subordinate queues according to their system service requirements (macro time slice).

POSIX-RLOGIN-DEFAULT = *UNCHANGED / *NO / *YES
Defines whether the account number to be changed is to be used for accounting of a POSIX remote login session. The POSIX remote login account number is unique within a user ID. The user administration system automatically performs a comparison with existing account numbers, and the declaration of a different account number as the POSIX account number overrides any earlier declaration. The old account number can from then on be used for BS2000 sessions only.

LOGON-DEFAULT = *UNCHANGED / *NO / *YES
Defines whether the designated account number is to be used as the default account number for BS2000 timesharing mode if no account number is specified in the case of dialog or batch access.

ACCOUNT-ATTRIBUTES = *REMOVE(...)
An account number is to be removed from the user ID.

ACCOUNT = list-poss(10): <alphanum-name 1..8>
Account number of the user ID to be deleted.
An account number must always be maintained for the user ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	1	SRM6010	Syntax error
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

Note

The task scheduling priorities (30-255) for job control are defined:

- in the user catalog (ADD-USER command, MAXIMUM-RUN-PRIORITY operand)
- in the job class definition (JMU statement DEFINE-JOB-CLASS, RUN-PRIORITY operand; in addition to the default priority, a maximum priority can be defined)

If the user specifies a task scheduling priority in the SET-LOGON-PARAMETERS or ENTER-JOB command, this priority is checked both in the user catalog and in the job class assigned to the job (for an example see the ADD-USER command).

If the priority specified by the user in the SET-LOGON-PARAMETERS or ENTER-JOB command is **worse** than the best priority of the job class and in the user catalog (i.e. allowed either in the job class or in the user catalog), the job is started with the priority specified by the user. If the priority specified by the user in the SET-LOGON-PARAMETERS or ENTER-JOB command is **better** than the priorities of the job class and in the user catalog (i.e. not allowed either in the job class or in the user catalog), the job is given whichever is worse, the default priority of the job class or the priority in the user catalog.

If the user does not specify any priority in the SET-LOGON-PARAMETERS or ENTER-JOB command, the job is started with the default priority.

4.68 MODIFY-USER-PROTECTION

Modify password for user ID

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	@

Function

With the MODIFY-USER-PROTECTION command, users can define a password for their user ID, change this password or delete it. The password for a user ID is part of the user entry in the user catalog. The MODIFY-USER-PROTECTION command will only be executed if the user entry contains an appropriate authorization for the user ID (see output field *PASSWORD-MGMT*, SHOW-USER-ATTRIBUTES command).

Long passwords

In BS2000/OSD-BC V2.0 and above, users can define a “long password” to protect their user IDs. A long password is at least 9 and at most 32 characters long. The long password mechanism allows users to select passwords which are easy to remember while satisfying data protection requirements because of the large range of possible combinations.
When a 9 to 32-character password is entered, a hash algorithm converts the long password to an 8-byte password. The converted 8-byte password is stored in the system (encrypted as appropriate) for password checking purposes.

The following commands support the long password mechanism:

- ENTER-JOB and ENTER-PROCEDURE
- PRINT-DOCUMENT
- SET-LOGON-PARAMETERS
- SET-RFA-CONNECTION
- TRANSFER-FILE

In cases where the long password mechanism is not supported, the user must find out and enter the converted 8-byte password.

There are various ways to do this:

- The SDF-P subsystem is available on the local system: The converted password can be ascertained with the HASH-STRING builtin function. The function is called with the parameters STRING=‘<long_password>’ and LENGTH=8 (see also the “SDF-P” manual [34]). As the STRING parameter, unlike the password interface, is

case-sensitive, the long password must be entered in upper case. With commands and statements (SDF interface), expression substitution can be used, i.e. the password operand can, for example, be specified as follows (see also the example on section "MODIFY-USER-PROTECTION"):

```
PASSWORD='&(TO-C-LIT(HASH-STRING(STRING='lomg_password',LENGTH=8)))'
```

If the SDF interface is not being used, an S variable is assigned the result of the builtin function and SHOW-VARIABLE is used to output the variable value as an X literal (as the converted string can also contain nonenterable characters). This variable value is entered as password (<x-string>) at the input interface.

- The SDF-P subsystem is not available on the local system:
  - If the local system has access to another system on which SDF-P is available, the converted 8-byte password can be ascertained with HASH-STRING as described above.
  - The converted 8-byte password can be requested from systems support staff (unless encryption is in force on the system).
  - The user ID in question can temporarily be assigned a “short” password.
- Whether SDF-P is present or not, with TRANSFER-FILE the name of an FT profile (FTAC authorization profile) can be specified instead of the LOGON authorization.

If the SECOS software product is installed, additional user-specific security checks can be set up for passwords. The default values for the minimum length and complexity of a password are set to *NONE (attributes not checked). If these attributes are changed to maximum values, in some cases it may be that the 8-byte password converted from a “long” password will fail to comply with security requirements. For that reason the minimum length should not be set to more than 6, and the minimum complexity should not be set to more than 2.

Restrictions

The following functions of the MODIFY-USER-PROTECTION command are only available if SECOS is used:

- A new password specified in the NEW-LOGON-PASSWORD operand can be specified a second time for verification purposes in the CONFIRM-NEW-PASSWORD operand.
- In the USER-IDENTIFICATION operand, it is possible to specify that password changes should be performed for the personal logon.

If SECOS is not available then only the default value can be specified for these operands.

Format

MODIFY-**USER-PROT**ECTION
LOGON-PASSWORD = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET** ,**NEW-LOGON**-PASSWORD = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET** ,**CONFIRM-NEW-PASSWORD** = ***NOT-SPECIFIED** / ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> /***SECRET** ,**PUBSET** = ***HOME** / <cat-id 1..4> ,**USER-ID**ENTIFICATION = ***STD** / ***PERS**ONAL-**USER-ID**

Operands

LOGON-PASSWORD = *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
Old password for the user ID.
The long password mechanism is supported (<c-string 9..32>). A hash algorithm converts the long password to an 8-byte password which is used for password checking. See Function above for details of the long password mechanism.
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

NEW-LOGON-PASSWORD = *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
New password for the user ID. The new password must not be the same as the previous password.
The long password mechanism is supported (<c-string 9..32>). A hash algorithm converts the long password to an 8-byte password which is used for password checking. See Function above for details of the long password mechanism.
The operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password .

CONFIRM-NEW-PASSWORD = *NOT-SPECIFIED / *NONE / <c-string 1..8> / <c-string 9..32 / <x-string 1..16> / *SECRET
The operand is only available in conjunction with SECOS.
Allows a new password specified using the NEW-LOGON-PASSWORD operand to be checked. Entering the password twice is to avoid a password containing a typing error being assigned when password entry is nondisplaying.
If a value other than the default *NOT-SPECIFIED is entered, then it must be identical with the entry made for NEW-LOGON-PASSWORD, otherwise the command is rejected.
The CONFIRM-NEW-PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

PUBSET =
Defines the catalog ID of the public volume set whose user catalog contains the entry for the user ID.

PUBSET = *HOME
Catalog ID of the home public volume set.

PUBSET = cat-id 1..4>
Catalog ID of a local public volume set whose user catalog contains an entry for the user ID.

USER-IDENTIFICATION = *STD / *PERSONAL-USER-ID

This operand is only available if SECOS is in use.

Specifies whether the password of the logon user ID or the password corresponding to the personal user ID (personal logon) is to be changed.

USER-IDENTIFICATION = *STD

The password corresponding to the logon user ID is changed.

If the command is called during the updating of the logon password then *STD designates the following user ID:

- following the output of message SRM3204, the logon user ID
- following the output of message SRM3207, the personal user ID

USER-IDENTIFICATION = *PERSONAL-USER-ID

The password corresponding to the personal user ID is modified. If no personal logon has been performed then the password corresponding to the logon ID is modified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command terminated without errors
	1	SRM6010	Syntax error in command
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error during command processing
	130	SRM6030	Command cannot temporarily be executed

Notes

- In the log (SYSOUT), passwords are overwritten with the letter P.
- For a nonexistent password (equivalent to the default value *NONE) the system uses binary zeros (X’00 00 00 00 00 00 00 00’). Binary zeros used as passwords are not encrypted, however.
- If the system parameter ENCRYPT=Y is set, the system encrypts all passwords except for those consisting of binary zeros (if the default value *NONE is specified).

Example

Allocating a long password:

```
/mod-user-prot logon-pass='short#12',new='special password of $rudi!'
```

Finding out the converted, 8-byte password for use at an interface which does not support the long password mechanism. SET-VARIABLE (alias = STV) copies the password to variable A, and then SHOW-VARIABLE (alias = SHV) displays the variable in the form of an X literal (as it may include nontypable characters):

```
/stv a=hash-string(string='SPECIAL PASSWORD OF $RUDI!',LENGTH=8)
/shv a,inf=*par(value=*x-lit)
```

```
A = X'E611BB422CDB4FA5
```

When using the builtin TO-X-LITERAL function, the password can also be transferred into a variable as an X literal (in the example: PASS):

```
/stv pass=to-x-lit(string=
               hash-string(string='SPECIAL PASSWORD OF $RUDI!',length=8))
/shv pass
```

```
PASS = X'E611BB422CDB4FA5'
```

The converted, 8-byte password typically needs to be specified in TRANSFER-FILE commands. Here are various ways of specifying it:

```
/transfer-file ... password=x'e611bb422cdb4fa5'.....———————————————— (1)
/transfer-file ... password=&(pass)..... ———————————————————————————— (2)
/transfer-file ... password=&(to-x-lit(string=a)).....———————————————— (3)
/transfer-file ... password=&(to-x-lit(string=hash-string(
             string='SPECIAL PASSWORD OF $RUDI!',length=8))).....———— (4)
```

(1) Entering the converted password directly as an X string.

(2) Entering the password by means of the variable substitution mechanism (contents of variable PASS).

(3) Entering the password by means of the variable substitution mechanism (X literal of the A variable).

(4) Entering the password directly by means of the variable substitution mechanism, which is first used to copy the password into the PASS variable in the form of an X literal. In this case, there is no need to ascertain the password by assigning it to a variable.

4.69 MODIFY-USER-PUBSET-ATTRIBUTES

Modify pubset-specific user attributes of user ID

Component:	SRPMNUC
Functional area:	User management Pubset and MRSCAT management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION
Routing code:	$

Function

This command modifies the pubset-specific user attributes of a user ID in the user catalog of the specified pubset. It is primarily intended for SM pubsets, but with various restrictions can also be used for SF pubsets.

Every user ID set up with the ADD-USER command from the beginning has pubset-specific user attributes. These are mostly default resource management attributes.

If an entry is created in a user catalog of an imported pubset, pubset-specific information must be stored. Systems support must define an upper limit for the user up to which the user may occupy storage space on this pubset. In addition, it can grant the user permission to exceed this limit. These new declarations, however, take effect only after the user logs on again, not for current tasks.

The default value *UNCHANGED in the corresponding operands means that the previously valid definition still applies. The term “hierarchical quota differentials” as used in this description refers to the fact that a given value must be included within the value above it in the hierarchy. Thus, for example, the value for VERY-HIGH-PERF-SPACE must always be <= the value in HIGH-PERF-SPACE, which in turn must be <= the value in S0-LEVEL-SPACE, and this must be <= the value in TOTAL-SPACE. If quota differentials are not maintained, command processing is aborted.

Restriction

The only nonprivileged users (STD-PROCESSING privilege) authorized to issue this command are those designated as group administrators. The actions a group administrator can take are defined by systems support. For information on setting up and managing user groups see the “SECOS” manual [35].

Format

MODIFY-**USER-PUB**SET-**ATTR**IBUTES

USER-IDENTIFICATION = <name 1..8>

,**PUBSET** = ***HOME** / <cat-id 1..4>

,**FILE-NUM**BER-**LIMIT** = ***UNCHA**NGED / ***MAX**IMUM / <integer 0..16777215>

,**JV-NUM**BER-**LIM**IT = ***UNCHA**NGED / ***MAX**IMUM / <integer 0..16777215>

,**DEF-STOR**AGE-**CLASS** = ***UNCHA**NGED / ***NONE** / <structured-name 1..8>

,**CODED-CHAR**ACTER-**SET** = ***UNCHA**NGED / ***STD** / <name 1..8>

,**NET-CODED-CHAR-SET** = ***UNCHA**NGED / ***STD** / ***ISO** / ***NO-CONV**ERSION / <name 1..8>

,**RIGHTS** = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **DMS-TUNING-RES**OURCES = ***UNCHA**NGED / ***NONE** / ***CONCURRENT-USE** /
| ***EXCL**USIVE-**USE**

| ,**NET-STOR**AGE-**USAGE** = ***UNCHA**NGED / ***NOT-ALLOW**ED / ***ALLOW**ED

| ,**PHYS**ICAL-**ALLOC**ATION = ***UNCHA**NGED / ***NOT-ALLOW**ED / ***ALLOW**ED

| ,**PUB**LIC-**SPACE-EXC**ESS = ***UNCHA**NGED / ***NOT-ALLOW**ED / ***TEMP**ORARILY-**ALLOW**ED /
| ***ALLOW**ED

,**PERM-SPACE-LIM**ITS = ***UNCHA**NGED / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **TOTAL-SPACE** = ***AUTO**MATIC-**ADAPT** / ***UNCHA**NGED / ***MAX**IMUM / ***UNLIMITED** /
| <integer 0..2147483647 *2Kbyte*>

| ,**S0-LEVEL-SPACE** = ***AUTO**MATIC-**ADAPT** / ***UNCHA**NGED / ***MAX**IMUM /
| <integer 0..2147483647 *2Kbyte*>

| ,**HIGH-PERF-SPACE** = ***AUTO**MATIC-**ADAPT** / ***UNCHA**NGED / ***MAX**IMUM /
| <integer 0..2147483647 *2Kbyte*>

| ,**VERY-HIGH-PERF-SPACE** = ***AUTO**MATIC-**ADAPT** / ***UNCHA**NGED / ***MAX**IMUM /
| <integer 0..2147483647 *2Kbyte*>

| ,**HIGH-AVAIL**ABLE-**SPACE** = ***AUTO**MATIC-**ADAPT** / ***UNCHA**NGED / ***MAX**IMUM /
| <integer 0..2147483647 *2Kbyte*>

,**TEMP-SPACE-LIM**ITS = ***UNCHA**NGED / ***PAR**AMETERS(...)

```
    *PARAMETERS(...)
        |  TOTAL-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / *UNLIMITED /
        |                <integer 0..2147483647 2Kbyte>
        |  ,HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
        |                                <integer 0..2147483647 2Kbyte>
        |  ,VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
        |                                        <integer 0..2147483647 2Kbyte>
,WORK-SPACE-LIMITS = *UNCHANGED / *PARAMETERS(...)
    *PARAMETERS(...)
        |  TOTAL-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / *UNLIMITED /
        |                              <integer 0..2147483647 2Kbyte>
        |  ,HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
        |                                <integer 0..2147483647 2Kbyte>
        |  ,VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
        |                                        <integer 0..2147483647 2Kbyte>
```

Operands

USER-IDENTIFICATION = <name 1..8>
Defines the name of the user ID for which the pubset-specific user attributes are to be modified.

PUBSET = *HOME / <cat-id 1..4>
Identifies the pubset in whose user catalog pubset-specific user attributes are to be modified. This will typically be an SM pubset.

PUBSET = *HOME
The entry is made in the user catalog of the home pubset.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset in whose user catalog the entry is to be made.

FILE-NUMBER-LIMIT = *UNCHANGED / *MAXIMUM / <integer 0..16777215>
Defines the maximum number of files allowed for a user ID.

FILE-NUMBER-LIMIT = *MAXIMUM
The number of files allowed for the user ID is set at 16,777,215.

FILE-NUMBER-LIMIT = <integer 0..16777215>
Specifies the exact number of files for the user ID's file number limit.

JV-NUMBER-LIMIT = *UNCHANGED / *MAXIMUM / <integer 0..16777215>
Specifies the maximum number of job variables that may be created.

JV-NUMBER-LIMIT = *MAXIMUM
The number of job variables allowed for the user ID is set at 16,777,215.

JV-NUMBER-LIMIT = <integer 0..16777215>
Specifies the exact number of job variables for the user ID’s JV number limit.

DEF-STORAGE-CLASS = *UNCHANGED / *NONE / <structured-name 1..8>
Defines the default storage class for files on SM pubsets.

DEF-STORAGE-CLASS = *NONE
No default storage class is defined.

DEF-STORAGE-CLASS = <structured-name 1..8>
Specifies the name of the default storage class.

CODED-CHARACTER-SET = *UNCHANGED / *STD / <name 1..8>
Specifies which CODED-CHARACTER-SET (CCS) is to be used. A name should only be specified here if the one required differs from the one preset by the system (*STD). The specified CCS should be an EBCDIC character set.

NET-CODED-CHAR-SET = *UNCHANGED / *STD / *ISO / *NO-CONVERSION / <name 1..8>
Defines which Net-Storage-Coded-Character-Set (NETCCSN) is to be used for node files on Net-Storage A character set conversion is only performed for SAM node files.

NET-CODED-CHAR-SET = *STD
The setting of the SSMMILOG system parameter applies.

NET-CODED-CHAR-SET = *ISO
A suitable ISO character set is used. For details on character set conversion see the CREATE-FILE command or the “Introductory Guide to DVS” manual [13].

NET-CODED-CHAR-SET = *NO-CONVERSION
There is no code conversion for SAM node files.

NET-CODED-CHAR-SET = <name 1..8>
Name of the character set to be used. It should be an ASCII character set.

RIGHTS = *UNCHANGED / *PARAMETERS(...)
Defines the pubset-specific rights of a user ID.

RIGHTS = *PARAMETERS(...)
Specifies which pubset-specific rights are to be modified.

> **DMS-TUNING-RESOURCES = *UNCHANGED / *NONE / *CONCURRENT-USE /*EXCLUSIVE-USE**
> Specifies which performance measures may be utilized, and the form in which they may be used.
>
> **DMS-TUNING-RESOURCES = *NONE**
> No tuning measures may be utilized.
>
> **DMS-TUNING-RESOURCES = *CONCURRENT-USE**
> The user is allowed to reserve preferred resources, but in doing so competes with all other users who have the same authorization.
>
> **DMS-TUNING-RESOURCES = *EXCLUSIVE-USE**
> The user may make exclusive reservations of preferred resources.

Permitted performance measures for the home and data pubsets

PUBSET = *HOME				
DMS-TUNING-RESOURCES=	**Resident ISAM pools**	**Resident FASTPAM environment**	**File attribute PERFORMANCE**	
			= HIGH	**=*VERY-HIGH**
NONE:	no	no	no	-
*CONCURRENT-USE	yes	no	-	-
*EXCLUSIVE-USE	yes	yes	-	-
PUBSET = <data pubset>				
DMS-TUNING-RESOURCES=	**Resident ISAM pools**	**Resident FASTPAM environment**	**File attribute PERFORMANCE**	
			= HIGH	**=*VERY-HIGH**
NONE:	-	-	no	no
*CONCURRENT-USE	-	-	yes	no
*EXCLUSIVE-USE	-	-	yes	yes

Home pubset	Data pubset	Permitted performance measures
NONE:	NONE:	• None
*CONCURRENT-USE	NONE:	• Resident ISAM pools
*EXCLUSIVE-USE	NONE:	• Resident ISAM pools • Resident FASTPAM environment
NONE	*CONCURRENT-USE	• File attribute PERFORMANCE = HIGH on data pubset
NONE	*EXCLUSIVE-USE	• File attribute PERFORMANCE = HIGH on data pubset • File attribute PERFORMANCE = VERY-HIGH on data pubset
*CONCURRENT-USE	*CONCURRENT-USE	• Resident ISAM pools

*CONCURRENT-USE	*EXCLUSIVE-USE	• Resident ISAM pools • File attribute PERFORMANCE = VERY-HIGH on data pubset
*EXCLUSIVE-USE	*CONCURRENT-USE	• Resident ISAM pools • Resident FASTPAM environment
*EXCLUSIVE-USE	*EXCLUSIVE-USE	• Resident ISAM pools • Resident FASTPAM environment • File attribute PERFORMANCE = VERY-HIGH on data pubset

Table 74: Permitted performance measures (MODIFY-USER-PUBSET-ATTRIBUTES)

NET-STORAGE-USAGE = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
Specifies whether the user may occupy space on Net-Storage volumes.

NET-STORAGE-USAGE = *NOT-ALLOWED
The user is not permitted to use a Net-Storage volume.

NET-STORAGE-USAGE = *ALLOWED
The user is permitted to use a Net-Storage volume.

PHYSICAL-ALLOCATION = *UNCHANGED / *NOT-ALLOWED / *ALLOWED
Governs whether the user is allowed to perform absolute space allocation (direct allocation).

PHYSICAL-ALLOCATION = *NOT-ALLOWED
The user is no longer allowed to perform physical space allocation.

PHYSICAL-ALLOCATION = *ALLOWED
The user is allowed to perform physical space allocation.

PUBLIC-SPACE-EXCESS = *UNCHANGED / *NOT-ALLOWED / *TEMPORARILY-ALLOWED / *ALLOWED
Defines whether the user may if necessary exceed the defined space limits on the pubset.

PUBLIC-SPACE-EXCESS = *NOT-ALLOWED
The space limits may not be exceeded.

PUBLIC-SPACE-EXCESS = *TEMPORARILY-ALLOWED
While a process is executing, the space limit imposed on the user may be exceeded temporarily.

PUBLIC-SPACE-EXCESS = *ALLOWED
The space limits imposed on the user are removed.

PERM-SPACE-LIMITS = *UNCHANGED / *PARAMETERS(...)
Defines the permanent space granted to a user ID on a pubset. The operand is primarily intended for SM pubsets. If it is specified for an SF pubset, only the S0-LEVEL-SPACE value has any effect.

PERM-SPACE-LIMITS = *PARAMETERS(...)
The permanent storage space available is to be defined.

TOTAL-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / *UNLIMITED / <integer 0..2147483647 *2Kbyte*>
Defines the maximum number of PAM pages for the user ID's permanent space. The specified value must be <= 2147483647.

TOTAL-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's permanent space is to adapt automatically. The hierarchical quota differentials are maintained.

TOTAL-SPACE = *MAXIMUM
The number of PAM pages in the user ID's permanent space is to be set at 2,147,483,647.

TOTAL-SPACE = *UNLIMITED
The number of PAM pages in the user ID's permanent space is unlimited.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as permanent storage space.

S0-LEVEL-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / <integer 0..2147483647 *2Kbyte*>
Defines the maximum number of PAM pages for the user ID's S0-LEVEL-SPACE. The value specified must be <= the value specified for TOTAL-SPACE. On SF pubsets the value specified for this operand corresponds to that of the PUBLIC-SPACE-LIMIT operand.

S0-LEVEL-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's S0-LEVEL-SPACE is to adapt automatically. The hierarchical quota differentials are maintained.

S0-LEVEL-SPACE = *MAXIMUM
The number of PAM pages in S0-LEVEL-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case TOTAL-SPACE).

S0-LEVEL-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as S0-LEVEL-SPACE.

HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / <integer 0..2147483647 *2Kbyte*>
Defines the maximum number of PAM pages for the user ID's permanent high-performance space. The value specified must be <= the value specified for TOTAL-SPACE.

HIGH-PERF-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's HIGH-PERF-SPACE is to adapt automatically. The hierarchical quota differentials are maintained.

HIGH-PERF-SPACE = *MAXIMUM
The number of PAM pages in HIGH-PERF-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case S0-LEVEL-SPACE).

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as HIGH-PERF-SPACE.

VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / <integer 0..2147483647 *2Kbyte*>
Defines the maximum number of PAM pages for the user ID's permanent very-highperformance space. The value specified must be <= the value specified for TOTAL-SPACE.

VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's VERY-HIGH-PERF-SPACE is to adapt automatically. The hierarchical quota differentials are maintained.

VERY-HIGH-PERF-SPACE = *MAXIMUM
The number of PAM pages in VERY-HIGH-PERF-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case HIGH-PERF-SPACE).

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as VERY-HIGH-PERF-SPACE.

HIGH-AVAILABLE-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / <integer 0..2147483647 *2Kbyte*>
Defines the maximum number of PAM pages for the user ID's permanent high-availability space. The value specified must be <= the value specified for TOTAL-SPACE.

HIGH-AVAILABLE-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's HIGH-AVAILABLE-SPACE is to adapt automatically. The hierarchical quota differentials are maintained.

HIGH-AVAILABLE-SPACE = *MAXIMUM
The number of PAM pages in HIGH-AVAILABLE-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case S0-LEVEL-SPACE).

HIGH-AVAILABLE-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as HIGH-AVAILABLE-SPACE.

TEMP-SPACE-LIMITS = *UNCHANGED / *PARAMETERS(...)
Defines the temporary space granted to a user ID on a pubset. The operand is primarily intended for SM pubsets. If it is specified for an SF pubset, only the TOTAL-SPACE value has any effect.

TEMP-SPACE-LIMITS = *PARAMETERS(...)
The temporary storage space available is to be defined.

TOTAL-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / *UNLIMITED / <integer 0..2147483647 *2Kbyte*>
Defines the total number of PAM pages for the user ID's temporary space. The specified value must be <= 2147483647.

TOTAL-SPACE = *AUTOMATIC-ADAPT
The total number of PAM pages in the user ID's temporary space is to adapt automatically. The hierarchical quota differentials are maintained.

TOTAL-SPACE = *MAXIMUM
The number of PAM pages in the user ID's total temporary space is to be set at 2,147,483,647.

TOTAL-SPACE = *UNLIMITED
The number of PAM pages in the user ID's total temporary space is unlimited.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as total temporary storage space.

HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
<integer 0..2147483647 *2Kbyte*>
Defines the maximum number of PAM pages for the user ID's temporary high-performance space. The value specified must be <= the value specified for TOTAL-SPACE.

HIGH-PERF-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's temporary high-performance space is to adapt automatically. The hierarchical quota differentials are maintained.

HIGH-PERF-SPACE = *MAXIMUM
The number of PAM pages in HIGH-PERF-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case TOTAL-SPACE).

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as temporary high-performance space.

VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
<integer 0..2147483647 *2Kbyte*>
Defines the number of PAM pages for the user ID's temporary very-high-performance space. The value specified must be <= the value specified for TOTAL-SPACE.

VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's temporary very-high-performance space is to adapt automatically. The hierarchical quota differentials are maintained.

VERY-HIGH-PERF-SPACE = *MAXIMUM
The number of PAM pages in VERY-HIGH-PERF-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case HIGH-PERF-SPACE).

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as temporary very-high-performance space.

WORK-SPACE-LIMITS = *UNCHANGED / *PARAMETERS(...)
Defines the space for work files granted to a user ID on a pubset. The operand is intended for use with SM pubsets only.

WORK-SPACE-LIMITS = *PARAMETERS(...)
The storage space available for work files is to be defined.

TOTAL-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM / *UNLIMITED /
<integer 0..2147483647 *2Kbyte*>
Defines the total number of PAM pages for the user ID's work file space. The specified value must be <= 2147483647.

TOTAL-SPACE = *AUTOMATIC-ADAPT
The total number of pages in the user ID's work file space is to adapt automatically. The hierarchical quota differentials are maintained.

TOTAL-SPACE = *MAXIMUM
The number of PAM pages in the user ID's total work file space is to be set at 2,147,483,647.

TOTAL-SPACE = *UNLIMITED
The number of PAM pages in the user ID's total work file space is unlimited.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as total work file space.

HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
<integer 0..2147483647 *2Kbyte*>
Defines the proportion of high-performance work file space for the user ID (proportion of the total work file space).
The value specified must be <= the value specified for TOTAL-SPACE.

HIGH-PERF-SPACE = *AUTOMATIC-ADAPT
The number of pages in the user ID's high-performance work file space is to adapt automatically. The hierarchical quota differentials are maintained.

HIGH-PERF-SPACE = *MAXIMUM
The number of PAM pages in HIGH-PERF-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case TOTAL-
SPACE).

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as highperformance work file space.

VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT / *UNCHANGED / *MAXIMUM /
<integer 0..2147483647 *2Kbyte*>
Defines the proportion of very-high-performance work file space for the user ID (proportion of the high-performance work file space). The value specified must be <= the value specified for HIGH-PERF-SPACE.

VERY-HIGH-PERF-SPACE = *AUTOMATIC-ADAPT
The number of PAM pages in the user ID's very-high-performance work file space is to adapt automatically. The hierarchical quota differentials are maintained.

VERY-HIGH-PERF-SPACE = *MAXIMUM
The number of PAM pages in VERY-HIGH-PERF-SPACE is to be set at the highest possible logical value allowed by the value above it in the hierarchy (in this case HIGH-PERF-SPACE).

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Defines the exact maximum number of PAM pages to be granted to the user ID as very high-performance work file space.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	1	SRM6010	Syntax error
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

4.70 MODIFY-USER-SWITCHES

Turn user switches on/off

Component:	BS2000
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the MODIFY-USER-SWITCHES command, users can set their user switches (ON), clear them (OFF) or invert them (INVERT).
For each user ID there are 32 user switches available (numbered 0 to 31), whose settings can be changed by every job running under the user ID. If a new user ID is created by systems support or if the system is newly generated, all user switches are cleared (value OFF).
User switches are not cleared at the end of a job (job switches are cleared at the end of a job; see section "Job switches").
The current settings of the user switches can be queried using SHOW-USER-SWITCHES. It is also possible to query the user switches of other user IDs.

Privileged functions

Systems support staff working under the TSOS user ID can modify the user switches of any user ID (USER-IDENTIFICATION operand).

Format

MODIFY-**USER-SW**ITCHES	Alias: **MDUSW**
USER-IDENTIFICATION = ***OWN** / <name 1..8>	
,**ON** = ***UNCHA**NGED / list-poss(32): <integer 0..31>	
,**OFF** = ***UNCHA**NGED / list-poss(32): <integer 0..31>	
,**INVERT** = ***UNCHA**NGED / list-poss(32): <integer 0..31>	

Operands

USER-IDENTIFICATION = *OWN / <name 1..8>
User ID whose user switches are to be set according to the entries for the operands ON, OFF and INVERT.
The default value is *OWN, i.e. the user ID of the calling task. Nonprivileged users can only explicitly specify their own user ID.

ON = *UNCHANGED / list-poss(32): <integer 0..31>
User switches to be set to ON.

OFF = *UNCHANGED / list-poss(32): <integer 0..31>
User switches to be set to OFF.

INVERT = *UNCHANGED / list-poss(32): <integer 0..31>
User switches to be inverted.
The user switches specified are set from ON to OFF or from OFF to ON.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	CMD0002	Command executed; error in WHEN queue (error possible for tasks waiting for this event)
	1	CMD0202	Contradictory entries
	32	EXC0041	System error
	64	EXC0868	User ID not found
	130	CMD2382	User switches not available because the user ID is locked

Note

A user switch can be modified explicitly only once in a MODIFY-USER-SWITCHES command, i.e. switched on or off or inverted.

Example

/show-user-sw ——————————————————————————— (1)

```
%   USER SWITCHES ON EQUAL-
%    3, 4
```

/mod-user-sw on=(1,4),off=3 ——————————————————— (2)
/show-user-sw

```
%   USER SWITCHES ON EQUAL-
%    1, 4
```

/mod-user-sw invert=(2,3,4) ——————————————————— (3)
/show-user-sw

```
%   USER SWITCHES ON EQUAL-
 %    1, 2, 3
```

(1) Switches 3 and 4 were already set to ON.

(2) Switches 1 and 4 are set to ON (note that switch 4 is already ON), switch 3 is set to OFF.

(3) Switches 2, 3 and 4 are inverted.

4.71 MODIFY-VOLUME-SET-LIST

Modify volume set list definition

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MODIFY-VOLUME-SET-LIST command enables systems support to modify a defined volume set list. Volume sets can be added and removed. A volume set list can hold a maximum of 255 volume sets. It is also possible to modify the brief explanatory text.
The SM pubset for which the volume set list definition is to be modified must have been imported to the local system (in exclusive or shared mode).

Format

MODIFY-**VOL**UME-**SET-LIST**

VOLUME-**SET-LIST-NAME** = <composed-name 1..8>

,**PUBSET** = <cat-id 1..4>

,**REM**OVE-**VOL**UME-**SET** = ***NO** / ***ALL** / list-poss(255): <cat-id 1..4>

,**ADD-VOL**UME-**SET** = ***NO** / list-poss(255): <cat-id 1..4>

,**VOL**UME-**SET-LIST-INFO** = ***UNCHA**NGED / ***NONE** / <c-string 1..720 with-low>

Operands

VOLUME-SET-LIST-NAME = <composed-name 1..8>
Name of a defined volume set list which is to be modified.

PUBSET = <cat-id 1..4>
Identifies the SM pubset for which the volume set list now being modified is defined.

REMOVE-VOLUME-SET = *NO / *ALL / list-poss(255): <cat-id 1..4>
Indicates whether volume sets are to be removed from the volume set list.

REMOVE-VOLUME-SET = *NO
No volume sets are to be removed.

REMOVE-VOLUME-SET = *ALL
All the volume sets are to be removed from the volume set list.

REMOVE-VOLUME-SET = list-poss(255): <cat-id 1..4>
The specified volume sets are to be removed from the volume set list. Up to 255 volume sets can be listed.

ADD-VOLUME-SET = *NO / list-poss(255): <cat-id 1..4>
Indicates whether volume sets are to be added to the volume set list.

ADD-VOLUME-SET = *NO
No volume sets are to be added.

ADD-VOLUME-SET = list-poss(255): <cat-id 1..4>
The specified volume sets are to be added to the volume set list. Up to 255 volume sets can be listed. Up to 255 volume sets can be assigned to a volume set list. This ceiling must not be exceeded.
The command does not check that the specified volume sets really belong to the SM pubset. Volume sets specified both in REMOVE-VOLUME-SET and in ADD-VOLUME-SET will still be on the volume set list when the command has finished executing.

VOLUME-SET-LIST-INFO = *UNCHANGED / *NONE / <c-string 1..720 with-low>
Specifies whether the brief explanatory text about the volume set list is to be modified. The default is *UNCHANGED, which means that any existing text is retained.

VOLUME-SET-LIST-INFO = *NONE
Any existing explanatory text is to be deleted.

VOLUME-SET-LIST-INFO = <c-string 1..720 with-low>
The brief text entered here is incorporated as a description of the volume set list. Any existing text will be overwritten.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	64	CMD0216	No authorization to issue command
	64	DMS148B	Volume set list not defined
	64	DMS148C	Maximum number of volume set entries exceeded
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS1490	Storage class management not available for this pubset
	64	DMS1484	Volume set list catalog invalid
	64	DMS1482	Error accessing volume set list catalog
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready

4.72 MOUNT-NET-STORAGE

Connect Net-Storage

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	DEVICE STORAGE-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	G

Function

The MOUNT-NET-STORAGE command connects a directory released on a Net-Server as storage space (Net-Storage) with BS2000.

In this case the connection to the net server and net client is set up. The Net-Storage is mounted on the net client as a file system and is consequently available to the BS2000 system. From the BS2000 viewpoint the Net-Storage is in the MOUNTED status.

Before a pubset with a Net-Storage volume is imported, the Net-Storage concerned should be connected. Only then files on the Net-Storage can be accessed immediately after the pubset has been imported.

Information on the mounted directories can be requested using the SHOW-NET-STORAGE command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the “Introductory Guide to DMS” [13].

Format

MOUNT-NET-STORAGE

DIRECTORY = <c-string 1..64 with-low>

,**SERVER** = <composed-name 1..256 with-under> / <c-string 1..256 with-low> / ***IP-ADDR**ESS(...)

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

,**CLIENT** = <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) / ***IP-ADDR**ESS(...)

***DNS**(...)

| **DNS-NAME** = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

Operands

DIRECTORY = <c-string 1..64 with-low>
Specifies the directory name of the Net-Storage released on the net server.

SERVER =
Specifies the net server which makes the Net-Storage available.

SERVER = <composed-name 1..256 with-under> / <c-string 1..256 with-low>
Host name or fully qualified domain name of the net server.

SERVER = *IP-ADDRESS
Specifies the IP address of the net server in IPv4 or IPv6 format.

SERVER = *IP-ADDRESS(...)
IP address of the net server.

> **IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>**
> Specifies the IP address of the net server in IPv4 or IPv6 format.

CLIENT =
Specifies the net client on which the Net-Storage (more precisely: the released directory) is to be mounted. For SUs /390 and S servers this is an HNC. For SUs x86 X2000 performs this role.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

> **DNS-NAME = <c-string 1..256 with-low>**
> Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

> **IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>**
> Specifies the IP address of the net client in IPv4 or IPv6 format.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	0	NKAN005	Net-Storage already connected
	1	NKAN003	Syntax error in the input
	32	CMD0221	system error
	32	NKAN004	Error in command execution
	64	NKAN009	Leading slash in directory name missing

4.73 MOVE-DISK

Initializes disks, moves disks from and to pubsets

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Anwendungsbereich:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The MOVE-DISK command provides the following functions for systems support:

- Reducing a pubset by a single volume, including clearing the volume.
- Expanding a pubset by a new volume, including automatic adaptation of the pubset-specific volume attributes (with/without PAMKEY, transfer unit (TU), alloaction unit (AU)).
- Moving a single volume from one pubset to another pubset.
- Initializing/formatting and clearing a single disk (by using VOLIN and SPACEOPT implicitely).

The command can be used on single-feature pubsets (SF pubsets) and on system-managed pubsets (SM pubsets). The respective pubsets must be imported and the relevant volumes must be attached to the system.

> **Notes on command processing**
>
> - If necessary, internal processing uses commands that require the privilege SUBSYSTEM-MANAGEMENT and USER-ADMINISTRATION.
> - To clear a volume, the subsystem SPACEOPT is started, if necessary. This assumes that SPACEOPT and the necessary privileges are available.
> - To check the pubset homogeneity (CHECK-PUBSET-MIRROR=*YES) the subsystems POSIX and SHC-OSD are started, if necessary. This assumes that POSIX/SHC-OSD and the necessary privileges are available.

Shared pubset mode:

The command is also supported for shared pubsets, but it can only be entered on the master system. This applies to both, the volume-giving and the volume-receiving pubset.

The command is rejected when entered on a slave system.

Pubset extension with homogeneity check:

The homogeneity check for a pubset to be extended is performed by specifying the operand CHECK-PUBSET-MIRRORS=*YES. This check is performed for the currently supported full replication types (for detailed information, please refer to the "SHC-OSD" manual [37]). Further details on this subject can be found in the description of the MODIFY-PUBSET-PROCESSING command.

VM2000 mode:

The command can be used under VM2000 (monitor/guest system) in the same way as in native mode. The VM2000 administrator must take appropriate precautions when assigning devices to the VMs. For that, please refer to the "VM2000" manual [50].

Format

MOVE-DISK

```
FROM = *PUBSET(...) / *DISK(...)
  *PUBSET(...)
      |    PUBSET = <cat-id 1..4>(...)
      |        <catid 1..4>(...)
      |            |   VOLUME-SET = *NONE / <cat-id 1..4>
      |   ,VOLUME = *LAST / <vsn 6..6>
      |   ,CLEAR-VOLUME-TIME= 300 / <integer 1..65280 seconds>
  *DISK(...)
      |   UNIT = <alphanum-name 2..2>/ <x-text 4..4>
      |   ,OVERWRITE-DISK = *NON-STD / *ANY / <vsn 6..6>
,TO = *PUBSET(...) / *DISK(...)
  *PUBSET(...)
      |   PUBSET = <cat-id 1..4(...)
      |        <cat-id 1..4(...)
      |            |   VOLUME-SET = *NONE / <cat-id 1..4>
      |   ,VOLUME = *NEXT / <vsn 6..6>
      |   ,ALLOCATION-ON-VOLUME = *NOT-RESTRICTED / *NOT-ALLOWED
      |   ,CHECK-PUBSET-MIRRORS = *NO / *YES
  *DISK(...)
      |   NEW-VSN = *NON-STD / <vsn 6..6>(...)
      |        <vsn 6..6>(...)
      |            |   FORMAT = *UNCHANGED/ *K / *NK
      |            |       *NK(...)
      |            |           |   PHYSICAL-BLOCK-SIZE = *2K(...) / *4K(...)
      |            |           |       *2K(...)
      |            |           |           |   ALLOCATION-UNIT = 6 / 8 / 64
      |            |           |       *4K(...)
      |            |           |           |   ALLOCATION-UNIT= 8 / 64
```

,**DESTROY-OLD-CONTENTS** = ***NO** / ***YES**(...)

***YES**(...)

| **NUM**BER-**OF-OVERWR**ITES= ***VOLIN-STD** /<integer 1...10>

Operands

FROM = *PUBSET(...) / *DISK(...)

Defines whether the device in question is a volume of a pubset or a freely available disk.

FROM = *PUBSET(...)

The device in question is a volume of an SF or SM pubset and is to be removed from it.

The volume is completely cleared during this process. Internally, the following SPACEOPT command is used: /CLEAR-VOLUME VOLUME=<vsn>, PROCESS-OPEN-FILES=*YES.

For restrictions and constraints for CLEAR-VOLUME, please refer to the "SPACEOPT" manual [38].

PUBSET = <cat-id 1..4>(...)
Selects the pubset from which the volume is removed.

VOLUME-SET = *NONE / <cat-id 1..4>
For an SF pubset, *NONE must be specified here.

For an SM pubset, the identifier of the respective volume set must be specified here.

VOLUME = *LAST / <vsn 6..6>
Selects the volume serial number of the volume.

The default value is *LAST, which means the volume with the last assigned VSN (highest disk number within the VSNs).

CLEAR-VOLUME-TIME = 300 / <integer 1..65280 seconds>

Determines the maximum waiting time for the volume to be cleared (implicit SPACEOPT call).

The default value is 300 seconds.

FROM = *DISK(...)

The device in question is a freely available disk which is attached to the system.

UNIT= <alphanum-name 2..2> / <x-text 4..4>
Selects the mnemonic device name (MN) of the disk.

OVERWRITE-DISK = *NON-STD / *ANY / <vsn 6..6>

Controls the internal VOLIN run regarding the disk initialization.

OVERWRITE-DISK = *NON-STD

The disk is only reinitialized if it is a non-standard disk.

OVERWRITE-DISK = *ANY

The disk is to be reinitialized in any case.

OVERWRITE-DISK = <vsn 6..6>

The disk is only reinitialized if it contains the specified VSN.

TO = *PUBSET(...) / *DISK(...)

Determines whether the device specified in the FROM operand is assigned to a pubset as an additional volume or to the system as a freely available disk.

TO = *PUBSET(...)
The device specified in the FROM operand is assigned to an SF or SM pubset as an additional volume.

PUBSET = <cat-id 1..4>(...)
Determines the pubset to which the volume is assigned.

VOLUME-SET = *NONE / <cat-id 1..4>
For an SF pubset, *NONE must be specified here.

For an SM pubset, the identifier of the respective volume set must be specified here.

VOLUME = *NEXT / <vsn 6..6>
Detrmines the volume serial number of the volume.

The default value is *NEXT, which means the next free VSN is used.

ALLOCATION-ON-VOLUME = *NOT-RESTRICTED / *NOT-ALLOWED
Determines whether storage space can be allocated on the volume.

See also the corresponding operand of the MODIFY-PUBSET-PROCESSING command.

CHECK-PUBSET-MIRRORS = *NO / *YES
Determines whether the homogeneity of the pubset is to be checked. A pubset is homogeneous when all volumes of the pubset have the same mirroring properties.

See also the corresponding operand of the MODIFY-PUBSET-PROCESSING command.

TO = *DISK(...)
The disk specified in the operand FROM is reinitialized (internal VOLIN run) and assigned to the system as a freely available disk.

Note the restrictions of VOLIN regarding archive number (VSN) and volume properties (format). For that, please refer to the "Utility Routines manual" [9], chapter VOLIN.

NEW-VSN = *NON-STD / <vsn 6..6>(...)

Determines the formatting and the volume serial number of the disk.

NEW-VSN = *NON-STD

The disk is initialized as non-standard disk.

NEW-VSN =<vsn 6..6>(...)

The disk is initialized with the given VSN.

FORMAT = *UNCHANGED / *K / *NK

Determines the formatting of the disk.

FORMAT = *K

The disk is initialized with the K format.

FORMAT = NK(PHYSICAL-BLOCK-SIZE=*2K(ALLOCATION-UNIT=6/8/64)

The disk is initialized with the NK format and a physical block size (TU) of **2** KB and the respective allocation unit (AU).

FORMAT = NK(PHYSICAL-BLOCK-SIZE=*4K(ALLOCATION-UNIT=8/64)

The disk is initialized with the NK format and a physical block size (TU) of **4** KB and the respective allocation unit (AU).

DESTROY-OLD-CONTENTS = *NO / *YES(...)

Determines whether the user data of the disk should be deleted during the VOLIN run.

DESTROY-OLD-CONTENTS =*YES(...)

The user data of the disk should be deleted during the VOLIN run.

NUMBER-OF-OVERWRITES = *VOLIN-STD / <integer 1..10>

Determines how often the user data should be overwritten during the VOLIN run.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully processed
	1	CMD0202	Command syntax error
	32	DMS3699	Internal error occurred
	64	DMS3631	Unexpected return code of an internally used command
	64	DMS3634	Maximal number of volumes reached for pubset/volset
	64	DMS3635	Required subsystem not available
	64	DMS3642	Invalid disk status of volume
	64	DMS3660	FROM- and TO-disk are both NON-STD
	64	DMS3661	Pubset not available
	64	DMS3666	FROM- and TO-pubset must be different
	64	DMS3667	Invalid volset specification for pubset
	64	DMS3668	Invalid specification of volres for pubset
	64	DMS3669	Specified FROM-volume not found
	64	DMS3670	Invalid TO-volume specified
	64	DMS3671	Specified FROM-volume could not be cleared
	64	DMS3677	Initialialization of FROM-disk rejected
	64	DMS3679	Error at VOLIN run
	64	DMS3683	Disk not attached or not available
	64	DMS3685	FROM-pubset/volset consists of one volume only
	64	DMS3686	Pubset is a shared pubset but own host is not master

Examples:

- Reducing a pubset by a single volume (taking the last VSN) and returning this volume to the system as a NON-STD disk. The volume is cleared implicitly and any existing user data are overwritten during the VOLIN run.

```
/MOVE-DISK
   FROM=*PUBSET(PUBSET=<fr-catid>[(VOL-SET=<fr-vs-catid>)],CLEAR-VOL-TIME=<cvt>,VOL=*LAST)
  ,TO=*DISK(NEW-VSN=*NON-STD),DESTROY-OLD-CONTENTS=YES(NUM-OF-OVERWRITES=*VOLIN-STD)
```

- Expanding a pubset by a new volume (using the next free VSN).

```
/MOVE-DISK
   FROM=*DISK(UNIT=F-<mn>)
  ,TO=*PUBSET(PUBSET=<to-catid>[(VOL-SET=<to-vs-catid>)],VOL=*NEXT)
```

- Moving a single volume from one pubset (taking the last VSN) to another pubset (using the next free VSN).

```
/MOVE-DISK
   FROM=*PUBSET(PUBSET=<fr-catid>[(VOL-SET=<fr-vs-catid>)],VOL=*LAST)
  ,TO=*PUBSET(PUBSET=<to-catid>[(VOL-SET=<to-vs-catid>)],VOL=*NEXT)
```

4.74 MOVE-JOBS

Import or export job descriptions

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS

Function

The systems support staff can export or import job descriptions with the MOVE-JOBS command:

- Job descriptions may be exported from an active job pool into an interim file. Batch jobs whose data is being transferred into the destination file, are deleted from the active job pool, i.e. waiting jobs are not started and active jobs are canceled.
- Job descriptions may be imported again into an active job pool from a file or from an inactive job pool. Batch jobs whose data is being transferred into the active job pool, are deleted from the source file (interim file or inactive job pool).

Method

The command realizes the following two functions:

- extracts jobs from the job pool and places them in an interim file
- imports jobs from an interim file or an inactive job pool into an active job pool.

The interim file has the same format as a job pool file. Jobs may also be imported directly from an accessible inactive job pool file, without the use of an interim file. Either function may be started at any time in the course of a system run, provided that “Batch-System-Ready” has been reached during startup or system shutdown has not been initiated yet. No further instance of the MOVE-JOBS command is allowed while jobs are being exported.

When a batch job is exported it is always simultaneously eliminated from the active job pool (the user job is canceled) unless the job is currently being processed and *NO has been specified in CANCEL-RUNNING-JOBS.

This implicit cancellation differs from a cancellation using the CANCEL-JOB command, however. Temporary files, for instance, that may have been created by the JMS (S.IN, S.E, S.PROC files) are not deleted. A job variable that may be monitoring the job, receives the status ’$M’. The jobs are exported one after another, according to the selection criteria specified, i.e. the job descriptions are removed from the job pool and written into the specified file one after another.

The active JMS job scheduling is not affected by a lengthy export process. Jobs accepted in the course of an export process will also be considered. The JMS shows the same behavior as in a warm start as regards the import function. In contrast to a warm start, however, the JMS may not be able to take over the original TSN of a batch job, because it has already been assigned in the current system run. A new TSN will then be assigned.

Format

MOVE-JOBS Alias: **MVJ**

FROM-FILE = ***STD** (...) / <filename 1..54 without-gen> / ***INACTIVE-SYSTEM-JOBPOOL**(...)

***STD** (...)

| **CAN**CEL-**RUN**NING-**JOBS** = ***Y** ES / ***NO**

***INACTIVE-SYSTEM-JOBPOOL**(...)

| **PUBSET** = <alphanum-name 1..4>

, **TO**-FILE = ***STD** / <filename 1..54 without-gen>(...)

<filename 1..54 without-gen>(...)

| **WRITE-MODE** = ***CREATE** / ***EXTEND**

, **SEL**ECT = ***BY-ATTR** IBUTES(...) / ***BY-TSN**(...) / ***ALL**

***BY-ATTR** IBUTES(...)

| **JOB-STATE** = ***ANY** / list-poss(3): ***INAC** TIVE / ***EXEC**UTING / ***REPEAT**

| ,**PUBSET** = ***ANY** / list-poss(16): <alphanum-name 1..4>

| ,**JOB-NAME** = ***ANY** / list-poss(16): ***NONE** / <alphanum-name 1.8>

| ,**USER-ID**ENTIFICATION **= *ANY** / list-poss(16): <alphanum-name 1.8>

| ,**JOB-CLASS** = ***ANY** / list-poss(16): <alphanum-name 1.8>

***BY-TSN**(...)

| **TSN** = ***ALL** / list-poss(28): <alphanum-name 1..4>

, **OUTPUT** = <filename 1..54 without-gen>(...) / ***DUMMY**(...)

<filename 1..54 without-gen>(...)

| **SYSOUT** = ***Y** ES / ***NO**

| ,**SYSLST** = ***NO** / ***Y**ES

***DUMMY**(...)

| **SYSOUT** = ***Y** ES / ***NO**

| ,**SYSLST** = ***NO** / ***Y**ES

, **DIALOG-CONTR**OL = **STD** / ***Y**ES / ***NO**

Operands

FROM-FILE = *STD(...) / <filename 1..54 without-gen> / *INACTIVE-SYSTEM-JOBPOOL(...)
Source file from which the job descriptions are to be imported or exported.

FROM-FILE = *STD(...)
The job descriptions are exported from the current job pool file
($TSOS.SYSTEM.JOBPOOL on the home pubset).

> **CANCEL-RUNNING-JOBS = *YES / *NO**
> Specifies whether batch jobs that are to be moved and that are already being processed, are to be canceled or not.
>
> **CANCEL-RUNNING-JOBS = *YES**
> Batch jobs that are already being moved, are canceled.
>
> **CANCEL-RUNNING-JOBS = *NO**
> Batch jobs that are already being moved, continue as normal. They cannot be moved again.
> In the case of repeat and calendar jobs, however, this only applies to the current instance of the job. Further repeats are not started.

FROM-FILE = <filename 1..54 without-gen>
The job descriptions are imported from the specified interim file (for inactive job pool files).

FROM-FILE = *INACTIVE-SYSTEM-JOBPOOL(...)
The job descriptions are imported from the inactive job pool file of another imported pubset.

> **PUBSET = <alphanum-name 1..4>**
> Catalog ID of the imported pubset.

TO-FILE = *STD / <filename 1..54 without-gen-vers>(...)
Name of the file into which the batch jobs are to be moved. This must be a file other than the file specified in the FROM-FILE operand.

TO-FILE = *STD
The batch jobs are moved (imported) into the current job pool file
($TSOS.SYSTEM.JOBPOOL on the home pubset).

TO-FILE = <filename 1..54 without-gen-vers>(...)
The batch jobs are moved into the specified destination file (export, e.g. into the job pool file of another pubset or into an interim file).

> **WRITE-MODE = *CREATE / *EXTEND**
> Specifies whether a new destination file is to be created or an existing one extended.
>
> **WRITE-MODE = *CREATE**
> A new destination file is created. If the file already exists the command is canceled.
>
> **WRITE-MODE = *EXTEND**
> The destination file is extended. If the file does not already exist, a warning is issued after which it is created.

SELECT = *BY-ATTRIBUTES(...) / *ALL / *BY-TSN(...) /
Specifies whether the number of batch jobs to be moved is to be restricted.

Note

When exporting from the active job pool, it is also possible to select, export or delete jobs that are essential for the normal operation of the system. Job management merely stops the job scheduler and the task under which the command is currently running from being exported.

SELECT = *BY-ATTRIBUTES(...)
Only jobs with the specified attributes may be moved.

JOB-STATE = *ANY / list-poss(3): *INACTIVE / *EXECUTING / *REPEAT
Specifies whether the job status may be a selection attribute. By default, only the inactive jobs may be selected.

JOB-STATE = *ANY
Jobs may be selected regardless of their status.

JOB-STATE = *INACTIVE
Inactive jobs that are not repeat jobs are selected.

JOB-STATE = *EXECUTING
Active jobs that are not repeat jobs are selected.

JOB-STATE = *REPEAT
All repeat jobs are selected.

PUBSET = *ANY / list-poss(16): <alphanum-name 1..4>
Specifies whether the pubset on which the command file for the job is located is to be the selection attribute.

PUBSET = *ANY
The pubset is not a selection attribute.

PUBSET = list-poss(16): <alphanum-name 1..4>
All jobs whose command files are on one of the specified pubsets are selected. As many as 16 pubsets can be specified in a list.

JOB-NAME = *ANY / list-poss(16): *NONE / <alphanum-name 1.8>
Specifies whether the job name is to be a selection attribute.

JOB-NAME = *ANY
The job name is not a selection attribute.

JOB-NAME = list-poss(16): *NONE / <alphanum-name 1.8>
The jobs with the specified names are all selected. Jobs without a job name are selected with *NONE. As many as 16 job names can be specified in a list.

USER-IDENTIFICATION = *ANY / list-poss(16): <alphanum-name 1.8>
Specifies whether the user ID under which a job is running is to be the selection attribute.

USER-IDENTIFICATION = *ANY
The user ID is not a selection attribute.

USER-IDENTIFICATION = list-poss(16): <alphanum-name 1.8>
All jobs with one of the specified user IDs are selected. As many as 16 user IDs can be specified in a list.

JOB-CLASS = *ANY / list-poss(16): <alphanum-name 1.8>
Specifies whether the job class is to be the selection attribute.

JOB-CLASS = *ANY
The job class is not a selection attribute.

JOB-CLASS = list-poss(16): <alphanum-name 1.8>
All jobs that are to run in one of the specified job classes are selected. As many as 16 job classes can be specified in a list.

SELECT = *ALL
All jobs are moved.

SELECT = *BY-TSN(...)
Only jobs with the specified TSN are moved.

TSN = list-poss(128): <alphanum-name 1..4>
TSN of the job to be moved. The default is *ALL, i.e. all jobs are moved.

OUTPUT = <filename 1..54 without-gen>(...) / *DUMMY(...)
Specifies whether and to which destination the result of the command (import or export) is to be output.

OUTPUT = <filename 1..54 without-gen>(...)
The command result is to be logged in the specified file (see section "MOVE-JOBS" for output format).

SYSOUT = *YES / *NO
Specifies whether the output is also to be copied to SYSOUT.
The default value is *YES, i.e. output is also copied to SYSOUT.

SYSLST = *YES / *NO
Specifies whether the output is also to be copied to SYSLST.
The default value is *NO, i.e. output is not also copied to SYSLST.

OUTPUT = *DUMMY(...)
The result of the command execution is not copied into a file. By default, the result is output only to SYSOUT.

SYSOUT = *YES / *NO
Specifies whether the log is to be output to SYSOUT.
The default is *YES, i.e. output is directed to SYSOUT.

SYSLST = *YES / *NO
Specifies whether the log is to be output to SYSLST.
The default is *NO, i.e. no output to SYSLST.

DIALOG-CONTROL = *STD / *YES / *NO
Specifies whether a dialog should be conducted with the user for control purposes during execution of the command in order to permit step-by-step command processing. If command processing is interrupted with [K2] then the control dialog is started. A control dialog is only possible in dialog mode but, in this mode, may also be used in procedures. In batch mode, all operand values have the same effect as *NO.

In the control dialog, the user is asked, following the successful processing of a batch job or interruption with [K2], by means of message JMS0523 whether command processing is to be continued. The SDF abbreviation rules apply to the entered response. To display the possible responses, enter a question mark. If the response contains a syntax error the query will be repeated up to 10 times.

Syntax of the response to message JMS0523 (control dialog)

possible responses: ***NO** / ***Y**ES(...)

***Y**ES(...)

| **DIALOG-CONTR**OL = ***UNCHA** NGED / ***Y**ES / ***NO**

Meaning of the responses

Response *NO
Processing of the MOVE-JOBS command is interrupted.

Response *YES(...)
Processing of the MOVE-JOBS command is continued. The subordinate operand DIALOG-CONTROL corresponds to the operand of the same name in the command and makes it possible to modify the associated settings. The operand value *UNCHANGED leaves the previous setting unchanged.

DIALOG-CONTROL = *STD
In the interactive dialog (SYSCMD is assigned to the operator terminal), the default value STD corresponds to the value *YES in procedures, and in batch mode to the value *NO.

DIALOG-CONTROL = *NO
The selected batch jobs are processed without any control query.

DIALOG-CONTROL = *YES

Whenever a batch job has been terminated successfully, a query is issued to ask whether processing should be continued.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	CMD0002	Command executed with a warning
	32	CMD0221	System error
	64	JMS0630	Semantic error or privilege error (see SYSOUT message; e.g. processor or catalog ID unknown or MONJV not accessible)
	64	JMS0640	File defective or not accessible, e.g. empty, not a PAM file, no access authorization
	130	JMS0620	No storage space or no TSN available
	130	JMS0660	Function currently not executable

Notes

1. When job description data is transferred into the active job pool, the availability of resources or the authorization of the job issuer is not checked (as is the case when a job is accepted). Basically, the behavior of the JMS is identical to that in the event of a warm start, here. It is up to the systems support staff to make sure that the system environment is identical at the time the task is started to that at the time the job was initially accepted (command file, user attributes, default catalog, etc.). Before the job is imported, the system merely checks whether the job class and the user ID under which the job is to run are available. If they are not available, the job is not imported. JMS cancels the job, if inconsistencies are encountered when it is underway. Before the MOVE-JOBS command is used in a network, the job environment needs to be checked carefully. If JMS cannot start a job because the necessary conditions are not met, this is regarded as an abnormal termination from the viewpoint of JMS, i.e. the job is deleted from the job pool.
2. JMS attempts to retain the TSN of a job. However, this cannot always be achieved, in particular when a job has been moved from another computer.
3. The “Current image” and the “Next image” of a repeat job are treated as pertaining to one single job, i.e. both will be deleted from the active job pool, but only the next image will be imported into the interim file. The entire repeat job is then reconstructed from the next image when it is imported (same as startup). If the current image was in the system at the time of export and was then selected in the import, the next image will be changed back into its predecessor.
4. After an export the S. files belonging to the jobs that were moved are released. During the import they will be locked again.
5. The interim file created when jobs were exported can be used as a job pool in a warm start. In addition to the name convention for system job pool files and Note 1, the following must be observed:

    - In the case of a warm start, jobs cannot be taken over into the system if their TSN is already occupied by SPOOL. This situation is avoided if start-up is performed with the same EQUISAMQ that was active at the time of the export.
    - The jobs’ monitoring JVs are initially closed and have the status “$M”. Only when a job is terminated is the associated JV opened and the status reset to “$R”.

Format of the log file

The log file that is generated is an SAM file with a variable record length. The events that are logged, are contained in a record and can be identified by means of a four-position record type code. A sample export log and import log with explanations follow below.

Example 1 (export log)

```
*HDR >  MOVE-JOBS   Date: 2012-03-23    Time: 13:50   ————————————————————————————   (1)

*CMD >  FROM-FILE = *STD          ————————————————————————————————————————————————   (2)
*CMD >                  ( CANCEL-RUNNING-JOBS = *YES )
*CMD >  TO-FILE   = JOBPOOL.112
*CMD >                  ( WRITE-MODE = *EXTEND )
*CMD >  SELECT    = *BY-ATTRIBUTES (
*CMD >                  JOB_STATE = *ANY
*CMD >                  PUBSET    = *ANY
*CMD >                  JOB-NAME  = *ANY
*CMD >                  USER-ID   = *ANY
*CMD >                  JOB-CLASS = *ANY
*CMD >                               )
*CMD >  OUTPUT    = HEMUL
*CMD >                  ( SYSOUT = *YES, SYSLST = *NO  )
*CMD >  DIA-CONTR = *NO

+KEY >    TSN   JSTATE    CAT   JNAME     UID       JCLASS       O-TSN  ————————————   (3)

 EXT >    0AQS  *INACT    2V24  HEM11     TSOS      JCJS2XSB   ————————————————————   (4)
 EXT >    0AQT  *INACT    2V24  HEM22     TSOS      JCJS2XSB
 EXT >    0AAK  *INACT    A     LUCKI     TSOS      JCJS2XSB
 EXT >    0CTC  *INACT    2V27  ENTPE     TSOS      JCJS2XSB
 EXT >    0AAL  *INACT    A     LUCKI     TSOS      JCJS2XSB
 EXT >    0AAM  *INACT    A     LUCKI     TSOS      JCJS2XSB
 EXT >    0AAN  *REPEAT   A     LUCKI     TSOS      JCJS2XSB
 EXT >    0AAQ  *REPEAT   A     LUCKI     TSOS      JCJS2XSB
 EXT >    0CUY  *INACT    2V27  ENTPE     TSOS      JCJS2XSB
 EXT >    0AEG  *INACT    G               TSOS      JCJS2XSB
 EXT >    0AEH  *INACT    G               TSOS      JCJS2XSB
 EXT >    0AEI  *REPEAT   G               TSOS      JCJS2XSB
 EXT >    0AEK  *INACT    G               TSOS      JCJS2XSB
 EXT >    0APY  *REPEAT   G               TSOS      JCJS3XSB   ————————————————————   (5)
*REM >    0APX   CURRENT IMAGE OF      0APY                    ————————————————————   (6)
 EXT >    0APU  *REPEAT   G               TSOS      JCJS3XSB

*REM >    0APT   CURRENT IMAGE OF      0APU
 EXT >    0APW  *REPEAT   G               TSOS      JCJS3XSB
*REM >    0APV   CURRENT IMAGE OF      0APW
#SYS >           RC FROM PAM WRITE     5678                  ————————————————————   (7)
*WAR >           SOME JOBS COULD NOT BE PROCESSED            ————————————————————   (8)
*WAR >    0APP
```

Explanation

(1) Heading line (record type *HDR)

(2) Command entered (record type *CMD)

(3) Normally (import or export successful) the information per job is output to the following columns:

TSN:	the job's TSN at the time of export or assigned at the time of import (see also O-TSN)
JSTATE:	Job status
CAT:	Catalog ID of the pubset where the job's command file is located
JNAME:	Job name
UID:	User ID under which the job runs
JCLSS:	Job class
O-TSN:	Only relevant for import. If a new TSN has to be assigned when the job is imported, because the TSN already exists in the system, the O-TSN (original TSN) column contains the job's original TSN.

(4) The information lines that follow begin with a process identification (record type *EXT for successful export or *IMP for successful import).

(5) Export of a repeat job. Repeat jobs may exist in two forms, namely current image and next image. The MOVE-JOBS command only exports the next image, in order to avoid job duplication. If a current image exists during the export process, that will be deleted and reconstructed again from the next image on import. If possible, the current image will retain its TSN.

(6) A current image existed when the repeat jobs was exported and was deleted (see item 5).

(7) Example of a system error during command execution; it was not possible to read a PAM page.

(8) Comprehensive warning message on command conclusion.

Example 2 (export log)

```
*HDR >  MOVE-JOBS   Date: 2012-03-24    Time: 08:49          ———————————————————   (1)

*CMD >  FROM-FILE = *STD
*CMD >                  ( CANCEL-RUNNING-JOBS = *NO )
*CMD >  TO-FILE   = JOBPOOL.1
*CMD >                  ( WRITE-MODE = *EXTEND )
*CMD >  SELECT    = *BY-TSN ( TSN =
*CMD >                     0XXX,0YYY,0ZZZ,0APP,0APR,0APS
*CMD >                      )
*CMD >  OUTPUT    = HEMUL
*CMD >                  ( SYSOUT = *YES, SYSLST = *NO  )
*CMD >  DIA-CONTR = *NO

+KEY >    TSN   JSTATE    CAT   JNAME     UID       JCLASS       O-TSN

#ERR >    0APS   IS CALLER TASK             ———————————————————————————————   (2)
#ERR >    0APR   IS ALREADY EXTRACTED
#ERR >    0APP   IS JOB-SCHEDULER
*NFD >    0ZZZ   IN SYSTEM JOBPOOL          ———————————————————————————————   (3)
*NFD >    0YYY   IN SYSTEM JOBPOOL
*NFD >    0XXX   IN SYSTEM JOBPOOL

#SYS >           RC FROM JOBP BOURSE   01234567
*WAR >           SOME JOBS COULD NOT BE PROCESSED
*WAR >    0XXX
*WAR >    0YYY
*WAR >    0ZZZ
*WAR >    0APP
*WAR >    0APR
*WAR >    0APS

 EXT >    0APR  *INACT    G              TSOS      JCJS2XSB
#ERR >    0APR   RC FROM CANCEL        09
 EXT >    0APQ  *INACT    G              TSOS      JCJS2XSB
 EXT >    0APP  *INACT    G              TSOS      JCJS2XSB
```

Explanation

(1) This sample log shows a further export. A new log file is created for each execution of the MOVE-JOBS command.

(2) The information lines are identified by IMP (for import). See item 3 above for details. Specific user jobs cannot be exported, because this would mean that they would be removed completely from the system and that is not desirable (e.g. the task under which the MOVE-JOBS command is currently running or the scheduler task of the JMS). The MOVE-JOBS command cannot, however, avoid all essential tasks from being exported. If the MOVE-JOBS command is not used with the utmost care, then important user-specific jobs may be canceled causing serious disruption to system operation.

(3) The TSN of a job to be exported is not known to the JMS (record type *NFD).

Example 3 (import log)

```
*HDR >  MOVE-JOBS   Date: 2012-03-23    Time: 13:50
*CMD >  FROM-FILE = JOBPOOL.GROSS
*CMD >  TO-FILE   = *STD
*CMD >  SELECT    = *BY-ATTRIBUTES (
*CMD >                JOB_STATE = ( *INACTIVE, *REPEAT )
*CMD >                PUBSET    = (
*CMD >                   A   ,G   ,L   ,2V24,2V27
*CMD >                            )
*CMD >                JOB-NAME  = *ANY
*CMD >                USER-ID   = *ANY
*CMD >                JOB-CLASS = (
*CMD >                   JCJS2XSB,JCJS3XSB,J1      ,J2      ,
*CMD >                   J3      ,J4      ,J5
*CMD >                            )
*CMD >                           )
*CMD >  OUTPUT    = HEMUL
*CMD >                ( SYSOUT = *YES, SYSLST = *NO  )
*CMD >  DIA-CONTR = *NO
+KEY >    TSN   JSTATE    CAT   JNAME     UID       JCLASS       O-TSN
 IMP >    0AQS  *INACT    2V24  HEM11     TSOS      JCJS2XSB    ————————————————————   (1)
 IMP >    0AQT  *INACT    2V24  HEM22     TSOS      JCJS2XSB
 IMP >    0AQU  *INACT    2V24  HEM33     TSOS      JCJS2XSB
 IMP >    0AQV  *INACT    2V24  HEM44     TSOS      JCJS2XSB
 IMP >    0AQW  *REPEAT   2V24  HEM55     TSOS      JCJS2XSB
 IMP >    0AQY  *REPEAT   2V24  HEM66     TSOS      JCJS2XSB
 IMP >    0AQ0  *REPEAT   2V24  HEM77     TSOS      JCJS2XSB
 IMP >    0AQ2  *REPEAT   2V24  HEM88     TSOS      JCJS2XSB
#ERR >    0AP0   UNDEFINED USER-ID     HEMUL                  ————————————————————   (2)
#ERR >    0AP1   UNDEFINED USER-ID     HEMUL
#ERR >    0AP2   UNDEFINED USER-ID     HEMUL
#ERR >    0AP3   UNDEFINED USER-ID     HEMUL
#ERR >    0AP4   UNDEFINED USER-ID     HEMUL
#ERR >    0AP5   UNDEFINED USER-ID     HEMUL
*MOD >    0AP7   TO CURRENT IMAGE      0AP6
#ERR >    0AP6   UNDEFINED JOB-CLASS   JCJS3XSB               ————————————————————   (3)
*MOD >    0AP9   TO CURRENT IMAGE      0AP8
#ERR >    0AP8   UNDEFINED JOB-CLASS   JCJS3XSB
*MOD >    0AQB   TO CURRENT IMAGE      0AQA
 IMP >    0AQA  *REPEAT   G              TSOS      JCJS2XSB    ————————————————————   (4)
#ERR >    0AQC   UNDEFINED JOB-CLASS   JCJS3XSB
 IMP >    0AAK  *INACT    A     LUCKI     TSOS      JCJS2XSB
 IMP >    0CTC  *INACT    2V27  ENTPE     TSOS      JCJS2XSB
 IMP >    0AAL  *INACT    A     LUCKI     TSOS      JCJS2XSB
 IMP >    0AAM  *INACT    A     LUCKI     TSOS      JCJS2XSB
 IMP >    0AAN  *REPEAT   A     LUCKI     TSOS      JCJS2XSB
 IMP >    0AAQ  *REPEAT   A     LUCKI     TSOS      JCJS2XSB
 IMP >    0CUY  *INACT    2V27  ENTPE     TSOS      JCJS2XSB
 IMP >    0AEG  *INACT    G              TSOS      JCJS2XSB
 IMP >    0AEH  *INACT    G              TSOS      JCJS2XSB
 IMP >    0AEK  *INACT    G              TSOS      JCJS2XSB
#SYS >    0AEG   RC FROM JMS JMJENQ    04                     ————————————————————   (5)
#SYS >    0AEE   RC FROM TSN REASSIGN  FFFF
#SYS >           RC FROM PAM READ      4567
#ERR >           WRONG VERSION ENTRY ON JOBPOOL PAGE 0005
#SYS >           RC FROM PAM WRITE     5678
```

Explanation

(1) Example of a successfully imported job. The information lines are identified by IMP (for import). For the meaning of output columns see item3 of "Example 1 (export log) in section "MOVE-JOBS"".

(2) It was not possible to import the job because the user ID *HELMUL* was not defined in the system.

(3) It was not possible to import the job because the job class *JCJS3XSB* was not defined in the system.

(4) Example of a successfully imported repeat job whose current image has been reconstructed.

(5) Example of another error situation reported in the log. It is not always possible to allocate an error to a specific job.

4.75 MOVE-PRINT-JOBS

Move print job from EQUISAMQ file

Component:	SPOOLSYS
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	PRINT-SERVICE-ADMINISTRATION

Function

Systems support can use the MOVE-PRINT-JOBS command to extract print jobs from one EQUISAMQ file (job spool queue) and move them into another. This allows systems support to remove urgent print jobs from a system that has failed and place them in the EQUISAMQ file of a functioning system for them to be printed. The command can also be used to relieve the print load of a system.
The function is also available when the SPOOL subsystem is not loaded.

The print jobs from the EQUISAMQ file of one system can be moved directly into the EQUISAMQ file of another system, or they can be stored in a work file before being finally moved to the EQUISAMQ file of the destination system and vice versa.

The number of print jobs that were moved successfully is output in the SPA0114 message. Each print job that has been successfully transferred is deleted from the input file.
If the TSN of a transferred print job already exists on the target system the job is assigned a new TSN and a message is issued to the console. The access authorizations pertaining to the print job remain unchanged.
The number 0 means that either no print job has been chosen or that no selection was possible due to an error.

As a standard, all local print jobs may be transferred. However, it is also possible to transfer all the distributed print jobs. Additional the number of print jobs moved may also be restricted with the aid of selection attributes (SELECT=*BY-ATTRIBUTES(...) operand):

- Selection via the pubset on which the required resources are located (RESOURCES-PUBSET operand).
- Selection via job status (JOB-TYPE operand); waiting, active or on-hold jobs can be selected.
- Selection via the job type (JOB-SCOPE operand); local or distributed print jobs may be selected.

The MOVE-PRINT-JOBS command supports all print jobs that are processed by the Dprint, SPOOL, RSO, SCSIPCL and SPS subsystems. Distributed print jobs can only be processed if the SPOOL subsystem is not loaded.

The following distributed printed jobs can be processed:

- Print jobs that were output by remote clusters (BS2000 or Xprint) and processed by the server located on the gateway host (gateway host = server host).
- Print jobs that were output by a BS2000 client host and processed on the associated home server (client host = server host).

The Dprint commands MODIFY-MULTIPLE-PRINT-JOBS and CANCEL-MULTIPLE-PRINT-JOBS can be used for other distributed print jobs (see the “Distributed Print Services” User Guide [10]).

Format

MOVE-PRINT-JOBS

FROM-FILE = ***STD** / <filename 1..54 without-gen-vers> / ***INACTIVE-SYSTEM-PRINT-QUEUE(..)**

***INACTIVE-SYSTEM-PRINT-QUEUE(...)**

| PUBSET= <catid 1..4>

,TO-FILE = ***STD** / <filename 1..54 without-gen-vers>

,SELECT = ***LOCAL-PRINT-JOBS / *DISTRIBUTED-PRINT-JOBS / *BY-ATTRIBUTES(...)**

***BY-ATTR**IBUTES(...)

| RESOURCES-PUBSET = ***ANY** / list-poss(128): <cat-id 1..4>

| ,JOB-TYPE = ***ANY** / list-poss(3): ***WAIT** / ***ACTIVE** / ***KEEP**

| ,JOB-SCOPE = ***ANY / ** list-poss(2): ***LOCAL-PRINT-JOBS / *DISTRIBUTED-PRINT-JOBS**

Operands

FROM-FILE = *STD / <filename 1..54 without-gen-vers> *INACTIVE- SYSTEM-PRINT-QUEUE(...)
The name of the original file from which the print jobs are to be transferred. This can be the EQUISAMQ file on the local system ($TSOS.EQUISAMQ on the home pubset), an EQUISAMQ file on an imported pubset or a work file generated with MOVE-PRINT-JOBS.

FROM-FILE = *STD
The print jobs are transferred form the EQUISAMQ file on the local system ($TSOS.EQUISAMQ on the home pubset).

FROM-FILE = <filename 1..54 without-gen-vers>
The print jobs are transferred from the file specified. The path name of an EQUISAMQ file ($TSOS.EQUISAMQ) or of a work file may be specified. The specified file must be existent and it must have the file attributes of an EQUISAMQ file.
A work file contains print jobs that have already been “collected” with MOVE-PRINT-JOBS and that are now to be transferred into an EQUISAMQ file or into another work file.

FROM-FILE = *INACTIVE-SYSTEM-PRINT-QUEUE(...)
The print jobs are transferred from the remote system’s EQUISAMQ file ($TSOS.EQUISAMQ on a pubset imported in the local system).

PUBSET= <cat-id 1..4>
Catalog ID of the imported pubset.

TO-FILE = *STD / <filename 1..54 without-gen-vers>
The name of the destination file into which the print jobs are to be transferred. The destination file can be an EQUISAMQ file on the local system (home pubset), an EQUISAMQ file on an imported pubset or a work file, however, it must not be the original file specified in the FROM-FILE operand.

TO-FILE = *STD
The print jobs are transferred to the EQUISAMQ file on the local system ($TSOS.EQUISAMQ on the home pubset). The file has to exist already (generated when the SPOOLSYS subsystem is started).

TO-FILE = <filename 1..54 without-gen-vers>
The print jobs are transferred into the specified destination file. The path name of an EQUISAMQ file ($TSOS.EQUISAMQ) or of a work file may be specified. The specified file must have the file attributes of an EQUISAMQ file. If the file does not yet exist, it will be generated with the appropriate file attributes. An exception to this rule is the EQUISAMQ on the local system. This must already exist (it is generated when the SPOOLSYS subsystem is started).
Print jobs can be collected in a work file and then transferred to an EQUISAMQ file at some later stage.

SELECT = *LOCAL-PRINT-JOBS / *DISTRIBUTED-PRINT-JOBS / *BY-ATTRIBUTES(...)
Specifies whether the number of print jobs to be transferred is to be restricted.

SELECT = *LOCAL-PRINT-JOBS
All local print jobs are transferred (corresponds to the specification SELECT=*ALL which is still supported for reasons of compatibility).

SELECT = *DISTRIBUTED-PRINT-JOBS
All local print jobs are transferred (see the notes on usage below).

SELECT = *BY-ATTRIBUTES(...)
Only the print jobs with the specified selection attributes are transferred.

RESOURCES-PUBSET = *ANY / list-poss(128): <cat-id 1..4>
Specifies whether the pubset with the required resources is the selection attribute.

RESOURCES-PUBSET = *ANY
The print jobs are selected regardless of the pubset on which the required resources are located. The following resources are considered when selecting local print jobs (specified with the PRINT-DOCUMENT command):

- file to be printed (FROM-FILE operand)
- job variable monitoring the job (MONJV operand, if specified)
- file with the user resources (USER-RESOURCES-FILE operand, if specified)
- translation table (TRANSLATION-TABLE operand, if specified)

In the case of distributed print jobs under BS2000 where client = server, the monitoring job variable and the user resource file are taken into account as resources (if specified).

RESOURCES-PUBSET = list-poss(128): <cat-id 1..4>
Only print jobs with the required resources on the specified pubset are selected. As many as 128 pubsets can be included in a list. If more than 128 pubsets are to be considered the MOVE-PRINT-JOBS command will have to be issued again for the remaining pubsets.

JOB-TYPE = *ANY / list-poss(3): *WAIT / *ACTIVE / *KEEP
Specifies whether the job status is to be a selection attribute. Several statuses may be given in a list (OR operation).

JOB-TYPE = *ANY
The print jobs are selected regardless of their status.

JOB-TYPE = *WAIT
The jobs that are waiting for a printer are selected. Their status may be WT (wait) or WP (wait-pre-processing).

JOB-TYPE = *ACTIVE
The jobs which have had a printer assigned to them are selected. Their status may be ACT (active), TRT (before-apa-print), TRD (after-apa-print) or PRE (pre-processing).

Selecting active jobs makes sense when you want to move print jobs from an EQUISAMQ file of a system that has failed into the EQUISAMQ file of a functioning system. If there is no system failure, active jobs cannot be accessed.

JOB-TYPE = *KEEP
Jobs that were put on hold are selected (e.g. with the HOLD-PRINT-JOB command). Their status is KP (keep).

JOB-SCOPE = *ANY / list-poss(2): *LOCAL-PRINT-JOBS / *DISTRIBUTED-PRINT-JOBS
Specifies whether local (*LOCAL-PRINT-JOBS) or distributed (*DISTRIBUTED-PRINT-JOBS) print jobs are to be selected. The default value is *ANY, i.e. both local and distributed print jobs are selected. Both types of print job can be specified in a list (OR operator).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	SPA0101	System error
	64	CMD0216	No authorization
	64	CMD2201	Parameter error
	64	SPA0102	Command execution terminated abnormally
	64	SPA0103	Command has already been executed by another task

Notes

- The MOVE-PRINT-JOBS command is rejected if you try to access the current EQUISAMQ file if the SPOOL subsystem is in the status IN-CREATE, IN-HOLD, IN-RESUME or IN-DELETE. This behavior is preset in the initialization file of the SPOOLSYS subsystem:

  ```
  MOVE.SPOOL.REQUEST=ABORT-REQUEST
  ```

  If the parameter value is changed into WAIT-SPOOL, command execution will not begin until the SPOOL subsystem is in the state CREATED or NOT-CREATED.
- While a MOVE-PRINT-JOBS command which accesses the current EQUISAMQ file is being processed, the START-, HOLD-, RESUME- and STOP-SUBSYSTEM commands are rejected for the SPOOL subsystem. This behavior is preset in the initialization file of the SPOOL subsystem:

  ```
  MOVE.SPOOL.REQUEST=ABORT-REQUEST
  ```

  If the parameter value is changed into WAIT-MOVE, command execution will not begin until the MOVE-PRINT-JOBS command has been concluded.
- While a MOVE-PRINT-JOBS command is being executed any other MOVE-PRINT-JOBS command is rejected. This behavior is preset in the initialization file of the SPOOLSYS subsystem:

```
MOVE.COMMAND=ABORT-REQUEST
```

If the parameter value is changed into WAIT-REQUEST, command execution of a further MOVE-PRINT-JOBS command will be started, when the currently active command execution routine is concluded.

- If the print jobs are output independent of the pubset on which the required resources are located, it is also possible to select print jobs that require resources on the home pubset. They can only be printed in another system if the pubset has been imported on that system. If this is not the case, the print jobs are rejected (status KP).
- Print jobs that have been successfully transferred to the destination file are deleted from the original file.
- RSO print jobs that were transferred into the current EQUISAMQ file are only visible if the RSO subsystem has been loaded.
- Print jobs whose TSN is already in use in the destination file, are assigned a new TSN. The relevant information is issued to the console.
- When a print job has been transferred to the destination file the job variable that is monitoring the job will be updated. The new TSN and the status of the print job (as established on the output device) are entered. The other fields remain unchanged.
- Print jobs with the same TSN (one PRINT-DOCUMENT command for several files with FAMILY-PROCESSING=*YES) are split up in the transfer process, i.e. n-1 elements of the job all receive a TSN of their own.
- Active print jobs that are transferred (after a system crash), are returned to the wait state. The other jobs retain their respective states.
- Print jobs that request a file lock (LOCK-FILE operand in the PRINT-DOCUMENT or MODIFY-PRINT-JOB-ATTRIBUTES command) are ignored when jobs are being transferred from a work file into the current EQUISAMQ file, if the file lock cannot be set (e.g. the file no longer exists or the pubset cannot be accessed).

Special characteristics of distributed print jobs

- If the TSN of a print job already refers to another task or another print job on the remote system to which it was moved with the MOVE-PRINT-JOBS command, this print job is assigned a new TSN, and a console message (SPA0105) is issued. In addition, this second print job (on the target system) is set with message SPA0117 to “not schedulable”, i.e. stopped, in the following cases:
  1. if the print job to be moved is a distributed print job on different clusters, with gateway = server
  2. if the TSN of the print job matches the TSN of a distributed print job (not client = server) on the target system
  3. if the SPOOL subsystem is not loaded.

  The assignment of a new TSN occurs only when print jobs are moved to the standard EQUISAMQ file of the system. If a new TSN was assigned, the order of the print jobs involved must be defined in accordance with the new TSN.
- The user ID of virtual printer server tasks should be defined under a (selectable or shared) pubset which is not the home pubset in order to facilitate the administration of the user ID within HIPLEX (provided that the HIPLEX function is available).

4.76 MOVE-TASK-TO-CATEGORY

Modify category assignment of a task

Component:	BS2000
Functional area:	Job processing
Domain:	JOB SYSTEM-TUNING
Privileges:	TSOS

Function

The MOVE-TASK-TO-CATEGORY command enables systems support to modify the application of a task to a category if it is necessary to handle this task better or relieve the load on a category.

In addition to the four categories with the standard names TP, DIALOG, BATCH and SYS, the task management supports 12 other categories whose names are defined with the JMU utility routine. The job management system (JMS) notifies the task management of these JMS categories.

PCS (Performance Control System) enables further categories which are not known to JMS to be set up. However, these additional categories can only be successor categories of JMS categories. A JMS category can also be defined as a successor category of another JMS category.
The change in the chain of successor categories is initiated by PCS when a predefined quantity of added SERVICE-UNITS is exceeded (also referred to as DURATION RUNOUT).
The successor categories specified when PCS is used are displayed using the PCS command SHOW-PCS-OPTION.

The MOVE-TASK-TO-CATEGORY command assigns a task only to target categories which are JMS categories and not successor categories.

Task attributes assigned to the user (DIALOG, BATCH, TP) are defined by systems support in the user catalog and in the job classes. They can be modified via program interfaces (TINF macro).
A task can only be assigned to a target category if the task type which is assigned to the target category is the same as the current task type of the task (if required using a setting made with TINF).

The command is rejected in the event of a task with the task type “SYSTEM” and if the category SYS is specified.

Format

MOVE-TASK-TO-CATEGORY	Alias: **MTTC**

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**TO-CATEG**ORY = <name 1..7> / ***DIALOG** / ***BATCH** / ***TP**

Operands

JOB-IDENTIFICATION =
Type of job identification.
Jobs can be identified by their task sequence number (TSN) or monitoring JV (MONJV). Jobs with the task type “SYSTEM” are not accepted.

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task sequence number (TSN).

TSN = <alphanum-name 1..4>
TSN of the job whose category assignment is to be modified.

JOB-IDENTIFICATION = *MONJV(...)
The job is identified by the JV which monitors it.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV monitoring the job whose category assignment is to be modified.

TO-CATEGORY = <name 1..7> / *DIALOG / *BATCH / *TP
Name of the target category to which the task is to be assigned. The category SYS is not accepted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Without errors
1	0	CMD0001	Task is already assigned to the specified target category
	1	CMD0202	Syntactical error
	32	CMD0221	System-internal error
	64	CMD0216	Authorization missing
	64	EXC0200	Parameter error: TSN or MONJV unknown or MONJV belongs to another system in the MSCF network
	64	EXC0201	Parameter error: Target category unknown
	64	EXC0202	Parameter error: Task with system type SYSTEM is not allowed
	64	EXC0203	Parameter error: SYS is not allowed as the target category
	64	EXC0204	Target category is not a JMS category (but a category set up by PCS)
	64	EXC0205	Target category is a (PCS) successor category and not an “autonomous” JMS category or a (JMS) start category in a chain of PCS successor categories
	64	EXC0206	Task type of task and target category do not match

Example

The task with TSN=0BMU is assigned to the category BATCHF and is now to be assigned to the category TP2:

/show-job-status job-id=*tsn(0bmu)

```
TSN:     0BMU       TYPE:    2 BATCHF   NOW: 2012-03-08.154540
...
```

/move-task-to-category tsn=0bmu, to-category=tp2

The command is rejected with the following message:

```
% EXC0205 TARGET-CATEGORY IS A CONSECUTION CATEGORY. COMMAND NOT PROCESSED.
```

When PCS is used the PCS command /SHOW-PCS-OPTION supplies the following information:

Category TP (=JMS/PCS start category)	->	Category TP1 (=JMS/PCS successor category)	->	Category TP2 (=Non-JMS/PCS successor category)

The task is therefore to be assigned to the (JMS) start category, namely TP, in this sequence:

/move-task-to-category tsn=0bmu, to-category=tp

```
% EXC0208  TASK WITH TSN = '0BMU' ASSIGNED TO TARGET-CATEGORY 'TP'.  COMMAND
COMPLETED.
```

The SHOW-JOB-STATUS command now shows that the task is now assigned to the category TP:

/show-job-status job-id=*tsn(0bmu)

```
TSN:     0BMU       TYPE:    2 TP       NOW:     2012-03-08.154820
...
```

As the task is already assigned to the target category TP, only message EXC0207 is output when the MOVE-TASK-TO-CATEGORY command is issued again for the target category TP:

/move-task-to-category tsn=0bmu, to-category=tp

```
% EXC0207  TASK WITH TSN = '0BMU' ALREADY ASSIGNED TO TARGET-CATEGORY 'TP'.
COMMAND COMPLETED.
```

5 OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION

The manual "Commands" is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

5.1 OPEN-VARIABLE-CONTAINER

Open variable container

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The OPEN-VARIABLE-CONTAINER command is used to open variable containers, which are stored as PLAM library elements. If such a variable container or element does not yet exist when the command is called, it is automatically created.

This makes it possible to create S variables which are permanently available, i.e. S variables whose existence is not dependent on the current task.

Restrictions

If the chargeable SDF-P subsystem is not available, the following restrictions apply:

- The scope can be defined with SCOPE=*CURRENT only.
- If AUTOMATIC-DECLARE=*ALL is specified, only simple S variables can be declared (TYPE=*ANY and MULTIPLE-ELEMENTS=*NO). All other declarations are rejected.

Format

OPEN-VARIABLE-CONTAINER

CONTAINER**-NAME** = <composed-name 1..64>

,**FROM-FILE** = ***LIB**RARY**-ELEM**ENT (...)

***LIB**RARY**-ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-vers>

| ,**ELEM**ENT = ***CONTAIN**ER**-NAME** / <composed-name 1..64>(...)

| <composed-name 1..64>(...)

| | **VERSION** = ***HIGH**EST**-EXIST**ING / <composed-name 1..24>

,**LOCK-ELEM**ENT = ***NO** / ***Y**ES

,**SCOPE** = ***CURR**ENT / ***PROC**EDURE / ***TASK**(...)

***TASK**(...)

| **SAVE-AT-TERMINATION** = ***NO** / ***Y**ES

,**AUTOMATIC-DECLARE** = ***ALL** / ***NONE** / <structured-name 1..20 with-wild(40)> /

list-poss(2000): <structured-name 1..20>

Operands

CONTAINER-NAME = <composed-name 1..64>
Name of the variable container.

FROM-FILE = *LIBRARY-ELEMENT(...)
The library element which contains the variable container.
The element type is SYSVCONT.

LIBRARY = <filename 1..54 without-vers>
Name of the PLAM library.

ELEMENT =
Name of the element.

ELEMENT = *CONTAINER-NAME
The name of the element is identical with that of the variable container.

ELEMENT = <composed-name 1..64>(...)
The name of the element may differ from that of the variable container.

VERSION =
Designates the version of the element.

VERSION = *HIGHEST-EXISTING
Selects the highest existing version.

VERSION = <composed-name1..24>
Selects the specified version.

LOCK-ELEMENT =
Specifies whether the element is locked or not.

LOCK-ELEMENT = *NO
The element is opened in input mode. The container variables are copied into the variable container from this element. The element is then locked.

LOCK-ELEMENT = *YES
The element is opened in input and output mode. The container variables are copied from this element into the variable container. The element then remains open until the CLOSE-VARIABLE-CONTAINER command is issued. Any subsequent OPEN-VARIABLE-CONTAINER command which is issued in the same task or another task is rejected.

SCOPE = *CURRENT / *PROCEDURE / *TASK(...)
Defines the scope of the variable container. This controls access to the variables held in the variable container. The scope of the container variable must not be greater than that of the variable container.

SCOPE = *CURRENT
The scope of the variable container is procedure-local (for further details see “Scope of variables” in the “SDF-P” manual [34]).

The variable container can only be used in the local procedure and in any lower-level include procedures, but not in the calling procedure. The container is implicitly closed at the end of the current procedure.

> The operand values *PROCEDURE and *TASK(...) can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

AUTOMATIC-DECLARE =
Specifies whether the container variables are to be automatically declared.

AUTOMATIC-DECLARE = *ALL
The container variables are automatically declared, with the scope of the variable container.

AUTOMATIC-DECLARE = *NONE
Container variables are not automatically declared.

AUTOMATIC-DECLARE = list-poss(2000): <structured-name 1..20>
The specified container variables are automatically declared with the scope of the variable container.

AUTOMATIC-DECLARE = <structured-name 1..20 with-wild(40)>
The container variables whose names match the specified pattern string are automatically declared with the scope of the variable container.

Notes

- Variables in a variable container can be created by means of the CONTAINER operand in the DECLARE-VARIABLE command.
- A reference to a variable container is not allowed until it has been created using OPEN-VARIABLE-CONTAINER.
- If variables are automatically created (using OPEN-VARIABLE-CONTAINER) and the variables already exist with different attributes, the declaration is rejected and error message SDP1018 is returned as a warning.

Notwithstanding this, the opening process continues.
The user can interrogate the rejected variables by means of the S variable stream SYSMSG.

- If the variable container includes any variables that cannot be processed using SDF-P-BASYS, any declaration of such variables by means of AUTOMATIC-DECLARE will be rejected.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SDP00xx	Warning: Variable does not exist or is already declared with other attributes. Guaranteed messages: SDP1008, SDP1018
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	Do not have required privilege
	64	SDP0091	Semantic error
	130	SDP0099	No more address space available

Example

See the DECLARE-VARIABLE command.

5.2 OPEN-VIRTUAL-DEVICE-DIALOG

Open dialog with virtual printer

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION

Function

The OPEN-VIRTUAL-DEVICE-DIALOG command initializes the dialog between a virtual device and the user application procedure in which the call takes place. It is executed in batch mode only.

The command is part of a set of four commands which enable an application to be created in the form of an S procedure (see "Sample application procedure"). These commands manage the dialog between a virtual device and the application which was started in batch mode as an S procedure:

- OPEN-VIRTUAL-DEVICE-DIALOG
- GET-JOB-FROM-VIRTUAL-DEVICE
- RETURN-JOB-TO-VIRTUAL-DEVICE
- CLOSE-VIRTUAL-DEVICE-DIALOG

Format

OPEN-VIRTUAL-DEVICE-DIALOG

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error; command successfully processed
	32	SCP0974	Unexpected command
5	32	SCP0974	Memory request error

Notes

1. This dialog with the virtual device need be initialized only once, at the beginning of the procedure.
2. If the dialog cannot be initialized, the command is rejected and a return code is set.
3. If initialization has already taken place, the command is rejected and a return code is set.
4. This command can only be used in batch mode.
5. Spin-off processing is activated each time an error is detected.

Sample application procedure

```
/SET-PROC-OPTIONS DATA-ESCAPE-CHAR=*STD,LOGGING-ALLOWED=*YES
/ " ************************************************************ "
/ " * PARAMETERS DECLARATION                                   * "
/ " ************************************************************ "
/BEGIN-PARAMETER-DECLARATION
/END-PARAMETER-DECLARATION
/ " ************************************************************ "
/ " * END PARAMETERS DECLARATION                               * "
/ " ************************************************************ "
/MODIFY-PROC-TEST-OPTIONS LOGGING=*PARAMETERS(CMD=*YES,DATA=*YES)
/MODIFY-JOB-OPTIONS LOGGING=*PARAMETERS(LISTING=*YES,/
                           HARDCOPY=*YES)
/MOD-TERMINAL-OPTION OVERFLOW-CONTROL=NO-CONTROL
/STEP
/DECL-VAR VAR-NA=JOB-ID,TYP=*STRING,SCOPE=*TASK
/DECL-VAR TSN,TYP=*STRING
/DECL-VAR ACTION(TYP=*STRING,INIT-VAL='*INIT')
/DECL-VAR CONDITION,TYP=*BOOLEAN
/DECL-VAR ERROR-LIST(INIT='(0,0,CMD0001)',TYP=*STRING)
/STEP
/OPEN-VIRTUAL-DEVICE-DIALOG
/ IF-CMD-ERROR
/ END-IF
/STEP
/WHILE CONDITION=(ACTION<>'*LAST')
/STEP
/GET-JOB-FROM-VIRTUAL-DEVICE FILE-PREFIX=*NONE, -
/                            METADAT-PREFIX=*NONE, -
/                            OUTPUT-DOC-ID=JOB-ID
/ IF-CMD-ERROR
/    ERROR-LIST='(&SUBCODE1,&SUBCODE2,&MAINCODE)'
/    SH-VAR ERROR-LIST
/ END-IF
/STEP
/IF ('&(SUBSTRING(JOB-ID,1,5))' == '*NONE')
/CLOSE-VIRTUAL-DEVICE-DIALOG
/ IF-CMD-ERROR
/    ERROR-LIST='(&SUBCODE1,&SUBCODE2,&MAINCODE)'
/    SH-VAR ERROR-LIST
/ END-IF
/EXIT-PROC
/END-IF
/STEP
/TSN=SUBSTRING(JOB-ID,1,4)
/STEP
  .
  .
     User-specific procedure part
  .
  .
/RETURN-JOB-TO-VIRTUAL-DEVICE POST-ACTION=*WAIT
/END-WHILE
```

5.3 PRINT-DOCUMENT

Output files/library members to printer

Component:	SPOOL
Functional area:	Controlling spoolout jobs
Domain:	SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$

Function

The PRINT-DOCUMENT command enables you to output files on a printer. By specifying the relevant operands you can control the print job. If a print job contains nothing other than the name of the file to be printed, SPOOL uses default values.

The specifications in the PRINT-DOCUMENT command are entered into a spool control block (SCB) along with the default values for device selection. The SCB is placed in a spoolout queue (local spoolout, RSO) and managed as a separate job with a separate TSN.

You can monitor the processing of your spoolout jobs with the SHOW-PRINT-JOB-STATUS command, modify specific print control parameters with the MODIFY-PRINT-JOB-ATTRIBUTES command, change the priority of your jobs with the CHANGE-TASK-PRIORITY command or cancel them with the CANCEL-PRINT-JOB command.

> The PRINT-DOCUMENT command is an enhanced version of the PRINT-FILE command. The functional scope of PRINT-FILE meets the needs of SPOOL Version 2.7B, but only PRINT-DOCUMENT allows you to use the additional and enhanced features available in SPOOL V3.0A and above.

Overview of control options

Control option	Operand to be specified
Specify the name of the print file or library element	FROM-FILE
Only output part of each record	DOCUMENT-PART
Set a common TSN for several jobs	FAMILY-PROCESSING
Only output part of a file	INPUT-PART
Define the start time for a print job	SCHEDULING-TIME
Lock a file until end of job	LOCK-FILE
Delete a file after printing	DELETE-AFTER-PRINT
Assign a job name for the SPOOL job	PRINT-JOB-NAME
Assign a priority for the SPOOL job	PRINT-JOB-PRIORITY
Print multiple copies of a file	ADDITIONAL-COPIES
Specify a form (paper)	FORM-NAME
Set print attributes	LAYOUT-CONTROL
Determine the printer for output	TO-PRINTER
Influence output of header and trailer pages	COVER-PAGES
Execute job under another user ID (only with PRINT-SERVICE-ADMINISTRATION privilege)	PROCESSING-ADMISSION
Control the failure processing	FAILURE-PROCESSING
Support handling of notifications	NOTIFICATION

Table 75: PRINT-DOCUMENT command, control options

Controlling spoolout

Printer selection

If a print job does not specify which printer to use, SPOOL assigns it to any available high-speed printer. The number of characters this printer prints per line depends on the form.

If the job is to be printed on a particular printer, you specify this printer in the TO-PRINTER operand structure (see the operand description TO-PRINTER).

The operands listed have minimum requirements with regard to the printer(s) used. Thus, if you specify one of these operands, you influence printer selection.

Operand	Printer required (minimum requirement)
PRINTER-TYPE=*LP65-PRINTER	LP65 printer
PRINTER-TYPE=*APA-PRINTER	APA printer
PRINTER-TYPE=*HP-PRINTER	HP printer or HP90 printer
USER-RESOURCES-FILE (corresponds to *STD)	HP, HP90 or APA printer
PAGE-COPIES (corresponds to *STD and to 0)	HP, HP90 or LP65 printer
FORM-DEFINITION= <name>	APA printer
TABLE-REFERENCE-CHAR = <name>	APA printer
PAGE-DEFINITION = <name>	APA printer
CHARACTER-SETS = *POOL	HP printer or HP90 printer
FORMS-OVERLAY-BUFFER	HP printer or HP90 printer
ROTATION	HP printer or HP90 printer
OVERLAY (<face>,<reverse>)	LP65 printer
PAGE-DEFINITION = n	LP65 printer

Table 76: PRINT-DOCUMENT command operands with implicit printer selection

If none of the operands in this table is specified, the default value in the SPOOL parameter file is used for printer selection.

Specifying the form

If a print job does not specify which form to use, SPOOL uses the default form (STD) defined in the SPOOL parameter file.

The default STD form normally refers to:

- the default loop C1 with a line density of 6 lpi and the vertical tab “channel 1” (normally the beginning of the page) on line 3
- the default rotation loop R06 for HP printers and HP90 printers with a line density of 6 lpi and a form length of 13.5 inches

To use another form, enter the desired form using RESOURCE-DESCRIPTION=*PARAMETERS(FORM-NAME=...).

Controlling paper feed

Appropriate paper feed (loop) information is associated with each form. Unless you specify otherwise, the loop assigned to the form is used automatically. However, RESOURCE-DESCRIPTION=*PARAMETERS(LOOP-NAME=...) also lets you specify a different loop name. For all printers, this loop must be contained in the system PRFILE $SYSSPOOL.PRFILE or an appropriate user PRFILE.

> When explicitly specifying a loop, ensure that the length of the loop corresponds to the length of the form.

For printers with a loadable vertical format buffer, specifying a paper form (FORM-NAME operand) loads the loop associated with this form into the buffer. If the LOOP-NAME operand is specified in the same spoolout job, the feed is governed by the loop specified in LOOP-NAME. In all cases, the loop called must be available in a PRFILE.

If the paper form and font are not specified, SPOOL assumes that the vertical tab “channel 1” is set to the start of a new page in the loop (line 3).

The default loop “C1”, the default font “101” and other fonts intended for laser printers are normally contained in the system PRFILE.

Defining loops yourself

You can use the PRM utility routine to define and administer your own loops. For more details, see the “PRM” manual [30].

Feed control characters

EBCDIC feed control characters:

Feed control characters	Effect
X'40' through X'4F'	n line feeds before printing, 1 line feed after printing
X'00' through X'0F'	n line feeds after printing
X'C1' through X'CB'	Channel feed before printing
X'81' through X'8B'	Channel feed after printing

Table 77: EBCDIC feed control characters

EBCDIC and IBM printer control byte formats:

Value	Bit position and meaning (EBCDIC)							
	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
0	Line feed	after printing	always 0	always 0	Number of lines or V tab no. Value: 8	Number of lines or V tab no. Value: 4	Number of lines or V tab no. Value: 2	Number of lines or V tab no. Value: 1
1	Channel feed	before printing						

Value	Bit position and meaning (IBM)							
	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
0	Line feed	V tab number Value 8	V tab number Value 4	Number of lines or V tab no. Value: 2	Number of lines or V tab no. Value: 1	always 0	after printing	always 1
1	Channel feed						before printing	

*) V tab is the vertical tab “channel n”

ASA feed control characters and corresponding EBCDIC feed control characters:

ASA feed	EBCDIC feed	Effect
C'+'	X'00'	No line feed after printing
C’-’	X'42'	2-line feed before printing
C'0'	X'40'	1-line feed before printing
C'1'	X'C1'	Jump to channel 1 before printing
...	...	...
C’A’	X’CA’	Jump to channel 10 before printing
C'B'	X'CB'	Jump to channel 11 before printing
others	X'40'	No line feed before printing

Any invalid control characters are corrected on laser printers.

> The vertical tab “channel 12” (X'CC') or (X'8C') is reserved for SPOOL.
> The differences in printer hardware mean that ASA and EBCDIC feed control characters are not completely identical: OPS printers advance not before but **after** printing a line - except in the case of X'00' (see above).

Specifying fonts

Every form entered in the SPOOL parameter file is assigned a font. This assignment is entered in the SPOOL parameter file.

If no font is specified in the PRINT-DOCUMENT command, font “101” is used as the default. This font is assigned to the “STD” form in the SPOOL parameter file for all printers except types 3337, 3338 and 3339. Font “101” has the OCR-B character style and is defined for a line density of 6 lines per inch (lpi) and a character density of 10 characters per inch (cpi).

The operand RESOURCE-DESCRIPTION=*PARAMETERS(CHARACTER-SETS=) enables you to specify a font from the system PRFILE for HP/HP90 printers. If the desired font is in a user PRFILE, you must specify this in the USER-RESOURCES-FILE operand.

For the operand RESOURCE-DESCRIPTION=*PARAMETERS(CHARACTER-SETS=), specify

- either the names of up to four fonts (for HP/HP90 printers)
- or the name of a font pool containing up to 64 fonts (HP/HP90 printers)

to be used to print a file. The fonts are contained in the $SYSSPOOL.PRFILE resource library. However, you can also create a private user PRFILE containing one or more of your own fonts that you have created using the PRM utility routine. You can also define a font pool yourself in a user PRFILE. To print a file with a user-defined font, you must specify the file name in the USER-RESOURCES-FILE operand.

You can also specify a font directly from the standard SPSLIB when printing in APA mode. If the desired font is contained in a user SPSLIB, this must be specified simultaneously with the USER-RESOURCES-FILE operand, in the same way as for HP/HP90 printers. In the case of the operand RESOURCE-DESCRIPTION=*PARAMETERS (...), you can specify fonts in the PAGE-DEFINITION suboperand. The fonts are contained in the printer control file $SYSSPOOL.SYSPRT.SPS.<version>. You can use the software product SPM to create your own fonts in a user SPSLIB. For details, see the “SPOOL” manual [43]. To print a file with a user-defined font, you must specify the file name in the USER-RESOURCES-FILE operand.

Before starting to print the file, the SPOOL system loads the specified fonts from the specified PRFILE into the character memory of the laser printer. If a file is printed with DOCUMENT-FORMAT=*TEXT in the PRINT-DOCUMENT command / PRNTDOC macro - i.e. control characters in the text are not interpreted (except in printer type 3365, see the “SPOOL” manual [43]) - the first font specified in the CHARACTER-SETS operand of the PRINT-DOCUMENT command is used to print the whole file. It is thus preferable to specify just one font. Conversely, if the print file text contains control characters to be interpreted by SPOOL - i.e. CONTROL-MODE=*PAGE-MODE must be specified in the PRINT-DOCUMENT command - the font to be used in each instance is selected from the fonts loaded as follows:

- The control information in the first record on each print page determines, among other things, which font should be used to start printing the page. Control characters within the print data enable the font to be changed anywhere on the page (for every character, if need be).
- The fonts specified for CHARACTER-SETS are loaded into the printer's character memory when the command is processed.
- The procedure for switching from one font to another by means of control characters is as follows:

  All fonts you specify (either explicitly or by specifying a pool name) are loaded on the requested device during scheduling. Only the first font specified can be used if DOCUMENT-FORMAT=*TEXT applies. The number of fonts (specified either explicitly in the PRINT-DOCUMENT command or implicitly by means of a pool) is compared with the upper limit defined as a global parameter at installation time. The scheduler checks whether the specified device has enough memory for all explicitly or implicitly specified fonts to be loaded.

Whenever possible, you should refer to the pools set up by systems support:

- either by specifying the pool name alone
- or by specifying a pool name and an index

The scheduler forms groups of jobs using the same font or the same pool, thus avoiding unnecessary font changing and reloading operations.

If the PRINT-DOCUMENT command contains references to fonts not yet loaded into the device's character buffer, and if there is no more space in the character buffer, the controller checks the loaded fonts for those which are called least frequently; these are then replaced with new ones.

If more than four fonts are requested in the PRINT-DOCUMENT command, it may happen that none of the available HP laser printers is able to load the requested number of fonts. In this case, the relevant job cannot be processed.

In the information you request with the SHOW-USER-STATUS command, all jobs requiring more than four fonts (or overlays or the page rotation module) are marked by an asterisk in the OPT field. The SHOW-PRINT-JOB-STATUS command allows you to display the number of requested fonts.

If you issue the PRINT-DOCUMENT command with the operands LOOP-NAME, CHARACTER-SETS and so on for laser printers, the $SYSSPOOL.PRFILE resource library is checked to see whether the relevant entries are available. If not, the PRINT-DOCUMENT command is rejected.

If you issue the PRINT-DOCUMENT command with the FORM-NAME and/or LOOP-NAME operands for printers with a loadable VFB, the resource library is checked to see whether the relevant entry is available. If not, the PRINT-DOCUMENT command is rejected.

Example

A file containing four different fonts is to be printed on a laser printer.

```
/PRINT-DOCUMENT FROM-FILE=dateiname,...,RESOURCE-DESCRIPTION=
      *PAR(CHARACTER-SETS=(100,360,370,#XY)),...
```

To switch to font 370 (the third font), for example, one of the following control characters should be selected, depending on the desired character density:

X'06'	Character density 10 characters/inch and font in MXM section 3.
X'0A'	Character density 12 characters/inch and font in MXM section 3.
X'0E'	Character density 15 characters/inch and font in MXM section 3.

The character density for which font 3 (370) was originally defined should of course be taken into account.

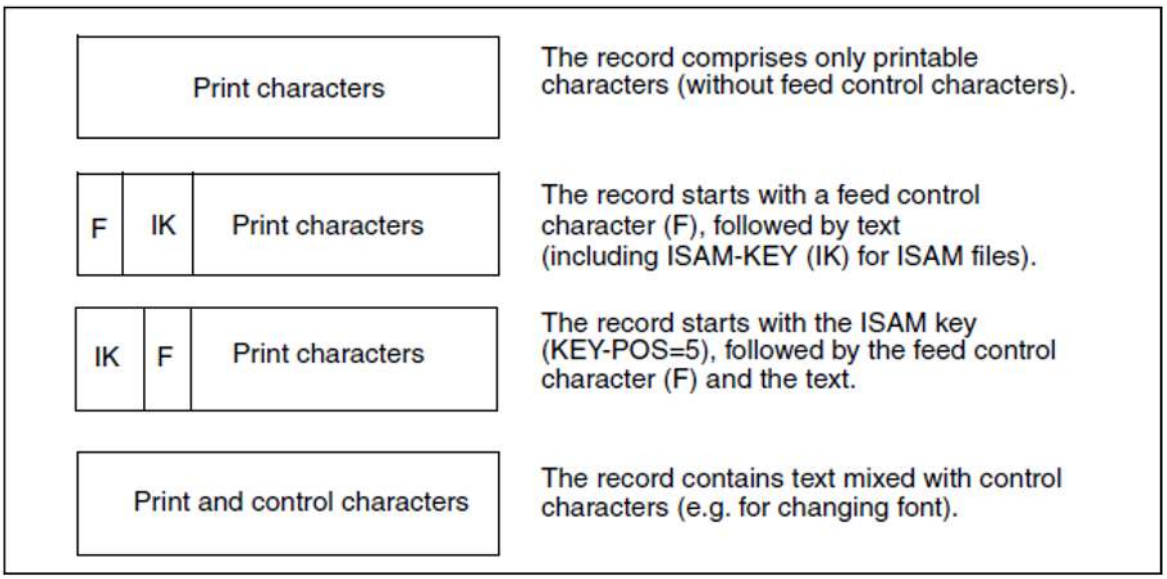
Interpreting layout control characters

If you want to print a file containing layout control characters, when you create the job you can specify whether these control characters are to be interpreted by assigning the appropriate value to the operand DOCUMENT-FORMAT=*PARAMETERS. For further information on control characters, see the “SPOOL” manual [43].

SPOOL loads the font buffer and feed buffer as appropriate when processing the spoolout.

> The operator can use the START-PRINTER-OUTPUT command to ensure that the laser printer jobs specified with DOCUMENT-FORMAT=*TEXT may also be printed on an impact printer (line printer). In this case, the operands LOOP-NAME, PAGE-COPIES, ADDITIONAL-COPIES, USER-RESOURCES-FILE, CHARACTER-SETS and OVERLAY-RESOURCES are not interpreted.

Examples of control characters in a file



Defining your own forms, loops and fonts

For HP/HP90 printers:

Paper forms, loops, and fonts are generally defined by systems support. You can, however, also create loops and fonts yourself, store them in a user-specific resource library (PRFILE) and use them for SPOOL jobs. The loops and fonts must relate to a paper form already available in the SPOOL parameter file. You can use the USER-RESOURCES-FILE operand to cause SPOOL to use your resource library for this job. For further details, see the “PRM” manual [30].

For APA printers:

You can also create a private printer control file (SPSLIB) containing your own fonts etc. for printers that run in APA mode. You also specify this with the USER-RESOURCES-FILE operand. See also the “SPOOL” manual [43].

Monitoring spoolout with job variables

SPOOL jobs can be monitored with job variables. Entering the name of a monitor variable (MONJV) in the PRINT-DOCUMENT command causes SPOOL to store a continuous stream of information on the processing of the job in the monitoring job variable.

For this purpose SPOOL uses the MONJV functions of the JV product. As a result, a job variable which is assigned to a spoolout job is protected against access by other jobs exactly like, for instance, the MONJV of an Enter job. This is regardless of whether the spoolout job is queued, has been canceled or is currently being processed.

Detailed information on managing job variables is provided in the “JV” manual [20].

SPOOL job variables can also be password-protected. Before a password-protected SPOOL job variable is interrogated, the password must first be entered into the password table by means of the ADD-PASSWORD command or in the PRINT-DOCUMENT command by means of the JV-PASSWORD operand.

Error handling involving SPOOL job variables

If there are access problems involving SPOOL job variables, SPOOL can respond as follows:

- If the error occurs during syntax checking of the PRINT-DOCUMENT command, the command is rejected on account of the operand in which the error has occurred. In the case of shared processing of several jobs (FAMILY-PROCESSING operand), only the relevant file is rejected. Processing of the command then continues. If only one job is being processed, this is canceled.

  If the operand START-PROCESSING=<integer..> or *AT-FILE-CLOSING is specified in the PRINT-DOCUMENT command, SPOOL continues processing despite the problem with the variable, since otherwise part of the data would get lost. Instead, SPOOL gives a warning to the user and continues processing the job without monitoring job variables.
- If the error occurs during spoolout, SPOOL outputs the message SPS0450 on the trailer page but otherwise continues spoolout processing as normal.

Contents of the SPOOL job variable

The job variable is structured as follows:

Sta	TSN	Proc.	Reserve		S		OTSN		E#		EC#		Device		ERCOD		ERMSG
1	4	9	17		38		40		45		49		53		62		71

The first three fields of the job variable are reserved for ENTER jobs. The subsequent fields are assigned to SPOOL and reflect the various processes involved in SPOOL job processing.

The fields “Status” and “Processor” are left-justified and are initially filled with blanks. The other fields are right-justified and are also initially filled with blanks.

If the job variable does not exist, it is created if necessary when the command is checked for validity.

You can use the SHOW-JV command to display the contents of a job variable.

Overview

Field	Contents	Meaning
Sta	$S	(spooled-in) Job accepted and in wait status
	$R	(running) Job active
	$P	(pre-processing) Job for which a section is currently being preprocessed
	$T	(terminated) Job successfully terminated
	$A	(aborted) Job canceled or terminated abnormally
	$K	(kept) Job was kept back
TSN	tsn	Contains the TSN of the job with the preceding filler character "0"; in the case of a replay job, tsn is always the current TSN. The original TSN is located in field OTSN;
Proc.	proc	Like ENTER-JOB jobs, contains the catalog ID of the system (home pubset) on which the job was issued or the tape is being played in;
Res.		Reserved
S		Specifies whether the job is connected with tape processing
	0	Job contains sections which have not been preprocessed
	1	General job processing
	2	Job is on tape or was saved there
	3	Job comes from a tape
OTSN	otsn	In the case of a replay job contains the original TSN;
E#	nnn	Number of copies to be printed
EC#	nnn	Number of copies already processed
Dev.	xxxxxx	For active jobs ($R, $T or $A) specifies the device name, the abbreviated device name or "TP" for user tapes;
ERCOD	xxxxxxxx	Error code for RSO jobs
ERMSG	xxxxxxx	Identification number of the error message in the case of RSO jobs

Table 78: Structure of the SPOOL job variable

Notes

- The normal progression of job status is $S, $R and $T (or $A/$K). A replay job receives the status $T after the file has been transferred to tape. This tape can be played back on the same system. In this case, the job variable is checked as soon as the file is in the system. If the original job variable still exists, it is reinitialized and receives the status $S.
- The job variable subsystem is optional. If it is not available during the PRINT-DOCUMENT command validity check and if a job variable is requested, SPOOL rejects the command.

Brief description of the PRINT-DOCUMENT operands:

Level 1 operands	Substructure	Function
FROM-FILE		Name of the print file:
	*EAM(...)	Temporary EAM object module file
	<filename>	BS2000 file name
	<posix-pathname>	POSIX path name
	*LIBRARY-ELEMENT(...)	Member from a PLAM library
	*OMF	Object module file
	*SYSOUT/*SYSLST(...)	System file *SYSOUT/SYSLST
DOCUMENT-PART		File area which is to be output
	INPUT-SECTION(...)	Splitting the file into sections
	INPUT-PART(...)	First and last records to be output
	RECORD-PART(...)	First and last characters of each record to be output
	OUTPUT-PART(...)	Logical lines or pages of the file edited for printing
DOCUMENT-FORMAT		Type of document content or evaluation of control characters
	*TEXT(...)	No printer-specific control characters
	*PAGE-FORMAT(...)	Evaluation of specific control characters for laser printers
	*SPECIAL-FORMAT(...)	Use of a printer-specific language
PRINT-JOB-CONTROL		Control of print job processing
	START-PROCESSING	Time of printing

	FAMILY-PROCESSING	Assignment of a joint TSN for multiple spoolout jobs
	PRINT-JOB-NAME	Defining a job name
	PRINT-JOB-PRIORITY	Urgency of the spoolout job
	PRINT-JOB-CLASS	Job class of the spoolout job
	MONJV	Defining a job variable for saving information
	JV-PASSWORD	Password with which the SPOOL job variable is protected
	PROCESSING-ADMISSION	Only with the PRINT-SERVICE-ADMINISTRATION privilege: Execution of the job under a different user ID
	FAILURE-PROCESSING	Error handling in the case of files currently being processed
	SCHEDULING-TIME	Start time of the print job
	ENCRYPTION	Determines encryption of the print file
LAYOUT-CONTROL		Defines the parameters that control page layout.
	PAGE-COPIES	Page copies
	LEFT-MARGIN	Indentation of the output text
	TWO-SIDED	Single- or double-sided printing on LP65
	ROTATION	Use of the page rotation module
	COVER-PAGES	Tasks for printing header and trailer pages
	TABLE-REFERENCE-CHAR	Selection of fonts by means of control characters in the text[3)]
	INPUT-TRAY-NUMBER	Input paper tray number
	OUTPUT-TRAY-NUMBER	Output paper tray number
	TOP-OFFSET	Defines the vertical position of the text on the paper
	LEFT-OFFSET	Defines the horizontal position of the text on the paper
RESOURCE-DESCRIPTION		Specifies the print resources to be used for the printout.
	FORM-NAME	form name

	LOOP-NAME	Loop
	ROTATION-LOOP-NAME	Loop for pages to be rotated for printout (landscape format)
	CHARACTER-SETS	Fonts for output
	CHAR-SET-ATTRIBUTES	Support of specific font attributes 1)
	OVERLAY-RESOURCES	Use of an overlay
	PAGE-DEFINITION	Page definitions for APA printers 3)
	FORM-DEFINITION	Format definitions for APA printers 1)
	USER-RESOURCES-FILE	Assignment of a user PRFILE, user SPSLIB or user RSOFILE
	TRANSLATION-TABLE	Use of a code translation table
	RESOURCES-LOCATION	Use of Dprint resources 2)
TO-PRINTER		Printer type for the output
	PRINTER-NAME	Name of the requested printer or printer pool
	PRINTER-TYPE	Type of requested printer Any local printer Any printer from a device pool LP65 printer HP or HP90 printer APA printer 3)
	REDIRECTION-ALLOWED	Redirection of spoolout jobs by the device manager 1)
	CLUSTER-NAME	Specifies the cluster to which the print job is to be transferred 2)
	VIRTUAL-PRINTER	Print output to an application
ADDITIONAL COPIES		Number of additional printouts of the file
LOCK-FILE		Protection of the file during processing
DELETE-AFTER-PRINT		Specifies whether the file is to be deleted after processing
NOTIFICATION		Processing of notifications for the assigned print job

Table 79 : Brief description of the operands of the PRINT-DOCUMENT command

1) allowed only for RSO operation (see the “RSO” manual [32])

2) only effective in a distributed system (see the “Dprint” manual [10]).

3) only for local SPOOL.

Format

PRINT-DOCUMENT Alias: **PRDO**

```
FROM-FILE = *OMF / *LIBRARY-ELEMENT(...) / <posix-pathname 1..1023 without-wild> /
                    list-poss(16): *SYSLST(...) / *SYSOUT / *EAM(...) / <filename 1..54 with-wild(80)>
  *LIBRARY-ELEMENT(...)
    |  LIBRARY = <filename 1..54 without-vers>
    |  ,ELEMENT = <composed-name 1..64 with-under with-wild(80)>(...)
    |    <composed-name 1..64 with-under with-wild(80)>(...)
    |      |  VERSION = *HIGHEST-EXISTING / *UPPER-LIMIT /
    |      |                <composed-name 1..24 with-under with-wild(40)>
    |  ,TYPE = <alphanum-name 1..8 with-wild(12)>
  *SYSLST(...)
    |  SYSLST-NUMBER = *STD / <integer 1..99>
  *EAM(...)
    |  EAM-NUMBER = <integer 1..65535>
,DOCUMENT-PART = *PARAMETERS (...)
  *PARAMETERS(...)
    |  INPUT-SECTION = *WHOLE-FILE / *PARAMETERS(...)
    |    *PARAMETERS(...)
    |      |  SECTION-IDENTIFIER = <c-string 1..60 with-low> / <x-string 1..120>
    |      |  ,POSITION = *STD / <integer 1..2047>
    |  ,INPUT-PART = *ALL / *PARAMETERS(...)
    |    *PARAMETERS(...)
    |      |  FIRST-RECORD = *BEGIN-OF-FILE / <integer 1..2147483647> / *BY-STRING-ID(...)
    |      |    *BY-STRING-ID(...)
    |      |      |  STRING = <c-string 1..60 with-low> / <x-string 1..120>
    |      |      |  ,POSITION = *STD / <integer 1..2047>
    |      |      |  ,OCCURRENCE = 1 / <integer 2..32767>
    |      |  ,LAST-RECORD = *END-OF-FILE / <integer 1..2147483647> / *BY-STRING-ID(...)
    |      |    *BY-STRING-ID(...)
```

```
|           |           |   STRING = <c-string 1..60 with-low> / <x-string 1..120>
|           |           |   ,POSITION = *STD / <integer 1..2047>
|           |           |   ,OCCURRENCE = 1 / <integer 2..32767>
|       ,RECORD-PART = *ALL / *PARAMETERS(...)
|           *PARAMETERS(...)
|               |   FIRST-CHARACTER = 1 / <integer 2..32767>
|               |   ,LAST-CHARACTER = *STD / <integer 1..32767>
|       ,OUTPUT-PART = *ALL / *RANGE(...) / *LAST(...)
|           *RANGE(...)
|               |   FROM = *BEGIN-OF-FILE / <integer 1..2147483647>
|               |   ,TO = *END-OF-FILE / <integer 1..2147483647>
|               |   ,DIMENSION = *PAGES / *LINES
|           *LAST(...)
|               |   LAST = <integer 1..2147483647>
|               |   ,DIMENSION = *PAGES / *LINES
,DOCUMENT-FORMAT = *TEXT (...) / *PAGE-FORMAT(...) / *SPECIAL-FORMAT(...)
    *TEXT(...)
        |   LINE-PER-PAGE = *STD / <integer 1..32767>
        |   ,LINE-SPACING = 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) /
        |                   *BY-ASA-CONTROL(...)
        |   *BY-EBCDIC-CONTROL(...)
        |       |   CONTROL-CHAR-POS = *STD / <integer 1..2040>
        |   *BY-IBM-CONTROL(...)
        |       |   CONTROL-CHAR-POS = *STD / <integer 1..2040>
        |   *BY-ASA-CONTROL(...)
        |       |   CONTROL-CHAR-POS = *STD / <integer 1..2040>
        |   ,HEADER-LINE = *NO / *STD / list-poss(3): *DATE / *FIRST-RECORD / *PAGE-NUMBER
        |   ,OUTPUT-FORMAT = *CHARACTER / *HEXADECIMAL
    *PAGE-FORMAT(...)
        |   FORMAT-NAME = *STD / <c-string 1..63 with-low>
        |   ,CONTROL-MODE = *PAGE-MODE(...) / *LINE-MODE / *LOGICAL(...) / *PHYSICAL(...) / *APA(...)
        |   *PAGE-MODE(...)
        |       |   PAGE-CONTROL-CHAR = *YES / *NO
```

```
|           |       ,CONTROL-TYPE = *COMPATIBLE / *HP
|           |       ,LINE-SPACING = *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
|           |                                *BY-ASA-CONTROL
|       *LOGICAL(...)
|           |       LINE-PER-PAGE = *STD / <integer 1..32767>
|           |       ,HEADER-LINE = *NO / *STD / list-poss(3): *DATE / *FIRST-RECORD /
|           |                                *PAGE-NUMBER
|           |       ,LINE-SPACING = 1 / 2 / 3 / *BY-EBCDIC-CONTROL(...) / *BY-IBM-CONTROL(...) /
|           |                                *BY-ASA-CONTROL(...)
|           |           *BY-EBCDIC-CONTROL(...)
|           |               |           CONTROL-CHAR-POS = *STD / <integer 1..2040>
|           |           *BY-IBM-CONTROL(...)
|           |               |           CONTROL-CHAR-POS = *STD / <integer 1..2040>
|           |           *BY-ASA-CONTROL(...)
|           |               |           CONTROL-CHAR-POS = *STD / <integer 1..2040>
|       *PHYSICAL(...)
|           |       LINE-SPACING = *NO / 1 / 2 / 3 / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
|           |                                *BY-ASA-CONTROL
|       *APA(...)
|           |       LINE-SPACING = *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
|           |                                *BY-ASA-CONTROL
   *SPECIAL-FORMAT(...)
       |       FORMAT-NAME = *NONE / *PCL / <c-string 1..63 with-low>
       |       ,LINE-SPACING = *NO / 1 / 2 / 3 / *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL /
       |                                *BY-ASA-CONTROL
,PRINT-JOB-CONTROL = *PARAMETERS(...)
   *PARAMETERS(...)
       |       START-PROCESSING = *IMMEDIATE / *AT-FILE-CLOSING / <integer 1..2147483639>
       |       ,FAMILY-PROCESSING = *STD / *YES / *NO
       |       ,CHECKPOINT = *ON-PAGES / *ON-SECTION-RECORDS
       |       ,PRINT-JOB-NAME = *JOB-NAME / <alphanum-name 1..8> / <c-string 1..8 with-low>
       |       ,PRINT-JOB-PRIORITY = *JOB-PRIORITY / <integer 30..255>
       |       ,PRINT-JOB-CLASS = *BY-USER-ATTRIBUTES / <integer 1..255>
```

| ,**MONJV** = ***NONE** / ***STD** / <filename 1..54 without-gen-vers>
| ,**JV-PASS**WORD = ***NONE** / ***SECRET** / <c-string 1..4> / <x-string 1..8>
| ,**PROC**ESSING-**ADMIS**SION = ***SAME** / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **USER-ID**ENTIFICATION = <name 1..8>
| | ,**ACCOUNT** = ***NONE** / <alphanum-name 1..8>
| | ,**PASS**WORD = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET**
| ,**FAIL**URE-**PROC**ESSING = ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **MSG-PAGE** = ***Y**ES / ***NO**
| ,**SCHED**ULING-**TIME** = ***STD** / ***EARLIEST**(...)
| ***EARLIEST**(...)
| | **DATE** = ***TODAY** / <date with-compl>
| | ,**TIME** = <time>
| ,**ENCRYPTION** = ***NO** / ***YES**
,**LAYOUT-CONTR**OL = ***PAR**AMETERS(...)
***PAR**AMETERS(...)
| **PAGE-COP**IES = ***STD** / <integer 0..255>
| ,**LEFT-MARGIN** = ***STD** / <integer 0..31>
| ,**TWO-SIDED** = ***STD** / ***NO** / ***Y**ES / ***TUMBLE**
| ,**ROT**ATION = ***NO** / ***BY-CONTR**OL**-CODES** / **90** / **180** / **270** / **0-180** / **180-0** / **90-270** / **270-90**
| ,**COV**ER-**PAGE**S = ***PAR**AMETERS (...)
| ***PAR**AMETERS(...)
| | **HEAD**ER-**PAGE-TEXT** = ***NONE** / <c-string 1..32>
| | ,**HEAD**ER-**EXIT-NUM**BER = ***NO** / <integer 0..2147483639>
| | ,**TRAIL**ER-**EX**IT-**NUM**BER = ***NO** / <integer 0..2147483639>
| ,**TABLE-REFERENCE-CHAR** = ***NO** / ***Y**ES
| ,**LANGUAGE-EXTENSION** = ***NONE** / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **LANGUAGE-NAME** = ***ARABIC** / ***FARSI**
| | ,**LANGUAGE-MODE** = ***RIGHT-TO-LEFT** / ***LEFT-TO-RIGHT**
| ,**INPUT-TRAY-NUM**BER = ***STD** / ***IGNORE** / <integer 1..99> / ***BY-FORMAT**(...)
| ***BY-FORMAT**(...)

```
|           |       INPUT-TRAY-FORMAT = *A3 / *A4 / *A5 / *B4 / *B5 / *FOLIO / *INVOICE /
|           |                   *EXEC / *LEGAL / *LETTER / *DOUBLE-LETTER / *MONARCH /
|           |                   *COMMERCIAL-10 / *DL / *C5 / *MANUAL / *A3-UNCUT / *A4-UNCUT /
|           |                   *LEDGER
|       ,OUTPUT-TRAY-NUMBER = *STD / *IGNORE / *SORTER(...) / <integer 1..99>
|         *SORTER(...)
|           |       SORT-MODE = *NO / *GROUP / *COLLATE / *STACKER / *AUTOMATIC
|       ,TOP-OFFSET = *IGNORE / <integer -255..255>
|       ,LEFT-OFFSET = *IGNORE / <integer -255..255>
,RESOURCE-DESCRIPTION = *PARAMETERS(...)
  *PARAMETERS(...)
|       FORM-NAME = *STD / <c-string 1..6 with-low> / <alphanum-name 1..6>
|       ,LOOP-NAME = *STD / <alphanum-name 1..3>
|       ,ROTATION-LOOP-NAME = *STD / <alphanum-name 1..3>
|       ,CHARACTER-SETS = *STD / *POOL(...) / *BY-EXTENDED-NAME(...) /
|                               list-poss(16): <alphanum-name 1..3>
|         *POOL(...)
|           |       POOL-NAME = <alphanum-name 1..4>
|           |       ,POOL-INDEX = 0 / <integer 0..64>
|         *BY-EXTENDED-NAME(...)
|           |       NAME = list-poss(4): <alphanum-name 1..8>
|       ,CHAR-SET-ATTRIBUTES = *ALL / *RESTRICTED
|       ,OVERLAY-RESOURCES = *PARAMETERS(...)
|         *PARAMETERS(...)
|           |       ELECTRONIC-OVERLAY = *NONE / <alphanum-name 2..2>
|           |       ,OVERLAY = *STD / *NONE / *PARAMETERS(...)
|           |           *PARAMETERS(...)
|           |               |       FACE-SIDE = *NONE / <integer 1..127>
|           |               |       ,REVERSE-SIDE = *NONE / <integer 1..127>
|           |       ,FORMS-OVERLAY-BUFFER = *NONE / <alphanum-name 1..4>
|       ,PAGE-DEFINITION = *STD / <integer 1..50000> / <alphanum-name 1..8>
|       ,FORM-DEFINITION = *STD / <alphanum-name 1..8>
|       ,USER-RESOURCES-FILE = *STD / <filename 1..44 without-gen-vers>
```

| ,**TRANSL**ATION-**TAB**LE = ***NONE** / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **NAME** = <alphanum-name 1..8>
| | ,**FILE** = ***STD** / ***SYS**TEM / <filename 1..44 without-gen-vers>
| ,**RESOURCES-LOCATION** = ***STD** / ***HOME** / ***SERVER**

,**TO-PRINTER** = ***PAR**AMETERS(...)

***PAR**AMETERS(...)
| **PRINTER-NAME** = ***STD** / <alphanum-name 1..8> / ***IPP**(...)
| ***IPP**(...)
| | **URL** = <c-string 1..1023 with-low>
| | ,**FQDN** = ***NONE** / <c-string 1..1023 with-low>
| ,**PRINTER-TYPE** = ***ANY** / ***HP-PRINT**ER / ***LP65-PRINT**ER / ***APA-PRINTER**
| ,**REDIRECTION-ALLOWED** = ***STD** / ***NO** / ***Y**ES
| ,**CLUSTER-NAME** = ***LOCAL-CLUSTER** / <alphanum-name 1..8>
| ,**OUTPUT-FORMAT** = ***NONE** / <c-string 1..63 with-low>
| ,**VIRTUAL-PRINTER** = ***STD** / ***ALLOWED** / ***NOT-ALLOWED** / ***MUST**(...)
| ***MUST**(...)
| | **NAME** = <alphanum-name 1..8>
| | ,**STRING** = ***NONE** / <c-string 1..32>

,**ADDITIONAL-COPIES** = **0** / <integer 1..255>

,**LOCK-F**ILE = ***STD** / ***Y**ES / ***NO**

,**DELETE-AFTER-PRINT** = ***NO** / ***Y**ES(...) / ***DESTROY**(...)

***Y**ES(...)
| **LINE-TRUNCATION** = ***STD** / ***DEL**ETE**-FILE** / ***KEEP-FILE**

***DESTROY**(...)
| **LINE-TRUNCATION** = ***STD** / ***DEL**ETE**-FILE** / ***KEEP-FILE**

,**NOTIFICATION** = ***STD** / ***NO** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)
| **OBJECT-ATTRIBUTES** = ***NONE** / ***ALL** / list-poss(20):<text 1..64>
| ,**EVENT-NAMES** = ***ALL** / list-poss(20): <alphanum 1..24>
| ,**USER-DATA** = ***NONE** / <text 1..63 with-low> / <c-string 1..63 with-low>
| ,**RECIPIENT** = ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)

| | | **ADDRESS** = <text 1..224 with-low> / <c-string 1..63 with-low>

| | | ,**METHOD-NAME** = <alphanum-name 1..8> / ***MAIL**

Operands

FROM-FILE =
Names of the files to be output. Up to 16 file names can be specified per command call.

FROM-FILE = *OMF
Outputs the temporary object module file of the current job.

FROM-FILE = *LIBRARY-ELEMENT(...)
The specified element is to be output from a PLAM library. An element is fully defined by its name, its type and its version. The records of an element are assigned to particular record types. There are 255 record types. A distinction is drawn between user record types (1 through 159) and special record types (160 through 255). Only the user record types of an element can be output with SPOOL.

LIBRARY = <filename 1..54 without-vers>
The name of the PLAM library from which an element is to be output.

ELEMENT = <composed-name 1..64 with-under with-wild(80)>(...)
Name of the element to be output from the specified PLAM.

VERSION = *HIGHEST-EXISTING / *UPPER-LIMIT /
<composed-name 1..24 with-under with-wild(40)>
The version of the element which is to be output. If this operand is omitted, SPOOL selects *HIGHEST-EXISTING, i.e. the last element in alphabetical order. *UPPER-LIMIT stands for the highest possible version X'FF'. This version is represented by the character @ in screen displays, in messages and on the trailer page.
If the version is specified in wildcard format, and if there are library elements with the same names to which the wildcard specification applies, then all of these library elements are output.

TYPE = <alphanum-name 1..8 with-wild (12)>
The type of the library element to be output.
If specified in wildcard format, the name consists of a maximum of 12 alphanumeric characters.

Note

The records of LMS elements of type C, L or R belong to the special record types (160 through 255). No records from such elements may therefore be printed.

FROM-FILE = <posix-pathname 1..1023 without-wild>
Path name or name of a POSIX file that is to be printed. If the argument contains no POSIX-specific characters it must be placed within single quotes (to distinguish it from a BS2000 file name). The file name *.profile*, for example, does not need to be quoted because it is not possible for a BS2000 file name to start with a period (dot).

FROM-FILE = *SYSLST(...)
Outputs the SYSLST system file.

SYSLST-NUMBER = *STD
Outputs the SYSLST system file (which is automatically output on termination of an interactive task). If assigned to a cataloged file, the contents of this file are output. Unless otherwise specified, the following points apply to output:

- a maximum of 2048 bytes per output line (operand LAST-CHARACTER=2048)
- SYSLST is not locked (operand LOCK-FILE=*NO)
- SYSLST is deleted at the end of output (operand DELETE-AFTER-PRINT=*YES)
- feed control character handling: (operand DOCUMENT-FORMAT= *TEXT(LINE-SPACING=*BY-EBCDIC-CONTROL))

The *SYSLST system file may be combined with the temporary EAM object module file *OMF and the system file *SYSOUT in any sequence in a PRINT-DOCUMENT command, e.g. PRINT-DOCUMENT (*OMF,*SYSLST, *SYSOUT). However, it must not be combined with an EAM file number or a cataloged file.

SYSLST-NUMBER = <integer 1..99>
Two-digit number nn to be used to form the SYSLSTnn file name. A maximum of 16 different SYSLSTnn system files can be specified in a list (in parentheses and separated by commas). All the specified operand values then apply to each of these system files.

FROM-FILE = *EAM
Outputs an EAM object module file.

EAM-NUMBER = <integer 1..65535>
Number of the EAM file to be output. There is a detailed description of EAM files in the “Introductory Guide to DMS” [13].

FROM-FILE = *SYSOUT
The system file SYSOUT is output. If assigned to a cataloged file, the contents of this file are output. Unless otherwise specified, the following points apply to output:

- a maximum of 2048 bytes per output line (operand LAST-CHARACTER=2048)
- SYSOUT is deleted at the end of output (operand DELETE-AFTER-PRINT=*YES)
- feed control character handling (operand DOCUMENT-FORMAT= *TEXT(LINE-SPACING=*BY-EBCDIC-CONTROL))

The SYSOUT system file may be combined with the temporary EAM object module file *OMF and the system file SYSLST in any order in a PRINT-DOCUMENT command, e.g. PRINT-DOCUMENT (*OMF,*SYSLST,*SYSOUT). However, it must not be combined with an EAM file number or a cataloged file.

FROM-FILE = <filename 1..54 with-wild(80)>
Name of file to be printed. PAM files must not be specified in batch mode.

The PRINT-DOCUMENT command is rejected if the specified file:

- is a newly cataloged file to which nothing has yet been written
- has already been opened in output mode
- is a “large” file (> 32 GB).

If the file does not belong to the user's own user ID, read access must be allowed (see the SHOW-FILE-ATTRIBUTES command).

The following points should be noted in connection with the output of cataloged files:

- A spoolout job is created even if the file to be output is reserved by a SECURE-RESOURCE-ALLOCATION command. This reservation must, however, be canceled before the spoolout job is processed; otherwise, the job is not executed. The file to be output is locked until the end of the session if the operand LOCK-FILE=*YES was specified in the PRINT-DOCUMENT command and the job could not be executed because of the reservation.

- The files *OMF, *SYSLST and *SYSOUT cannot be specified together with a cataloged file in a spoolout job.

The following points apply to the output of temporary files:

- A PRINT-DOCUMENT command for a temporary file is always executed automatically with LOCK-FILE=*YES and DELETE-AFTER-PRINT=*YES. This ensures that a temporary file is not erased prematurely by EXIT-JOB but only after printing has been completed.
- The temporary file is also erased if the spoolout job is terminated abnormally (e.g. by means of the CANCEL-PRINT-JOB command).
- A detailed description of temporary files is given in the “Introductory Guide to DMS” [13].

DOCUMENT-PART =
Allows processing of the print file to be limited to only a part of it.
The file to be printed (the input file) consists of a sequence of records, each of which can be identified by SPOOL by means of its record number or a string it contains. SPOOL also allows you to structure the print file by using strings as file marks. These file marks divide the file up into sections. SPOOL takes into account all the options set by the user and converts the input file into a file edited for printing (an output file). This file consists of logical lines and pages. The delimitation of part or parts of a file can apply to either the input file or the output file. The following alternatives for defining parts of a file are available in the substructures of this operand:

- INPUT-SECTION: the input file can be subdivided into sections on the basis of a specified string, or the whole file can be processed.
- INPUT-PART: only a certain number of the input file’s records are processed. You can specify the first and last record by means of a record number, a section number or a string.
- RECORD-PART: of the records selected by means of the above operands, only a specified part of each record is processed.
- OUTPUT-PART: the whole input file is edited for printing, but output is limited to a subset of all logical print pages.

DOCUMENT-PART = *PARAMETERS(...)
The part of the file to be processed can be specified in the following substructure.

INPUT-SECTION =
Specifies whether the file is structured by means of file marks.

INPUT-SECTION = *WHOLE-FILE
The file is not structured. The whole input file is a single logical section.

INPUT-SECTION = *PARAMETERS(...)
The file is structured by means of file marks that can be specified in the following substructure. You use the INPUT-PART operand to specify which sections of the structured print file are to be output.

SECTION-IDENTIFIER = <c-string 1..60 with-low> / <x-string 1..120>
Specifies the file marks by means of which the input file is to be structured. Any strings in the records can be used as file marks. These strings can be either in SECTION records, which are not printed, or in the print file’s normal records, which are printed. A string can be specified in the form of printable characters or hexadecimal characters. You use the INPUT-PART operand to specify which sections of the structured print file are to be output. The search for the start of the section to be printed is executed in a separate “pseudo controller” task. Neither the user task nor the printer is locked while this is being done. A pseudo

controller writes the address of the first record in the section to the SPOOL control block; the spoolout job can then be processed (PREPROCESSING). If the desired section is not found in the file, an error message appears on the trailer page (for the layout of this page see the “SPOOL” manual [43]).

POSITION =
Specifies the position at which the specified string begins in the SECTION record.

POSITION = *STD
The relevant string begins by default at the start of the record, i.e.:

- in a SAM file: at the first byte after the record length field
- in an ISAM file with KEY-POS=5: at the first byte after the key
- in an ISAM file with KEY-POS > 5: at the first byte after the record length field.

POSITION = <integer 1..2047>
The relevant string begins at the specified byte (after the record length field).

INPUT-PART =
Specifies whether only a certain number of the input file’s records are to be processed. You can specify the first and last record by means of a record number, a section number or a string.

INPUT-PART = *ALL
All the file’s records are to be processed.

INPUT-PART = *PARAMETERS(...)
Only a certain number of the input file’s records are to be processed. You can specify the first and last records.

FIRST-RECORD =
Specifies the record as of which the file is to be processed. You can specify the first record in the file, the number of a record or file mark, or a string in a record.

FIRST-RECORD = *BEGIN-OF-FILE
Output begins with the file’s first record, even if SECTION records are specified.

FIRST-RECORD = <integer 1..2147483647>
Number of the SECTION record or normal record as of which a section of the file is to be output.

FIRST-RECORD = *BY-STRING-ID(...)
The record in which a specified string occurs is the first record to be output.

STRING = <c-string 1..60 with-low> / <x-string 1..120>
Output begins with the record in which the specified string of printable or hexadecimal characters is found at a specific position.

POSITION = *STD / <integer 1..2047>
Position within the record at which the specified string of hexadecimal characters begins. By default, the FIRST-RECORD string begins at the start of the record, i.e.:

- in a SAM file: at the first byte after the record length field
- in an ISAM file with KEY-POS=5: at the first byte after the key
- in an ISAM file with KEY-POS > 5: at the first byte after the record length field.

OCCURRENCE = 1 / <integer 1..32767>
Specifies the record (containing the FIRST-RECORD string) as of which output is to start.

LAST-RECORD =
Specifies the last record in the part of the file to be output. You can specify the last record in the file, the number of a record or file mark, or any string in a record.

LAST-RECORD = *END-OF-FILE
Output continues until the end of the file, even if SECTION records are specified.

LAST-RECORD = <integer 1..2147483647>
Number of the last record (SECTION record or normal record) in the part of the file to be output.

LAST-RECORD = *BY-STRING-ID(...)
Specifies that the last record is to contain a specified string.

STRING = <c-string 1..60 with-low> / <x-string 1..120>
Output ends with the record in which the specified string of printable or hexadecimal characters is found at a specific position in the file.

POSITION = *STD / <integer 1..2047>
Position within the record at which the specified string of hexadecimal characters begins. By default, the LAST-RECORD string begins at the start of the record, i.e.:

- in a SAM file: at the first byte after the record length field
- in an ISAM file with KEY-POS=5: at the first byte after the key
- in an ISAM file with KEY-POS > 5: at the first byte after the record length field.

OCCURRENCE = 1 / <integer 1..32767>
Specifies the occurrence of the record containing the LAST-RECORD string at which output is to stop.

Note

If the LAST-RECORD record is found before the FIRST-RECORD record, the PRINT-DOCUMENT command aborts.

RECORD-PART =
Specifies whether only a specific part of each of the records selected by means of the above operands is to be processed.

RECORD-PART = *ALL
All of each selected record is to be processed.

RECORD-PART = *PARAMETERS(...)
Only a specific part of each record is to be processed.

FIRST-CHARACTER = 1 / <integer 2..32767>
Allows a byte number (record column) to be specified indicating the point as of which the records of a file are to be output. (The bytes of a record are numbered consecutively from left to right starting with 1; ISAM keys and control characters are components of a record.) What happens depends on whether one of the values *BY-EBCDIC-CONTROL, *BY-IBM-CONTROL or *BY-ASA-CONTROL is specified in the LINE-SPACING operand.

If one of these values is specified:

Output starts with the data byte following the specified byte number. The feed control character is interpreted irrespective of the entry for FIRST-CHARACTER, provided the value for FIRST-CHARACTER

is less than the length of the record. If the specified value is greater than the length of the record, it is ignored (i.e. printing does not take place, nor does line feed).

If none of these values is specified:

Output starts with the data byte corresponding to the specified byte number.
If the records are longer than the form definition allows, printing continues on the next line. If CONTROL-MODE=*PAGE-MODE is specified, an entry for FIRST-CHARACTER is problematical because SPOOL takes no account of the number of control characters in a record.

LAST-CHARACTER = *STD / <integer 1..32767>
Specifies the byte indicating the point at which printing of each record is to stop. What happens depends on whether one of the values *BY-EBCDIC-CONTROL, *BY-IBM-CONTROL or *BY-ASA-CONTROL is specified in the LINE-SPACING operand.

If one of these values is specified:

Output ends with the data byte following the specified byte number (unless FIRST-CHARACTER is specified for an ISAM file with KEY-POSITION=5, in which case output ends with the data byte corresponding to the specified byte number).

If none of these values is specified:

Output ends with the data byte corresponding to the specified byte number. If the records are longer than the form definition allows, printing continues on the next line. If CONTROL-MODE=*PAGE-MODE is specified, an entry for LAST-CHARACTER is problematical because SPOOL takes no account of the number of control characters in a record.
Default (*STD):

- end of print line (136)
- 2048 for an EAM file, SYSLST or SYSOUT.

OUTPUT-PART =
Specifies that the whole input file is to be edited for printing, but that output is to be limited to a subset of all logical print pages.

OUTPUT-PART = *ALL
All logical print pages of the edited file are to be output.

OUTPUT-PART = *RANGE(...)
Part of the file is to be output.

FROM = *BEGIN-OF-FILE / <integer 1..2147483647>
Allows a page or line number in the print file to be specified as of which output is to start, as specified by the DIMENSION operand. By default, output commences at the beginning of the file. The pages in a print file are defined as described for the LINE-PER-PAGE operand (unless a control character produces a premature page feed).

TO = *END-OF-FILE / <integer 1..2147483647>
Allows a page or line number in the print file to be specified at which output is to end, as specified by the DIMENSION operand. By default, output terminates at the end of the file. Pages in a print file are defined by the LINE-PER-PAGE operand (unless a control character produces a premature page feed). The value specified here must be greater than that specified in the FROM operand.

DIMENSION = *PAGES / *LINES
Specifies whether the values in the FROM and TO operands are to be interpreted as page or line numbers.

OUTPUT-PART = *LAST(...)
Only the last so many pages or lines of the print file are to be output.

LAST = <integer 1..2147483647>
Number of pages or lines to be output, calculated from the end of the file. The DIMENSION operand indicates whether the value is to be interpreted as a page or line number. Pages in a print file are defined by the LINE-PER-PAGE operand (unless a control character produces a premature page feed).

DIMENSION = *PAGES / *LINES
Specifies whether the value in the LAST operand is to be interpreted as a page or line number.

Example of SECTION processing

The following sections of an ISAM file are to be output.

```
01000000  Line 0

02000000  *SECTION0001

03000000  Line 1

04000000  *SECTION0002

05000000  Line 2

06000000  *SECTION0003

07000000  Line 4
```

Case: SECTION records in default positions.

```
PRINT-DOCUMENT datei, DOCUMENT-PART=*PAR(INPUT-SECTION = -
    *PAR(SECT-ID=C'*SECTION',POS=*STD), INPUT-PART= *PAR( -
    FIRST-RECORD=1, LAST-RECORD=3))
```

The following part of the file is printed:

```
03000000  Line 1

05000000  Line 2
```

DOCUMENT-FORMAT =
Specifies the type of the document contents, i.e. the format of the file to be printed as regards the interpretation of feed control characters, printer control characters, font identifiers, RENO commands and/or VTSU codes. You can specify the following operands and the corresponding substructures here:

- *TEXT: the file has no printer-specific control characters except for feed control characters.
- *PAGE-FORMAT: the file has laser printer-specific control characters.
- *SPECIAL-FORMAT: the file has special printer-specific control characters.

DOCUMENT-FORMAT = *TEXT(...)
Except for feed control characters, the file has no printer-specific control characters. The position of the feed control character in the record can be specified in the substructure of the LINE-SPACING operand.
The data is sent to the printer unchanged. Since only the data to be printed is sent to the printer, records can be truncated.

The following applies to RSO:

Records of type A-1 or A-2 are to be printed (no control characters in the data stream); in other words, except for feed control characters in the first column of the records, no control characters are interpreted. This is also the reason why a font change is not possible. The form's default font or the first font specified for CHARACTER-SETS, if specified, is used. Nonprinting characters, i.e. characters with a hexadecimal value less than X'40', are output as blanks. If the record length exceeds the maximum line length, the record is truncated in the printout. The maximum line length depends on the character spacing, which is defined by means of the font used (see the CHARACTER-SETS operand).

Note

RSO printers: If a list of fonts is specified in conjunction with DOCUMENT-FORMAT=*TEXT (CHARACTER-SETS=... operand), the command interprets only the first element in the list.

LINE-PER-PAGE = *STD / <integer 1..32767>
Specifies how many lines (including header and blank lines) are to be printed on a page.

LINE-PER-PAGE = *STD
If the operand is omitted, the number of lines per print page is calculated using the following formula, regardless of what has been specified for the HEADER-LINE number of lines = P * Z - A - 6

The name sections have the following meanings:

P = paper size in inches

Z = line density

A = number of line before the first channel

Printers with a loadable vertical format buffer

- The vertical tab "channel 1" controls the line on which printing is to start. Unless otherwise specified, 2 blank lines are set before printing starts; i.e. channel 1 (CHANNEL 01) is in the third line of the loop.
- If the value specified for the LINE-PER-PAGE operand is greater than the specified number of lines in the loop, the value in the loop is used.
- A value specified here must be at least three times as large as the line feed specified for LINE-SPACING=1 /2/3 if the LINE-PER-PAGE operand is specified together with the HEADER-LINE and LINE-SPACING operands.

LINE-SPACING =
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING= 1 / 2 / 3
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-IBM-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-ASA-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

HEADER-LINE =
Specifies whether a header line is to be printed on every page (except the header and trailer pages).

HEADER-LINE = *NO
No header line is printed.

HEADER-LINE = *STD
The header has the following format:

Header	DATE yyyy-mm-dd	userid	nnnn	PAGE nnnn
Column	1	41(11,11)	60(21,67)	124 (77)

The first value in parentheses applies in the case of a form definition with a line length < 132 and >= 80 characters (with differing values). The second value in parentheses applies in the case of a form definition with a line length < 80 and >= 70 characters (with differing values).

jjjj-mm-tt	Year-Month-Day
userid	user ID
datei	file name
nnnn	Page number

Unless otherwise specified, the header line is followed by a blank line. The header is shifted in accordance with the LEFT-MARGIN operand, but the header line will be truncated at column 132.
DATE and PAGE are only present in the header line if the line size >= 032.

HEADER-LINE = list-poss(3): *DATE / *FIRST-RECORD / *PAGE-NUMBER
The header has the following format:

HEADER-LINE=	DATE	FIRST-RECORD	PAGE-NUMBER
Header	DATE yyyy-mm-dd (yyyy-mm-dd)	First record	PAGE nnnn (nnnn, nnnn)
Column	1	21	124 (77.67)

*DATE:
The value in parentheses applies in the case of a form definition with a line length < 132 and >= 70 characters (with differing values). *PAGE-NUMBER: The first value in parentheses applies in the case of a form definition with a line length < 132 and >= 80 characters (with differing values). The second value in parentheses applies in the case of a form definition with a line length < 80 and >= 70 characters (with differing values).

yyyy-mm-dd	Year-Month-Day
First record	First logical record of the file
nnnn	Page number

If *DATE, *FIRST-RECORD or *PAGE-NUMBER is omitted, the appropriate section is filled with blanks.
Unless otherwise specified, the header line is followed by a blank line.
The header is shifted in accordance with the LEFT-MARGIN operand, but the header line will be truncated at column 132.
*DATE and *PAGE are only present in the header line if the line size >= 032.
If *FIRST-RECORD is specified, the first record is regarded as not belonging to the date.

OUTPUT-FORMAT =
Indicates whether the output format is character format only or character format and hexadecimal format.

OUTPUT-FORMAT = *CHARACTER
Outputs in character format only. Records which exceed the length of a print line are truncated.

OUTPUT-FORMAT = *HEXADECIMAL
Outputs the data records in character format and in hexadecimal format.

Output format

Each output line starts with an 8-byte prefix followed by data 50 bytes in length. Each output line is first printed using the appropriate font and then repeated in hexadecimal format.

Format of the output line

Column	Contents
1-4	Column number from which the data of the output record begins
5-8	blank
From 9	Characters of the input record according to font; the individual characters are separated by a blank. The characters are repeated in hexadecimal format in the next line.

DOCUMENT-FORMAT = *PAGE-FORMAT(...)
The file has specific laser printer control characters.

FORMAT-NAME =
Format in which the output data is transferred to the printer.

FORMAT-NAME = *STD
The default value is automatically determined from the value of the CONTROL-MODE operand. This leads to the following results:

CONTROL-MODE = *PAGE-MODE(...)	FORMAT-NAME = HP
CONTROL-MODE = *APA(...)	FORMAT-NAME = SPDS
CONTROL-MODE = *LOGICAL / *PHYSICAL / *LINEMODE	Content of the file to be printed not relevant

FORMAT-NAME = <c-string 1..63 with-low>
Optional string naming a specific file format.

CONTROL-MODE =
Specifies how the control characters are to be interpreted.

CONTROL-MODE = *PAGE-MODE(...)
The control characters are interpreted as page printer-specific control characters.

PAGE-CONTROL-CHAR = *YES / *NO
Specifies whether the control character list must be at the beginning of each page (i.e. always after branching to the vertical tab “channel 1” in the loop).

PAGE-CONTROL-CHAR = *YES
The control character list must be there.

PAGE-CONTROL-CHAR = *NO
No control character list at the beginning of the page. However, this means that the following functions cannot be controlled in the case of output to HP printers:

- Film overlays on individual pages in the file; specified in the PRINT-DOCUMENT command, a film overlay is used on each page of the print file of the spoolout job.
- Page copies for individual pages in the file; all the pages of the print file are output with as many copies as specified in the PRINT-DOCUMENT command.
- Column-oriented indentation on individual pages; the value specified in the PRINT-DOCUMENT command is valid for all the pages in the print file.
- FOB data overlay on individual pages in the file; specified in the PRINT-DOCUMENT command, a FOB data overlay is used on each page in the print file of the spoolout job.
- A copy reference number cannot be specified.
- Page rotation control for individual pages in the print file; all the pages are output in either portrait or landscape format, as specified in the PRINT-DOCUMENT command.

CONTROL-TYPE =
Specifies whether the control characters are suitable for processing on HP or HP90 printers or whether they have to be converted.

CONTROL-TYPE = *COMPATIBLE
The file does not contain HP or HP90 printer-specific control characters.SPOOL must convert the control characters.

CONTROL-TYPE = *HP
The file contains HP or HP90 printer-specific control characters that can only be processed by these printers.

LINE-SPACING =
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = *BY-EBCDIC-CONTROL
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

LINE-SPACING = *BY-IBM-CONTROL
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

LINE-SPACING = *BY-ASA-CONTROL
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-MODE = *LINE-MODE
Only for RSO.
Records of type C (see the “SPOOL” manual [43]) are printed out. The records may contain data mixed with LINE-MODE control characters. LINE-MODE control characters are (in any combination):

- printer control characters (i.e. physical control character beginning with X'27' or X'3C')
- RENO commands
- VTSU codes

Control over record and file formats (including page and line feed with LINE-MODE control characters) rests solely with the user. With the 9025/9026 RENO page printer, users must also ensure that the printer is set to the correct start position on the paper. A loop is not interpreted. Nonprinting characters, i.e. characters with a hexadecimal value < X'40' are output as blanks.
The spoolout job is executed with the default font of the form used until you change the font in the file with the aid of LINE-MODE control characters.

CONTROL-MODE = *LOGICAL(...)
Only for RSO printers.
Specifies that records of type B-1 or B-2 are to be printed out, i.e. records which, in addition to a feed control character in the first byte, may contain data mixed with font identifiers, printer control characters, RENO commands and VTSU codes (see the “RSO” manual [32], section “Record type B-1/B-2”). With the exception of the VTSU codes VPA, NP, VT, NL, and CR, which are output as blanks, the above-mentioned control characters are interpreted. A font identifier, a VTSU code or a RENO command remains valid until a new control character is specified. If the font identifier is omitted, the default font for the form is used.
Since page feed is implemented via a loop or constant line feed when CONTROL-MODE=*LOGICAL is specified, the file should not contain the RENO commands \LF, \FF and \CR. Setting the form height is likewise not permitted.

LINE-PER-PAGE = *STD / <integer 1..32767>
Specifies how many lines (including header and blank lines) are to be printed on a page.

LINE-PER-PAGE = *STD
If no value is specified, the number of lines per print page is calculated according to the following formula, regardless of the value in the HEADER-LINE operand:

Number of lines = P * Z - A - 6

The name sections have the following meanings:

P = paper size in inches

Z = line density

A = number of line before the first channel 1

If the value specified for the LINE-PER-PAGE operand is greater than the specified number of lines in the loop, the value in the loop is used. A value specified here must be at least three times as large as the line feed specified for LINE-SPACING=1/2/3 if the LINE-PER-PAGE operand is specified together with the HEADER-LINE and LINE-SPACING operands.

HEADER-LINE = *NO / *STD / list-poss(3): *DATE / *FIRST-RECORD / *PAGE-NUMBER
Specifies whether a header line is to be printed on every page (except the header and trailer pages). See also the description of the HEADER-LINE operand at DOCUMENT-FORMAT=*TEXT(...).

LINE-SPACING =
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING= 1 / 2 / 3
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-IBM-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

LINE-SPACING = *BY-ASA-CONTROL(...)
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-CHAR-POS = *STD / <integer 1..2040>
Number of the data byte in which SPOOL finds the feed control character. In the case of records of variable length, the fields containing the length information are not counted as data.

CONTROL-MODE = *PHYSICAL(...)
Only for RSO.
LINE-SPACING=*NO is set automatically, which means that you must implement page and line feeds with LINE-MODE control characters (i.e. VTSU codes, printer control characters, and RENO commands) in the file itself. If you specify LINE-SPACING=*BY-EBCDIC-CONTROL for records of type D-2, the feed control character in the first byte is interpreted as a line or page feed control character. Nonprinting characters are also transferred to the printer (in contrast to CONTROL-MODE=*LINE-MODE). The user is responsible for inserting the correct control characters in the file (including line spacing characters).

LINE-SPACING =
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = *NO
The contents of the first byte of each record are not interpreted as a control character.

LINE-SPACING = 1 / 2 / 3
Permitted only for RSO.
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

LINE-SPACING = *BY-IBM-CONTROL
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

LINE-SPACING = *BY-ASA-CONTROL
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

CONTROL-MODE = *APA(...)
Specifies that the file to be printed out contains APA feed control characters which are to be interpreted.

LINE-SPACING = *BY-EBCDIC-CONTROL / *BY-IBM-CONTROL / *BY-ASA-CONTROL
Specifies the type of the printer control characters (E, I or A).

DOCUMENT-FORMAT = *SPECIAL-FORMAT(...)
A printer-specific language is used in the document. In this case, the SPOOL and Distributed Print Services (Dprint) subsystems provide transparent control for the document. In other words, the file is transferred to an RSO printer, an Xprint printer or to filter processing without interpretation.

FORMAT-NAME =
Specification of the format to be processed. The document is either processed by RSO in transparent mode or sent to Xprint without a special format.

FORMAT-NAME = *NONE
Only for RSO. No format is specified; the document is processed by RSO in transparent mode. Records of type E-1 or E-2 are printed out (see the “SPOOL” [43] manual). With the exception of VTSU codes for RSO, the data records can contain optional characters. All characters of a data record are transferred by RSO to the printer without interpretation, with the exception of the line spacing control character in the first byte of the type E-2 data record.
The user is responsible for inserting the correct control characters in the file (including line spacing characters). If the LINE-SPACING operand is not specified, the default setting LINE-SPACING=*NO applies and you have to include page feeds and line feeds in the file yourself using LINE-MODE control characters. If LINE-SPACING=*BY-EBCDIC-CONTROL is specified for type E-2 data records, the feed control character in the first byte is interpreted as a line feed or a page feed control character. If the LEFT-MARGIN operand is specified at the same time, blanks are included at the beginning of each data record and these indent the text by the desired number of columns when it is printed.

FORMAT-NAME = *PCL
This value is only still available for reasons of compatibility.

FORMAT-NAME = <c-string 1..63 with-low>
This operand specifies that the contents of the document to be processed are of a specific type (e.g. HP LASERJET). The document to be processed is in PCL format. The operand value is determined by the document format attribute transferred to the cluster. It is interpreted by Xprint or the foreign print system as the “content type” attribute of the print job (xpadd -job -ct...). For this reason the specification of <alphanum-name 1..63> for FORMAT-NAME is permitted only if no BS2000 cluster is specified with the operand value for

CLUSTER-NAME. This document content type fulfills the relevant requirements of ISO DPA class 1, which is required for interoperability between the BS2000 SPOOL & PRINT subsystems and remote SPOOL and PRINT subsystems.

Jobs to RSO are printed by an RSO printer if it supports the format name specified or if a filter is available which will convert the format name into a format name supported by the printer.

If the value of CLUSTER-NAME refers to a BS2000 cluster or if none was specified, the length of the format name may not exceed 8 characters. If the FORMAT-NAME value is longer, the command is rejected. The file is printed by a printer that supports the specified format name.

Examples

1. A document containing only text records is transferred to the local SPOOL:
   ```
   /PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*TEXT
   ```
2. A document containing only text records is transferred to a Xprint server:
   ```
   /PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*TEXT,
                   RES-DESCRIPTION(FORM-NAME=x-form),
                   TO-PRINTER(PRINTER-NAME=xxxxxxxx,
                   CLUSTER-NAME=x-cluster)
   ```
3. A document containing text records whose tenth data byte is interpreted as EBCDIC-PCC is transferred to a Xprint server:
   ```
   /PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*TEXT(
                   LINE-SPACING=*BY-EBCDIC-CONTROL,CONTROL-CHAR-POS=10),
                   RES-DESCRIPTION(FORM-NAME=x-form),
                   TO-PRINTER(PRINTER-NAME=xxxxxxxx,
                   CLUSTER-NAME=x-cluster)
   ```
4. An HP PCL4 document is transferred to a Xprint server:
   ```
   /PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*SPECIAL-FORMAT(
                   FORMAT-NAME=HP-LASERJET oder *NONE),
                   RES-DESCRIPTION(FORM-NAME=x-form),
                   TO-PRINTER(PRINTER-NAME=xxxxxxxx,
                   CLUSTER-NAME=x-cluster)
   ```
   You will find further detailed examples in the “Distributed Print Services” manual [10]
5. A PCL5 document is transferred to the local SPOOL in transparent mode:
   ```
   /PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*SPECIAL-FORMAT(
                   FORMAT-NAME=PCL5),
                   RES-DESCRIPTION(FORM-NAME=FRM001)
   ```
   Please note that FORM FRM001 has to be defined in the SPOOL parameters for a 2050 PCL or 2090 PCL.
6. A PCL5 document is transferred to RSO in transparent mode:
   ```
   /PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*SPECIAL-FORMAT(
                   FORMAT-NAME=*NONE oder PCL5),
                   RES-DESCRIPTION(FORM-NAME=FRM001),
                   TO-PRINTER=*PARAMETERS(PRINTER-NAME=PRNPCL)
   ```
   You will find further detailed examples in the “Spool & Print commands” manual [42].

7. An HP job is transferred to a UNIX-based server:

```
/PRINT-DOCUMENT FROM-FILE=myfile,DOC-FORMAT=*PAGE-FORMAT(
                CONTROL-MODE=*PAGE-MODE),
                TO-PRINTER=*PARAM(PRINTER-NAME=xxxxxxxx,
                CLUSTER-NAME=x-cluster,OUTPUT-FORMAT='HP-LASERJET')
```

   The SPCONV product is required in this case. You will find further information in the “SPCONV” manual [41].

LINE-SPACING =
Specifies the number of line feeds and the way in which control characters are interpreted.

LINE-SPACING = *NO
The contents of the first byte of each record are not interpreted as a control character.

LINE-SPACING = 1 / 2 / 3
Permitted only for RSO.
The records are to be printed out with 1-, 2- or 3-line spacing.

LINE-SPACING = *BY-EBCDIC-CONTROL
Permitted only for RSO.
The contents of the first byte of each record are to be interpreted as an EBCIDC feed control character.

LINE-SPACING = *BY-IBM-CONTROL
Permitted only for RSO.
The contents of the first byte of each record are to be interpreted as an IBM feed control character.

LINE-SPACING = *BY-ASA-CONTROL
Permitted only for RSO.
The contents of the first byte of each record are to be interpreted as an ASA feed control character.

PRINT-JOB-CONTROL = *PARAMETERS(...)
Specifies all the parameters for controlling print job processing.

START-PROCESSING =
Time of printout for the system file prior to termination of the job.

START-PROCESSING = *IMMEDIATE
The spoolout job is to be generated and processed immediately after the command is entered.

START-PROCESSING = *AT-FILE-CLOSING
The spoolout job is to be processed immediately after the system file is closed. A system file is closed:

1. for primary assignment: by means of the EXIT-JOB (or LOGOFF) or CANCEL-JOB command (from a different identifier), i.e. after the end of the job
2. for a file assigned to a cataloged file:
   - by an EXIT-JOB (or LOGOFF) command or by CANCEL-JOB (from another ID), i.e. at the end of the job
   - by another ASSIGN-SYSFILE command (change of assignment) issued for the same system file
   - during a procedure run whenever procedure level 0 has been reached

START-PROCESSING = <integer 1..2147483639>
Number of logical pages after which printing is started. The remainder of the relevant file (<= <integer> pages)

is printed out after the system file has been closed (see the operand value *AT-FILE-CLOSING). The minimum value for <integer> can be displayed using the SHOW-SPOOL-PARAMETERS command or SPSERVE statement; the information is available in the output field SPOOLOUT-OPTIONS:...ST-SP-LOW-VAL=...

Note

- All the operand values from a PRINT-DOCUMENT command with START-PROCESSING= <integer> or START-PROCESSING=*AT-FILE-CLOSING are recorded for each addressed system file.
- Each spoolout job is given its own TSN.

FAMILY-PROCESSING =
Specifies whether a common TSN is allocated if two or more file or library elements are specified in a PRINT-DOCUMENT command (in order to ensure that these files are output sequentially on the same printer).

FAMILY-PROCESSING = *STD
For spoolout jobs to local printers and RSO devices, the default value from the SPOOL parameter file is to apply. This can be defined separately (and hence differently) for local and RSO printers in the SPSERVE statement MODIFY-SPOOL-PARAMETERS. You can query the value with the command or SPSERVE statement SHOW-SPOOL-PARAMETERS (FAMILY-PROCESS field).

FAMILY-PROCESSING = *YES
A common TSN (FAMILY-PRINT) is to be allocated if two or more files or library elements are specified in a spoolout job. The individual files or library elements cannot be processed in parallel.

FAMILY-PROCESSING = *NO
The files or library elements specified at the same time in a PRINT-DOCUMENT command are to be processed under separate TSNs. This means that parallel processing is possible.

CHECKPOINT =
This operand is only still available for reasons of compatibility.

PRINT-JOB-NAME =
Job name for the spoolout job.
The job name can be formed from a maximum of 8 characters from the set (A,...Z,0,...9,@, #,$,.,-) but must not start with a hyphen or end with a period. It may only start with a period if this is followed by an alpha character; in this case, the period itself as part of the job name is not printed on the header page. The special character string period and hyphen (.-) may only be specified in quotes.
The job name is printed on the header page in the third uppercase line and also appears in the output of the SHOW-PRINT-JOB-STATUS command. If this operand is omitted the job name from the SET-LOGON-PARAMETERS command is used instead.

PRINT-JOB-NAME = *JOB-NAME
No separate job name for the spoolout job.
If a job name has been assigned (in the SET-LOGON-PARAMETERS command) to the job issuing the command, this name is printed in the third uppercase line on the header page.

PRINT-JOB-NAME = <alphanum-name 1..8> / <c-string 1..8 with-low>
Job name which is to be assigned to the spoolout job (and which will overwrite any job name already assigned to the job issuing the command).

PRINT-JOB-PRIORITY =
Defines the urgency with which this spoolout job is started relative to other spoolout jobs.

PRINT-JOB-PRIORITY = *JOB-PRIORITY
The spoolout job is to have the same priority as the job issuing the command (this is the default).

PRINT-JOB-PRIORITY = <integer 30..255>
Priority to be assigned to the spoolout job. The highest priority you can assign is defined in the user catalog and can be displayed by means of the SHOW-USER-ATTRIBUTES command. If an invalid priority is entered (or no priority at all), the spoolout job is given the same priority as the job issuing the command.

PRINT-JOB-CLASS =
Defines the job class for the spoolout job.

PRINT-JOB-CLASS = *BY-USER-ATTRIBUTES
The preset value for the print job class is copied from the user catalog.

PRINT-JOB-CLASS = <integer 1..255>
Only the SPOOL administrator is allowed to select this value. The specified job class is assigned to the spoolout job.

MONJV =
Specifies the job variable in which information on job processing is to be stored. See also "Contents of the SPOOL job variable".

> The command is rejected if the specified variable name is the name of a temporary job variable.

MONJV = *NONE
No job variable is to be linked to the job.

MONJV = *STD
The job variable will be given the name of the file to be printed (without catalog ID and without user ID). It is created under the user ID and catalog ID of the caller.

> The PRINT-DOCUMENT command MONJV=*STD is rejected if:
>
> - a file generation is specified
> - a temporary file is specified
> - an OMF or EAM file is specified
> - a PLAM element is specified

The command PRINT-DOCUMENT (XX,XX),MONJV=*STD is rejected. The reason for this is that if the job variable XX has been created for the first job, it is no longer available for a second job.

MONJV = <filename 1..54 without-gen>
The job variable should contain the specified name. If the job contains several files, the following suffix is added to the name of the job variable:

- a consecutive number <1..9999> if FAMILY-PROCESSING=*YES is also specified
- the TSN of the spoolout job if FAMILY-PROCESSING=*NO or START-PROCESSING=<integer 1..2147483639> is also specified

JV-PASSWORD = *NONE / *SECRET / <c-string 1..4> / <x-string 1..8>
Specifies the password with which the job variable is protected. *SECRET or ^ enables a blanked input field to

be requested for protected input in unguided dialog and foreground procedures.
See also "Contents of the SPOOL job variable".

PROCESSING-ADMISSION =
Only for spoolout jobs under the user ID with the privilege PRINT-SERVICE-ADMINISTRATION.
This allows the user to specify whether the spoolout job is to be executed under the user's own ID or another specified user ID and account number.

PROCESSING-ADMISSION = *SAME
The spoolout job is to be executed under the user's own ID.

PROCESSING-ADMISSION = *PARAMETERS(...)
The spoolout job is to be executed under another user ID.

USER-IDENTIFICATION = <name 1..8>
User ID under which the spoolout job is to be executed.

ACCOUNT = *NONE / <alphanum-name 1..8>
Account number under which the spoolout job is to be executed.

PASSWORD = *NONE / *SECRET / <c-string 1..8> / <c-string 9..32> / <x-string 1..16>
Password for the user ID. The long password mechanism is supported (<c-string 9..32>). See the MODIFY-USER-PROTECTION command for details of the long password mechanism. The PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

FAILURE-PROCESSING =
Specifies whether a specific message page is to be created when an error occurs during current processing on an APA printer.

FAILURE-PROCESSING = *PARAMETERS(...)
Specifies what happens in the event of an error.

MSG-PAGE = *YES / *NO
Specifies whether the APA message page is to be printed. The APA message page contains error messages and warnings. If an APA printer is not being used, this parameter is ignored.

SCHEDULING-TIME = *STD / *EARLIEST(...)
Determines the scheduling time, i.e. the start time of the print job. The default setting is *STD, i.e. the print job is started on the basis of printer availability and the processing rules for print jobs.

SCHEDULING-TIME = *EARLIEST(...)
The job is started at the earliest at the specified time on the specified date.

DATE = *TODAY / <date with-compl>
Day on which the print job is started.

TIME = <time>
Time at which the print job is started.

ENCRYPTION = *NO / *YES
Specifies whether the print file is to be encrypted.

LAYOUT-CONTROL = *PARAMETERS(...)
Specifies all the parameters that control page layout.

PAGE-COPIES = *STD / <integer 0..255>
In local SPOOL mode, only for the printer types HP, HP90 and LP65.
Number of page copies.
In RSO operation, this only applies to the following printer types: 2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9021, 9022, 9022-200, 9025, 9026-RENO, 9026-PCL, DJET, 9000-PCL.
This specifies how many times each individual page is to be repeated. The ADDITIONAL-COPIES operand allows additional printouts of the whole file to be requested.
A PRINT-DOCUMENT command with the PAGE-COPIES operand is rejected if the line number specified in the LINE-PER-PAGE operand is greater than the number of lines in the loop record minus the number of lines before the line on which the vertical tab “channel 1” is defined.
On an HP or HP90 printer a maximum of 255 copies of a page can be printed in succession. PAGE-COPIES=255 has the same effect as PAGE-COPIES=254: one original and 254 copies are printed.

PAGE-COPIES = *STD
For LP65 printers:
the number of page copies is as specified in the PCL file. For all other printer types:
PAGE-COPIES=0.

LEFT-MARGIN = *STD / <integer 0..31>
For all printers with the exception of RSO printers: The output text is to be indented by the specified number of columns. *For all RSO printers:* The output text is to be indented by the specified number * 1/10 inch. The default value can be displayed by means of the command or SPSERVE statement SHOW-SPOOL-PARAMETERS; the information is given in the PRINT-CMD-DEFAULTS:...LEFT-MARGIN = ... output field.
The LEFT-MARGIN operand is ignored if the operand CONTROL-MODE=*PHYSICAL is specified at the same time.

TWO-SIDED =
Specifies whether the LP65 or RSO printer is to print the paper on one side or two. In conjunction with the ROTATION operand, the TWO-SIDED operand defines the exact type of printing on both sides.

TWO-SIDED=	ROTATION=	Type of double-sided printing
*NO	freely selectable	Single-sided printing (SIMPLEX)
*YES	*NO, 0, 180	Portrait format, aligned to the long edge
*YES	90, 270	Landscape format, aligned to the short edge
*TUMBLE	*NO, 0, 180	Portrait format, aligned to the short edge
*TUMBLE	90, 270	Landscape format, aligned to the long edge

Notes

- For LP65 printers (and for these only) the TWO-SIDED, ELECTRONIC-OVERLAY and PAGE-COPIES functions are linked with one another and form part of one single print command. If only one of the operands is defined, default values will be generated for the others.
- Only the operand TWO-SIDED=*STD can be used in conjunction with DOCUMENT-FORMAT=*SPECIAL-FORMAT.

TWO-SIDED = *STD
The paper is printed on one side (simplex mode) or two (duplex mode), as defined in the PCL file.

TWO-SIDED = *NO
The paper is printed on one side (simplex mode).

TWO-SIDED = *YES
The paper is printed on two sides (duplex mode).

TWO-SIDED = *TUMBLE
The paper is printed on two sides (duplex mode), and the pages are turned over from top to bottom rather than left to right. The sheets are bound along a horizontal edge. Beside LP65 printers with single sheet processing, this job can also be printed on 2030-PCL, 9026-PCL, 9026-RENO, 4822-PCL, 4825-PCL, 4824-PCL and 9000-PCL printers.

ROTATION =
Specifies whether the pages to be printed from the spoolout job are to be rotated, and if so by how many degrees. The print page set up in the printer is rotated (clockwise) by a certain number of degrees and printed on the form; for example, paper inserted in the printer in portrait format can be printed in landscape format. A separate loop is needed for pages rotated through 90^0/270^0 (see the LOOP-NAME operand). Unless ROTATION=*NO is specified, output is directed (automatically) to HP and HP90 printers. SHOW-SPOOL-PARAMETERS indicates whether or not an HP or HP90 printer with a page rotation module is available in the current SPOOL configuration: output field DEVICE-TYPE:..., ROT=YES/NO.
Spoolout jobs with page rotation are displayed in the outputs for the commands SHOW-USER-STATUS and SHOW-PRINT-JOB-STATUS JOB-IDENTIFICATION= TSN(TSN=...).
The feed for rotated pages is generally controlled via a separate loop (ROTATION-LOOP-NAME). If you have specified neither a ROTATION-LOOP-NAME for PRINT-DOCUMENT nor a form with a defined ROTATION-LOOP (see ADD-SPOOL-FORM), the default rotation loop R06 in the default form takes on feed control for the rotated pages. Header and trailer pages are not printed out in rotated format.

ROTATION = *NO
Page rotation is not performed. Any control characters for page rotation in the file are not interpreted.

ROTATION = *BY-CONTROL-CODES
Control characters for page rotation in the file are interpreted.

ROTATION = 0 / 90 / 180 / 270 / 0-180 / 180-0 / 90-270 / 270-90
Each print page is rotated by 90^0 / 180^0 / 270^0 (clockwise) and printed out. Control characters for page rotation contained in the file are not interpreted. A separate loop is needed for pages rotated through 90^0 / 270^0. You must check that output with the specified loop does not lead to errors. If an error occurs, the job is rejected.

ROTATION = 0-180 / 180-0 / 90-270 / 270-90
The odd pages (number before the hyphen) and even pages (number after the hyphen) are to be printed at different angles. This function is not supported by RSO.

COVER-PAGES = PARAMETERS(...)
Parameters for system exit routines relating to the printing of header and trailer pages.

HEADER-PAGE-TEXT = *NONE / <c-string 1..32>
The specified information (maximum of 32 characters) is stored in the SCB for processing the system exits. The first 8 characters are printed on the header page as an uppercase line under the mailing box. Only alpha characters, digits and a number of special characters are printed on the header page (in outsize type). All other character codes are automatically replaced by the printable character '?'.

Format of the header page:

- User ID in outsize letters (10 lines + 2 blank lines)
- Account number in outsize letters (10 lines + 2 blank lines)
- Job name in outsize letters (10 lines + 2 blank lines)
- Mailing box (address and identification field: 12 lines + 2 blank lines)
- 'text' in outsize letters (10 lines + 2 blank lines)

Priority sequence:

- Mailing box (address and identification field: 12 lines + 2 blank lines)
- 'text' in outsize letters (10 lines + 2 blank lines)
- Job name in outsize letters (10 lines + 2 blank lines)
- User ID in outsize letters (10 lines + 2 blank lines)
- Account number in outsize letters (10 lines + 2 blank lines)

HEADER-EXIT-NUMBER = *NO / <integer 1..2147483639>
Number of header pages required.
The precise significance of this operand depends on the definitions made for the computer center. The default value is *NO (equivalent to 0).

TRAILER-EXIT-NUMBER = *NO / <integer 1..2147483639>
Number of trailer pages required.
The precise significance of this operand depends on the definitions made for the computer center. The default value is *NO (equivalent to 0). The layout of the trailer page for local SPOOL is illustrated in the “SPOOL” manual [43].

TABLE-REFERENCE-CHAR =
Specifies whether users select fonts for print page layout by means of control characters in the text. The selection can be made with the aid of TRCs (table reference characters), which reference a list of fonts from within the records. The list can either be part of the page definition (PAGE-DEFINITION) or can be declared by means of the CHARACTER-SETS operand. For a detailed explanation of how to use the TRC, see the “SPOOL” manual [43].

TABLE-REFERENCE-CHAR = *NO
No font selection control characters (TRCs) are stored in the print file, or these characters are not to be evaluated.

TABLE-REFERENCE-CHAR = *YES
The print file contains font selection control characters (TRCs) that are to be evaluated by SPS. Each TRC value represents a specific font that is to be used to print out the relevant record. The individual values (from X'00' to X'0F') must either be linked to the entries in the font list in PAGE-DEFINITION, in the order in which

they occur or must be explicitly linked to the fonts specified in the CHARACTER-SETS operand in the order in which they occur. Regardless of the number of different TRC values in the file, up to four fonts, specified in the form of a list, can be used to print the records. TRC values greater than X‘03’ (corresponding to the fourth value in the list) automatically reference the first font in the list.

LANGUAGE-EXTENSION =
This operand is only still available for reasons of compatibility.

INPUT-TRAY-NUMBER =
Defines the paper input tray for the printer type LP65 or for the RSO printers 2030-PCL, 4011, 4812, 4813, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-EPLQ, 9000-EPSQ, 9000-PCL, 9004, 9011, 9012, 9013, 9014, 9015, 9021, 9022, 9022-200, 9025, 9026-PCL, 9026-RENO, 9097 and DJET. In the case of LP65 printers, the tray numbers 1 to 3 can be specified, whereas for RSO printers the tray numbers 1 to 99 can be specified.

Only for LP65 printers:

The paper input tray is to be selected by means of a PCL file or an entry at the printer control console. The PCL file can in turn select an input tray.
The order of priority for selecting an input tray is as follows:

1. the number of the input tray specified in PRINT-DOCUMENT
2. any selection via the PCL file specified in the PRINT-DOCUMENT command
3. any selection via the PCL file specified in the form definition in the SPOOL parameter file
4. the default values defined in the device record.

The following applies to all printers listed above:

- If a paper input tray is specified here, but is not applicable for the particular printer, the result is a printer error on most printer types.
- The PRINT-DOCUMENT command is rejected if the selected paper size is not available on the particular printer or if the paper size in the standard forms entries is larger than that for the selected paper.
- Printer resources such as prolog, epilog, DIA, member and font character files are sent before the paper input tray is selected.

INPUT-TRAY-NUMBER = *STD
Paper is taken from the input tray defined in the device record of the printer in the SPOOL parameter file (DEFAULT-TRAY-NUMBER operand of the ADD-SPOOL-DEVICE statement. It is not possible to specify the paper size in this statement
operand). The input tray selection is valid for the entire spoolout process, i.e. including processing of the header and trailer pages. If a standard paper size is specified, the printer selects the first input tray that contains this paper size. If this paper is not available, the printer switches to offline and the operator is prompted in the printer channel to insert the selected paper.

INPUT-TRAY-NUMBER = *IGNORE
Only for RSO printers: Once this operand value is specified, RSO sends no further commands for input tray selection to the printer. The default setting of the printer is used.

INPUT-TRAY-NUMBER = <integer 1..99>
Number of the input tray from which the paper is taken for printing the file itself as well as the header page (HEADER-PAGE) and trailer page (TRAILER-PAGE). RSO does not check the specified value. Possible values: 1...99.

The following table shows the printer types and the corresponding maximum number of input trays (column headed “max.”).

printer	Max.	printer	Max.	printer	Max.	printer	Max.
2030-PCL	2	9000	0	9002	0	9022	2
4011	2	9000-PCL	2	9003	0	9022-200	2
4812	2	9000-PRO	0	9004	3	9025	2
4813	2	9000-PS	0	9011	2	9026-PCL	4
4818-PCL	2	9000-EPFX	0	9012	2	9026-RENO	4
4821-PCL	2	9000-EPLQ	2	9013	3	9045-ANSI	0
4822-PCL	3	9000-EPSQ	2	9014	3	9046	0
4824-PCL	2	9001	0	9015	2	9645	0
4825-PCL	3	9001-31	0	9021	2	DJET	1
8121	0						

Table 80: Printer types and the corresponding maximum number of input trays

The following table indicates how RSO’s response to certain operand values is governed by the device definition:

- INPUT-TRAY-NUMBER operand specified in the PRINT-DOCUMENT command
- device definition in the ADD-SPOOL-DEVICE statement with the operand FORM-FEED = *SINGLE-SHEET(DEFAULT-TRAY-NUMBER = ...)

Default in the device definition	Value of the INPUT-TRAY-NUMBER operand		
	*STD	1..99	*IGNORE
1..99	Sets default value (1) or Sets *LISTING value (2)	Sets specified value (1) or Sets *LISTING value (2)	Last tray specified is used
*IGNORE	Last tray specified is used	Sets specified value (1) or Sets *LISTING value (2)	Last tray specified is used

(1) on single-sheet printers and printer type 9015 (list printer)

(2) on list printers other than printer type 9015

INPUT-TRAY-NUMBER = *BY-FORMAT(...)
Defines the input tray by specifying the paper format.

INPUT-TRAY-FORMAT = *A3 / *A4 / *A5 / *B4 / *B5 / *FOLIO / *INVOICE / *EXEC / *LEGAL / *LETTER / *DOUBLE-LETTER / *MONARCH / *COMMERCIAL-10 / *DL / *C5 / *MANUAL / *A3-UNCUT / *A4-UNCUT / *LEDGER

Apart from *MANUAL, each operand value corresponds to a paper format. To ensure that the values for PAGE-SIZE and LINE-SIZE specified in the FORM operand do not exceed the permissible maximum values for the selected paper format, the values of the FORM operand are compared with the permissible maximum values for the paper format.

The table below contains the maximum permissible values for PAGE-SIZE and LINE-SIZE for each paper format and indicates which printers support the paper format. With all paper formats, the sheets are taken from the first input tray which contains sheets in the given format.

Paper format	Maximum PAGE-SIZE	Maximum LINE-SIZE	Applicable to printers of type:
A3	165	116	9026-PCL and 9026-RENO
A4	116	82	9021, 9000-PCL, 9026-PCL, 9026-RENO, 2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
A5	82	58	4818-PCL, 4822-PCL, 4825-PCL, 9026-PCL and 9026-RENO
B4	143	101	2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4825-PCL, 9000-PCL, 9026-RENO
B5	101	71	9026-PCL and 9026-RENO
FOLIO	129	85	9026-RENO
INVOICE	85	55	9026-PCL and 9026-RENO
EXEC	105	72	9021, 9000-PCL, 9026-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
LEGAL	140	85	9021, 9000-PCL, 9026-PCL, 9026-RENO, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
LETTER	110	85	9021, 9000-PCL, 9026-PCL, 9026-RENO, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
DOUBLE-LETTER	150	117	9026-RENO
MONARCH	75	38	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
COMMERCIAL-10	95	41	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL

DL	86	43	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL
C5	90	63	9021, 9000-PCL, 2030-PCL, 4821-PCL, 4822-PCL, 4824-PCL and 4825-PCL

Table 81: Paper formats

INPUT-TRAY-FORMAT = *MANUAL

Form feed is manual. You should therefore insert a new sheet each time a new page is to be printed or the printer prompts you to do so.

The following printers support manual feed: 9004, 9014, 9015, 9021, 9022, 9022-200, 9026-Reno, 9026-PCL, 2030-PCL, 4812, DJET, 4814-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL and 9000-PCL.

OUTPUT-TRAY-NUMBER =

Specifies the paper output tray for LP65 printers and for the RSO printers 2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL, 9014, 9015, 9026-PCL and 9026-RENO.

OUTPUT-TRAY-NUMBER = *STD

Paper is output to the default tray defined in the device record (SPOOL parameter file). The output tray selection is valid for the entire spoolout process, i.e. including processing of header and trailer pages.

Only for LP65 printers:

Selection of the output tray by BS2000 can be prevented by a PCL file or by making an appropriate entry at the printer control console. In these cases, the entries for OUTPUT-TRAY-NUMBER have no effect. An output tray can also be defined in the PCL file.

The order of priority for selecting an output tray is as follows:

1. the output tray number specified in PRINT-DOCUMENT, provided this is not prevented by a PCL file or an entry at the printer console.
2. any selection via the PCL file specified in the PRINT-DOCUMENT command.
3. any selection via the PCL file specified in the form definition in the SPOOL parameter file.
4. the default values defined in the device record.

OUTPUT-TRAY-NUMBER = *IGNORE

Only for RSO printers.

If this value is specified, the printer controller does not send an output tray selection code to the printer. This allows you to define the output tray in the prolog file.

OUTPUT-TRAY-NUMBER = <integer 1..99>

Specifies the output tray to be used for the current job. Only the values 1..3 are valid for LP65 printers.

RSO printer types	Output tray number	Output tray selection
2030-PCL, 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL	1	Top output tray
	2	Bottom output tray
9014	1	Stacker
	2	Front output tray
9015	1	Uncut in rear output tray

	2	Cut in rear output tray
	3	Uncut in front output tray
	4	Cut in front output tray
9026-RENO	1..20	Appropriate output tray of the sort mechanism

OUTPUT-TRAY-NUMBER = *SORTER(...)

Only for RSO printers:

Specifies that the sort mechanism is to be used for the current job. OUTPUT-TRAY-NUMBER = *SORTER(...) is permissible for 9026-RENO, 4822-PCL and 4825-PCL printers. This sort mechanism can be used for up to 20 output trays. It cannot be controlled by the default values defined in the device record.

SORT-MODE = *NO

All pages in the document are output to the sort trays from bottom to top. Exception 9026-RENO: here the pages are output to an output tray to provide optimum access.

SORT-MODE = *GROUP

Each copy of a particular page - if multiple copies are specified in PAGE-COPIES - is output to a separate sort tray. The printer does not return to the first sort tray until it is ready to start outputting the next page in sequence. When the print job is completed, each sort tray used contains a complete copy of the printed document.

Example

There are three pages in the file, and PAGE-COPIES=1 is specified:

Page 3	Page 3	
Page 2	Page 2	
Page 1	Page 1	
Tray 1	**Tray 2**	**Tray 3**

SORT-MODE = *COLLATE

All copies of a page - is multiple copies are specified in PAGE-COPIES - are collected in one sort tray. The copies of the next page are placed in the next sort tray. The sort trays are used from bottom to top.

Example

There are three pages in the file, and PAGE-COPIES=2 is specified:

Page 1	Page 2	Page 3
Page 1	Page 2	Page 3
Page 1	Page 2	Page 3
Tray 1	**Tray 2**	**Tray 3**

SORT-MODE = *STACKER

Cannot be used for the 9026 Printer.

All printed pages are output to the stacker of the sort mechanism, to a maximum of 500 pages. This mode is suitable if a single copy of a very long document is to be printed.

All printed pages are output to the stacker of the sort mechanism, to a maximum of 500 pages. This mode is suitable if a single copy of a very long document is to be printed.

SORT-MODE = *AUTOMATIC

Applicable to the 9026 printer only. The sort mode is selected automatically depending on the number of copies per page requested in PAGE-COPIES and the number of sort trays available. The printed pages are output unsorted, as with *NO, if the number of copies specified in PAGE-COPIES is the same as the number of sort trays; they are grouped by document, as with *GROUP, if the number of copies specified in PAGE-COPIES is less than the number of sort trays; and they are collected a page at a time, as with *COLLATE, if the number of copies specified in PAGE-COPIES is greater than the number of sort trays.

Note

Header and trailer pages are printer resources such as prolog, epilog, DIA, member and font character file are sent before output tray selection and are therefore not included in sorting.

TOP-OFFSET =

Defines in millimeters the margin between the top of the physical sheet and the top of the print page. First the print page is positioned on the paper and only then is the lettering within the page rotated and positioned. This means that when the print page is moved with respect to the paper page the orientation of the text within the print page is ignored.

This operand is permissible only for 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL, 9021, 9022-200 and 2030-PCL printers.

Note

Only TOP-OFFSET=*IGNORE can be specified in conjunction with DOCUMENT-FORMAT=*SPECIAL-FORMAT.

TOP-OFFSET = *IGNORE

The printer controller does not set a margin between the first line and the top edge of the sheet. The preset printer value or the setting in the prolog file defines the margin that is effective when the document is printed.

TOP-OFFSET = <integer -255..255>

The permissible range of values is -255 to +255. Positive values move the first line down. Negative values move it up.

LEFT-OFFSET =

Defines in millimeters the margin between the left edge of the physical sheet and the left edge of the print page. First the print page is positioned on the paper and only then is the lettering within the page rotated and positioned. This means that when the print page is moved with respect to the paper page the orientation of the text within the print page is ignored.

This operand is permissible only for 4818-PCL, 4821-PCL, 4822-PCL, 4824-PCL, 4825-PCL, 9000-PCL, 9021, 9022-200, 9026-PCL and 2030-PCL printers.

Note

Only LEFT-OFFSET=*IGNORE can be specified in conjunction with DOCUMENT-FORMAT=*SPECIAL-FORMAT.

LEFT-OFFSET = *IGNORE
The printer controller does not set a margin between the print page and the left edge of the sheet. The preset printer value or the setting in the prolog file defines the margin that is effective when the document is printed.

LEFT-OFFSET = <integer -255..255>
The permissible range of values is -255 to +255. Positive values move the print page to the right. Negative values move it to the left.

RESOURCE-DESCRIPTION = *PARAMETERS(...)
Specifies the print resources to be used for the printout.

FORM-NAME =
Specifies the paper (form) to be used for output (e.g. STD, STDSF1, STDWA4). Default forms must be defined in the SPOOL parameter file for all printer types. With SHOW-SPOOL-FORMS you can output the entries to SYSOUT. The SPOOL parameter file also specifies whether header and trailer pages are to be printed.

FORM-NAME = *STD
Default form.

FORM-NAME = <alphanum-name 1..6>
Name of the form with which the spoolout job is to be processed. A loop (or a page and format definition for APA printers) is implicitly named when the form is specified. The associated loop (or the PAGEDEF and FORMDEF) must be in a printer control file. The following table shows which printer control file must contain this loop (or the PAGEDEF and FORMDEF) for the relevant printer type:

Output device	Printer control file with the loop for specified form
Printers 3337, 3338, 3339, 3348, 3349, 3365, LP-EMULATED	$SYSSPOOL.PRFILE
Printers: 3351, 3353, 2090, 2140, 2240	$SYSSPOOL.PRFILE or the PRFILE user specified in the USER-RESOURCES-FILE operand
APA printer	$SYSSPOOL.SYSPRT.SPS.<version> or the SPSLIB user specified in the USER-RESOURCES-FILE operand

The loop named implicitly via the FORM-NAME operand is ignored if the LOOP-NAME operand is specified at the same time. If the FORM-NAME and LOOP-NAME operands are omitted, the file is printed out using the default form entered for the printer type.

A loop explicitly specified in the LOOP-NAME operand must have the same length as the loop record assigned to the form used.

No loops can be specified for APA printers. If page and format specifications are made in the FORM-NAME operand, these are used for printing header, trailer and message pages, even if the PAGE-DEFINITION and FORM-DEFINITION operands are explicitly assigned.

See also "Controlling spoolout" and the section on APA printers in the “SPOOL” manual [43].

LOOP-NAME =
Name of the loop to be loaded into the feed information buffer (VFB/FCB). The loop name must not include the characters '$', '&' or '@'.

LOOP-NAME = *STD
Feed control for the spoolout job is to be implemented with the default loop of the form used.

LOOP-NAME = <alphanum-name 1..3>
Name of the loop which is to control line feed. The length of the specified loop must match the length of the default loop of the form used.
A loop for feed control is needed for the HP and HP90 printers (3351, 3353, 2090, 2140) and printers of types 3337, 3338, 3339, 3348, 3349 and 3365. Loops are stored in the PRFILE printer control file. If no loop is specified, the implicit entries in the FORM-NAME operand are used. If the FORM-NAME or LOOP-NAME operand is omitted, default values apply.

ROTATION-LOOP-NAME =
Only for HP and HP90 printers with a page rotation module.
Specifies the loop to control output in landscape format.
The loop name must not include the characters '$', '&' or '@'.

ROTATION-LOOP-NAME = *STD
Output of rotated pages is to be controlled by the default rotation loop of the specified form or the default rotation loop R06 of the default form (if no form was specified in the PRINT-DOCUMENT command).

ROTATION-LOOP-NAME = <alphanum-name 1..3>
Name of the loop with which line feed for the rotated pages is to be controlled.

CHARACTER-SETS =
Names of the fonts or font pools (only for HP and HP90 printers) to be used for output. Up to 4 fonts may be specified in the list for local SPOOL, up to 16 for RSO. For local SPOOL, the fonts must be contained in the $SYSSPOOL.PRFILE resource library or in a user PRFILE (specified by means of the USER-RESOURCES-FILE operand).
If more than four fonts are to be used, a font pool must be specified.
If more than one font is to be used in a spoolout job, CONTROL-MODE=*PAGE-MODE must be specified. For DOCUMENT-FORMAT=*TEXT, only the first specified font is used for printing the (entire) file. The name of the first font and the number of specified fonts are shown in the output for the command SHOW-PRINT-JOB-STATUS JOB-ID= *TSN(TSN=...).
If the HEADER-LINE operand is specified, the first font specified or the font pool specified with an index for CHARACTER-SETS=*POOL is used for the header line. The default value for CHARACTER-SETS for the form used can be displayed using SHOW-SPOOL-FORMS; the information is given in the C-S output field.
With HP printers the following must be borne in mind: Systems support can specify whether the header page is printed with the default font or with the font specified in CHARACTER-SETS. This default value can be displayed by means of the command or SPSERVE statement SHOW-SPOOL-PARAMETERS; the information is given in the HEADER-PAGE: CHARACTER-SET=... output field.

CHARACTER-SETS = *STD
The default font is selected for this printer type from the desired form. It can be displayed by means of SHOW-SPOOL-FORMS.

CHARACTER-SETS = *POOL(...)
Only PRFILEs may contain descriptions of font pools. If a font pool is specified, the spoolout job will be processed on an HP or HP90 printer.

POOL-NAME = <alphanum-name 1..4>
Specifies a font pool (with a maximum of 64 fonts for an HP printer or 46 fonts for an HP90 printer) from which one or more fonts are to be used for output. All the fonts of this font pool are loaded into the font buffer when the spoolout job is executed.

POOL-INDEX = 0 / <integer 0..64>
Number of the font from the font pool with which the spoolout job is to be processed. The number of the font is determined by its position in the definition of the font pool. The specified font is used if POOL is specified together with CONTROL-MODE= *PAGE-MODE.

CHARACTER-SETS = *BY-EXTENDED-NAME(...)
Specifies the fonts to be interpreted by SPS when the TABLE-REFERENCE-CHAR operand is used.

NAME = <alphanum-name 1..8>
Names of the fonts to be linked with the TRC values in the print file (each TRC value represents a specific font). Regardless of the number of different TRC values in the file, up to four fonts, specified in the form of a list, can be used to print the records. TRC values greater than X‘03’ (corresponding to the fourth value in the list) automatically reference the first font in the list.

CHARACTER-SETS = list-poss(16): <alphanum-name 1..3>
Names of the fonts with which the spoolout job is to be processed. For DOCUMENT-FORMAT=*TEXT (default), only the first specified font is used for printing.

For laser printers in local SPOOL mode, a maximum of four fonts may be specified. The printer control characters for changing fonts are only interpreted if CONTROL-MODE=*PAGE-MODE is also specified. In the case of RSO printers, a maximum of 16 fonts may be specified. Font identifiers (CSIs) in the text are only interpreted if CONTROL-MODE=*LOGICAL is specified at the same time. The command is rejected if a list of fonts is specified in conjunction with DOCUMENT-FORMAT=*TEXT. See also "Specifying fonts".

CHAR-SET-ATTRIBUTES =
Only for RSO.
Specifies whether all or only selected font attributes are supported for the spoolout job. Such attributes are, for instance, character type, near letter quality (NLQ), color, etc. (see command or SPSERVE statement SHOW-SPOOL-CHARACTER-SETS). This operand does not apply to header and trailer pages.

CHAR-SET-ATTRIBUTES = *ALL
All the attributes of the fonts used for printout are supported for the current spoolout job.

CHAR-SET-ATTRIBUTES = *RESTRICTED
Only the following three attributes are supported:

- character type
- language
- NLQ (NEAR-LETTER-QUALITY)

OVERLAY-RESOURCES = *PARAMETERS(...)
Specifies whether a film overlay - in the case of HP90 and 3365 printers an EFO data overlay - or a FOB data overlay is to be used for processing a spoolout job.

ELECTRONIC-OVERLAY =
Specifies whether a film overlay - in the case of HP90 and 3365 printers an EFO data overlay - is to be used for processing the spoolout job.

ELECTRONIC-OVERLAY = *NONE
No film overlay (HP90 and 3365: no EFO data overlay) is used for output.

ELECTRONIC-OVERLAY = <alphanum-name 2..2>
Name of the film overlay (HP90 and 3365: EFO data overlay) to be used for processing the spoolout job (the name must be agreed with systems support).

OVERLAY =
For local SPOOL only.
Specifies for LP65 printers whether EFO data overlays are to be used on the recto and/or verso. They must be stored in the printer memory. The OVERLAY, TWO-SIDED and PAGE-COPIES operands are part of one and the same LP65 printer command and are consequently linked to one another. If only the OVERLAY operand is specified, SPOOL will generate default values for the other two operands. These default values are overwritten by each value specified in a PCL file or at the printer control console.
For a summary of the possible combinations of these three linked functions, see the description of the LP65 printer type in the “SPOOL” manual [43].

OVERLAY = *STD
The EFO data overlays defined in the PCL file are used.

OVERLAY = *NONE
No EFO data overlays are used for output.

OVERLAY = *PARAMETERS(...)
The specified EFO data overlays are used for output.

FACE-SIDE = *NONE / <integer 1..127>
Identification number of the overlay to be used on the recto.

REVERSE-SIDE = *NONE / <integer 1..127>
Identification number of the overlay to be used on the verso.

FORMS-OVERLAY-BUFFER =
Specifies whether an FOB data overlay is to be used for processing the spoolout job (see the “SPOOL” manual [43] for a description of an overlay).

FORMS-OVERLAY-BUFFER = *NONE
No FOB data overlay is used for output.

FORMS-OVERLAY-BUFFER = <alphanum-name 1..4>
Name of the overlay to be used for processing the spoolout job.
If an overlay is specified, the file is printed out on an HP or HP90 printer.
Use of an overlay for the spoolout job is indicated in the output of the command SHOW-PRINT-JOB-STATUS JOB-IDENTIFICATION=TSN(TSN=...).

PAGE-DEFINITION =
Specifies which page definition is to be used for output on LP65 or APA printers.

PAGE-DEFINITION = *STD
The standard definition specified in the SPSLIB is to be used (see the table of SPSLIB standard definitions in the „SPOOL“ [43] manual).

PAGE-DEFINITION = <integer 1..50000>
This operand value is only still available for reasons of compatibility.

PAGE-DEFINITION = <alphanum-name 1..8>
The page definition with the specified name is to be used. This must be in the SPSLIB.

> The first two characters of the specified name must be “P1”. If they are not, the command is rejected.

FORM-DEFINITION =
Specifies which format definition is to be used for output on APA printers.

FORM-DEFINITION = *STD
The default definition specified in the SPSLIB is to be used.

FORM-DEFINITION = <alphanum-name 1..8>
The format definition with the specified name is to be used. This must be in the SPSLIB.

> The first two characters of the specified name must be “P1”. If they are not, the command is rejected.

USER-RESOURCES-FILE =
Specifies a user file containing all the resources required for output on different printer types: user-defined loops, fonts, overlays, font pools, code translation tables, and SPS data stream definitions. The following can be specified:

- a user PRFILE containing loops, fonts, overlay entries (FORMS-OVERLAY-BUFFER operand), and font pool entries (CHARACTER-SETS operand)
- a user SPSLIB containing the PAGEDEFs (PAGE-DEFINITION operand), FORMDEFs (FORM-DEFINITION operand), fonts, page segments, overlays, and raster image data
- a user RSOFILE (only for RSO) containing loops

If no user PRFILE, SPSLIB or RSOFILE is specified, the information is taken from the following files: $SYSSPOOL.PRFILE, $SYSSPOOL.SYSPRT.SPS.<version> or $SYSSPOOL.RSOFILE, respectively.

USER-RESOURCES-FILE = *STD
The required resources are taken from $SYSSPOOL.PRFILE, $SYSSPOOL.SYSPRT.SPS.<version> or $SYSSPOOL.RSOFILE.

USER-RESOURCES-FILE = <filename 1..44 without-gen-vers>
Name of a user PRFILE, SPSLIB or RSOFILE, which may contain a catalog ID and a user ID. SPOOL uses this file name with the suffix .PRFILE, .SPSLIB or .RSOFILE. The string can contain up to 28 characters without the catalog ID and user ID, to ensure that this user file can be called from any ID.
If the file name is specified without a user ID, the file is searched for under the user ID of the caller first, then under SYSSPOOL. If it is not found, the command is rejected. If a user ID is specified, the file is searched for under this ID only.

Example 1

```
PRINT-DOCUMENT DATEI,USER-RESOURCES-FILE=$XX.XX
```

A search is carried out for the $XX.XX.PRFILE file. If the file is not found, the command is rejected.

Example 2

If the catalog ID is specified, the search is limited to the specified pubset:

```
PRINT-DOCUMENT DATEI, USER-RESOURCES-FILE=:A:XXXXX
```

The file :A:$userid.XXXXX.PRFILE is searched for. If the relevant file is not found, the search for the file : A:$SYSSPOOL.XXXXX.PRFILE is continued. If this file is not found, the command is rejected.

Example 3

```
PRINT-DOCUMENT DATEI, USER-RESOURCES-FILE=:A:$XX.XXXXX
```

The file :A:$XX.XXXXX.PRFILE is searched for. If it is not found, the command is rejected.

If the file is on an exported PVS (EXPORT-PUBSET command), all spoolout jobs that require this PVS are placed in the KEEP queue. When the PVS becomes available again (IMPORT-PUBSET command), the spoolout jobs are restarted.

TRANSLATION-TABLE =
Specifies whether a code translation table is to be used for processing the spoolout job. The code translation table is necessary if the default escape character 'FF' is to be replaced by a random character.

TRANSLATION-TABLE = *NONE
No code translation table is used.

TRANSLATION-TABLE = *PARAMETERS(...)
A code translation table is used.

NAME = <alphanum-name 1..8>
Name of the code translation table to be used for processing the spoolout job.

FILE = *STD / *SYSTEM / <filename 1..44 without-gen-vers>
The code translation table from the specified file (if FILE=<filename..>) or from the standard $TSOS.RSOFILE resource file (if FILE=*STD/*SYSTEM) is used for RSO jobs.
Only FILE=*STD applies for SPOOL jobs. Other values are ignored and reset to *STD. Consequently, the code translation table is always taken from the user-specific resource file specified in USER-RESOURCE-FILE or from the standard $SYSSPOOL.PRFILE resource file (if no user-specific resource file was specified).

RESOURCES-LOCATION =
Specifies, when the optional Distributed Print Services subsystem (Dprint) is used, whether the resources of the client or those of the server are to be used for printing the document.

RESOURCES-LOCATION = *STD
The value from the GEN record of the SPOOL parameter file is to be used.

RESOURCES-LOCATION = *HOME
The print job is to be executed using the print resources defined on the client system. In this case, an extract containing all the required print resources is taken from the resource file (i.e. a print resources container is created) and transferred to the selected server.

RESOURCES-LOCATION = *SERVER
The print job is to be executed using the print resources defined on the server system. In this case, no print resources container is created and transferred.

TO-PRINTER = *PARAMETERS(...)
Describes the requested target devices for the print job.

PRINTER-NAME =
Specifies the requested target printer of the print job. You can specify a distributed local printer pool, a nondistributed local printer pool, an RSO printer pool or an RSO printer.
If you specify a printer pool:
The job is output on any printer in the specified device pool. The pool must be defined in the SPOOL parameter file and can contain up to 16 RSO devices or 16 local SPOOL devices, but not both at the same time.
Device pools are managed by means of the SPSERVE statements ADD-, MODIFY-, REMOVE-, and SHOW-PRINTER-POOL (see the “SPSERVE” manual [44]).
The spoolout job is rejected if:

- no printer type from the device pool is assigned in the PRINT-DOCUMENT command (see the SHOW-SPOOL-FORMS command or SPSERVE statement)
- the ELECTRONIC-OVERLAY operand is specified.

Please bear in mind that the pool can contain various types of devices: if the file to be printed contains control characters that are only interpreted by a certain printer type, a printer of this type should be specified (implicitly) in the PRINT-DOCUMENT command. One possibility is to specify in the PRINT-DOCUMENT command a form that is defined only for the desired printer type (ADD-SPOOL-FORM).

PRINTER-NAME = *STD
The spoolout job is to be processed on the default device type specified in the SPOOL parameters (PRINT-CMD-DEFAULTS).

PRINTER-NAME = <alphanum-name 1..8>
Only for RSO.
Symbolic name of the RSO device on which the spoolout job is to be processed.

PRINTER-NAME = *IPP(...)
Only for RSO.
The spoolout job is to be processed on an IPP printer.

URL = <c-string 1..1023 with-low>
Specifies the Web address of the IPP printer.

FQDN = *NONE / <c-string 1..1023 with-low>
Fully-qualified name of the domain to which the IPP printer is assigned.

PRINTER-TYPE =
Specifies which printer type is to process the print job. Only local printer types may be specified.

PRINTER-TYPE = *ANY
A specific printer type is not requested. In this case, the SPOOL subsystem automatically determines the permitted printer types that can process the user request. *ANY must be specified for output on RSO printers and printers on UNIX-based systems.

PRINTER-TYPE = *HP-PRINTER
The spoolout job is to be processed on an HP or HP90 printer. *HP-PRINTER includes the following printer types: 2090/2140/2240(HP90). The control characters for HP and HP90 laser printers are identical; a spoolout job for an HP printer can be processed on an HP90 printer and vice versa.

Selection of the printer type is affected by whether the CONTROL-MODE operand is specified at the same time:

Printer selection	CONTROL-MODE = *PAGE-MODE (default value)	CONTROL-MODE =*PAGE-MODE (CONTROL-TYPE=*HP)
PRINTER- TYPE = *ANY	Output can take place to all printer types	Output can be directed to HP or HP90 printers. Other control characters are converted to HP/HP90 control characters.
	The following also applies for HP-/HP90 printers: Conversion of the OVERPRINT functions to the LINE-MERGE function.	
PRINTER-TYPE = *HP-PRINTER	Output can only be processed on HP and HP90 printers. The OVERPRINT function is converted to the LINE-MERGE function.	
	Restrictions for PRFILE: The file may not contain the character X'FF'.	Support of the HP-specific control characters. Restriction: The file may only contain the character X'FF' as an escape character when control character evaluation is enabled (CHAR-SET-ATTRIBUTES = *ALL)

Note for HP/HP90 printers

If the entries in PRINT-DOCUMENT specify output to an HP or HP90 laser printer, a PRFILE must be available. If they are not, the command is rejected. If there is no HP/HP90 available in an installation, or only devices with insufficient configurations (not enough fonts, no graphics buffer for FOBs or no page rotation module, for example), the jobs can only be output to replay tape.
Systems support can run the SHOW-PRINT-JOB-STATUS command to obtain information on these jobs.

PRINTER-TYPE = *LP65-PRINTER
The spoolout job is to be processed on an LP65 printer.

PRINTER-TYPE = *APA-PRINTER
The spoolout job is to be processed on a 2050-APA-PRINTER, 2090-APA-PRINTER or 2090-TWIN-PRINTER.

REDIRECTION-ALLOWED =
Specifies whether a device administrator can redirect the spoolout job to a different printer. This does not affect the redirection of jobs by the user or by systems support.

REDIRECTION-ALLOWED = *STD
Means YES for RSO print jobs, for SPOOL print jobs the operand is ignored.

REDIRECTION-ALLOWED = *YES / *NO
Can only be specified for RSO print jobs, not for SPOOL print jobs.

CLUSTER-NAME = *LOCAL-CLUSTER / <alphanum-name 1..8>
Specifies the cluster to which the print job is to be transferred. *LOCAL-CLUSTER means that the print job is to be processed in the local cluster.
Only for Dprint: To transfer the print job to a UNIX-based system, a cluster name defined in the Distributed Print Services (Dprint) configuration file must be specified. The remote clusters defined in the Distributed Print Services (Dprint) configuration file can be displayed by means of the SHOW-DPRINT-REMOTE-CLUSTER command (for a command description and detailed explanation, see the “Dprint” manual [10]).

OUTPUT-FORMAT =
Only relevant for interoperability between BS2000- and UNIX-based systems.
Specifies which printer language is to be used for the print job.

OUTPUT-FORMAT = *NONE
No output format was specified. The document is transferred to the UNIX-based system without any modifications. It is assumed that the printer knows the format name specified in the DOCUMENT-FORMAT=*SPECIAL-FORMAT(...) operand structure.

OUTPUT-FORMAT = <c-string 1..63 with-low>
The format name supported by the printer of the UNIX-based system specified in the PRINTER-NAME operand and known to this printer.

Notes

- In order to print out a document, its format name (defined implicitly with FORMAT-NAME=*STD or explicitly through a freely selectable string) has to be compatible with one of the format names supported by the printer. The supported format names can be defined for each printer in the SPOOL parameter file (see “SPSERVE” manual [44]).
- As a standard, each printer supports the 'TEXT' format. 2050-APA, 2090-APA and 2090-TWIN printers also support the 'SPDS' format.
- If a printer does not support a document’s format, it can only print the document if a filter is available which converts the format name into one supported by the printer.

Example

The print job issued with PRINT-DOCUMENT <datei>,...,FORMAT-NAME=xxx is printed out by a printer

- for which 'SUPP-FORMAT-NAME=xxx' was defined
- or for which 'SUPP-FORMAT-NAME=yyy' *and* a filter was defined which converts the input format ’xxx’ into the output format ’yyy’

The filter is defined with the SPSERVE utility. You will find further information on filters in the “SPCONV” manual [41].

VIRTUAL-PRINTER =
This operand defines whether a print job is passed via a virtual printer to an application for processing.

VIRTUAL-PRINTER = *STD
The virtual printer which is to receive the print job is determined through the SPOOL parameter file. Assignment of the print job to a virtual printer is given precedence. If no virtual printer is active when the print job is added to the list of print jobs, the print job is assigned to a real printer.

VIRTUAL-PRINTER = *ALLOWED
Assignment of the print job to a virtual printer is given precedence. If no virtual device is active when the print job is added to the list of print jobs, the print job is assigned to a real device.

VIRTUAL-PRINTER = *NOT-ALLOWED
This print job should not be transferred to an application program via a virtual device.

VIRTUAL-PRINTER = *MUST(...)
This print job is transferred to the virtual printer specified by the parameters in the brackets. If the printer's supervisor task is inactive, the print job waits.

NAME = <alphanum-name 1..8>
Device name contained in the SPOOL parameter file.

STRING = *NONE / <c-string 1..32>
Passes a character string on to the application program.

ADDITIONAL-COPIES = 0 / <integer 1..255>
Specifies how many additional times the file is to be printed.
The entry can also be made in parentheses. Each additional printout has its own header page. Default: 0 (no additional printouts).

LOCK-FILE =
Specifies whether the file is to be protected as long as the spoolout job is in the wait state (TYPE 4, see output of the SHOW-PRINT-JOB-STATUS command). During this time the file can only be read. As a rule, tape files are never locked. During processing of the spoolout job (TYPE 5, see output of the SHOW-PRINT-JOB-STATUS command), the file is protected irrespective of the setting of this operand.
A spoolout job is created even if the file to be output is reserved by a SECURE-RESOURCE-ALLOCATION command. This reservation must, however, be canceled by the time the spoolout job is processed; otherwise the job is not executed. The file to be output is locked until the end of the session if the LOCK-FILE=*YES operand is specified in the PRINT-DOCUMENT command and the job cannot be executed owing to reservation.

LOCK-FILE = *STD
The value defined in the SPOOL paramter file is valid (NO or YES).

LOCK-FILE = *YES
The file is protected while the spoolout job is in the wait state. LOCK-FILE=*YES is ignored if one of the values *OMF, *SYSLST or *SYSOUT is specified for the FROM-FILE operand at the same time. A PRINT-DOCUMENT command for a library element with LOCK=*YES is rejected. File protection offered by LOCK-FILE=*YES remains in force even if the spoolout job is not processed until the next system run.

LOCK-FILE = *NO
The file is not protected while the spoolout job is in the wait state. The file can be deleted or modified before processing of the spoolout job commences.
LOCK-FILE=*NO is ignored for temporary files.

DELETE-AFTER-PRINT =
Specifies whether the file is to be deleted at the end of output and, if so, whether its data are to be overwritten with X'00..0'. Default: the file is not deleted after printing and not overwritten with binary zeros. The user must have write access to the file. If the file to be output belongs to a file generation group (see the FROM-FILE operand), the DELETE-AFTER-PRINT operand is ignored. If a spoolout job is used to print several elements of a PLAM library with INPUT-SECTION(...), the DELETE-AFTER-PRINT operand is set to *NO (i.e. suppressed). The operand must not be specified together with *SYSLST, *EAM or *SYSOUT.

DELETE-AFTER-PRINT = *NO
The file is not to be deleted after printing (unless it is an EAM or system file).

DELETE-AFTER-PRINT = *YES(...)
The file is to be deleted as soon as output has been completed.

LINE-TRUNCATION =
Specifies what happens if lines are truncated.

LINE-TRUNCATION = *STD
The default value from the SPOOL parameter is valid. You can display this value by means of the SHOW-SPOOL-PARAMETERS command or SPSERVE statement (field: ERROR-PR=(TRUNC=)).

LINE-TRUNCATION = *DELETE-FILE
Processing of the spoolout job continues (i.e. DELETE-AFTER-PRINT=*YES is executed). An appropriate warning is printed on the trailer page.

LINE-TRUNCATION = *KEEP-FILE
Processing of the spoolout job is continued, but the file is not subsequently deleted.

DELETE-AFTER-PRINT = *DESTROY(...)
Not for EAM and cataloged system files.
Specifies that once the file has been printed its data are to be overwritten with binary zeros.

LINE-TRUNCATION =
Specifies what happens if lines are truncated.

LINE-TRUNCATION = *STD
The default value from the SPOOL parameter is valid. You can display this value by means of the SHOW-SPOOL-PARAMETERS command or SPSERVE statement (field: ERROR-PR=(TRUNC=)).

LINE-TRUNCATION = *DELETE-FILE
Processing of the spoolout job continues (i.e. DELETE-AFTER-PRINT=*DESTROY is executed). An appropriate warning is printed on the trailer page.

LINE-TRUNCATION = *KEEP-FILE
Processing of the spoolout job is continued, but the data of the file itself are overwritten with binary zeros.

NOTIFICATION =
Selects the notification processing for the associated print jobs. The permanent subscriptions are implemented asynchronously. At the print job submission the previous subscriptions can be discarded temporarily for the current print job by selecting NOTIFICATION=*NO. It is also possible to temporarily associate another subscription to the current print job by giving the subscription attributes at the print job submission.

NOTIFICATION = *STD
Notification delivery will be processed for the current print job if the owner of this print job has previously recorded permanent subscriptions in the notification resource file.

NOTIFICATION = *NO
Notification processing is turned off for this print job. Notifications will not be generated even if there are valid subscriptions recorded in the notification resource file belonging to the owner of this print job. However, the notifications generated for subscriptions belonging to other privileged users is not turned off.

NOTIFICATION = *PARAMETERS(...)
This operand creates one temporary subscription resource. This subscription exists as long as the current print job exists. It allows the user to associate subscription resource with a particular job.

OBJECT-ATTRIBUTES =
Specifies the object attributes associated to the notifications. Objects, e.g. a print job, for which notifications are sent may have attributes associated to them. The user may want to have one or more of these associated attributes returned with a particular notification. Generally, these may include any attribute associated to the object emitting the notification.

OBJECT-ATTRIBUTES = *NONE
No attribute is selected.

OBJECT-ATTRIBUTES = *ALL
All the attributes associated to the print job are selected.

OBJECT-ATTRIBUTES = list-poss(20): <text 1..64>
Some of the attributes are selected.

EVENT-NAMES =
List of subscribed events.

EVENT-NAMES = *ALL
All the events associated to the print job are selected.

EVENT-NAMES = list-poss(20): <alphanum 1..24>
Some of the events are selected.

USER-DATA =
Specifies opaque data that some delivery methods include in each notification data; for example, for a notification by mail, the user data is included in the mail text.

USER-DATA = *NONE
No user data is specified.

USER-DATA = <text 1..63 with-low>
Specifies the user data value.

USER-DATA = <c-string 1..63 with-low>
Specifies the user data value.

RECIPIENT = *PARAMETERS(...)
According to the selected method the user has to specify the delivery address for the notifications.

ADDRESS = <text 1..224 with-low> / <c-string 1..63 with-low>
Specifies the delivery address.

METHOD-NAME = <alphanum-name 1..8> / *MAIL
Specifies the notification delivery method. In case of print jobs addressed to a remote XPRINT cluster, the predefined *MAIL keyword must be used. The notification then will be performed by the foreign cluster.

Notes

- When NOTIFICATION=*PARAMETERS(...) is used, a new subscription is registered in the *notification.parameters* file. This subscription is associated to the current print job. This current print job is identified in the frame of the notification system by a16-digit alphanumeric ID of the following form: *ttttsssshhhhhhhh*where *tttt* is

the TSN of the print job, *ssss* is the sequence number of the print job (range in family processing) and *hhhhhhhh* is the host name. The subscription is temporary and will be deleted after the processing of the SPOOLJOBABORTED or SPOOLJOBCOMPLETED events. Those events are defined as terminal for that purpose.

- The object name of the created subscription is indicated with *ANY in the notification manager display.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed messages: SCP0810, SCP1025, SCP1026, SCP1027
2	0	SCP0829	Command registered Guaranteed message: SCP0829
2	0	SCP0855	Tape file. LOCK-FILE ignored
2	0	SCP0862	Not file owner. DELETE ignored
2	0	SCP0863	FGG file. DELETE ignored Guaranteed message: SCP0863
2	0	SCP0864	File protected by ACCESS=READ. DELETE ignored Guaranteed message: SCP0864
2	0	SCP0865	File protected by write password. DELETE ignored Guaranteed message: SCP0865
2	0	SCP0866	File protected by EXDATE. DELETE ignored Guaranteed message: SCP0866
2	0	SCP0930	PRFILE not available
2	0	SCP0971	RECORD-CLASS 164 not accessible (PLAM) Guaranteed message: SCP0971
2	0	SCP0988	Print element with section. DELETE ignored
2	0	SCP1000	JV processing error. MONJV ignored Guaranteed message: SCP1000
2	0	SCP1004	PLAM error. DELETE/DESTROY ignored
2	0	SCP1076	No information available for the job
2	0	SCP1077	Job accepted but FAMILY not ready
2	0	SCP1078	LOCK error after job acceptance
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error

	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command Guaranteed messages: SCP0860, SCP0925, SCP0972
	64	SCP0976	Invalid operand value Guaranteed messages: SCP0813, SCP0850, SCP0851, SCP0857, SCP0858, SCP0938, SCP0995, SCP0997
	128	SPS0266	SPOOL subsystem not available
	128	SCP0896	RSO/SPS/DPRINTCL/DPRINTSV/DPRINTCM subsystem not loaded/ready Guaranteed message: SCP0896
	128	SCP0996	JV subsystem not loaded/ready Guaranteed message: SCP0996
	128	SCP1087	POSIX subsystem not loaded/ready

Incompatibilities between PRINT-DOCUMENT command operands

The PRINT-DOCUMENT command is rejected if one of the operands in the column on the left is specified at the same time as one of the corresponding operands in the column on the right.

Operand	Incompatible operands
CHARACTERS-SETS =chars-name	PRINTER-TYPE=*LP65-PRINTER / *APA-PRINTER, CONTROL-MODE=*APA
CHARACTER-SETS=*POOL	CONTROL-MODE=*LOGICAL / *APA / *LINE-MODE / *PHYSICAL, PRINTER-TYPE=*LP65-PRINTER / *APA-PRINTER
CONTROL-MODE=*APA	RECORD-PART, DOCUMENT-PART (if no sections specified), LEFT-MARGIN, CHECKPOINT=*ON-SECTION-RECORDS
Only for RSO: CONTROL-MODE =*LINE-MODE / *PHYSICAL	OUTPUT-FORMAT=*HEXADECIMAL, ROTATION=n / *BY-CONTROL-CODES, ELECTRONIC-OVERLAY, ROTATION-LOOP-NAME, CHARACTER-SETS=*POOL, FORMS-OVERLAY-BUFFER, PRINTER-TYPE=*LP65-PRINTER / *APA-PRINTER / *HP-PRINTER, PAGE-CONTROL-CHAR=*NO,
Only for RSO: CONTROL-MODE=*LOGICAL	OUTPUT-FORMAT=*HEXADECIMAL,ROTATION=n / *BY-CONTROL-CODES, ROTATION-LOOP-NAME, CHARACTER-SETS=*POOL, FORMS-OVERLAY-BUFFER, PRINTER-TYPE=*LP65 -PRINTER/ *APA-PRINTER / *HP-PRINTER,
CONTROL-MODE =*PAGE-MODE(ONTROL-TYPE=*HP)	PRINTER-TYPE=*LP65-PRINTER / *APA-PRINTER, INPUT-TRAY-NUMBER, OUTPUT-TRAY-NUMBER
DELETE-AFTER-PRINT	FROM-FILE = *EAM / *OMF

DOCUMENT-FORMAT =*SPECIAL-FORMAT	TWO-SIDED=*NO/*YES/*TUMBLE ROTATION=*NO/0/90/180/270/0-180/180-0/90-270/270-90 TOP-OFFSET=<integer -255..255> LEFT-OFFSET=<integer -255..255>
ELECTRONIC-OVERLAY	PRINTER-TYPE=*APA-PRINTER, CONTROL-MODE=*LINE-MODE / *APA / *PHYSICAL, DOCUMENT-FORMAT=*SPECIAL-FORMAT FORMS-OVERLAY-BUFFER
FAMILY-PROCESSING=*YES	INPUT-SECTION
FORMS-OVERLAY-BUFFER	CONTROL-MODE=*LOGICAL / *APA / *LINE-MODE / *PHYSICAL,DOCUMENT-FORMAT=*SPECIAL-FORMAT, PRINTER-TYPE=*LP65-PRINTER / *APA-PRINTER
FROM-FILE=*EAM	DELETE-AFTER-PRINT=*DESTROY, START-PROCESSING
FROM-FILE =*LIBRARY-ELEMENT	LOCK-FILE=*YES, START-PROCESSING
FROM-FILE=*OMF	DELETE-AFTER-PRINT=*DESTROY
INPUT-PART	FAMILY-PROCESSING=*YES
LEFT-MARGIN	CONTROL-MODE=*APA
LOCK-FILE=*YES	FROM-FILE=*LIBRARY-ELEMENT
LOOP-NAME	PRINTER-TYPE=*APA-PRINTER, CONTROL-MODE=*APA
OUTPUT-FORMAT =*HEXADECIMAL	CONTROL-MODE=*PHYSICAL
PAGE-COPIES	CONTROL-MODE=*APA, PRINTER-TYPE=*APA-PRINTER
PRINTER-TYPE=*APA	CONTROL-MODE=*LOGICAL / *PHYSICAL / *LINE-MODE / *PAGE-MODE, DOCUMENT-FORMAT=*SPECIAL-FORMAT, PAGE-COPIES, ROTATION-LOOP-NAME, LOOP-NAME, ROTATION, CHARACTER-SETS, ELECTRONIC-OVERLAY, FORMS-OVERLAY-BUFFER
RECORD-PART	CONTROL-MODE=*APA
ROTATION =n / *BY-CONTROL-CODES	CONTROL-MODE=*LOGICAL / *APA / *LINE-MODE / *PHYSICAL DOCUMENT-FORMAT=*SPECIAL-FORMAT / *TEXT, PRINTER-TYPE=*LP65-PRINTER / *APA-PRINTER
START-PROCESSING=n	DELETE-AFTER-PRINT=*DESTROY, LOCK-FILE=*YES, INPUT-PART
START-PROCESSING =*AT-FILE-CLOSING	DELETE-AFTER-PRINT=*DESTROY

USER-RESOURCES-FILE	PRINTER-TYPE=*LP65-PRINTER

Table 82: Incompatibilities between PRINT-DOCUMENT command operands

Notes

1. For reasons of compatibility, the “old” PRINT-FILE command continues to be supported. The new functionality can only be used explicitly with the new PRINT-DOCUMENT command.
2. Spoolout jobs for which the operand PAGE-COPIES, CONTROL-MODE, USER-RESOURCES-FILE or ELECTRONIC-OVERLAY has been specified in the PRINT-DOCUMENT command cannot be printed on impact printers. The operands automatically ensure that another type of printer is used (laser printers, RSO printers).
3. For printers with a loadable VFB, specifying the FORM operand causes the VFB to be loaded if nothing else is specified for the LOOP operand. This means that at least one loop must be available in the $SYSSPOOL. PRFILE file.
4. POSIX path name
   The following operands are not supported for UFS files: LOCK-FILE=*YES, DELETE-AFTER-PRINT=*YES and MONJV=*STD.

   If a POSIX path name (up to 1024 characters) is specified, depending on the code type (ASCII or EBCDIC) of the UFS file, an automatic ASCII/EBCDIC conversion is carried out. The conversion is carried out for the whole UFS file (including metacharacters). The automatic ASCII/EBCDIC conversion is carried out by a preparatory server task that simultaneously creates a copy of the UFS file. This copy is given a name and stored in a DMS work file under the user ID $SYSSPOOL. If the UFS file is in ASCII code and the print job is sent to RSO in transparent mode (DOC-FORMAT=*SPECIAL-FORMAT), no ASCII/EBCDIC conversion is carried out. CCSNAME 88591 is set in the catalog entry of the DMS work file.

   If a path name containing wildcards is specified, several UFS files can be processed. If FAMILY-PROCESSING=*YES is specified, all the print jobs are created with the same TSN and cannot be distributed. If FAMILY-PROCESSING=*NO is specified, the print jobs are created with different TSNs and can be distributed.

   Print jobs for UFS files cannot be output to magnetic tape.

   A POSIX extension allows the record structures of BS2000 files that are to be printed by the BS2000 SPOOL and PRINT subsystems to be preserved. The files can be copied from BS2000 to UFS by means of the RCOPY function with special operands. These files can then be processed only by BS2000 applications. If a print job is issued for them, an RCOPY function is executed in the opposite direction and the original BS2000 files (with the original record structures) restored.

   The RCOPY function from UFS to BS2000 with the special operands for storing the BS2000 record structures can be carried out for all print jobs created by means of the PRINT-DOCUMENT command, except if the following operands were specified:

   - DOC-FORMAT=*TEXT(...)
   - DOC-FORMAT=*SPECIAL(LINE-SPACING=*NO/1/2/3).
5. You will find information on outputting print data in a Dprint environment in the “Distributed Print Services” manual [10].

Examples

Example 1

A batch job contains the following commands:

```
/PRINT-DOCUMENT FROM-FILE=DAT,DELETE-AFTER-PRINT=*YES,ADDITIONAL-COPIES=3,
/      DOCUMENT-FORMAT=*TEXT(LINE-SPACING=*BY-EBCDIC-CONTROL) ————————— (1)

/PRINT-DOCUMENT FROM-FILE=TEST.DAT.,DOCUMENT-FORMAT= -
/      *TEXT(HEADER-LINE=*STD) ——————————————————————————————————— (2)

/PRINT-DOCUMENT FROM-FILE=(FILE1,FILE2,FILE3),RESOURCES-DESCRIPTION= -
/      *PARAMETERS(FORM-NAME=STDWA4) ————————————————————————————— (3)

/PRINT-DOCUMENT FROM-FILE=(A,A),DELETE-AFTER-PRINT=*YES ——————————— (4)
```

(1) The file DAT is to be printed four times in all, and then deleted. The file contains (EBCDIC) feed control characters.

(2) All files whose names start with “TEST.DAT.” are to be printed with a default header line.

(3) The files FILE1, FILE2 and FILE3 are to be printed out on white paper (DIN A4).

(4) The file A is to be printed once and then deleted. For printing in duplicate, the operand ADDITIONAL-COPIES=1 must be specified.

Example 2

```
/print-doc $rz4.sysrme.aid.023.,line-spacing=*by-ebcdic,
           print-job-control=*par(family-proc=*yes,print-job-name=aid023) ——— (1)
```

```
%  SCP0810 SPOOLOUT FOR FILE ':2ORZ:$RZ4.SYSRME.AID.023.D' ACCEPTED. TSN:
'9W6B', SPOOLOUT-NAME: 'AID023', MONJV: '*NONE'
%  SCP0810 SPOOLOUT FOR FILE ':2ORZ:$RZ4.SYSRME.AID.023.E' ACCEPTED. TSN:
'9W6B', SPOOLOUT-NAME: 'AID023', MONJV: '*NONE'
```

```
/show-print-job-sta ————————————————————————————————————————————— (2)
```

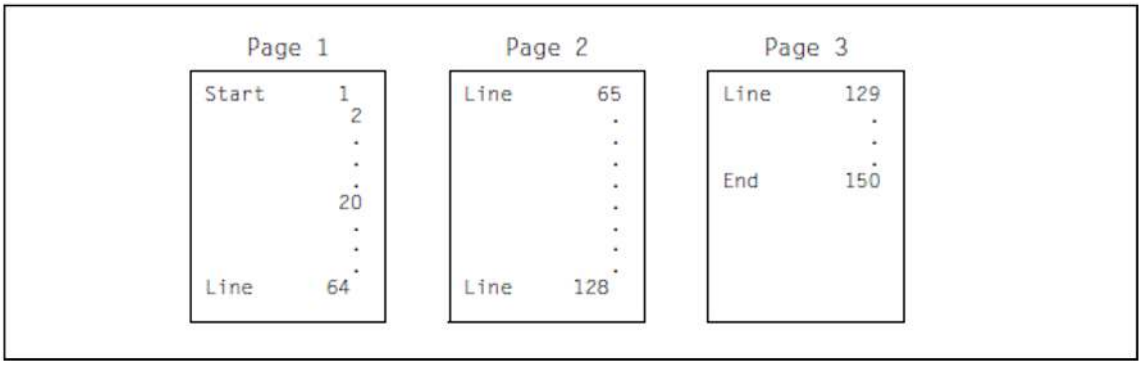
```
TSN  SERVER   SP-NAME  RTSN HOST     USER-ID  ACCOUNT  F-C P-C F-T FCB-T F-SIZE
9W6B *HOME    AID023   9W5V D016ZE07 QM211    89001      0   0 EAM SAM       20
9W6B *HOME    AID023   9W5V D016ZE07 QM211    89001      0   0 EAM SAM       20
%  SCP0947 2 JOBS FOUND WITH 40 PAM PAGES. COMMAND TERMINATED
```

(1) All files pertaining to the user ID RZ4 that begin with SYSRMEAID.023. are to be printed out. The EBCDIC control characters contained in the first column are to be evaluated. The print jobs are to be given the job name AID023 and are to be given the same job number.

(2) The SHOW-PRINT-JOB-STATUS command displays two print jobs (for each of the files found) under the TSN 64CS.

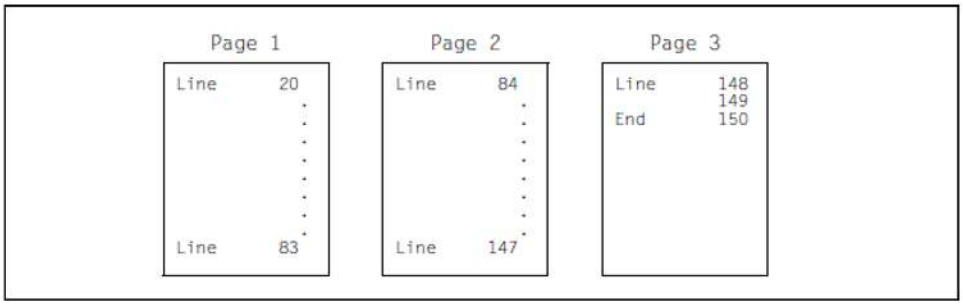
Example 3

The file FILE has been divided up by SPOOL into 3 print pages with a maximum of 64 lines per page:



1. Print FILE, starting at line 20.

   ```
   /PRINT-DOCUMENT FROM-FILE=DATEI,DOCUMENT-PART=*PARAMETERS(-
                OUTPUT-PART=*RANGE(FROM=20,DIMENSION=*LINES))
   ```

   The page feed is implemented after line 83 (=64+19) or 147 (=128+19).

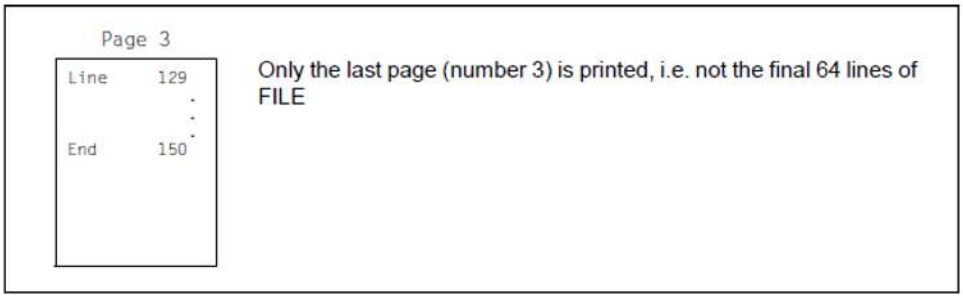
2. Print pages 1 to 3 of FILE.

   ```
   /PRINT-DOCUMENT FROM-FILE=DATEI,DOCUMENT-PART=*PARAMETERS(-
   OUTPUT-PART=*RANGE(FROM=1,TO=3))
   ```

   The whole file is printed

3. Print the last page of FILE.

   ```
   /PRINT-DOCUMENT FROM-FILE=DATEI,DOCUMENT-PART=*PARAMETERS(-
   OUTPUT-PART=*LAST(LAST=1))
   ```

Notes on RSO

Valid character spacings (CPI)

All PRINT-DOCUMENT commands requesting CPI values which are not actually supported by the destination printer are rejected. If the destination is a pool of printers, the selection will be restricted to printer types from the pool which actually support the requested CPI values.

Exceptions to the rule

1. 8121, 9002 and 9645 printers are not provided with escape sequences that set character spacing (the hardware value is 10 cpi). Therefore, RSO only accepts a 10 cpi value on these printer types.
2. On 9000, 9025 and 9026 RENO printers, RSO cannot send any escape sequence setting the character spacing. However, the character spacing can be set by means of a 256-character string linked to the font (using the product RSOSERVE). RSO nevertheless permits certain CPI values for these printer types. The values 1 through 100 can be specified in the CHARACTERS-PER-INCH operand of the SPSERVE statement ADD-SPOOL-CHARACTER-SET.

   This value is not set by RSO, however, but is used for computing the line size, i.e. the maximum number of characters per line used for the header and trailer pages and for detecting possibly truncated lines.

The following table indicates for each printer type the CPI operand values that are supported by RSO for the PRINT-DOCUMENT command and at the start of spoolout, and the CPI values that are translated by RSO into printer commands.

Printer types	CPI values checked for PRINT-DOCUMENT and at start of spoolout (1)	CPI values translated by RSO and sent to the printer (2)
2030-PCL	1..100	1..100
4011	10/12/15/17/20	10/12/15/17/20
4812	1/2/3/4/5/6/8/10/12/15/20/24/30/40/60	1/2/3/4/5/6/8/10/12/15/20/24/30/40/60
4813	10/12/15/17/20	10/12/15/17/20
4818-PCL	1..100	1..100
4821-PCL	1..100	1..100
4822-PCL	1..100	1..100
4824-PCL	1..100	1..100
4825-PCL	1..100	1..100
8121	10	-
9000-EPFX	10/12/17/20	10/12/17/20
9000-EPLQ	10/12/15/17/20	10/12/15/17/20
9000-EPSQ	10/12/15/17/20	10/12/15/17/20

9000-PCL	1..100	1..100
9000-PRO	10/12/17	10/12/17
9000-PS	1..100	1..100
9000	1..100	-
9001	10/12/17	10/12/17
9001-31	10/12/15/17	10/12/15/17
9002	10	-
9003	10/12/15	10/12/15
9004	1/2/3/4/5/6/8/10/12/15/20/24/30/40/60	1/2/3/4/5/6/8/10/12/15/20/24/30/40/60
9011	10/12/15/17	10/12/15/17
9012	10/12/15/17	10/12/15/17
9013	10/12/15/18	10/12/15/18
9014	10/12/15/17/18/20	10/12/15/17/18/20
9015	10/12/15/17/18/20	10/12/15/17/18/20
9021	1..100	1..100
9022	1/2/3/4/5/6/8/10/12/15/20/24/30/40/60	1/2/3/4/5/6/8/10/12/15/20/ 24/30/40/60
9022-200	1..100	1..100
9025	1..100	-
9026-RENO	1..100	-
9026-PCL	1..100	1..100
9045-ANSI	10/12/15/17	10/12/15/17
9046	10/12/13/15/17	10/12/13/15/17
9097	10/12/15/17/20	10/12/15/17/20
9645	10	-
DJET	1..100	1..100

Table 83: CPI values supported by RSO in the PRINT-DOCUMENT command

1. The table indicates for each printer type the CPI operand values for the font as supported by RSO V2.2A. This check is performed at PRINT-DOCUMENT command validation and print job scheduling time. The specification of other values leads to the following behavior.
   - For the PRINT-DOCUMENT command: The command is rejected.

- At the start of spoolout: The print job is placed in the KEEP queue and the device is put into status “S”.

2. Some printer types do not support any printer commands that set the horizontal density ('-' in the table). This means that the requested horizontal density is never set by RSO, no matter what the CPI operand value of the font may be.

   Nevertheless, on 9000, 9025 and 9026 RENO printers, character spacing can be set by means of a 256-character string linked to a font, using the RSOSERVE utility.

Printing RSO files swapped out with HSMS

In previous versions, when a controller task accessed a file swapped out with HSMS, other printers controlled by the task were blocked until the file was retrieved. RSO tries to prevent this situation arising for four types of RSO resource files (DIA, PROLOG, EPILOG and MEMBER files) by retrieving swapped out files when the PRINT-DOCUMENT command is checked and not only when the command is processed.

- *DIA file*
  In the case of a swapped-out DIA file, retrieval of the file is initiated during checking of the PRINT-DOCUMENT command.
  When command processing starts, a swapped-out DIA file is treated as a user error. The job is terminated with corresponding information on the trailer page, and a message is sent to the console.
- *PROLOG-/EPILOG file*
  Nothing is done during checking of the PRINT-DOCUMENT command in the case of swapped-out PROLOG /EPILOG files.
  When command processing starts, a swapped-out PROLOG/EPILOG file is regarded as a user error. The job is terminated with corresponding information on the trailer page, and a message is sent to the console.
- *MEMBER file*
  Nothing is done during checking of the PRINT-DOCUMENT command in the case of swapped-out MEMBER files.
  When command processing starts, a swapped-out MEMBER file is not taken into account.

Validity check for /PRINT-DOCUMENT with USER-RESOURCES-FILE=xxxx

A PRINT-DOCUMENT command with a loop entry in the FORM-NAME operand is also accepted if the file doesn’t exist neither under the user ID of the caller nor under SYSSPOOL. If in this case a loop entry is specified in the operand LOOP-NAME the command will be rejected.

Example 1

/show-spool-form form1

```
FORM-NAM DEV-TYPE  LI-S PA-S H-P T-P   VERT-CONTROL    ROT-CONTROL    OWNER
                                     L-N/LPI/C-P/C-S L-N/LPI/C-P/C-S
FORM1    9001RP      80  120 YES INF       6   3 101                  TSOS
```

/print-doc from-file=orion,to-printer=*par(printer-name=prn27272),
resources-description=*par(form-name=form1,user-resources-file=xxxx)

```
%  SCP0810 SPOOLOUT FOR FILE ':C:$TSOS.ORION' ACCEPTED: TSN: '4FUN',-
           SPOOLOUT-NAME: 'LUC', MONJV: '*NONE'
```

Example 2

/show-spool-form form2

```
FORM-NAM DEV-TYPE  LI-S PA-S H-P T-P   VERT-CONTROL    ROT-CONTROL    OWNER
                                     L-N/LPI/C-P/C-S L-N/LPI/C-P/C-S
FORM1    9001RP      80  120 YES INF C6          101                  TSOS
```

/print-doc from-file=orion,to-printer=*par(printer-name=prn27272),
resources-description=*par(form-name=form2,user-resources-file=xxxx)

```
%  SCP0810 SPOOLOUT FOR FILE ':C:$TSOS.ORION' ACCEPTED: TSN: '5FUN',-
           SPOOLOUT-NAME: 'LUC', MONJV: '*NONE'
```

5.4 PROTECT-FITC-APPLICATION

Protect FITC application against unauthorized access

Component:	BS2000
Functional area:	Data communication control
Domain:	SECURITY-ADMINISTRATION
Privileges:	all privileges bar HARDWARE-MAINTENANCE

Function

The PROTECT-FITC-APPLICATION command protects an FITC application against unauthorized access by means of guards. A support authorization to prevent unauthorized configuration and request authorization to prevent unauthorized use can be defined for the FITC port.

In addition, this command enables a standard connection ID to be reserved for a directly addressable FITC port. Senders of messages or jobs can address the port without the port name by using this short ID.

This command offers the same functions as the DEFPACC macro.

A support authorization (SUPPORT-GUARD operand) can only be assigned if the FITC port is not already protected. Assigning a support authorization also simultaneously defines the port owner (USER-ID operand). Only the port owner can assign or modify a request authorization (REQUEST-GUARD operand).

Format

PROTECT-FITC-APPLICATION

PORT-NAME = <alphanum-name 1..54>

,**STD-CONNECTION-ID** = ***UNCHA**NGED / <x-string 1..4> / <integer 1..65535>

,**USER-ID** = ***UNCHA**NGED / <name 1..8>

,**SUPPORT-GUARD** = ***UNCHA**NGED / <filename 1..24 without-gen-vers>

,**REQUEST-GUARD** = ***UNCHA**NGED / <filename 1..24 without-gen-vers>

Operands

PORT-NAME = <alphanum-name 1..54>
Port name of the FITC application which is to be protected or linked with a standard connection ID.

STD-CONNECTION-ID = *UNCHANGED / <x-string 1..4> / <integer 1..65535>
Defines a standard connection ID for a directly addressable FITC port. This short ID is reserved for the specified port name and cannot be assigned again in the active session.

USER-ID = *UNCHANGED / <name 1..8>
Defines the port owner’s user ID. This operand is evaluated only if a support authorization is also specified (i.e. a guard is specified in the SUPPORT-GUARD operand).

SUPPORT-GUARD = *UNCHANGED / <filename 1..24 without-gen-vers>
Defines a guard for configuring the FITC port. If a support authorization is already assigned, this specification is not accepted.

REQUEST-GUARD = *UNCHANGED / <filename 1..24 without-gen-vers>
Defines a guard for using the FITC port. Only the port owner can assign the request authorization.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	NTF0404	Parameter combination not permissible.
	1	NTF0804	Specified application name (port name) not permissible.
	1	NTF0C04	Specified standard connection ID outside the permissible value range.
	32	NTF0018	FITC not accessible. Function cannot be executed.
	32	NTF0C10	Caller not authorized to modify the REQUEST profile.
	32	NTF1010	The SUPPORT profile already assigned to the port name cannot be accessed. Execution is therefore rejected because there is no way to perform a check.
	32	NTF1418	Function aborted on account of an internal FITC error.
	64	NTF040C	Specified port name already used.
	64	NTF080C	Specified standard connection ID already used elsewhere.
	64	NTF0C0C	Not possible to assign a valid user ID as the owner of the port.
	64	NTF100C	Specified guard name(s) cannot be completed.
	64	NTF140C	A REQUEST profile can only be assigned in conjunction with the SUPPORT profile or if the latter exists.
	64	NTF400C	Redefinition of the specified properties not permitted.
	130	NTF0418	Function cannot currently be executed due to memory shortage.

5.5 PURGE-ALIAS-CATALOG

Delete current alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The PURGE-ALIAS-CATALOG command deletes the alias catalog of the executing task. Entries in the alias catalog that have the PROTECTED attribute are also deleted in the process. If a HOLD-ALIAS-SUBSTITUTION command was issued to halt the alias substitution function, the effect of that command will be canceled on deleting the alias catalog.
The currently applicable ACS options are retained.

Format

PURGE-ALIAS-CATALOG	Alias: **PGAC**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Normal execution of the commands
	32	CMD0221	Internal error
	128	ACS0018	ACS is not available

Example

For an example, see the LOAD-ALIAS-CATALOG command.

5.6 READ-IOCF

Read IOCF

Component:	IOCFCOPY
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS

Function

The systems support staff can read an IOCF from the hard disk of the service computer and write it into a PAM file on a BS2000 disk. A list of the IOCFs on the hard disk of the service computer can be obtained using the SHOW-IOCF command. An IOCF can be written from a PAM file onto the hard disk of the service computer using the WRITE-IOCF command.

Format

READ-IOCF
FILE-NAME = <filename 1..54>
,**LEVEL** = ***ACTIVE** / <integer 0..9>

Operands

FILE-NAME = <filename 1..54>
Name of the BS2000 file into which the IOCF is to be written. An existing file of the same name will be overwritten.

LEVEL = *ACTIVE
The current IOCF is being read.

LEVEL = <integer 0..9>
Level number of the IOCF which is to be read. The value range covers all existing levels. If the level number given is invalid, then the command is rejected.
The maximum number of levels is hardware-dependent.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD2201	Parameter error: At least one value from the command call is incorrect (e.g. file does not exist, incorrect format or incorrect file contents, level number does not exist, etc.). The exact cause of the error is contained in a preceding message.
	32	CMD0221	Internal error: A system interface which was called reports an error. The exact cause of the error is contained in a preceding message.
	64	CMD0216	No authorization

5.7 REDIRECT-PRINT-JOB

Redirect jobs to another printer

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	N

Note

The REDIRECT-PRINT-JOB command corresponds to the old REDIRECT-REMOTE-OUTPUT command; the command name REDIRECT-REMOTE-OUTPUT is still accepted as an alias.

Function

The REDIRECT-PRINT-JOB command redirects spoolout jobs:

- from an RSO printer or pool to another RSO printer or pool
- from an RSO printer or pool to a local printer pool
- from a local printer pool to an RSO printer or pool
- from a local printer pool to a local printer pool
- from a local printer pool to a central printer pool
- from a Dprint printer pool to a Dprint printer pool

Nonprivileged users can only redirect their own jobs. RSO device administrators can redirect their own jobs and jobs started with the operand REDIRECTION-ALLOWED=*YES in the PRINT-DOCUMENT command on a device for which they are entered as the RSO device administrator. Systems support can redirect any job.

Only jobs in the WAIT or KEEP status are redirected. All jobs can be redirected, or only some of them. In the latter case the jobs are selected by specifying the TSN, the job status (job type), the user ID and the name of the form or job. It is possible to specify a negative list.

As a check on the new destination, the jobs to be redirected are also submitted to PRINT-DOCUMENT command validation.

Requirements for command execution

- The specifications for both printers must be different (different printer names or different printer pool names).
- The control character (ESCAPE character) must be defined the same for the specified printers.
- In family processing, **all** (sub)jobs must have the specified status (JOB-TYPE=...).
- The files to be printed must not be on an exported pubset.
- If the spoolout job is directed to a printer pool, the assigned printer must not be specified in the REDIRECT-PRINT-JOB command. The job always belongs to the pool, even if it is in the KEEP status for example.

Example

A FAMILY-PRINT has been started for the pool POOL1. A job from this is in KEEP status on the device DVC1 which belongs to the pool POOL1.

```
/SHOW-PRINT-JOB-STATUS INF=*DESTINATION
```

```
TSN  SERVER   M STA R DEVICE   DESTIN   ERCOD    ERMSG    DEVICE TYPE
64CS *HOME    R KP    DVC1     POOL1
64CS *HOME    R WT    POOL1    POOL1
%  SCP0947 2 JOBS FOUND WITH 40 PAM PAGES. COMMAND TERMINATED
```

The following commands have no effect on FAMILY with TSN 64CS:

```
/REDIRECT-PRINT-JOB JOB-ID=*DEVICE(DEV-NAME=DVC1),SELECT=*PAR( -
                    JOB-TYPE=*KEEP)
/REDIRECT-PRINT-JOB JOB-ID=*DEVICE(DEV-NAME=DVC1),SELECT=*PAR( -
                    JOB-TYPE=*ALL)
```

The following commands redirect FAMILY with TSN 64CS:

```
/REDIRECT-PRINT-JOB JOB-ID= *DEVICE(DEV-NAME=POOL1),SELECT=*PAR( -
                    JOB-TYPE=*ALL)JOB-TYPE=*ALL)
/REDIRECT-PRINT-JOB JOB-ID=*TSN(TSN=64CS),SELECT=*PAR(JOB-TYPE=*ALL)
```

Restrictions

The following restrictions are applicable, depending on the direction of redirection.

*JOB-IDENTIFICATION = *DEVICE-NAME*

FROM=	TO=				
	RSO printer	**RSO pool**	**Local pool**	***CENTRAL**	**Dprint pool**
RSO printer	(1)	(2)	(3)	(3)	n.s.
RSO pool	(2)	(2)	(3)	(3)	n.s.
Local pool	(4)	(4)	(5)	n.s.	n.s.
*CENTRAL	n.s.	n.s.	n.s.	n.s.	n.s.
Dprint pool	n.s.	n.s.	n.s.	n.s.	(6)

n.s.= not supported (a pool must be set up for redirecting local printouts)

1. Rejected in the following cases:
   - the CONTROL-MODE operand in the PRINT-DOCUMENT command is not set to *PAGE, and device types concerned are different.
   - escape characters are incompatible.
2. Rejected if CONTROL-MODE in the PRINT-DOCUMENT command was not set to *PAGE.
3. Rejected if the following operands were specified in the PRINT-DOCUMENT command:
   - INPUT-TRAY=...
   - CHAR-SET-ATTRIBUTES=...
   - FORMS-OVERLAY-BUFFER=...
   - LINE-SPACING=*NO
   - CONTROL-MODE not equal *PAGE
4. Rejected if following operands were specified in PRINT-DOCUMENT command:
   - ROTATION-LOOP-NAME=...
   - CHARACTER-SETS=*POOL
   - FORMS-OVERLAY-BUFFER=...
   - CONTROL-MODE not equal *PAGE
   - ROTATION=...
   - INPUT-TRAY=...
5. Local print jobs valid for a subset of device types in a printer pool can be redirected to another printer if the target printer belongs to that subset.
6. Dprint jobs can only be redirected if the command is entered on the server accepting the print job. If this is not the case, the print job must be redirected using the MODIFY-PRINT-JOB-ATTRIBUTES command. Distributed print jobs valid for a subset of device types in a Dprint pool can be redirected to another printer if the target printer belongs to that subset.

*JOB-IDENTIFICATION= *TSN*

If the TSN is used as the selection criterion, all operands of the PRINT-DOCUMENT command are permitted, albeit on the user's own responsibility.

Information following command processing

On normal termination the number of redirected jobs is output.

On abnormal termination the reason is output:

- no output for the device
- device(s) not defined
- system error
- redirection mode not supported

For each “redirectable” job (see above) that was not redirected, a warning message indicating the reason is output.

Format

REDIRECT-PRINT-JOB

JOB-IDENTIFICATION = ***DEV**ICE**-NAME** (...) / ***TSN**(...)

***DEV**ICE**-NAME**(...)

| **DEV**ICE**-NAME** = <alphanum-name 1..8>

***TSN**(...)

| **TSN** = list-poss(16): <alphanum-name 1..4>

,**TO-DEVICE** = ***CENTR**AL / <alphanum-name 1..8>

,**SEL**ECT = ***PAR**AMETERS(...) / ***ALL**

***PAR**AMETERS(...)

| **JOB-TYPE** = ***WAIT** / ***KEEP** / ***ALL**

| ,**USER-ID**ENTIFICATION = ***ALL** / list-poss(16): <name 1..8> / <c-string 1..8 with-low>

| ,**FORM-NAME** = ***ALL** / list-poss(16): <alphanum-name 1..6>

| ,**SP**OOLOUT**-NAME** = ***ALL** / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**EXCEPT** = ***NONE** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **USER-ID**ENTIFICATION = ***NONE** / list-poss(16): <name 1..8>

| ,**FORM-NAME** = ***NONE** / list-poss(16): <alphanum-name 1..6>

| ,**SP**OOLOUT**-NAME** = ***NONE** / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

Operands

JOB-IDENTIFICATION = *DEVICE-NAME(...) / *TSN(...)
Identification of the spoolout jobs to be redirected.

JOB-IDENTIFICATION = *DEVICE-NAME(...)
The spoolout jobs to be redirected are identified using the name of the printer on which the jobs are to be processed.

DEVICE-NAME = <alphanum-name 1..8>
Name of the printer or printer pool.

JOB-IDENTIFICATION = *TSN(...)
Spoolout jobs designated by their TSN are redirected.

TSN = list-poss(16): <alphanum-name 1..4>
List of TSNs for the spoolout jobs.

TO-DEVICE = *CENTRAL / <alphanum-name 1..8>
The spoolout jobs are redirected to the central computer center printer (*CENTRAL) or the specified printer.

SELECT = *PARAMETERS(...) / *ALL
The spoolout jobs can be selected by specifying the user ID for the job, the status, the job name or the form name.

SELECT = *PARAMETERS(...)
Selection of a subset of spoolout jobs. The spoolout jobs are redirected if they fulfill the specified criteria (AND operation).

JOB-TYPE = *WAIT / *KEEP / *ALL
The selection criterion is whether the spoolout job is in the WAIT or KEEP status. If *ALL is specified, no distinction is made.

USER-IDENTIFICATION = *ALL / list-poss(16): <name 1..8> / <c-string 1..8 with-low>
The selection criterion is the user ID under which the spoolout job was created; it is possible to specify a list. If *ALL is specified, the user ID is not used as a selection criterion.

FORM-NAME = *ALL / list-poss(16): <alphanum-name 1..6>
The selection criterion is the name of the form to be used for printing; it is possible to specify a list. If *ALL is specified, the form name is not used as a selection criterion.

SPOOLOUT-NAME = *ALL / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
The selection criterion is the job name for the spoolout job; it is possible to specify a list. If *ALL is specified, the job name is not used as a selection criterion.

SELECT = *ALL
All spoolout jobs are redirected.

EXCEPT = *NONE / *PARAMETERS(...)
List of exceptions for spoolout jobs which are not to be redirected.

EXCEPT = *NONE
No list of exceptions.

EXCEPT = *PARAMETERS(...)
Specifies the jobs selected with SELECT=... which are to be excepted. Specifying *NONE means that no exceptions are specified.

USER-IDENTIFICATION = *NONE / list-poss(16): <name 1..8>
Spoolout jobs created by the specified user IDs are not redirected.

FORM-NAME = *NONE / list-poss(16): <alphanum-name 1..6>
Spoolout jobs using the specified forms are not redirected.

SPOOLOUT-NAME = *NONE / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Spoolout jobs with the specified job names are not redirected.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
2	0	SCP1036	Lock error
2	0	SCP1039	Device incompatibility Guaranteed message: SCP1039
2	0	SCP1040	No device definition Guaranteed message: SCP1040
2	0	SCP1041	No authorization for specified TSN Guaranteed message: SCP1041
2	0	SCP1042	EQUISAM file error for specified TSN Guaranteed message: SCP1042
2	0	SCP1043	Slot manager error for specified TSN Guaranteed message: SCP1043
2	0	SCP1044	Specified TSN not found Guaranteed message: SCP1044
2	0	SCP1045	Pubset exported Guaranteed message: SCP1045
2	0	SCP1047	Output not possible on specified device Guaranteed message: SCP1047
2	0	SCP1048	Invalid PRINT-DOCUMENT command
2	0	SCP1049	RSO subsystem not loaded
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected

	64	SCP0975	No authorization for command
	64	SCP0976	Identification of device not possible Guaranteed message: SPS0306

5.8 REDUCE-PAGING-AREA

Reduce paging area

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING SYSTEM-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	R

Function

This command removes one or more paging files from the paging area. A paging file can either be specified via the volume on which it is located or via the catalog ID of the pubset. The specification via pubset is only possible for SF pubsets. The specification refers to all paging files on the volumes of the respective SF pubset.

Format

REDUCE**-PAG**ING**-AREA**

VOLUME = ***PUBSET**(...) / list-poss(256): <vsn 1..6>

***PUBSET**(...)

| **PUBSET =** list-poss(256): <cat-id 1..4>

Operands

VOLUME = *PUBSET(...) / list-poss(256): <vsn 1..6>
Specifies the paging files to be removed.

VOLUME = *PUBSET(...)
Specifies one or more SF pubsets. All paging files on the volumes of the specified SF pubsets are removed.

PUBSET = list-poss(256): <cat-id 1..4>
Specifies the SF pubsets via their catalog number.

VOLUME = list-poss(256): <vsn 1..6>
Identifies by volume serial number (VSN) the disk on which the paging file to be removed is located. Up to 256 disks can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command execution started without error
	32	EMM2800	The function cannot be continued owing to an internal error executing a particular object Guaranteed messages: EMM2818, EMM2828
	64	EMM2802	The specified pubset is unknown and cannot be identified in the given configuration Guaranteed message: EM2841
	64	EMM2805	The MRSCAT entry of the pubset is missing Guaranteed message: EMM2824
	128	EMM2807	The function cannot be continued due to lack of resources executing a particular object Guaranteed messages: EMM2819, EMM2829

When lists are specified, command processing is aborted in the event of an error with a return code of EMM2800 or EMM2807.

Notes

- Paging area reduction is rejected if it would cause virtual address space saturation.
- Processing of the command may take a number of minutes. For that reason, it is not executed in the calling task but is delegated to a server task created especially for the purpose. The job completion message is delivered to the calling task asynchronously. If the calling task terminates before the completion message is delivered, the message is sent to the console instead.
- If more than one volume is specified (explicitly or by specifying a pubset) when the command is issued, a separate job is started for each volume.

Examples

Reducing the paging area by the paging file on the disk with the volume serial number 2OSW.0:

```
/REDUCE-PAGING-AREA VOLUME=2OSW.0
```

5.9 RELEASE-OPERATOR-ROLE

Release operator roles

Component:	BS2000
Functional area:	Operator function control
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

The RELEASE-OPERATOR-ROLE command allows you to relinquish operator roles previously requested with the REQUEST-OPERATOR-ROLE command. By releasing an operator role you give up the right to enter commands protected by any of the relinquished routing codes or to receive messages distributed via one of the relinquished routing codes. You retain any other roles that were previously associated with your user ID, which means that you keep the right to enter commands that have routing codes which are included both in a role that you have relinquished and in a role that you have retained.

An operator role is a functional area and consists of a set of routing codes defined by the security administrator. This set may be any combination of the 40 routing codes available.

Once the command has been executed successfully, you are shown which operator roles are still assigned to you.

To continue receiving messages that are distributed via a routing code which you have relinquished by releasing an operator role, you must first have requested this right with the MODIFY-MSG-SUBSCRIPTION command.

The command can be issued by $CONSOLE applications with dynamic authorization names and from user tasks with the OPERATING privilege.
If the “Operator LOGON” function is used (incompatible mode; system parameter NBCONOPI=Y), the command can also be issued at a physical operator terminal (console).

Format

RELEASE**-OPER**ATOR**-ROLE**
OPERATOR**-ROLE** = ***ALL** / list-poss(10): <name 1..8>

Operands

OPERATOR-ROLE =
Specifies the operator roles to be relinquished by the operator’s own user ID.

OPERATOR-ROLE = *ALL
All operator roles that were associated with the operator’s user ID up to now are relinquished.

OPERATOR-ROLE = list-poss(10): <name 1..8>
All operator roles specified via their names (up to 10) are relinquished by the operator’s own user ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	NBR0986	Execution unnecessary
1	0	NBR0987	Operator ID currently has no role
2	0	NBR0990	Not all specified roles found
	1	CMD0202	Syntax error
	32	NBR0983	Internal error on command server
	64	CMD0216	No authorization
	64	NBR0981	Command cannot be issued from operator terminal in compatible mode (NBCONOPI=N)
	64	NBR0982	Command issuer does not have an operator ID

5.10 RELEASE-SUBSYSTEM-SPACE

Release address space reserved for subsystems

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SUBSYSTEM-MANAGEMENT

Function

With the RELEASE-SUBSYSTEM-SPACE command, users can dispense, for the duration of a task, with a subsystem group for which some class 5 memory was reserved using SCOPE=*GLOBAL. As a result, the reservation of the corresponding address space is canceled and the address space can be used for other purposes.

Format

RELEASE**-SUBSYS**TEM**-SPACE**
MEMORY**-TYPE** = ***NON-PRIVIL**EGED / ***BY-SLICE** / ***ALL**

Operands

MEMORY-TYPE = *NON-PRIVILEGED / *BY-SLICE / *ALL
Specifies the address space area in which the reservation of address space for subsystems is to be canceled.

MEMORY-TYPE = *NON-PRIVILEGED
Cancels the reservation in the address space area below 16 MB.

MEMORY-TYPE = *BY-SLICE
Cancels the reservation in the address space area above 16 MB.

MEMORY-TYPE = *ALL
Cancels the reservation in the entire address space area.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	ESM0423	Storage space management problem
	32	ESM0424	Internal DSSM error

5.11 REMARK

Insert remarks in command file

Component:	SDF
Functional area:	Editing command files
Domain:	JOB PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION SECURITY-ADMINISTRATION
Routing code:	@

Function

The REMARK command allows remarks to be inserted in command files (ENTER or procedure files) in order to document the job or procedure run. The command is logged as entered; in interactive operation, it is only meaningful if job execution is logged on SYSLST.

The command can be issued from all operator terminals (consoles) and authorized user programs. It is also permitted for operator command files.

In programs with an SDF interface, REMARK is available as a standard statement with the same syntax and functionality.

Format

REMARK
TEXT = <cmd-rest 0..1800>

Operands

TEXT = <command-rest 0..1800>
Text of the remarks. The text can be up to 1800 characters in length.
An equals sign must not be the first significant character, as otherwise the command will be interpreted as a value assignment (SET-VARIABLE without command name). A semicolon outside parentheses is interpreted as a command separator, i.e. any subsequent characters are interpreted as the next command.
When the text is entered at the console, its length is limited to one screen line.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

Example

A procedure file begins with the following commands:

```
/BEG-PROC LOG=*CMD
/REMARK PROCEDURE FOR LINKING
```

```
...
...
```

In the BEGIN-PROCEDURE command, the specification LOGGING=*CMD enables output of the remark to SYSOUT. Then, when the procedure is executed, the remark is logged as follows:

```
% /REMARK PROCEDURE FOR LINKING
```

5.12 REMOVE-ACS-SYSTEM-FILE

Delete declaration of AC system file

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	ACS-ADMINISTRATION

Function

The REMOVE-ACS-SYSTEM-FILE command enables the ACS administrator (owner of the privilege of the same name) to delete an AC system file definition, previously made using ADD-ACS-SYSTEM-FILE. The associated real file, in which the entries are recorded, is unaffected by this action.
If the entry has the attribute SYSTEM-DEFAULT, it cannot be deleted.

Format

REMOVE**-ACS-SYS**TEM**-FILE**
ALIAS-CATALOG**-ID** = <composed-name 1..20>

Operands

ALIAS-CATALOG-ID = <composed-name 1..20>
The symbolic name to be deleted, under which the AC system file is held, and which can be addressed using the LOAD-ALIAS-CATALOG command. The ACS administration can use SHOW-ACS-SYSTEM-FILES to request that a list of all the available AC system files is displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed correctly
2	0	ACS0012	Warning: AC system file not found
	32	CMD0221	Internal error
	64	ACS0013	Error: AC system file with SYSTEM-DEFAULT attribute cannot be deleted

5.13 REMOVE-ALIAS-CATALOG-ENTRY

Delete entry from alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The REMOVE-ALIAS-CATALOG-ENTRY command allows the user to delete entries from the task-specific alias catalog. Protected entries cannot be deleted. If a HOLD-ALIAS-SUBSTITUTION command was issued to halt the alias substitution function, that command will remain in effect even if the last entry in the alias catalog is deleted with REMOVE-ALIAS-CATALOG-ENTRY.

Format

REMOVE**-ALIAS-CAT**ALOG**-ENTRY**
ALIAS-FILE-NAME = ***ALL** / <filename 1..54 with-wild(80)> ,**SEL**ECT = ***ALL** / ***USER-ENTRIES** / ***SYS**TEM**-ENTRIES**

Operands

ALIAS-FILE-NAME = *ALL / <filename 1..54 with-wild(80)>
The aliases contained in the AC entries to be deleted.

ALIAS-FILE-NAME = *ALL
Selects and deletes all AC entries matching the type specified in the SELECT operand.

ALIAS-FILE-NAME = <filename 1..54 with-wild(80)>
Selects and deletes all AC entries that have aliases which match the specified pattern string and the type specified in the SELECT operand.

SELECT = *ALL / *USER-ENTRIES / *SYSTEM-ENTRIES
Selects AC entries for deletion on the basis of their type (user or system entries)

SELECT = *ALL
Selects and deletes both user entries and system entries of the alias catalog.

SELECT = *USER-ENTRIES
Selects and deletes only the user entries of the alias catalog.

SELECT = *SYSTEM-ENTRIES
Selects only the system entries of the alias catalog for deletion.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
1	0	CMD0001	No action (e.g. AC entry does not exist)
	32	CMD0221	Internal error
	64	ACS0017	Error: alias catalog not available
	64	ACS0029	Command not permitted
	128	ACS0018	ACS is not available
	130	ACS0036	Resource bottleneck

Examples

For examples, see the ADD-ALIAS-CATALOG-ENTRY and LOAD-ALIAS-CATALOG commands.

5.14 REMOVE-ASE-ELEMENT

Delete ASE element

Component:	ASE
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS

Function

This command can be used to delete either a particular ASE element or all defined ASE elements.

Format

REMOVE**-ASE-ELEM**ENT
ELEMENT**-ID** = <x-text 2..2> / ***ALL**

Operands

ELEMENT-ID = <x-text 2..2> / *ALL
Specifies the ASE element to be deleted. The ASE element is specified by means of its element ID, which is output when the element is declared. The element ID can, if required, also be ascertained in the output of the SHOW-ASE-ELEMENT command. *ALL causes all ASE elements to be deleted.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

5.15 REMOVE-CE-LOCK

Remove catalog entry lock

Component:	BS2000
Functional area:	File processing
Domain:	FILE FILE-GENERATION
Privileges:	TSOS

Function

The systems support staff can remove the catalog entry lock of a file or job variable using the REMOVE-CE-LOCK command.

The system determines whether a lock exists for the catalog entry (CE lock) of a file or a job variable, and if so, the lock holder's task is determined. If the task no longer exists or if it is pending indefinitely, the CE lock is hung up and cannot be released. This can be caused, for instance, by an error in system communication, in which case the CE lock is removed.
If the lock holder's task is in another state, the CE lock cannot be removed and the command is rejected. Systems staff will then have to check whether the task can be terminated (e.g. using CANCEL-JOB). The task's TID and the sysid of the system on which the task is processing can be obtained using the SHOW-CE-LOCK command.

For shared pubsets, the command can be issued from any system within the network.

Format

REMOVE-CE-LOCK
FILE-NAME = <filename 1..54>
,**OBJECT** = ***FILE** / ***JV**

Operands

FILE-NAME = <filename 1..54>
Name of the file or job variable for which a CE lock is to be removed. The path name has to be specified completely, i.e. including the catalog and the user ID. Specification of a file generation must not be relative.

OBJECT = *FILE / *JV
Specifies whether the command is to be executed for the catalog entry of a file or of a job variable.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	DMS1342	No catalog entry lock
	1	CMD0202	Syntax error
	32	CMD0221	Internal error
	64	CMD0216	No authorization
	64	CMD0501	Catalog not available
	64	DMS0505	Communication error
	64	DMS0512	Catalog unknown in system
	64	DMS1343	Master change underway for pubset
	64	DMS1344	Lock holder’s task still active

5.16 REMOVE-CHANGE-DATE

Remove changeover time

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS

Function

The REMOVE-CHANGE-DATE command removes the latest future changeover time from standard daylight time to daylight saving time (or vice versa).

The changeover time to be removed may not be within the next hour or the next hour but one. If it is in the next hour but one, it can be changed using the MODIFY-CHANGE-DATE command.

> The REMOVE-CHANGE-DATE command removes the changeover time for the current session. If required, also remove the changeover time in the GTIME parameter set of the startup parameter file (for future sessions).

Format

REMOVE**-CHANGE-DATE**
DATE = ***LATEST**

Operands

DATE = *LATEST
The latest future changeover time is to be removed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CHD0010	Syntax error in the command
	32	CMD0221	System error in the command
	64	CHD0011	Semantic error in the command

5.17 REMOVE-CJC-ACTION

Cancel effect of CJC command sequence

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The user can use the REMOVE-CJC-ACTION command to cancel any ADD-CJC-ACTION commands initiated during the currently executing job and still in effect.
An ADD-CJC-ACTION command can be identified either via the CJC name assigned by the user or via the internal identification assigned by the system.

The user can check with the SHOW-CJC-STATUS command whether there are any remaining ADD-CJC-ACTION commands still in effect under his or her user ID.

Format

REMOVE**-CJC**-ACTION

IDENTIFICATION = ***NAME**(...) / ***NUM**BER(...) / ***ALL**

***NAME**(...)

| **NAME** = <name 1..8>

***NUM**BER(...)

| **NUM**BER = <integer 1..9999>

Operands

IDENTIFICATION =
Type of identification.

IDENTIFICATION = *NAME(...)

NAME = <name 1..8>
Name defined in the ADD-CJC-ACTION command. Any ADD-CJC-ACTION commands with the same name are made ineffective.

IDENTIFICATION = *NUMBER(...)

NUMBER = <integer 1..9999>
Identification allocated by the system for the CJC command sequence. An identification is output as soon as an ADD-CJC-ACTION command takes effect (i.e. following input of the END-CJC-ACTION command). The ADD-CJC-ACTION command to which the identification was assigned becomes ineffective.

IDENTIFICATION = *ALL
All ADD-CJC-ACTION commands which are still in effect and were defined during the current job become ineffective.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed; specified ADD-CJC-ACTION name deleted or not found.
	1	CMD0202	Syntax error

5.18 REMOVE-CONSOLE-FILTER

Cancel filter settings

Component:	BS2000
Functional area:	Operator terminal control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	@

Function

The REMOVE-CONSOLE-FILTER command allows operators to cancel filter settings for some or all routing codes. If filter levels have been predefined in the OPR parameter service for the issuing console (operator terminal) or for the issuing authorized user program with generated authorization name, these filter levels are restored to the condition they were in following system initialization.
Note that issuing this command will result in an appreciable increase in the volume of message output.
The command applies only to the console or authorized user program from which it was issued.

Utilization in a user task with the OPERATING privilege

Like any operator terminal, the user task can reset the filter levels purely for itself. The filter levels then apply only to event stream read operations.
When the user task terminates, all the filter levels that it has set are reset.

This function is available irrespective of system parameter settings.

Format

REMOVE-CONSOLE-FILTER

FILTER = ***ALL** / list-poss(5): <integer 1..5>

,**ROUTING-CODE** = ***ALL** / list-poss(40): <alphanum-name 1..1> / *

Operands

FILTER = *ALL / list-poss(5): <integer 1..5>
Defines which filter levels are to be cancelled or restored to the condition they were in following system initialization.

FILTER = *ALL
Cancels all filter levels or restores them to the condition they were in following system initialization.

FILTER = list-poss(5): <integer 1..5>
Cancels the specified filter levels or restores them to the condition they were in following system initialization.

ROUTING-CODE = *ALL / list-poss(40): <alphanum-name 1..1> / *
There are 40 routing codes. The filter levels specified in the FILTER operand are cancelled (or restored to the condition they were in following system initialization) for the routing codes specified here.

ROUTING-CODE = *ALL
All 40 routing codes are affected by the change.

ROUTING-CODE = list-poss(40): <alphanum-name 1..1> / *
The routing codes explicitly specified here are affected by the change.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	1	CMD0202	Syntax error in command
	2	CMD0198	Shutdown in progress
	64	CMD0216	User does not have the necessary privilege
	130	NBR1042	Not enough class 5 memory; filter levels cannot be modified

Note

To reallocate a filter level to a routine code you use the ADD-CONSOLE-FILTER command.

For further information on routing codes and filter levels see the manual “Introduction to System Administration” [14].

5.19 REMOVE-CRYPTO-PASSWORD

Remove crypto password from the job’s crypto password table

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION HARDWARE-MAINTENANCE

Function

The REMOVE-CRYPTO-PASSWORD command removes one, several or all crypto passwords from the crypto password table of a job. All passwords which are not explicitly removed with the command are automatically deleted at the end of the job.

Each time a crypto password is removed without error the counter for the number of crypto passwords in the crypto password table is decremented.

Crypto passwords can be up to 8 characters long. Crypto passwords with less than 8 characters are stored left-justified within the system and filled with binary zeros. This means that the two crypto passwords C’ABCD’ and C’ABCD ’ which are specified in the form of a C string are not identical, and owing to the different internal representation two different crypto passwords are calculated by the cryptographic algorithm:

`/rem-crypto-password c’ABCD’`	internal:	`X’C1C2C3C400000000’`
`/rem-crypto-password c’ABCD ’`	internal:	`X’C1C2C3C440404040’`

The message DMS06DC notifies the caller that a specified crypto password could not be found in the crypto password table.

For information on encrypting files, see also the “Introductory Guide to DMS” [13].

REMOTE-FILE-ACCESS

The REMOVE-CRYPTO-PASSWORD command is automatically forwarded to all RFA partner processes by the requesting job.

Format

REMOVE**-CRYPTO-PASS**WORD Alias: **RMCPW**
PASSWORD = ***ALL** / ***SECRET** / list-poss(20): <c-string 1..8> / <x-string 1..16>

Operands

PASSWORD = *ALL / *SECRET / list-poss(20): <c-string 1..8> / <x-string 1..16>
Passwords which are to be removed from the crypto password table.
Up to 20 crypto passwords can be specified in a command. The specification is not case sensitive.
The PASSWORD operand has the following special features:

- The value entered is not logged.
- In guided dialog, the entry field is automatically blanked out.
- If *SECRET or ^ is specified, in unguided dialog and in foreground procedures SDF provides a nondisplaying entry field for concealed entry of the password.

PASSWORD = *ALL
All entries are removed from the job’s crypto password table.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in the command
	32	DMS05C7	Unexpected error in DMS
	64	DMS066A	Specified crypto password cannot be used
	64	DMS0691	Crypto password table at maximum size
	64	DMS0692	Maximum number of crypto passwords per task reached
	64	DMS06FF	BCAM connection severed
	130	DMS0594	Not enough virtual memory available

5.20 REMOVE-DCAM-APPLICATION-LINK

Remove specifications for DCAM application from CLT

Component:	DCAM
Functional area:	Data communication control
Domain:	NETWORK-MANAGEMENT
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE

Function

The REMOVE-DCAM-APPLICATION-LINK command deletes specifications for a DCAM application from the CLT (communication link table) of the current job. Users can store specifications for a DCAM application in the CLT using the SET-DCAM-APPLICATION-LINK command.

Format

REMOVE-**DCAM-APPL**ICATION-LINK
LINK-NAME = <name 1..8>

Operands

LINK-NAME = <name 1..8>
Link name assigned to the CLT entry to be removed.

Return codes

The command provides no command-specific command return codes (see section "Return codes").

5.21 REMOVE-DCAM-CONNECTION-LINK

Remove virtual DCAM connection from CLT

Component:	DCAM
Functional area:	Data communication control
Domain:	NETWORK-MANAGEMENT
Privileges:	STD-PROCESSING

Function

The REMOVE-DCAM-CONNECTION-LINK command deletes specifications for a virtual DCAM connection from the CLT (communication link table) of the current job.
Users can store specifications for a virtual DCAM connection in the CLT using the SET-DCAM-CONNECTION-LINK command.

Format

REMOVE-**DCAM-CONN**ECTION-LINK
LINK-NAME = <name 1..8>

Operands

LINK-NAME = <name 1..8>
Link name assigned to the CLT entry to be removed.

Return codes

The command provides no command-specific command return codes (see section "Return codes").

5.22 REMOVE-DEVICE-CONNECTION

Clear virtual connections

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

This command enables the operator to clear virtual connections between the hardware units (CHN, CTL, DVC) from the system, i.e. to prevent the system from using these connections.

Information on existing connections is displayed by the SHOW-DEVICE-CONFIGURATION command.

Effect of the REMOVE-DEVICE-CONNECTION command

1. If permitted, each of the specified connections changes to the status REMOVED EXPLICITLY. They cannot be used.
2. Every outer unit affected which does not have an inner connection in the status INCLUDED changes to the status DETACHED IMPLICITLY. None of these units can be used.
3. The connections of the outer hardware units which, as described in the preceding point, have the status DETACHED IMPLICITLY change to the status REMOVED IMPLICITLY. These connections cannot be used.
4. In the case of disk or tape devices which are able to form path groups, the path group is cleared.

Format

REMOVE**-DEV**ICE**-CONN**ECTION

FROM = ***CHANNEL**(...) / ***CONTR**OLLER(...) / list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

***CHANNEL**(...)

| CHANNEL-PATH-ID = list-poss(8): <x-text 2..2>

***CONTR**OLLER(...)

| CONTROLLER-UNIT = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

,TO = ***CHANNEL**(...) / ***CONTR**OLLER(...) / list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

***CHANNEL**(...)

| CHANNEL-PATH-ID = list-poss(8): <x-text 2..2>

***CONTR**OLLER(...)

| CONTROLLER-UNIT = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>

,SCOPE = ***OWN-SYSTEM-ONLY** / ***VM2000-GLOBAL**

,FORCE = ***STD** / ***Y**ES / ***NO**(...)

***NO**(...)

| WAIT = ***NO** / ***STD** / <integer 1..32767>(...)

| <integer 1..32767>(...)

| | DIM = ***STD** / ***MIN** / ***SEC**

Operands

FROM =
Identifies the virtual connection to be cleared via one of the delimiting hardware units. The direction in which the virtual connection is removed is not predefined. FROM therefore does not have to be the inner and TO the outer unit.

FROM = *CHANNEL(...)
Defines the virtual connection to be cleared in terms of a specific channel.

CHANNEL-PATH-ID = list-poss(8): <x-text 2..2>
Specifies the channel path ID of the channel that delimits the virtual connection. A maximum of 8 channels can be specified.

FROM = *CONTROLLER(...)
Defines the virtual connection to be cleared in terms of a specific controller.

CONTROLLER-UNIT = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) of the controller that delimits the virtual connection. A maximum of 8 controllers can be specified.

FROM = list-poss(8): <alphanum-name 2..2> / <x-text 4..4>
Defines the virtual connection to be cleared in terms of a specific device. A maximum of 8 devices (mnemonic device codes) can be specified.

TO = *CHANNEL(...) / *CONTROLLER(...) / list-poss(8): <alphanum-name 2..2> / <x-text 4..4>
Defines the virtual connection to be cleared in terms of the other delimiting hardware unit. This unit, the second element of the pair (virtual connection), is specified according to the FROM operand.

SCOPE =
Specifies how the command is to be executed in VM2000 operating mode.

SCOPE = *OWN-SYSTEM-ONLY
The command is only executed in the local system.

SCOPE = *VM2000-GLOBAL
If entered in the Monitor System (VM1), the command is executed inall guest systems.
If entered in another guest system, the command is rejected with message NKR0178.

FORCE =
Specifies the execution mode for REMOVE-DEVICE-CONNECTION.

FORCE = *STD
Immediate execution of the reconfiguration job is only required if the outer units involved are not being used. A wait time of up to 15 minutes may elapse for release of the units. During the wait time the connection is in the REMOVE-PENDING state. If the unit is released in under 15 minutes, the connection switches to the REMOVED state, otherwise it switches to the INCLUDED state.

FORCE = *YES
The reconfiguration job is to be executed immediately.

FORCE = *NO(...)
Immediate execution of the reconfiguration job is only required if the outer units involved are not being used. Otherwise, the time specified in the WAIT operand must elapse before the units are released, and the virtual connection then switches to the REMOVE-PENDING state. If the units are released within the specified period, the connection switches to the REMOVED state; if not, it switches to the INCLUDED state.

WAIT =
Specifies the maximum wait time for execution of the reconfiguration job in execution mode FORCE=*NO.

WAIT = *NO
No maximum wait time is specified for execution of the reconfiguration job.

WAIT = *STD
The maximum wait time for execution of the reconfiguration job is set to 15 minutes.

WAIT = <integer 1..32767>(...)
Specifies the maximum wait time.

DIM =
Specifies whether the value defined for the wait time is to interpreted in minutes or seconds.

DIM = *STD
Wait time as for DIM=*MIN.

DIM = *MIN
Specifies the maximum wait time in minutes.
Possible values: 1 <= <integer> <= 546

DIM = *SEC
Specifies the maximum wait time in seconds.
Possible values: 1 <= <integer> <= 32767

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
4	64	NKR0...	Path already detached
12	64	NKR0...	Internal check negative
16	64	NKR0...	Caller error
20	64	NKR0...	Software error

Note

If there is an error in command termination, the maincode contains the message code of the message output during command processing.

Notes

- If a reconfiguration job cannot be executed with FORCE=*NO within the specified wait time, it is rejected with the following message:

  ```
  NKR0037  mn MAY CURRENTLY NOT BE DETACHED

  NKR0059  mn1/mn3 REMOVE REJECTED
  ```

  In this case the operator should either:
  - ask for more detailed information using the SHOW command, terminate tasks which have reserved the device, or assign other devices,
  - or repeat the reconfiguration job in execution mode FORCE=*YES.
- A reconfiguration job is not executed, regardless of the execution mode, if the last path to a unit absolutely essential for the system is affected (see DETACH-DEVICE, note 2).
- The status REMOVE PENDING can be terminated by means of the appropriate command
  `INCLUDE-DEVICE-CONNECTION or REMOVE-DEVICE-CONNECTION ...,FORCE=*YES`
- For magnetic tape controllers with two channel ports or for dual magnetic tape controllers, paths that are physically not available should also be logically removed. Otherwise, path handling by the system could cause an error.

Examples

1. Detach the connections between devices Y1, Y2, Y3 and the controller Z4, if permissible (default wait time)

   ```
   /REMOVE-DEVICE-CONNECTION FROM=(Y1,Y2,Y3),TO=*CONTROLLER(Z4),FORCE=*NO
   ```
   or
   ```
   /REM FROM=(Y1,Y2,Y3),TO=*CON(Z4)
   ```

2. Clear the connection between device D1 and controller Z5 immediately

   ```
   /REMOVE-DEVICE-CONNECTION FROM=D1,TO=*CONTROLLER(Z5),FORCE=*YES
   ```
   or
   ```
   /REM FROM=D1,TO=*CON(Z5),FORCE=*Y
   ```

3. Clear the connections between devices L1 and L2 and channels 10 and 40.

   ```
   /REMOVE-DEVICE-CONNECTION FROM=(L1,L2),TO=*CHANNEL((10,40)),FORCE=*YES
   ```
   or
   ```
   /REM FROM=(L1,L2),TO=*CH((10,40)),FORCE=*Y
   ```

5.23 REMOVE-DEVICE-DEPOT

Cancel assignments of tape devices to depots

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	T

Function

The REMOVE-DEVICE-DEPOT command is used to cancel the assignment of tape devices to depots created by means of the ADD-DEVICE-DEPOT command. This command can only be processed successfully if the device is `DETACHED` or not used. Otherwise, message `NKG0010` is issued. If UNIT-*ALL is specified, no device with that depot may be allocated. Otherwise, message `NKG0009` is issued.

Format

REMOVE**-DEV**ICE**-DEPOT**
UNIT = ***ALL** / list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4> ,**LOCATION** = ***ALL** / <alphanum-name 1..8>

Operands

UNIT =
Specifies one or more (up to 10) tape devices whose assignment to a depot is to be canceled.
As soon as the last device has been removed from a depot, all information on the depot involved is deleted implicitly.

UNIT = *ALL
All device assignments to the specified depot are to be canceled.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
The assignment of the devices identified by their mnemonic names to the specified depot is to be canceled. A maximum of 10 devices may be specified.

LOCATION =
Specifies the depot for which the assignment of the specified devices (UNIT operand) is to be canceled.

LOCATION = *ALL
The assignment of the specified devices (UNIT operand) is to be canceled for all known depots.

LOCATION = <alphanum-name 1..8>
Name of the depot for which the assignment of the specified devices (UNIT operand) is to be canceled.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVT002	Tape monitor not available

5.24 REMOVE-FILE-ALLOCATION-LOCKS

Cancel file lock

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION TSOS

Function

The command REMOVE-FILE-ALLOCATION-LOCKS enables files (and also file generations or file generation groups), which have been incorrectly closed due to a system crash or aborted job, to be made accessible again. The command enables the user to cancel any file lock imposed as a result of a system crash or the abortion of a job.

A file lock can be canceled with the REMOVE-FILE-ALLOCATION-LOCKS command only if the job which produced the lock was terminated by the system with the message “TASK PENDED INDEFINITELY” on the operator’s console.

For tape files which were exclusively reserved by a SECURE-RESOURCE-ALLOCATION command, the user may request the removal of the lock; for disk files, only the system administrator is authorized to do so.

The REMOVE-FILE-ALLOCATION-LOCKS command does not reconstruct the files in question. This may be initiated with the REPAIR-DISK-FILES command if required. The CHECK-FILE-CONSISTENCY command removes a file lock and check the file for inconsistencies at the same time.

Concurrent copy locks

Concurrent copy locks must not be removed unless the concurrent copy session has been completed. There are two different cases to consider:

- If both file locks and concurrent copy locks exist, the return code depends on whether it was possible to reset the file locks.
- If there is only a concurrent copy lock, the return code depends on whether it was possible to reset the lock.

Privileged functions

Systems support (TSOS privilege) can, in addition to specifying any required file, also reset the NO-OPEN-ALLOWED bit in the TSOSCAT, which prevents the file from being opened.

Format

REMOVE**-FILE-ALLOC**ATION-
LOCKS

FILE**-NAME** = <filename 1..54> / <partial-filename 2..53>

,**SEL**ECT = ***ANY-VOL**UME / ***PRIV**ATE**-DISK** / ***PUB**LIC**-DISK** / ***NET-STOR**AGE

,**OPEN-ALLOWED** = ***UNCHA**NGED / ***Y**ES

Operands

FILE-NAME = <filename 1..54> / <partial-filename 2..53>
The name of the file which is locked. This may be a permanent file or a temporary one, or a file generation group or a file generation. Write access is required for files which are not under the user's own user ID.
If a partially qualified file name is specified, only the files which are identified as open will be selected. If exactly one file is specified, the file is selected without taking this identifier into account.
For tape input files: If the locked file was opened in INPUT or REVERSE mode, the fully qualified file name must be specified; the file lock is removed.
The following actions are performed based on the access method with which the file was created:

PAM files: Only the file lock is removed. If the file is identified as open, it remains open, i.e. continues to be displayed by SHOW-FILE-ATTRIBUTES with STATUS=*PAR(CLOSED-OUTPUT=*YES); for REPAIR-DISK-FILES, the file is still regarded as a file that needs repair. This means that it will also be listed as a file that needs reconstruction in the output of the SHOW-FILE-ATTRIBUTES command (with the STATUS=*PAR(REPAIR-NEEDED= *YES) option).

SAM files: The file lock is removed. If the file is identified as open, no privileged close operation is performed, i.e. in the case of SHOW-FILE-ATTRIBUTES with STATUS=*PAR(CLOSED-OUTPUT=*YES) it is still displayed; for REPAIR-DISK-FILES it is regarded as a file to be repaired. This means that it will also be listed as a file that needs reconstruction in the output of the SHOW-FILE-ATTRIBUTES command (with the STATUS=*PAR(REPAIR-NEEDED= *YES) option).

ISAM files: The file lock is removed. If the file is identified as open, the last page pointer is set to the highest PAM page written. Inconsistencies between the index and data sections and for secondary keys are **not** detected and are **not** removed. The file is no longer regarded as a file requiring repair, i.e. will not be shown by SHOW-FILE-ATTRIBUTES with STATUS=*PAR(REPAIR-NEEDED=*YES).

SELECT = *ANY-VOLUME / *PRIVATE-DISK / *PUBLIC-DISK
Restricts the files selected for closing to the specified volume type. This operand is only meaningful if FILE-NAME was a partially qualified name, or the name of a file generation group.

SELECT = *ANY-VOLUME
The specified files will be selected, irrespective of the volume on which they are held.

SELECT = *PRIVATE-DISK
Of the specified files, those which are held on private disk will be selected.

SELECT = *PUBLIC-DISK
Of the specified files, those which are held on public disk will be selected.

SELECT = *NET-STORAGE
Of the specified files, those which are held on Net-Storage volume will be selected.

OPEN-ALLOWED = *UNCHANGED / *YES
This parameter enables systems support to specify that the NO-OPEN-ALLOWED bit in the catalog entry, which prevents a file from being opened, is reset for the specified file. The file can subsequently be opened again.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS06E6	File specified in command is empty
2	0	DMS06E9	No valid record found during reconstruction of ISAM file
2	0	DMS06ED	Error on writing unrecoverable blocks to scratch file
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0533	Requested file not cataloged in pubset
	64	DMS0535	Specified file not shareable
	64	DMS055C	Catalog entry not found on assigned private disk
	64	DMS0583	An error occurred when reconstructing the file
	64	DMS0585	Error detected during catalog processing or multihost processing
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS05F8	It was not possible to allocate disk space Guaranteed message: DMS05F8
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file

	64	DMS0609	No access to system file
	64	DMS06CC	No file corresponding to the specified operands
	64	DMS06E4	Reconstruction with specified command not possible for this file type
	64	DMS06FF	Reconstruction for this file type not possible with specified command
	64	DMS06FF	File created with WROUT=NO. Consistency check is not practical
	130	DMS0524	System address space full
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0588	It was not possible to allocate disk space
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

5.25 REMOVE-FILE-LINK

Delete TFT entry

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The REMOVE-FILE-LINK command deletes the entry with the specified file link name from the Task File Table (TFT) and releases all the private volumes and devices linked to the name. The reservation is also canceled for any files which were exclusively reserved using the SECURE-RESOURCE-ALLOCATION command. The command will be ignored if the TFT entry referred to is still locked by a LOCK-FILE-LINK, and will only be executed when this lock is canceled by an UNLOCK-FILE-LINK command (or at LOGOFF time).

The user can specify whether:

- the task for tape devices is to retain an NDM-internal device type reservation (RELEASE-DEVICE),
- tapes which were reserved for the file are to be released (UNLOAD-RELEASED-TAPE).

Default: devices are released, but tapes remain reserved.

If the TFT entry which is to be canceled is linked to a TST entry, the file counter in the TST entry is decremented by 1. As soon as this reaches the value 0, the TST entry is deleted, and DMS releases all the devices linked to this TST entry. As long as the TST entry is still linked to at least one TFT entry (file counter > 0), DMS will only release those devices which were requested for the TFT entry named in the REMOVE-FILE-LINK command.

If the TFT entry which is to be canceled does not point to a TST entry, all the devices linked to the TFT entry will be released.

Format

REMOVE**-FILE-LINK**	Alias: **RMFL**
LINK-NAME = ***FIRST-BLANK** / <filename 1..8 without-gen with-wild(80)>	
,**RELE**ASE**-DEV**ICE = *****YES / ***NO**	
,**UNL**OAD**-REL**EASED**-TAPE** = ***NO** / *****YES	
,**SUPPRESS-ERR**ORS = ***NONE** / ***LINK-NAME-NOT-FOUND**	

Operands

LINK-NAME = *FIRST-BLANK / <filename 1..8 without-gen with-wild(80)>
The file link name of the TFT entry which is to be deleted.

LINK-NAME = *FIRST-BLANK
If *FIRST-BLANK is specified, the first TFT entry whose file link name consists of spaces will be processed.

LINK-NAME = <filename 1..8 without-gen with-wild(80)>
The file link name of the TFT entry which is to be deleted.
Use of wildcards allows more than one TFT entry to be specified. If the first character in a wildcard sequence is “*”, it must be followed by at least one other wildcard character.

RELEASE-DEVICE = *YES / *NO
Specifies whether an NDM-internal device type reservation is to be retained when tapes of the task are released. The reservation can then be used to request a device again. The reservation can be displayed using the SHOW-RESOURCE-ALLOCATION command and deleted with the SECURE-RESOURCE-ALLOCATION command.

RELEASE-DEVICE = *YES
When a tape is released an NDM-internal device type reservation is not retained.

RELEASE-DEVICE = *NO
When a tape is released an NDM-internal device type reservation is retained.

UNLOAD-RELEASED-TAPE = *NO / *YES
Specifies whether the tapes which were linked to this TFT entry are to be released.

UNLOAD-RELEASED-TAPE = *NO
The tapes to be released will not be unloaded.

UNLOAD-RELEASED-TAPE = *YES
The tapes to be released will be unloaded.
If the job requires to access these volumes again, they will have to be requested again.

Note

If there are several active files on a tape which is being released, then this volume will not actually be released until a REMOVE-FILE-LINK command has been issued for each of the active files.

SUPPRESS-ERRORS = *NONE / *LINK-NAME-NOT-FOUND
Specifies which errors are to be suppressed.

SUPPRESS-ERRORS = *NONE
All errors lead to the DMS error messages provided and, in non-S and ENTER procedures, trigger the spin-off mechanism, and, in S procedures, SDF-P error handling.

SUPPRESS-ERRORS = *LINK-NAME-NOT-FOUND
If no TFT entry is found in the LINK-NAME operand, the command is executed as though no error had occurred: no error message is issued, and the spin-off mechanism and SDF-P error handling are not triggered.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS059C	In conjunction with wildcards: not all the selected TFT entries can be deleted
	1	CMD0202	Syntactical or semantic error in command
	130	DMS0582	File is currently locked or being used and cannot be processed

Example

See the LOCK-FILE-LINK command.

5.26 REMOVE-IO-UNIT

Remove input/output unit from configuration

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

Using the REMOVE-IO-UNIT command, systems support staff can dynamically remove input/output devices from a configuration. Input/output units (devices, controllers, channels) that are DETACHED can be removed from the configuration in this process. If an “internal” unit is removed (channel or controller), the system implicitly also removes the relevant “external” devices (controllers or devices), provided they are not allocated to some other “internal” unit. Input/output devices have to be removed in the order device -> controller -> channel.

The command is only accepted if the dynamic I/O configuration change was started successfully (see START-CONFIGURATION-UPDATE command).

Format

REMOVE-IO-UNIT

UNIT = ***CHANNEL**(...) / ***CONTR**OLLER(...) / ***DEV**ICE(...)

***CHANNEL**(...)

| NAME = <alphanum-name 2..3>

***CONTR**OLLER(...)

| NAME = <alphanum-name 2..2> / <x-text 4..4>

***DEV**ICE(...)

| NAME = <alphanum-name 2..2> / <x-text 4..4>

Operands

UNIT = *CHANNEL(...) / *CONTROLLER(...) / *DEVICE(...)
Specifies the input/output units to be removed from the configuration.

UNIT = *CHANNEL(...)
Specifies a channel to be removed from the configuration. Controllers and devices that can only be accessed through this channel are implicitly removed along with the channel.

NAME = <alphanum-name 2..3>
Mnemonic device code of a channel.

UNIT = *CONTROLLER(...)
Specifies a controller to be removed from the configuration. Devices that can only be accessed via this controller are implicitly removed along with it.

NAME = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code of a controller.

UNIT = *DEVICE(...)
Name of the device to be removed from the configuration.

NAME = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKR0006	Syntax error
	64	CMD0216	No authorization
1	64	NKR0169	System error
2	64	NKR0169	Wrong parameter
3	64	NKR0169	Dynamic I/O configuration change was rejected
4	64	NKR0169	Dynamic I/O configuration change not supported
5	64	NKR0169	Input/output unit not removed
9	64	NKR0169	Input/output unit not defined
11	64	NKR0169	Path to input/output unit not removed
12	64	NKR0169	Dynamic I/O configuration change was not started
14	64	NKR0169	Configuration changes not completed in the guest system
16	64	NKR0169	Another guest system is being started
17	64	NKR0169	Another guest system is being terminated
18	64	NKR0169	Dynamic I/O configuration change not supported by one or several guest systems

5.27 REMOVE-ISAM-POOL-LINK

Delete pool link name

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

The REMOVE-ISAM-POOL-LINK command enables the user to delete one particular pool link name, or all of them, from the pool table for the job. The command will only be executed fully if the files which were originally linked with these pool link names have been correctly closed; for any pool link names which are linked to open files, DMS will issue an error message.
The ADD-ISAM-POOL-LINK command enters a pool link name for an ISAM pool into the pool table of the task. Entries in the pool table can be displayed by using the SHOW-ISAM-POOL-LINK command.

For a full description of the ISAM pool see the “Introductory Guide to DMS” [13].

Format

REMOVE**-ISAM-POOL-LINK**
LINK-NAME = <name 1..8> / ***ALL**

Operands

LINK-NAME =<name 1..8> / *ALL
Specifies which pool link name is to be deleted from the pool table.

LINK-NAME = <name 1..8>
The pool link name LINK-NAME, which was allocated to an ISAM pool using an ADD-ISAM-POOL-LINK command, will be deleted.

LINK-NAME = *ALL
All the pool link names for the task are to be deleted. If any pool link name is still linked to a file which is open, a corresponding error message will be output, and the other pool link names will be deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	64	DMS0A17	Internal system error
	64	DMS0A0E	Syntax error in ISAM pool command
	64	DMS0A11	Specified catalog ID does not exist
	64	DMS0A13	Specified pool name is syntactically invalid
	64	DMS0A1A	Pool links to ISAM pool still exist
	64	DMS0A1B	Specified pool link name does not exist
	130	DMS0A12	Specified catalog ID not available

Example

See the ADD-ISAM-POOL-LINK command.

5.28 REMOVE-JV-LINK

Delete JV-LINK entries

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The REMOVE-JV-LINK command deletes one or all entries in the JV-LINK table. The user selects the entry to be deleted by specifying the link name. If all entries are to be deleted, the user is prompted in dialog mode by message JVS0457 to confirm this request.
The user can obtain information on existing JV-LINK entries by entering the SHOW-JV-LINK command

Format

REMOVE**-JV-LINK**	Alias: **RMJVL**
LINK-NAME = ***ALL** / <alphanum-name 1..7>	

Operands

LINK-NAME = *ALL / <alphanum-name 1..7>
Link name of the JV whose JV-LINK entries are to be deleted. Specifying *ALL causes all entries to be deleted. To delete all entries, the user must confirm his or her choice a second time in the dialog (by answering “Y” or “N” to message JVS0457).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

5.29 REMOVE-MASTER-CATALOG-ENTRY

Delete entry from MRSCAT of home pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS
Routing code:	$

Function

The relevant pubset must be set to “inaccessible”, otherwise the command is rejected.

Once the entry has been deleted, the pubset can no longer be identified. A new catalog ID can be entered by systems support using the ADD-MASTER-CATALOG-ENTRY command.

Format

REMOVE**-MAST**ER-CATALOG-ENTRY
ENTRY-NAME = <cat-id 1..4> ,**VOL**UME**-SET-ENTRIES** = ***REMOVE** / ***KEEP**

Operands

ENTRY-NAME = <cat-id 1..4>
Identifies the MRSCAT entry which is to be deleted.

VOLUME-SET-ENTRIES = *REMOVE / *KEEP
Governs whether deletion of the MRSCAT entry for a system-managed pubset (SM pubset) also means deletion of the associated volume set entries.

VOLUME-SET-ENTRIES = *REMOVE
When the MRSCAT entry for an SM pubset is deleted, the associated volume set entries are to be deleted as well.

VOLUME-SET-ENTRIES = *KEEP
Only the MRSCAT entry for an SM pubset is to be deleted, not the associated volume set entries.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMS0312	MRSCAT entry not found
2	0	CMS0002	Disk error
	1	CMS0011	Syntax error
	1	CMS0314	Syntax error in entry name or error in wildcard specification
	32	CMS0001	Error in SLOT Manager
	32	CMD0221	Internal system error
	32	CMS031F	MRSCAT parameter error
	32	CMS0310	Error during privilege checking
	32	CMS0317	Locked MRSCAT entry cannot be released
	32	CMS0318	Synchronization error due to task lock manager problem
	64	CMS0010	Command reserved for systems support
	130	CMS0003	MRSCAT entry cannot be deleted because pubset is occupied

5.30 REMOVE-NET-STORAGE-VOLUME

Remove a Net-Storage volume from a local pubset

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	STORAGE-MANAGEMENT
Privileges:	TSOS

Function

The REMOVE-NET-STORAGE-VOLUME removes a Net-Storage volume from a local pubset.

By default, the command is executed only if the directory concerned on the Net-Storage contains no (more) BS2000 files.

The following actions are performed here:

1. The management files (catalog and FSL files) in the directory are deleted.
2. Then the directory is deleted.

Optionally the command can also be executed if the directory still contains cataloged BS2000 files. The specification in the FILES-ON-VOLUME operand determines the procedure for the BS2000 files:

- *EXPORT:
  The BS2000 files are exported (as with the EXPORT-FILE command). The directory and the files on the Net-Storage remain unchanged and can, if required, once again be added to a pubset as a Net-Storage volume.
- *DELETE:
  If there are no inconsistencies, the existing BS2000 files, the management data and the directory are deleted. If there are inconsistencies, command execution can be forced with the FORCE=*YES operand.

Information on the Net-Storage available in BS2000 can be requested using the SHOW-NET-STORAGE command. Information on the Net-Storage assigned to a pubset can be requested using the SHOW-PUBSET-NET-STORAGE command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the “Introductory Guide to DMS” [13].

Format

REMOVE**-NET-STOR**AGE**-VOL**UME

VOLUME = ***STD** / <vsn 6..6>

,**PUB**SET = <cat-id 1..4>

,**FILES-ON-VOL**UME = ***REJECT** / ***EXP**ORT **/** ***DEL**ETE(...)

***DEL**ETE(...)

| **FORCE** = ***NO** / ***Y**ES

Operands

VOLUME =
Specifies the VSN of the Net-Storage volume.
On the Net-Storage the Net-Storage volume is implemented by a directory below the released directory with a name which corresponds to the VSN.

VOLUME = *STD
The VSN of the new Net-Storage volume was derived from the name of the pubset, see the “Introduction to System Administration” [14]. The VSN must be specified explicitly for a Net-Storage volume with a nonstandard name.

VOLUME = <vsn 6..6>
Specifies the VSN of the Net-Storage volume explicitly. A default name cannot be specified explicitly. The VSN must consist of 6 characters and comply with the conventions for private volumes Consequently it may not begin with the string PUB and may not contain a period, see the “Introduction to System Administration” [14].

PUBSET = <cat-id 1..4>
Specifies the name of the pubset from which the Net-Storage volume is to be removed.

FILES-ON-VOLUME =
Determines the procedure when the Net-Storage volume still contains cataloged BS2000 files.

FILES-ON-VOLUME = *REJECT
The command is executed only when the Net-Storage volume contains no cataloged BS2000 files.

FILES-ON-VOLUME = *EXPORT
The files’ catalog entries are deleted only in the local pubset (as with the EXPORT-FILE command). The directory and the file on the Net-Storage are retained.

FILES-ON-VOLUME = *DELETE(...)
The BS2000 files on the Net-Storage volume are deleted. Subsequently, the directory concerned on the Net-Server is also deleted.
By default, (FORCE=*NO) deletion takes place only when no inconsistencies are determined between the catalog entry on the local pubset and the catalog entry on the Net-Storage volume. Otherwise, the command will be rejected.

FORCE = *NO / *YES

Specifies whether the files should also be deleted if inconsistencies exist. The default *NO causes the command to be rejected in this case. When FORCE = *YES, the files are always deleted and inconsistencies are ignored. Files which are not cataloged in BS2000 (UNIX files) are also deleted.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0221	System error
	32	DMS1CFF	System error (see SERSLOG entry)
	64	DMS1C04	Error when calling the ONETSTOR subsystem
	64	DMS1C05	Catalog ID does not exist
	64	DMS1C06	Pubset not imported
	64	DMS1C07	Error when calling the allocation function
	64	DMS1C08	Error when calling a CMS function for the TSOSCAT
	64	DMS1C09	Error when calling a CMS function on the Net-Storage volume
	64	DMS1C0C	Net-Storage volume is not empty
	64	DMS1C0D	File system label on the net server does not match the pubset
	64	DMS1C0E	File catalog on the Net-Storage volume is not empty
	64	DMS1C10	The Net-Storage volume contains locked files
	64	DMS1C12	No Net-Storage volume can be created on the home pubset
	64	DMS1C13	Error when calling the multiprocessor system function
	64	DMS1C14	Error when calling the watchdog
	64	DMS1C15	Error when allocating on the slave system
	64	DMS1C18	Net-Storage volume cannot be accessed
	64	DMS1C20	Name of the Net-Storage volume is invalid

5.31 REMOVE-PASSWORD

Delete file or JV passwords from password table

Component:	BS2000
Functional area:	File processing
Domain:	FILE FILE-GENERATION-GROUP JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

Function

This command deletes file or JV passwords from the password table for the job (see the ADD-PASSWORD command).

Format

REMOVE-**PASS**WORD	Alias: **RMPW**
PASSWORD = ***ALL** / ***SECRET** / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>	

Operands

PASSWORD = *ALL / *SECRET / list-poss(63): <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>

Specifies that the passwords specified in the ADD-PASSWORD command are to be removed from the password table for the job, thus reinstating full password protection.

The PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

PASSWORD = *ALL

All entries in password table for the job are to be deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	DMS06FF	BCAM connection severed
	130	DMS0585	Error detected when processing catalog or multiprocessor system

Example

See the ADD-PASSWORD command.

5.32 REMOVE-PUBSET-LOCK

Reset pubset lock

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The REMOVE-PUBSET-LOCK command enables the system administrator to reset locks set by pubset management. The pubset concerned and an unambiguous description of the lock which is to be reset must be specified here. A lock is described unambiguously by the lock type, the system with the lock entry, the task ID and the sysid of the lock holder.

The command can be entered on any system in a shared pubset network (with BS2000/OSD >= V8.0). If the lock which is to be released is not on the system on which the command was issued, the command is sent to the system containing the lock entry. Only locks whose lock entry is contained on a system with BS2000/OSD >= V8.0 can be reset.

The command is rejected if the task which contains the lock still exists and is not in the “pended indefinitely” status.

Successful release of a lock is logged with the console message DMS13CD.

Information on existing locks can be obtained using the SHOW-PUBSET-LOCKS command.

Format

REMOVE**-PUB**SET**-LOCK**

PUBSET = <cat-id 1..4>

,**LOCK-ID**ENTIFICATION = ***PUB**SET**-RECONF**IGURATION(...) / ***SHARED-EXCAT**(...) /

***SHARED-IMCAT**(...) / ***SHARED-MASTER-EXCAT**(...)

***PUB**SET**-RECONF**IGURATION(...)

| **TID-OF-LOCKHOLDER** = **X'FFFFFFFF'** / <x-string 1..8>

| ,**LOC**ATION**-OF-LOCK** = ***OWN-SYS**TEM / <alphanum-name 1..3>

***SHARED-EXCAT**(...)

| **TID-OF-LOCKHOLDER** = **X'FFFFFFFF'** / <x-string 1..8>

| ,**SYS**TEM**-OF-LOCKHOLDER** = ***HOST-SYS**TEM / <alphanum-name 1..3>

| ,**LOC**ATION**-OF-LOCK** = ***OWN-SYS**TEM / <alphanum-name 1..3>

***SHARED-IMCAT**(...)

| **TID-OF-LOCKHOLDER** = **X'FFFFFFFF'** / <x-string 1..8>

| ,**SYS**TEM**-OF-LOCKHOLDER** = ***HOST-SYS**TEM / <alphanum-name 1..3>

| ,**LOC**ATION**-OF-LOCK** = ***OWN-SYS**TEM / <alphanum-name 1..3>

***SHARED-MASTER-EXCAT**(...)

| **TID-OF-LOCKHOLDER** = **X'FFFFFFFF'** / <x-string 1..8>

| ,**LOC**ATION**-OF-LOCK** = ***OWN-SYS**TEM / <alphanum-name 1..3>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the specified lock is to be reset.

LOCK-IDENTIFICATION = *PUBSET-RECONFIGURATION(...) / *SHARED-EXCAT(...) / *SHARED-IMCAT(...) / *SHARED-MASTER-EXCAT(...)
Unambiguous description of the lock which is to be reset.

LOCK-IDENTIFICATION = *PUBSET-RECONFIGURATION(...)
The lock is of the type PUBSET-RECONFIGURATION. For this lock type the lock holder is contained on the system with the lock entry.

TID-OF-LOCKHOLDER = X'FFFFFFFF' / <x-string 1..8>
Task ID (TID) of the instance which holds the lock.

LOCATION-OF-LOCK = *OWN-SYSTEM / <alphanum-name 1..3>
Sysid of the system with the lock entry. The default is *OWN-SYSTEM, i.e. the local system.

LOCK-IDENTIFICATION = *SHARED-EXCAT(...)
The lock is of the type SHARED-EXCAT. The lock holder's system can be specified for this lock type.

TID-OF-LOCKHOLDER = X'FFFFFFFF' / <x-string 1..8>
Task ID (TID) of the instance which holds the lock.

SYSTEM-OF-LOCKHOLDER = *OWN-SYSTEM / <alphanum-name 1..3>
Sysid of the system on which the lock holder resides. The default is *OWN-SYSTEM, i.e. the local system.

LOCATION-OF-LOCK = *OWN-SYSTEM / <alphanum-name 1..3>
Sysid of the system with the lock entry. The default is *OWN-SYSTEM, i.e. the local system.

LOCK-IDENTIFICATION = *SHARED-IMCAT(...)
The lock is of the type SHARED-IMCAT. The lock holder's system can be specified for this lock type.

TID-OF-LOCKHOLDER = X'FFFFFFFF' / <x-string 1..8>
Task ID (TID) of the instance which holds the lock.

SYSTEM-OF-LOCKHOLDER = *OWN-SYSTEM / <alphanum-name 1..3>
Sysid of the system on which the lock holder resides. The default is *OWN-SYSTEM, i.e. the local system.

LOCATION-OF-LOCK = *OWN-SYSTEM / <alphanum-name 1..3>
Sysid of the system with the lock entry. The default is *OWN-SYSTEM, i.e. the local system.

LOCK-IDENTIFICATION = *SHARED-MASTER-EXCAT(...)
The lock is of the type SHARED-MASTER-EXCAT. For this lock type the lock holder is contained on the system with the lock entry.

TID-OF-LOCKHOLDER = X'FFFFFFFF' / <x-string 1..8>
Task ID (TID) of the instance which holds the lock.

LOCATION-OF-LOCK = *OWN-SYSTEM / <alphanum-name 1..3>
Sysid of the system with the lock entry. The default is *OWN-SYSTEM, i.e. the local system.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	0	DMS13CE	No reconfiguration lock exists
	32	CMD0221	Internal error
	32	CMD2009	Error creating the presentation variables
	32	DMS138A	Internal error with Serslog entry
	64	CMD0216	Privileges error
	64	DMS138B	Pubset not found
	64	DMS138C	Pubset not accessible
	64	DMS1397	Partner host with illegal version
	128	CMD0217	Command not fully executed
	128	DMS1386	Error in the memory request
	128	DMS1389	Error in MSCF communication

5.33 REMOVE-RFA-CONNECTION

Clear down RFA connection and terminate partner task

Component:	RFA
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

This command is available only to users who have the RFA software product (see also the “RFA” manual [31]).

Function

The command REMOVE-RFA-CONNECTION clears down one or all RFA connections previously set up with the SET-RFA-CONNECTION command. When the last RFA connection to a remote processor is cleared down, the partner task on the remote processor is simultaneously terminated.
When the local user task is terminated (EXIT-JOB or LOGOFF), the system automatically clears down all RFA connections set up during the current task.

The REMOVE-RFA-CONNECTION command is rejected if a program is loaded.

The user can issue the SHOW-RFA-CONNECTIONS command to get information on still existing RFA connections.

Note

> More than one SET-RFA-CONNECTION command can be issued for a single catalog ID. The same number of REMOVE-RFA-CONNECTION commands must be issued to clear down a connection as SET-RFA-CONNECTION commands were issued.

Format

REMOVE**-RFA**-CONNECTION
CATALOG**-ID** = <cat-id 1..4> / ***ALL**

Operands

CATALOG-ID = <cat-id 1..4> / *ALL
Catalog ID to which the RFA connection is to be cleared down. Specifying *ALL lets all RFA connections be cleared.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	RFA0002	Command executed
1	0	RFA0002	No RFA connection exists which can be cleared down
	64	RFA0025	Program loaded
	64	RFA0027	Configuration error

5.34 REMOVE-SUBSYSTEM

Remove inactive subsystem from dynamic catalog

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

This command allows system administrators to remove an inactive subsystem from the current dynamic subsystem catalog while the system is running. As the subsystem is only virtually removed, issuing this command does not change the number of subsystems and CALL entries that can subsequently be added to the current subsystem catalog using the ADD-SUBSYSTEM command.

The command is rejected if

- the designated subsystem is active
- another subsystem has cross-references to or dependency relations with the designated subsystem.

Format

REMOVE-SUBSYSTEM
SUBSYSTEM-NAME = <structured-name 1..8> ,**VERSION** = <product-version mandatory-man-corr> / <product-version without-man-corr>

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Name of the subsystem that is to be removed.

VERSION = <product-version mandatory-man-corr> / <product-version without-man-corr>
Identifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; cf. SDF metasyntax).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	ESM0646	Command processing terminated abnormally; error occurred during initialization routine updating or calculation of the default version.
	64	ESM0642	Command not executed

Notes

- Once a subsystem has been removed, its cross-references to and dependency relations with any other subsystem cease to exist.
- If the latest version of a nonprivileged subsystem is removed, any dependency relations operating on the subsystem are obsolete.
- Once at least one subsystem has been removed with REMOVE-SUBSYSTEM, it is no longer possible to dynamically extend the current subsystem catalog using the ADD-SUBSYSTEM command with TYPE=*EXTENDED-ACTIVE-CONFIGURATION. However, dynamic extension is possible with ADD-SUBSYSTEM and TYPE=*NEW-SUBSYSTEMS.

Example

Removing Version 17.0 of the EDT subsystem:

```
/remove-subsystem subsystem-name=edt,version='17.0'
```

5.35 REMOVE-TASKLIB

Cancel TASKLIB assignment

Component:	SYSFILE
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE

Function

The REMOVE-TASKLIB command cancels the assignment of an object module library as a TASKLIB which was made with the SET-TASKLIB command.

Format

REMOVE**-TASKLIB**	Alias: **RMTL**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	SSM2036	Operand invalid

Hint: The returncode SSM2036 could be seen if the commanddefinition is corupted, for example after an error while systeminstallation.

5.36 REMOVE-USER

Delete user entry from user catalog

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION
Routing code:	$

Function

The REMOVE-USER command enables the systems support staff to delete a user's entry from the user catalog of a pubset.
Execution of this command proceeds as follows:

If jobs are still active for the user when a data pubset is specified, execution of the command is discontinued and the message SRM2215 is issued. By entering 'Y' you confirm the deletion of the user ID and execution of the command is continued. Make sure that the pubset data cannot be accessed by active jobs, as this would lead to errors.
By entering 'N', you lock the user ID and the command is terminated.

First, the user's files and job variables (and, when SECOS is being used, the guards) are deleted from the pubset and after a confirmation they are deleted logically, also:

- If errors occur during deletion, the user ID is locked (not deleted). All necessary steps must be taken to enable the files to be deleted. The REMOVE-USER command must then be repeated.
- If the files have been deleted without problems, the user entry in the user catalog is also deleted.

The REMOVE-USER command is rejected

- for the standard user IDs allocated by the system except for the user SERVICE ID
- for a user ID to which at least one system-global privilege other than STD-PROCESSING is allocated (if SECOS is used)
- for a user ID which is the administrator of a user group (if SECOS is used).
- for the home pubset if the user ID still has active tasks
- for the data pubset if the user ID still has active tasks and the message SRM2215 was answered with 'N'

As a general rule, no user ID can be deleted if it has any system privilege other than STD-PROCESSING. However, if SECOS is being used, such a user ID can be deleted by first assigning to it the STD-PROCESSING privilege, and then withdrawing the other individual privilege from it.

Restriction

The only nonprivileged users (STD-PROCESSING privilege) authorized to issue this command are those designated as group administrators. The actions a group administrator can take are defined by systems support. For information on setting up and managing user groups see the "SECOS" manual [35].

Format

REMOVE-**USER**
USER-IDENTIFICATION = <name 1..8> ,**PUBSET** = ***HOME** / <cat-id 1..4>

Operands

USER-IDENTIFICATION = <name 1..8>
Identifies the user whose entry is to be deleted.

PUBSET =
Deletes the entry in the user catalog of the specified pubset.

PUBSET = *HOME
Deletes the entry in the user catalog of the home pubset.
As a result, the user ID no longer has access to the system.

PUBSET = <cat-id 1..4>
The user ID is deleted from the user catalog of the specified pubset.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	1	SRM6010	Syntax error
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

5.37 REPAIR-DISK-FILES

Reconstruct disk file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The REPAIR-DISK-FILES command reconstructs a disk file which was incorrectly closed due to a system crash or a job being aborted. This involves: updating of the catalog entry, the implicit removal of any lock which may apply, and closing of the file (see the command REMOVE-FILE-ALLOCATION-LOCKS); ISAM files will be reconstructed using the available records. The files which need to be reconstructed can be displayed by using the SHOW-FILE-ATTRIBUTES command with the option STATUS=*PAR(REPAIR-NEEDED=*YES).

> ¡ If the file access was interrupted while there was still buffered data in main memory, the last changes which were made may be missing from the reconstructed file; this is because the contents of the buffer are not output to external storage until it becomes full.

The reconstruction of files is discussed in the general section of the “Introductory Guide to DMS” [13].

For NK-ISAM files it is possible to activate, deactivate or update counters for the primary index statistics.

Privileged functions

If reconstruction is not possible because of a file lock, systems support receives the message DMS06F0 in interactive mode (in batch mode command processing is aborted without any message) and can then, if required, cancel the file lock and thus force reconstruction. In the event of forced reconstruction, it is essential to ensure that the file is not open for writing at this time.

Format

REPAIR-**DISK**-FILES

FILE-**STA**TUS = ***OPEN** (...) / ***ANY**(...)

***OPEN**(...)

| FILE-**NAME** = <filename 1..54> / <partial-filename 2..53>

| ,**SEL**ECT = ***ANY-VOL**UME / ***PRIV**ATE-**DISK** / ***PUB**LIC-**DISK** / ***NET-STOR**AGE

***ANY**(...)

| FILE-**NAME** = <filename 1..54>

| ,**SEL**ECT = ***ANY-VOL**UME / ***PRIV**ATE-**DISK** / ***PUB**LIC-**DISK** / ***NET-STOR**AGE

***CLOSED**(...)

| FILE-**NAME** = <filename 1..54>

| ,**INDEX-STATISTICS** = ***UPDATE** / ***ON** / ***OFF**

,**ISAM-COP**Y-NAME = ***SAME** / <partial-filename 2..53> / <filename 1..54>

,**ISAM-REP**AIR-**INFO** = ***NO** / [***Y**ES](...)

[***Y**ES](...)

| **OUTPUT** = ***SYSOUT** / ***SYSLST**

Operands

FILE-STATUS = *OPEN(...) / *ANY(...)
Specifies whether the file is to be reconstructed only if it was not closed correctly, or in any case.

FILE-STATUS = *OPEN(...)
The file is only to be reconstructed if it was not closed correctly.

FILE-NAME = <filename 1..54> / <partial-filename 2..53>
Identifies the permanent or temporary file, file generation group or file generation which is to be reconstructed. If FILE-NAME is specified in partially qualified form, then:

- ISAM-COPY-NAME (if required) must also be specified in partially qualified form.
- ISAM-COPY-NAME will be ignored when generations are being reconstructed.

Only the user's own user ID may be specified.

The reconstruction of the file depends on the access method with which the file was created (see the output field *FILE-STRUC* in the output of the SHOW-FILE-ATTRIBUTES command):

PAM: The file lock is removed. If the file is identified as open, the system carries out a privileged close operation, and the last page pointer (LPP) is updated if required:

For a K-PAM file (*BLOCK-CONTR=PAMKEY*), the LLP will then point to the last reserved PAM page (corresponds to the file size). For an NK-PAM file (*BLOCK-CONTR=DATA/NO*), the LLP will contain a value which is determined by the file size, rounded down to a multiple of the number of PAM pages in the data block (see the blocking factor in the output field *BUF-LEN* of the SHOW-FILE-ATTRIBUTES command).

SAM: The file lock is removed. If the file is identified as open, the last page pointer is set to the highest used PAM page if required. After that, the file is closed.

ISAM: The file lock is removed. The file is reconstructed from the repairable data blocks. Secondary keys which are identified as complete are also reconstructed.

Irrespective of the access method, concurrent copy locks are retained if the concurrent copy session is still in progress.

SELECT = *ANY-VOLUME / *PRIVATE-DISK / *PUBLIC-DISK
The type of volume to which the reconstruction is to be restricted.
This operand is only meaningful if FILE-NAME was a partially qualified file name or the name of a file generation group.

SELECT = *ANY-VOLUME
The specified files will be selected, irrespective of the volume on which they are held.

SELECT = *PRIVATE-DISK
Of the specified files, those which are held on private disk will be selected.

SELECT = *PUBLIC-DISK
Of the specified files, those which are held on public volumes (disk) will be selected.

SELECT = *NET-STORAGE
Of the specified files, those which are held on Net-Storage volume will be selected.

FILE-STATUS = *ANY(...)
The file is to be reconstructed irrespective of its status.

FILE-NAME = <filename 1..54>
Identifies the permanent or temporary file, file generation group or file generation which is to be reconstructed. Only the user's own user ID may be specified.
The reconstruction of the file depends on the access method with which the file was created (see the output field *FILE-STRUC* in the output of the SHOW-FILE-ATTRIBUTES command):

PAM: The file lock is removed. If the file is identified as open, the system carries out a privileged close operation, and the last page pointer (LPP) is updated if required: For a file that was created with BLOCK-CONTROL-INFO=*WITHIN-DATA-BLOCK or *PAMKEY, the last page pointer will point to the last PAM page which was written. For a file that was created with BLOCK-CONTROL-INFO=*NO, the LLP will point to a value which is determined by the file size, rounded down to a multiple of the number of PAM pages in the data block (see the blocking factor in the output field *BUF-LEN* of the SHOW-FILE-ATTRIBUTES command).

SAM: The file lock is removed. If the file is identified as open, the system carries out a privileged close operation, and the last page pointer (LPP) is set to the last PAM page that was written.

ISAM: The file lock is removed. The file is reconstructed from the repairable data blocks. Secondary keys which are identified as complete are also reconstructed.

Irrespective of the access method, concurrent copy locks are retained if the concurrent copy session is still in progress.

SELECT = *ANY-VOLUME / *PRIVATE-DISK / *PUBLIC-DISK
The type of volume to which the reconstruction is to be restricted.
This operand is only meaningful if FILE-NAME was a partially qualified file name or the name of a file generation group.

SELECT = *ANY-VOLUME
The specified files will be selected, irrespective of the volume on which they are held.

SELECT = *PRIVATE-DISK
Of the specified files, those which are held on private disk will be selected.

SELECT = *PUBLIC-DISK
Of the specified files, those which are held on public volumes (disk) will be selected.

SELECT = *NET-STORAGE
Of the specified files, those which are held on Net-Storage volume will be selected.

FILE-STATUS = *CLOSED(...)
File will **only** be processed if it is a closed **ISAM** file with the property BLOCK-CONTROL=*WITHIN-DATA-BLOCKS (NK-ISAM files).

FILE-NAME = <filename 1..54>
Identifies the permanent or temporary file, which is to be processed. Only files for the own user can be processed.

INDEX-STATISTICS = *UPDATE / *ON / *OFF
Indicates whether counters should be checked, activated or deactivated.

INDEX-STATISTICS = *UPDATE
Counters in the file are checked. If the counters are invalid they will be reinitialized.

INDEX-STATISTICS = *ON
Counters are activated and initialized for the given file.

INDEX-STATISTICS = *OFF
Counters are deactivated for the given file and and also declared invalid.

ISAM-COPY-NAME = *SAME / <partial-filename 2..53> / <filename 1..54>
ISAM-COPY-NAME is only meaningful when ISAM files are being reconstructed, and identifies the file into which the reconstructed copy of the ISAM file ISAM-COPY-NAME is to be put. The file is assigned the encryption attributes of the file to be reconstructed. ISAM-COPY-NAME can be the name of a permanent file, temporary file or file generation, but may not be the name of file generation group.
Write access is required for files which are not under the user's own user ID. ISAM-COPY-NAME may not be the same as FILE-NAME.
If FILE-NAME is partially qualified, so must ISAM-COPY-NAME be.
If no ISAM-COPY-NAME is specified, the system will create a work file for use in reconstructing the ISAM file (default value *SAME). If the reconstruction is to be carried out on a private disk, then the file must be cataloged. If the data and index sections of the file which is to be reconstructed are held on separate disks, corresponding storage space must also be requested for the reconstructed copy (using CREATE-FILE or MODIFY-FILE-ATTRIBUTES as appropriate). Only the user's own user ID may be specified.

ISAM-COPY-NAME = *SAME
The reconstruction will be put into the file specified by FILE-NAME. This procedure will be mediated by a work file, created by the system. For ISAM files on private disks or under user IDs other than the user's, the work file will be copied into the file specified by FILE-NAME, and will then be deleted. Since copying can be very time-consuming, it

is recommended that a fully qualified file name is specified. For ISAM files on PUBLIC disks under the user's own user ID, the work file will simply be recataloged and the original file will be deleted. If an ISAM file on PUBLIC disk is subject to a concurrent copy lock which cannot be reset, message DMS06EE is issued. The repaired ISAM file will then be in a file named **REPAIR.<tsn>.hhmmss**, as it will not have been possible to delete the original file owing to the concurrent copy lock and then rename the work file under the name of the original file.

ISAM-REPAIR-INFO = *NO / *YES(...)
This operand is evaluated for ISAM files only: specifies whether file blocks which cannot be reconstructed are to be logged.

ISAM-REPAIR-INFO = *NO
File blocks which cannot be reconstructed are not logged.

ISAM-REPAIR-INFO = *YES(...)
The block numbers of file blocks which cannot be reconstructed are output. The output can be directed to SYSOUT (default) or SYSLST.

> **OUTPUT = *SYSOUT / *SYSLST**
> Specifies where the block numbers of the file blocks which cannot be reconstructed are to be output. SYSOUT is the default.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	No action required
2	0	DMS06E6	File specified in command is empty
2	0	DMS06E9	No valid record found during reconstruction of ISAM file
2	0	DMS06ED	Error on writing unrecoverable blocks to scratch file
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	64	CMD0102	Interrupted by K2 key
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not available
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0533	Requested file not cataloged in pubset Guaranteed message: DMS0533

	64	DMS0535	Specified file not shareable
	64	DMS055C	Catalog entry not found on assigned private disk
	64	DMS0583	An error occurred when reconstructing the file
	64	DMS0585	Error detected during catalog processing or multihost processing Guaranteed message: DMS053C
	64	DMS0586	Currently not possible to access or reserve volume
	64	DMS0587	Use of specified command restricted by system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS05F8	It was not possible to allocate disk space Guaranteed message: DMS05F8
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file
	64	DMS06CC	No file corresponding to specified operands
	64	DMS06E4	Reconstruction with specified command not possible for this file type
	64	DMS06FF	Reconstruction for this file type not possible with specified command
	64	DMS06FF	File created with WROUT=NO. Consistency check is not practical
	130	DMS0524	System address space full
	130	DMS053C	No space in pubset catalog file
	130	DMS0582	File is currently locked or in use and cannot be processed
	130	DMS0585	Error detected during catalog processing or multihost processing
	130	DMS0586	Currently not possible to access or reserve volume
	130	DMS0588	It was not possible to allocate disk space
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

Notes on reconstructing ISAM files

- For ISAM files, the data buffers are written back out to the disk as soon as a new data block has to be fetched into main memory. This means that the last changes which were made to the file may be missing from the reconstructed ISAM file (if WRITE-IMMEDIATE=*YES was specified, then no more than one record can be missing).
- If no ISAM-COPY-NAME is specified for an ISAM file on public volumes, it will be reconstructed in a work file created by the system. The file FILE-NAME will then be deleted, even without an explicit DESTROY instruction (see the DESTROY-BY-DELETE operand in the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands), and the work file will be renamed as FILE-NAME.
- If no ISAM-COPY-NAME is specified for an ISAM file on private volumes, it will be reconstructed in a temporary work file on public data volumes. The work file will then be copied into the file FILE-NAME, and then deleted with an explicit DESTROY instruction (see the DESTROY-BY-DELETE operand in the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands). This procedure can be very time-consuming so that it is advantageous to specify an ISAM-COPY-NAME.
- If an ISAM-COPY-NAME is specified in the command REPAIR-DISK-FILES, that is where FILE-NAME will be reconstructed. FILE-NAME itself will remain unaltered. If ISAM-COPY-NAME is to be held on private volumes, or if FILE-NAME is a file on private volumes, then ISAM-COPY-NAME must be cataloged before the command REPAIR-DISK-FILES is input. If the data and index blocks are stored on separate volumes, then it is also necessary to reserve storage space for ISAM-COPY-NAME (see the CREATE-FILE and MODIFY-FILE-ATTRIBUTES commands).
- In the data blocks in the reconstructed file, no space will be kept free for later expansion of the file, equivalent to specifying PADDING-FACTOR=0 in the ADD-FILE-LINK command.
- ISAM files for which the data and index blocks are on separate private volumes can only be reconstructed if BUFFER-LENGTH=*STD.
- If an ISAM data block contains data items which cannot be associated with any specific record, the whole block will be saved in the PAM file *S.filename1.REPAIR*. On completion of the REPAIR-DISK-FILES processing, this file is available for the user to make his own reconstruction attempts. If the new file name is too long, *filename1* will be correspondingly shortened.
- Since the recreation of an ISAM file involves the setting up of a copy of the file, which is within pubspace, the user must ensure that sufficient storage space is available.
- While recreating an NK-ISAM file it is assumed, that the file is damaged. Therefore the INDEX-STATISTICS counters for the copied file will be handled according to the system default.

Notes on INDEX-STATISTICS for NK-ISAM files

- If activated only blocks and free bytes of level 1 primary index blocks are counted. Level 1 Primary index blocks are all primary index blocks directly pointing to a data block.
- As the keys inside the index blocks contain compressed keys, the amount of keys per index blocks is not easily predictable. The user needs very deep understanding about which data is contained in the file, to know when further measures (e.g. reconstruction of the file) are sensible.

5.38 REPAIR-FILE-LOCKS

Remove unauthorized file locks

Component:	BS2000
Functional area:	File processingg
Domain:	FILE
Privileges:	STD-PROCESSING TSOS

Function

The owner of a file or the systems support staff (user ID TSOS) can remove an “unauthorized” file lock using the REPAIR-FILE-LOCKS command. This refers to file locks that are no longer required but that are not released automatically by the system for one of the following reasons:

- short connection failure in a network
- system error stopped the file lock from being removed

You can obtain information on the file locks currently in effect with the help of the SHOW-FILE-LOCKS command.

File access via RFA connections is not supported.

Format

REPAIR-FILE-LOCKS
FILE**-NAME** = <filename 1..54>

Operands

FILE-NAME = <filename 1..54>
Name of the file for which an unauthorized file lock is to be released. If the ACS software product is being used, the file name will be replaced according to the alias catalog.

Return code

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	DMS13EE	File not locked
	1	CMD0221	Syntax error in command
	32	DMS13EA	Internal system error
	64	CMD2203	Error in syntax file
	64	DMS0301	Catalog not available
	64	DMS13EB	RFA connections not supported
	64	DMS13E1	File access not allowed
	64	DMS13E2	No access authorization for pubset
	64	DMS13E3	User ID does not exist
	128	DMS13E0	Resource bottleneck

5.39 REQUEST-MAIN-CONSOLE-FUNCTIONS

Request change of main operator terminal

Component: BS2000

Functional area: Operator terminal control

Domain: not allocated

Privileges: OPERATING

Routing code: E

Function

This command allows operators to request that the operator terminal (console) on which the command is issued should be defined as the main operator terminal (console). If the request is granted on the current main operator terminal ('Y' or 'YES' entered when message NBR1085 is issued there), the operator terminal is changed.

The command is allowed on physical operator terminals only.
Moreover, it must **not** be issued

- from the current main operator terminal
- from teleservice

Format

REQUEST-MAIN-CONSOLE-FUNCTIONS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	NBR1081	Operator terminal is already main operator terminal. Command ignored
	2	CMD0198	Shutdown in progress
	64	CMD0216	User does not have required privilege
	64	NBR0200	Function not yet unavailable
	64	NBR1080	Command is reserved for physical operator terminals
	64	NBR1082	Command rejected by main operator terminal
	129	NBR1083	Command already being processed. Try again later
	130	NBR1084	Command rejected owing to memory or task saturation

Results

If the command is issued at a console, the following message appears on the main console:

```
NBR1085 ALLOW '(&00)' TO BECOME THE MAIN CONSOLE? REPLY (Y=YES; N=NO)
```

(&00) stands for the console on which the command was issued. This is the console which is to become the new main console.
If the message is answered in the affirmative, console (&00) is made the new main console, as indicated by the message

```
EXC0655 '(&00)' BECOMES MAIN CONSOLE
```

If the message is answered in the negative (any response other than 'Y' or 'YES'), the existing main console retains its function. The requested change is rejected. The following message is displayed on the console which requested the change:

```
NBR1082 '/REQUEST-MAIN-CONSOLE-FUNCTIONS' REJECTED BY MAIN CONSOLE
```

5.40 REQUEST-OPERATOR-ROLE

Request assignment of operator roles

Component:	BS2000
Functional area:	Operator function control
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

By issuing the REQUEST-OPERATOR-ROLE command you ask to have one or more “operator roles” assigned to your own operator terminal (console) or user ID. An operator role is a group of system operation duties and consists of a set of routing codes defined by a security officer (SYSPRIV user ID or SECURITY-ADMINISTRATION privilege). This set may be any combination of the 40 BS2000 routing codes.

An operator role can be requested by $CONSOLE applications with dynamic authorization names and by user tasks with the OPERATING privilege.
If the “Operator LOGON” function is used (incompatible mode; system parameter NBCONOPI=Y), an operator role can also be requested at a physical operator terminal. The request is granted only if the security officer has previously given the associated user ID permission to use the chosen operator role (MODIFY-OPERATOR-ATTRIBUTES command).

Once an operator role has been successfully assigned, the assignee is authorized to receive messages distributed via the operator role’s routing codes.
In a user task with the OPERATING privilege, successful assignment merely controls the receipt of these messages when a system event stream is displayed by the presentation function of the SHOW-SYSEVENT-LOG command, which can be issued irrespective of operator roles.

After successful assignment of an operator role, operator terminals and $CONSOLE applications with dynamic authorization names can issue all commands which are protected by the operator role’s routing codes. Only commands which are protected by the @ routing code may always be entered.

If the command is repeated, the new operator roles specified are added to the existing ones. This has the same effect as issuing the command once with a list of operator roles. Once the command has been executed successfully, all operator role assignments are displayed.

Refer also to the section dealing with simplifying system operation in the “Introduction to System Administration” [14].

Format

REQUEST**-OPER**ATOR**-ROLE**
OPERATOR**-ROLE** = list-poss(10): <name 1..8>

Operands

OPERATOR-ROLE = list-poss(10): <name 1..8>
All operator roles whose names are specified in the list are requested by the operator’s own user ID. A maximum of 10 operator roles can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	NBR0985	Command execution unnecessary
2	0	NBR0989	Not all specified roles could be assigned
	1	CMD0202	Syntax error
	32	NBR0983	Internal error on command server
	64	CMD0216	No authorization
	64	NBR0981	Command cannot be issued from operator terminal in compatible mode (NBCONOPI=N)
	64	NBR0982	Command issuer has no operator ID
	64	NBR0984	Operator role not permitted

5.41 RESET-DBL-DEFAULTS

Reset DBL call parameters to defaults

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING

Function

The RESET-DBL-DEFAULTS command resets parameters altered with the MODIFY-DBL-DEFAULTS command to their original DBL default settings.

Format

RESET-DBL-DEFAULTS
SCOPE = ***ALL** / ***CMD-CALLS** / ***PROG**RAM**-CALLS**

Operands

SCOPE =
Determines whether all or only some of the parameters are to be returned to their default settings.

SCOPE = *ALL
The settings that can be made with the command MODIFY-DBL-DEFAULTS SCOPE=*ALL(...) are reset to their default values.

Note

A RESET-DBL-DEFAULTS command with SCOPE=*ALL does not have the same effect as two RESET-DBL-DEFAULTS commands which are issued one after the other with SCOPE=*CMD-CALLS and SCOPE=*PROGRAM-CALLS.

SCOPE = *CMD-CALLS
Resets only those defaults which can be configured using MODIFY-DBL-DEFAULTS SCOPE=*CMD-CALLS(...).

SCOPE = *PROGRAM-CALLS
Resets only those defaults which can be configured using MODIFY-DBL-DEFAULTS SCOPE=*PROGRAM-CALLS (...).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	32	BLS0152	System error
	64	CMD0216	User is not authorized to issue the command

5.42 RESET-INPUT-DEFAULTS

Delete task-specific default values

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The RESET-INPUT-DEFAULTS command allows the user to delete task-specific default values. Within the task, default values can be defined for commands and statements. The user can either delete all default values or restrict deletion to default values of commands or of statements. If only defaults of commands/statements are to be deleted, deletion can be restricted to specific commands/statements.

The RESET-INPUT-DEFAULTS command can be applied to a task-specific default value with a particular input serial number. To facilitate this, the output of the SHOW-INPUT-DEFAULTS command can be requested with input serial numbers (operand INPUT-SERIAL-NUMBER=*YES).

In programs with an SDF interface, RESET-INPUT-DEFAULTS is available as a standard statement with the same functionality.

Format

RESET-INPUT-DEFAULTS Alias: **RSID**

```
OBJECT = *CMD (...) / *STMT(...) / *ALL / <integer 1..9999>

    *CMD(...)

        |    CMD = *ALL / <structured-name 1..30 with-wild(50)>

    *STMT(...)

        |    STMT = *ALL / <structured-name 1..30 with-wild(50)>

        |    ,PROGRAM = *CURRENT / *ALL / <structured-name 1..30>
```

Operands

OBJECT = *CMD(...) / *ALL / *STMT(...) / <integer 1..9999>
Specifies the type of input for which the task-specific default values are to be deleted.

OBJECT = *CMD(...)
Only the task-specific default values of commands are deleted. The defaults of all or only of selected commands can be deleted.

CMD = *ALL / <structured-name 1..30 with-wild(50)>
Specifies whether the task-specific default values of all commands or only of selected commands are to be deleted.

CMD = *ALL
All task-specific default values of commands are deleted.

CMD = <structured-name 1..30 with-wild(50)>
Name of the command whose task-specific default values are to be deleted. If wildcards are used, the defaults of all commands which match the search pattern entered will be deleted.

OBJECT = *STMT(...)
Only the task-specific default values of statements are deleted. The defaults of all or only of selected statements of a program can be deleted.

STMT = *ALL / <structured-name 1..30 with-wild(50)>
Specifies whether the task-specific default values of all statements or only of certain statements are to be deleted. In the PROGRAM operand, the user can specify whether the deletion is to apply to defaults of statements of a specific program or of all programs.

STMT= *ALL
All task-specific default values of statements are deleted.

STMT = <structured-name 1..30 with-wild(50)>
Name of the statement whose task-specific default values are to be deleted. If wildcards are used, the defaults of all statements which match the search pattern entered will be deleted.

PROGRAM = *CURRENT / *ALL / <structured-name 1..30>
Specifies the program for whose statements specified in the STMT operand the task-specific default values are to be deleted.

PROGRAM = *CURRENT
Only default values of statements of the program currently defined in the SDF options are deleted. The program name can be set using the MODIFY-SDF-OPTIONS command (DEFAULT-PROGRAM-NAME operand).

PROGRAM = *ALL
The default values of all statements are deleted, regardless of the program name.

PROGRAM = <structured-name 1..30>
Program name, defined in a currently assigned syntax file.
Only default values of statements of the specified program are deleted.

OBJECT = *ALL
All task-specific default values, i.e. from both commands and statements, are deleted.

OBJECT = <integer 1..9999>
Input serial number of the default value to be deleted.
The input serial number of a default value can be taken from the output of the SHOW-INPUT-DEFAULTS command (operand INPUT-SERIAL-NUMBER=*YES).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	0	CMD0001	No task-specific default value that matches the specifications exists. Guaranteed message: CMD0561
1	32	CMD0500	Syntax description in current syntax file invalid. Guaranteed message: CMD0500
1	64	CMD0561	Command execution not successful Guaranteed message: CMD0561

Example

```
/!print-doc line-spacing=*by-ebcdic ──────────────────────────────────  (1)
/!cre-file sup=*priv(vol=work01,dev-type=d3435) ──────────────────────  (2)
/!cre-file sup=*public ────────────────────────────────────────────────  (3)
/!cre-file basic-acl=*par(owner=(y,y,y,),group=(y,n,y),others=(y,n,y)) –  (4)

/show-input-defaults input-serial-number=*yes ────────────────────────  (5)
```

```
/"   1 :" !PRINT-DOC LINE-SPACING=*BY-EBCDIC-CONTROL
/"   2 :" !CRE-FILE SUPPORT=*PRIVATE-DISK(VOLUME=WORK01,DEVICE-TYPE=D3435)
/"   3 :" !CRE-FILE SUPPORT=*PUBLIC-DISK
/"   4 :" !CRE-FILE BASIC-ACL=*PARAMETERS(OWNER=*PARAMETERS(READ=*YES,
 WRITE=*YES,EXEC=*YES),GROUP=*PARAMETERS(READ=*YES,WRITE=*NO,EXEC=*YES),
 OTHERS=*PARAMETERS(READ=*YES,WRITE=*NO,EXEC=*YES))
```

```
/cre-file test.x.1,sup=*priv ──────────────────────────────────────────  (6)
/cre-file test.x.2
/show-file-attr test.x.,alloc=*yes
```

```
%00000003*:2OSG:$USERXY01.TEST.X.1
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WORK01       D3435
%  NUM-OF-EXT = 1
%00000009 :2OSG:$USERXY01.TEST.X.2
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OSG.1       D3435
%  NUM-OF-EXT = 1
%:2OSG: PUBLIC:      1 FILE  RES=        9  FREE=        9  REL=        9 PAGES
%:2OSG: PRDISC:      1 FILE  RES=        3  FREE=        3  REL=        0 PAGES
```

```
/reset-input-defaults 2 ──────────────────────────────────────────────  (7)
/reset-input-defaults *cmd(cmd=create-file) ──────────────────────────  (8)

/show-input-defaults ─────────────────────────────────────────────────  (9)
```

```
/!PRINT-DOC LINE-SPACING=*BY-EBCDIC-CONTROL
```

(1) Evaluation of EBCDIC print control characters is set as the default value for the PRINT-DOCUMENT command. The LINE-SPACING operand is specified without a structure-initiator because in the syntax file *TEXT-FORMAT the default value of the operand is DOCUMENT-FORMAT.

(2) The private disk *WORK01* of device type *D3435* is set as the default value for the CREATE-FILE command. In this case, the structure-initiator must be specified, because the VSN and the device type refer to a private disk. To create a file on a public disk, SUPPORT=*PUBLIC must now be specified (see item 6).

(3) Public disks are again set as the default for the CREATE-FILE command; but to create a file on the private disk *WORK01*, it is sufficient to specify SUPPORT=*PRIVAT.

(4) For the CREATE-FILE command, the value set by default is a BASIC-ACL, which grants all access rights only to the owner, but allows the other users to read and execute the file. The protection attribute is set accordingly if the higher-ranking structure is activated with PROTECTION=*PARAMETERS.

(5) All task-specific default values are output with their input serial numbers.

(6) The file *TEST.X.1* that was created with CREATE-FILE and SUPPORT=*PRIVATE-DISK on the private disk *WORK01*, the file *TEST.X.2* was created without SUPPORT on a public disk.

(7) The definition with the input serial number 2 is deleted. In this case this is the definition with CREATE-FILE for the private disk.

(8) All definitions for the CREATE-FILE command are deleted.

(9) The output of the task-specific default values now shows only the definition for the PRINT-DOCUMENT command.

5.43 RESET-MSG-BUFFER

Suppress messages directed to console

Component:	BS2000
Functional area:	Operator terminal control Message processing
Domain:	not allocated
Privileges:	OPERATING
Routing code:	@

Function

The command allows operators to suppress messages which are directed to a physical console (operator terminal) and are already queued for output. It is possible to suppress all messages or only those originating from a particular task.

Response messages and command termination messages cannot be suppressed.

The command operates only on messages which are currently queued for output. Messages generated subsequently are not suppressed.

Format

RESET-MSG-BUFFER
SENDER = ***ANY** / <alphanum-name 1..4>

Operands

SENDER =
Designates the source of the messages that are to be suppressed.

SENDER = *ANY
All messages directed to the console are to be suppressed.

SENDER = <alphanum-name 1..4>
Only messages originating from a specific task are to be suppressed.
The task is identified by its TSN.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	1	CMD0202	Syntax error in command
	2	CMD0198	Shutdown in progress
	64	CMD0216	User does not have required privilege
	64	NBR0200	Command temporarily unavailable
2	64	NBR0898	Input from user task not permitted
	64	NBR1080	Command is reserved for physical consoles

5.44 RESET-MSG-SUPPRESSION

Cancel message suppression

Component:	BS2000
Functional area:	Operator terminal control Message processing
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

This command cancels an arrangement made with the SET-MSG-SUPPRESSION command to suppress output of certain messages to operator terminals (consoles) or authorized user programs.

If the “Operator LOGON” function is used (system parameter NBCONOPI=Y), only the values *NO and *OWN are allowed for the CONSOLE-UNIT and APPLICATION-NAME operands, which means that the command cannot be issued for other operator terminals or authorized user programs.

If the “Operator LOGON” function is not used (compatible mode), the operator can issue the command at the main operator terminal with reference to other operator terminals or authorized user programs as well.

In a user task with OPERATING privilege, the command applies only when reading from the event stream of the user’s own task. In this case only the value *NO is permissible for the CONSOLE-UNIT and APPLICATION-NAME operands.

The operator can use the SHOW-MSG-SUPPRESSION command to display a list of current message suppression arrangements.

Format

RESET-MSG-SUPPRESSION

MSG-ID = ***ALL** / list-poss(12): <alphanum-name 7..7>

,**CONSOLE-UNIT** = ***NO** / ***OWN** / ***ALL** / list-poss(20): <name 2..2>

,**APPLI**CATION**-NAME** = ***NO** / ***OWN** / ***ALL** / list-poss(20): <name 4..4>

Operands

MSG-ID =
Specifies the message numbers which are to be output again on the operator terminal.

MSG-ID = *ALL
All suppressed messages can now be displayed again on the specified operator terminals.

MSG-ID = list-poss(12): <alphanum-name 7..7>
Specifies a seven-digit message number or a list of message numbers identifying messages which can now be output again on the operator terminal.

CONSOLE-UNIT =
Specifies the mnemonic device name of the operator terminal on which the specified messages can now be displayed again.

CONSOLE-UNIT = *NO
The existing definition for the operator terminals is retained. However, when input is from an operator terminal, the change becomes effective for the operator terminal where the input is made.

CONSOLE-UNIT = *OWN
This operand value is only possible when input is made at an operator terminal.
Message suppression is to be canceled for the operator terminal where the command input is made.

CONSOLE-UNIT = *ALL
Message suppression is to be canceled for all operator terminals.
This operand may only be used in the mode without operator LOGON at the main operator terminal.

CONSOLE-UNIT = list-poss(20): <name 2..2>
Mnemonic device name of the main or standby operator terminal at which the specified messages are allowed to be displayed again.
In this operand remote consoles may only be specified in the mode without operator LOGON from the main operator terminal.

APPLICATION-NAME =
Specifies the authorized user program for which message suppression is to be canceled.

APPLICATION-NAME = *NO
The existing definition for the authorized user programs is retained. However, when input is from an authorized user program, the change becomes effective for this user program.

APPLICATION-NAME = *OWN
This operand value is only permissible when input is from an authorized user program.
Message suppression is canceled for the authorized user program in which the command was issued.

APPLICATION-NAME = *ALL
Message suppression is canceled for all known authorized user programs.

This operand may only be used in the mode without operator LOGON at the main console.

APPLICATION-NAME = list-poss(20): <name 4..4>
Name of the authorized user program (4 alphanumeric characters) for which suppression of the specified messages is to be canceled.
Remote authorized user programs may only be specified in the mode without operator LOGON from the main operator terminal.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
1	0	NBR0874	Message not suppressed on the operator terminal or in the case of an authorized user program
2	0	NBR0884	Command partially executed
	1	CMD0202	Syntax error
	32	NBR0007	OPR task anchor not accessible
	64	NBR0200	Command not available
	64	NBR0865	Authorized application not found
	64	NBR0866	Operator terminal not found
	64	NBR0869	No message suppressed in the system
	64	NBR0883	Can only be issued from main operator terminal in this form
	64	NBR0870	No message
	130	NBR0877	Message suppression table locked

5.45 RESTART-PROGRAM

Start program from checkpoint (restart)

Component:	CPR
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The RESTART-PROGRAM command causes a program to be restarted at a recorded checkpoint. The program is loaded with the status it had when the checkpoint was written; files, volumes, and devices must be available. The RESTART-PROGRAM command can be used in interactive or batch mode. The checkpoint can be written, for example, using the Assembler macro WRCPT.
The tape devices linked to the program at the time the checkpoint was written are assigned, and the tapes are positioned to the appropriate blocks.

If the program writing the checkpoint is called in a procedure, the behavior of RESTART-PROGRAM is governed by whether the checkpoint was written in interactive mode or in batch mode. In interactive mode, both the program and the procedure itself are restarted. A procedure called with ENTER-PROCEDURE cannot be restarted, because the copy of the procedure is no longer available (see ENTER-PROCEDURE command, “Method of operation”. In this case the RESTART-PROGRAM command is not executed).

Format

RESTART-**PROG**RAM

FILE-**NAME** = <filename 1..54 without-gen>

,FILE-**CHA**NGE = ***NOT-ALLOW**ED / ***ALLOW**ED

,**DUMMY-F**ILES = ***NONE** / list-poss(2000): <partial-filename 2..53> / <filename 1..54 without-gen>

,**LOOSE-DEBUG**GING = ***NO** / ***Y**ES

,**REST**ART-**OPT**IONS = ***START-PROG**RAM(...) / ***LOAD-ONLY**(...)

***START-PROG**RAM(...)

| **CHECKP**OINT = ***LAST** / ***NAME**(...) / ***NUM**BER(...) / ***VOL**UME-**SEQ**UENCE(...)

| ***NAME**(...)

| | **NAME** = <name 1..6>

| ***NUM**BER(...)

| | **NUM**BER = <integer 1..16777215>

| ***VOL**UME-**SEQ**UENCE(...)

| | **VOL-SEQ**UENCE-**NUM**BER = ***LAST** / <integer 1..255>

| ,**MONJV** = ***NONE** / <filename 1..54 without-gen-vers>

***LOAD-ONLY**(...)

| **CHECKP**OINT = ***LAST** / ***NAME**(...) / ***NUM**BER(...)

| ***NAME**(...)

| | **NAME** = <name 1..6>

| ***NUM**BER(...)

| | **NUM**BER = <integer 1..16777215>

,**RECON**STRUCTION-**LIMIT** = ***NO** / <integer 1..255>

Operands

FILE-NAME = <filename 1..54 without-gen>
The file name specified by FILE-NAME is the name of the checkpoint file created when the checkpoint was written, and which contains the program to be loaded. The file must be available locally.

FILE-CHANGE = *NOT-ALLOWED / *ALLOWED
DMS will check the file names, encoded internally by the system (CFID), of the required files. The user can specify whether the restart is to be aborted if any of these names has been changed since the checkpoint file was created.

FILE-CHANGE = *NOT-ALLOWED
DMS will check the file names, encoded internally by the system (CFID), of the files required for the restart. If any of these names has changed since the checkpoint file was created the restart will be aborted.

FILE-CHANGE = *ALLOWED
Changes to the CFID will be ignored.

DUMMY-FILES = *NONE / list-poss(2000): <partial-filename 2..53> / <filename 1..54 without-gen>
The user files listed here will be treated as DUMMY files, i.e. they do not need to be available for the restart (see also the FILE-NAME=*DUMMY operand in the ADD-FILE-LINK command). A maximum of 255 files are permitted. The logical system files (SYSLST etc.) cannot be declared as dummy files. A user files may only be declared as a DUMMY file if RECONSTRUCTION-LIMIT=*NO was *not* specified.

LOOSE-DEBUGGING = *NO / *YES
Specifies whether it is permissible to deconstruct the debugging context of the calling task when the program is restarted.

LOOSE-DEBUGGING = *NO
If the calling task has a debugging context, it should be retained. The RESTART-PROGRAM command is rejected with message EXC030B if the AID debugger was being used in the calling task before the command was issued.

LOOSE-DEBUGGING = *YES
If the calling task has a debugging context, it may be deconstructed. The RESTART-PROGRAM command is executed even if the AID debugger was being used in the calling task before the restart; but any breakpoints set with AID will no longer be available after the restart.

RESTART-OPTIONS= *START-PROGRAM(...) / *LOAD-ONLY(...)
Specifies whether the program is to be started or only loaded.

RESTART-OPTIONS = *START-PROGRAM(...)
The program is to be started (see START-EXECUTABLE-PROGRAM command).

CHECKPOINT= *LAST / *NAME(...) / *NUMBER(...) / *VOLUME-SEQUENCE(...)
The type of the checkpoint identifier.

CHECKPOINT = *LAST
The program is to be started from the last checkpoint.

CHECKPOINT = *NAME(...)
Checkpoint identification is based on the checkpoint name.

NAME = <name 1..6>
Only for disk files: <name> is a six-byte code which identifies the checkpoint on which the command will base the program restart. This code is output on SYSOUT together with a PAM page number (see CHECKPOINT=*NUMBER) when the checkpoint is written.
If a user file has more than one checkpoint with identical codes, then <name> designates the last one which was written. Any previous checkpoint can then only be selected by specifying CHECK-POINT=*NUMBER.

CHECKPOINT = *NUMBER(...)
Checkpoint identification is based on the checkpoint number.

NUMBER = <integer 1..16777215>
The number of the PAM page on which the checkpoint begins; this number is output to SYSOUT when the checkpoint is written.

<number> must be specified if the program is to be started from a checkpoint other than the last one (see CHECKPOINT=*NAME).

CHECKPOINT = *VOLUME-SEQUENCE(...)
Checkpoint identification is based on the file section number.

VOL-SEQUENCE-NUMBER = *LAST / <integer 1..255>
Only for tape files with standard labels which have been cataloged with FILE-SEQUENCE=1: designates the file section at which the restart is to begin.

VOL-SEQUENCE-NUMBER = *LAST
The restart is to begin at the last file section.

VOL-SEQUENCE-NUMBER = <integer 1..255>
The restart is to begin at the specified file section number.
For an explanation of “file section number” and “file sequence number” see the “Introductory Guide to DMS” [13] or the START-POSITION and FILE-SEQUENCE operands in the ADD-FILE-LINK command.

MONJV = *NONE / <filename 1..54 without-gen-vers>

Specifies the name of a job variable which will monitor the restarted program.
During program execution, the operating system sets the job variable to the values $R, $T or $A, corresponding to the program status so that the user can query the program status at any time by inspecting this job variable.

$R The program is running

$T The program has finished

$A The program has terminated abnormally

Further details can be found in the “Job Variables” manual [20].

RESTART-OPTIONS = *LOAD-ONLY(...)
The program will only be loaded, not started (see LOAD-EXECUTABLE-PROGRAM command).

CHECKPOINT =
The type of the checkpoint identifier.

CHECKPOINT = *LAST
The program is to be started from the last checkpoint.

CHECKPOINT = *NAME(...)
Only for disk files:
The program is restarted at the checkpoint with the ID specified in the associated NAME operand.

NAME = <name 1..6>
Designates a six-byte code which identifies the checkpoint on which the RESTART-PROGRAM command will base the program restart. This code is output together with a PAM page number (see CHECKPOINT=*NUMBER(...)) when the checkpoint is written.
If a user file has more than one checkpoint with identical codes, then <name> designates the last one which was written. Any previous checkpoint can then only be selected by specifying CHECKPOINT=*NUMBER(...).

CHECKPOINT = *NUMBER(...)
The program is restarted at the checkpoint which begins on the PAM page specified in this NUMBER operand.

NUMBER = <integer 1..16777215>
The number of the PAM page on which the checkpoint begins; this number is output to SYSOUT when the checkpoint is written. <number> must be specified if the program is to be started from a checkpoint other than the last one (see CHECKPOINT=*NAME).

RECONSTRUCTION-LIMIT = *NO / <integer 1..255>
Only for tape files: Specifies the number of file sections to be reconstructed.
This operand permits the program to be restarted from a given checkpoint and to continue until the specified number of checkpoints has been passed. The checkpoint identifying codes are inserted again.

RECONSTRUCTION-LIMIT = *NO
No limit is being set for the number of file sections to reconstruct.

RECONSTRUCTION-LIMIT = <integer 1..255>
Allows the user to specify the number of file sections to be repaired.

Return codes

The RESTART-PROGRAM command is rejected by SDF within a procedure. But this is the only case in which the return code can also be evaluated. The general SDF return codes are described in section "Return codes".

Notes

- The job causing a restart requests the same storage that was allocated to the interrupted job when the checkpoint was written. Also, this job determines whether the restarted job runs in interactive or noninteractive mode. Files open at the time of the checkpoint are opened when the program is restarted. The user is responsible for consistency. EAM files are not reconstructed.
- If file generations are affected by a checkpoint, the user should not change the base value, since the RESTART-PROGRAM command ignores any updates made to the file generation group between the checkpoint time and the restart time and uses the status which existed when the checkpoint was written. It is therefore advisable not to modify file generations used in a checkpoint before the RESTART-PROGRAM is executed.
- The RESTART-PROGRAM command may be used only if the system files SYSDTA, SYSCMD, SYSIPT, SYSLST and SYSOUT have their primary assignments.
- The WRCPT macro must have been issued under the same version of the BS2000 operating system and with the same version of SDF as the RESTART-PROGRAM command. Otherwise, the user receives an error message.
- After RESTART-PROGRAM the syntax file environment is reconstructed in the same way as when writing checkpoints, with the exception of the system syntax files (base system and subsystem syntax files), where the current assignment for the job continues to apply (this cannot be influenced by the user).
- If tape files are affected by a checkpoint, the checkpoint data contains the necessary information to permit the system to position the tapes to the appropriate block.
- The RESTART-PROGRAM command must not be issued in the following two cases:
  - If all assignments of system files (i.e. all opened procedures) that were saved in interactive mode through the WRCPT macro contain one or more procedures in interrupted status, the RESTART-PROGRAM command must not be used in batch mode.

- If all ASSIGN-... assignments that were saved in batch mode by the WRCPT macro contain one or more assignments of SYSOUT to a cataloged file, the RESTART-PROGRAM command must not be used in interactive mode.

In either case, an error message is output and the job is aborted.

- While a CJC command sequence is active, no checkpoints can be written and no restart implemented.
- In the event of a class 5 memory shortage, restart processing is terminated with an error message.
- The maximum lifetime for a temporary file is until the end of the task. The user must therefore either reconstruct temporary files before issuing the RESTART-PROGRAM command, or must declare them as dummy files (in the FCB or in the ADD-FILE-LINK command, or with the DUMMY-FILES operand of the RESTART-PROGRAM command).

  If during checkpoint writing it is determined that temporary files are being used, subcode 2 in the standard header is set to X’44’ to warn the user, because branches to the checkpoint written are possible only to a limited extent due to the limited lifetime of the temporary files. In addition, a warning is sent to SYSOUT (EXC0302). During execution of the RESTART-PROGRAM command, the system checks each temporary file in the checkpoint task to see whether it has been declared as a DUMMY file or whether the user has created a temporary file of the same name (and with the same file attributes) in the RESTART-PROGRAM task. If not, the error message “Temporary file not found” is issued. CHECKPOINT/RESTART-PROGRAM cannot be used to extend the lifetime of a temporary file.
- After a restart, the task can access only its own temporary files. Access to temporary files of the checkpoint task is thus possible only if the checkpoint task and the restart task are identical.
- All EAM files of the job are deleted.
- If the event “SVC interrupt” was active at the time of the checkpoint, is inactive after RESTART-PROGRAM and must be activated again by calling the STXIT macro.
- If, due to lack of space, the system file SYSLST has been moved from disk to tape in the period between the checkpoint and the restart, an initialized disk file must be made available for SYSLST before the RESTART-PROGRAM command is entered.

Return codes/messages

If processing of the RESTART-PROGRAM command is aborted with the following message:

```
EXC0305 I/O ERROR '(&00)' IN /RESTART-PROGRAM COMMAND. JOB STEP TERMINATED.
REENTER COMMAND
```

the insert contains the following additional information in the form of the return code (hexadecimal):

Insert	Meaning
0C	Device cannot be reserved
04	$REQM error
08	Catalog error (e.g. file not cataloged)
1C	VSN cannot be assigned, or error when reopening an ISAM file
10	A file has been opened as shareable
14	No extension for slot segment available or the slots could not be re-linked
18	An error occurred when writing the checkpoint file or 'T' has been entered in response to the previous message DMS0DEE
2C	Error when reopening a SAM file
20	Error in FCB
24	Number of tape devices for a file is smaller than that at the time of the checkpoint
28	Error in task-specific tables
30	Pubset on which a user file resides cannot be requested
34	A file no longer exists or a temporary file does not have the format name of a temporary file

Table 84: Return codes when restarting a program (RESTART-PROGRAM command)

Program monitoring (see also the “Job Variables” manual [20])

The status indicator in the job variable monitoring the program is set to “R” at the time the program is restarted.

If the JV cannot be accessed at the time the command is processed, an error message is issued to SYSOUT and processing is continued.

Example

The checkpoint with the identifier FIX003 in the checkpoint file FPT.FILE is to be restarted. The file OUT.FILE is to be treated as a DUMMY file after the restart.

```
/rest-prog f-name=fpt.file,
           dummy-files=out.file,
           rest-opt=*start-prog(checkpoint=*name(fix003))
```

The third tape of a volume set has been destroyed. It is to be reconstructed using the RESTART-PROGRAM command, starting at the previous checkpoint:

```
/restart-prog f-name=tape.save,
              check-point=*vol-seq(vol-seq=2),reconstruct=1
```

The program is terminated after the first checkpoint has been written. The catalog is not updated.

5.46 RESTORE-FILE-FROM-SNAPSET

Restore files on the basis of a Snapset

Component:	BS2000
Functional area:	File processing
Domain:	FILE SNAPSET
Privileges:	STD-PROCESSING TSOS

Function

The RESTORE-FILE-FROM-SNAPSET command restores files of a pubset from a pubset copy which was created on an associated Snapset. During the restore operation, single files are copied from the Snapsets onto the active pubset. The process is comparable to an HSMS restore from a backup archive.

The Snapset operand enables a specific backup status (the default is the latest Snapset backup) to be specified, or the user can specify that each file should be restored from the Snapset with the latest file status. Before restoration takes place, the user can issue the LIST-FILE-FROM-SNAPSET command to obtain information on files which were saved to a Snapset.

All file attributes of a restored file are taken over from the original file unchanged (including the creation date, date of modification and the protection attributes). Only the allocation may differ from the original file, even in the case of files with physical allocation. Files on SM pubsets are restored to the “most suitable” volume set. This need not be the original volume set.

Individual file generations can only be restored with the entire file generation group. Files on private disk or on Net-Storage are ignored. In the case of migrated files and tape files, only the catalog entries are restored (without checking the availability of the associated tapes). When renaming takes place, these files are also ignored.

Nonprivileged users can only restore a file of a foreign user if they are the co-owner. In this case, they can also restore a file of their own under the foreign user ID.

Overwriting by the restore must be explicitly permitted for existing files (REPLACE operand). For files which are protected against unauthorized overwriting by means of a password, the required password must be entered into the caller’s password table (see ADD-PASSWORD).

Files can also be restored under a new name (NEW-FILE-NAME operand). They are renamed by specifying either another user ID or a file name prefix.

Optionally, files which were open in write mode at the time the Snapset was created can be restored (RESTORE-OPEN-FILES operand). A file restored in this way has the same status as after a system crash. It may be necessary to call the REPAIR-DISK-FILE command for ISAM files. Files with the ONLINE-SAVE attribute which are opened in write mode are restored regardless of this option.

If required, the caller can have a log of restore processing output to SYSOUT or SYSLST (OUTPUT operand). This log can cover either all files or only the files which, for particular reasons, could not be restored (REPORTING operand).

The Snapsets are temporarily not available if the SHC-OSD subsystem was not active when the pubset was imported. In this case the command is aborted with DMS0622. As soon as SHC-OSD is active, the Snapsets are subsequently activated when the SHOW-SNAPSET-CONFIGURATION command is called.

File restoration is not an explicit SAT event. The SECOS component SAT can only log the DELETE-FILE (for overwriting) and CREATE-FILE calls which are used internally.

Privileged functions

Systems support (TSOS privilege), as co-owner, can restore a file under its original user ID or under a foreign user ID.

When a file which still exists is overwritten, systems support can explicitly bypass the file protection by means of the IGNORE-PROTECTION operand.

Format

RESTORE-FILE-FROM-SNAPSET

FILE-NAME = <filename 1..54 without-gen with-wild(80)>

,SNAPSET = ***LATEST** / ***ALL** / <name 1..1 with-low> /<integer -52..-1> / ***INTERVAL**(...)

***INTERVAL**(...)

| OLDEST = ***-52** / <integer -52..-1>

| ,NEWEST = ***-1** / <integer -52..-1>

,REPLACE = ***NO** / ***YES**(...)

***YES**(...)

| IGNORE-PROTECTION = ***NO** / ***YES**

,NEW-FILE-NAME = ***SAME** / ***BY-USER-ID**(...) / ***BY-PREFIX**(...)

***BY-USER-ID**(...)

| NEW-USER-ID = ***SAME** / <name 1..8>

***BY-PREFIX**(...)

| NEW-PREFIX = ***NONE** / <filename 1..8 without-cat-gen-user-vers>

,RESTORE-OPEN-FILES = ***NO** / ***YES**

,REPORTING = ***ERROR** / ***FULL**

,OUTPUT = ***NONE** / list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

FILE-NAME = <filename 1..54 without-gen with-wild(80)>
Selects the files which are to be restored. The files must satisfy the following requirements:

- They must have been cataloged when the Snapset is created.
- The pubset on which they are cataloged must be imported locally.
- They may not reside on private disk or on a Net-Storage volume.

The catalog and user IDs specified must be unique (i.e. contain no wildcards). Aliases (also partially-qualified aliases) may be specified. The name of a file generation group may be specified (individual file generations can only be restored within the group).

SNAPSET = *LATEST / *ALL / <name 1..1 with-low> / <integer -52..-1> / *INTERVAL(...)
Specifies the Snapset from which the files are to be restored. Information about all existing Snapsets for a pubset can be obtained using the SHOW-SNAPSET-CONFIGURATION command.

SNAPSET = *LATEST
The files are to be restored from the latest Snapset (i.e. from the most up-to-date pubset backup).

SNAPSET = *ALL
All Snapsets of the pubset concerned are used as a basis for restoration. Each file is restored from the Snapset with the latest file status, in other words with the latest backup of the file.

SNAPSET = <name 1..1 with-low>
Specifies a particular Snapset explicitly by means of the Snapset ID. The maximum of 52 pubsets are distinguished by means of Snapset IDs specified which comprise letters from the 26 lowercase letters a to z and the 26 uppercase letters A to Z.

SNAPSET = <integer -52..-1>
Specifies a particular Snapset explicitly by means of the relative age. The value -1 specifies the latest Snapset.

SNAPSET = *INTERVAL(...)
Restoration takes place as with SNAPSET=*ALL. However, only Snapsets which lie in the specified age range are used as a basis:

> **OLDEST = -52 / <integer -52..-1>**
> Specifies the oldest Snapset; the range begins with this Snapset.
>
> **NEWEST = -1 / <integer -52..-1>**
> Specifies the newest Snapset; the range ends with this Snapset.

REPLACE = *NO / *YES(...)
Specifies whether the files to be restored may overwrite existing files.

REPLACE = *NO
Existing files are not overwritten. This means that files with the names of existing files are not restored.

REPLACE = *YES(...)
Existing files may be overwritten by files which are to be restored provided the protection attributes permit this. For files which are protected against unauthorized overwriting by means of a password, the required password must be entered into the caller’s password table (see the ADD-PASSWORD command).

IGNORE-PROTECTION = *NO / *YES

This operand is only available to privileged users (TSOS privilege).

Specifies whether files are to be overwritten without taking into account any write protection which exists.

NEW-FILE-NAME = *SAME / *BY-USER-ID(...) / *BY-PREFIX(...)

Specifies whether the files are to be renamed when they are restored. When they are renamed, either a different ID or a file name prefix can be specified.

NEW-FILE-NAME = *SAME

Each file is restored under the name of the original file.

NEW-FILE-NAME = *BY-USER-ID(...)

Each file is to be restored under the user ID specified.

Only the co-owner (or TSOS) is able to restore the file under a user ID other than the original one.

NEW-USER-ID = *SAME / <name 1..8>

New user ID. The default is *SAME, i.e. the user ID of the original file is retained.

NEW-FILE-NAME = *BY-PREFIX(...)

Each file is to be restored under a new name. The name consists of the specified prefix and the original name, separated by a period.

NEW-PREFIX = *NONE / <filename 1..8 without-cat-gen-user-vers>

File name prefix (up to 8 characters). The default is *NONE, i.e. the original file name is retained.

RESTORE-OPEN-FILES = *NO / *YES

Specifies whether files which were open in write mode when they were saved to the Snapset and for which the ONLINE-SAVE file attribute was not set are also to be saved.

RESTORE-OPEN-FILES = *NO

These files are not restored.

RESTORE-OPEN-FILES = *YES

These files are restored. The consistency is the same as after a system crash (write accesses in the correct order). ISAM files may need to be verified (REPAIR-DISK-FILE command).

REPORTING = *ERROR / *FULL

Determines the scope of the log if a processing log was requested in the OUTPUT operand.

REPORTING = *ERROR

Only files which could not be restored are listed. The reason is displayed by means of a message code.

REPORTING = *FULL

All files are listed. For files which could not be restored, the reason is displayed by means of a message code.

OUTPUT = *NONE / list-poss(2): *SYSOUT / *SYSLST

Specifies whether a processing log is to be output to SYSOUT and/or SYSLST. The default is *NONE, i.e. no log is output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMD0202	Syntactical or semantic error in the command
	32	DMS0584	A status occurred which prevents processing from continuing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0102	Command aborted after interruption with K2
	64	CMD0216	Required authorization not available
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	Specified file not shareable
	64	DMS057F	Migrated file cannot be renamed
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS05FC	Specified user ID not in home pubset
	64	DMS0610	Action with wildcards: Error executing a function for one of the selected file names
	64	DMS0616	Volume set in SM pubset cannot be accessed
	64	DMS0620	No restorable file found
	64	DMS0621	File already cataloged, restoration not performed
	64	DMS0622	Snapset not available
	64	DMS0681	DMS error when executing job
	64	DMS0684	File does not exist
	64	DMS06CC	No file name matches the specified wildcards
	130	DMS053C	No space in the pubset’s catalog
	130	DMS0582	The file is currently locked or in use and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0588	The disk storage assignment could not be executed

	130	DMS0594	Not enough virtual memory available
	64	DMS0616	Volume set not accessible in SM pubset
	64	DMS0620	No restorable file found
	64	DMS0621	File already cataloged, restoration not performed
	64	DMS0622	Snapset not available

Examples

The two examples below show Snapset use from the viewpoint of a nonprivileged user.

Example 1: Restoring deleted files

On 21 December 2011 the nonprivileged user is working in interactive mode under the user ID ARCHIVE8 and with the default pubset 2OS6.

/show-file-attr d* ——————————————————————————————— (1)

```
%         3 :2OS6:$ARCHIVE8.DO.ERASE.ARCHIVE.8.0A.ST5385
%         3 :2OS6:$ARCHIVE8.DO.ERASE.ARCHIVE.8.0A.ST5406
```

/show-snapset-conf ——————————————————————————————— (2)

```
% PUBSET = 2OS6 , SAVE-POOL-NAME = *DEFAULT-POOL, REMOTE-COPY = *NO
% SNAP-ID CREATION-DATE/TIME  SESSION-ID  SNAP-ID CREATION-DATE/TIME  SESSION-ID
%  -1  g  2011-12-20 18:00:45  87C968B6    -2  f  2011-12-20 12:00:43  86C968B6
%  -3  e  2011-12-19 18:00:50  85C968B6    -4  d  2011-12-19 12:00:46  84C968B6
%  -5  c  2011-12-18 18:00:47  83C968B6    -6  b  2011-12-18 12:00:47  82C968B6
%  -7  a  2011-12-15 18:00:49  81C968B6    -8  z  2011-12-15 12:01:18  A9C968B6
%  -9  y  2011-12-14 18:01:01  A8C968B6   -10  x  2011-12-14 12:01:03  A7C968B6
% -11  w  2011-12-13 18:00:44  A6C968B6   -12  v  2011-12-13 12:00:46  A5C968B6
% -13  u  2011-12-12 18:00:46  A4C968B6   -14  t  2011-12-12 12:00:48  A3C968B6
% -15  s  2011-12-11 18:00:46  A2C968B6
```

/rest-file-from-snapset f-name=du.,snapset=*all,
report=*full,output=*sysout ——————————————— (3)

```
%:2OS6:$ARCHIVE8.DU.BIND.FAR                                    RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.CG.DIRCONV                                  RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.COMP.ALL                                    RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.COMP.REST                                   RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.COMP.ST                                     RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.COMP.ST.ASS                                 RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.SYSRME.E                                    RESTORED FROM f
%:2OS6:$ARCHIVE8.DU.TF.LIB                                      RESTORED FROM f
                                                  ————————————————————————— (4)
```

/show-file-attr du.tf.lib,inf=*par(history=*yes) ——————————————————— (5)

```
%0000000030 :2OS6:$ARCHIVE8.DU.TF.LIB
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2012-12-20  ACC-DATE   = 2012-12-20  CHANG-DATE = 2012-12-20
%  CRE-TIME   =   09:55:04  ACC-TIME   =   09:55:04  CHANG-TIME =   09:55:04
%  ACC-COUNT  = 211         S-ALLO-NUM = 0
%:2OS6: PUBLIC:      1 FILE  RES=        30 FRE=        5 REL=        3 PAGES
```

(1) The user has all files listed whose names begin with “D”, and in doing so notices that no file with the prefix “DU” exists. As the files were still there a week ago, somebody must have accidentally deleted them!

(2) The SHOW-SNAPSET-CONFIGURATION command provides information on all the available Snapset backups of the pubset 2OS6: There are 15 Snapsets with backups from 12:00 and 18:00 hours on the days concerned. The oldest backup was made at 18:00 on 11 December.

(3) As the user does not know exactly when the missing files were deleted, he/she specifies SNAPSET=*ALL in order to restore each of the files from the latest Snapset.

(4) As all the files were restored from Snapset f, they must have been deleted between 18:00 on 19 December and 12:00 on 20 December. The restored files contain the original time stamps, just as if they had not been deleted.

(5) The user checks the time stamps in the catalog entry of the last file.

Example 2: Resetting the processing state of a file

Under the user ID ARCHIV8B (with the same standard pubset), the user now wants to reset the processing state of the M.SS.ARCHIVE.V08.0B03.SRCLIB file because (faulty) changes were made in the past few days. The user checks the backed-up file statuses as follows:

/list-file-from-snapset f-name=sm.ss.archive.v08.0b03.srclib,
inf=*all,snapset=*all ——————————————————————————————— (1)

```
%---------------------------SNAPSET g-------------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-20 10:42:12  STATE=CLOSED
%---------------------------SNAPSET f-------------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-20 10:42:12  STATE=CLOSED
%---------------------------SNAPSET e-------------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-19 14:16:25  STATE=CLOSED
%---------------------------SNAPSET d-------------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-14 13:36:19  STATE=CLOSED
%---------------------------SNAPSET c-------------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-14 13:36:19  STATE=CLOSED
%---------------------------SNAPSET b-------------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-14 13:36:19  STATE=CLOSED
%---------------------------SNAPSET a-------------------------------------%
```

```
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-14 13:36:19  STATE=CLOSED
%---------------------------SNAPSET z-----------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-14 13:36:19  STATE=CLOSED
%---------------------------SNAPSET y-----------------------------------%
      6906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  CRE-DATE=2012-12-14 13:35:49  CHANG-DATE=2012-12-14 13:36:19  STATE=CLOSED
%---------------------------SNAPSET x-----------------------------------%
 DMS0684 FILE ':2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB' DOES NOT EXIST
%---------------------------SNAPSET w-----------------------------------%
 DMS0684 FILE ':2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB' DOES NOT EXIST
%---------------------------SNAPSET v-----------------------------------%
 DMS0684 FILE ':2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB' DOES NOT EXIST
%---------------------------SNAPSET u-----------------------------------%
 DMS0684 FILE ':2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB' DOES NOT EXIST
%---------------------------SNAPSET t-----------------------------------%
 DMS0684 FILE ':2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB' DOES NOT EXIST
%---------------------------SNAPSET s-----------------------------------%
 DMS0684 FILE ':2OS6:$ARCHIV8B.SM.SS.ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB' DOES NOT EXIST
```

/rest-file-from-snapset f-name=sm.ss.archive.v08.0b03.srclib,
snapset=d,replace=*yes ——————————————————————— (2)

/show-file-attr sm.ss.archive.v08.0b03.srclib,inf=*par(history=*yes) —— (3)

```
%0000006906 :2OS6:$ARCHIV8B.SM.SS.ARCHIVE.V08.0B03.SRCLIB
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2006-12-14  ACC-DATE   = 2006-12-14  CHANG-DATE = 2006-12-14
%  CRE-TIME   =   13:35:49  ACC-TIME   =   15:37:29  CHANG-TIME =   13:36:19
%  ACC-COUNT  = 2           S-ALLO-NUM = 0
%:2OS6: PUBLIC:      1 FILE  RES=      6906 FRE=      651 REL=      651 PAGES
```

(1) The user displays information about the backed-up file statuses using LIST-FILE-FROM-SNAPSET.

(2) From the output the user sees that the file was created on 14 December and was modified on 19 and 20 December. In order to undo changes on 19 December or later, the file must consequently be restored from Snapset d.

(3) For safety’s sake, the user checks the time stamps in the restored file’s catalog entry: it now has the status of 14 December 12 once more, i.e. the processing state from before the changes which were made on or after 19 December.

5.47 RESTORE-JV-FROM-SNAPSET

Restore job variables on the basis of a Snapset

Component:	BS2000
Functional area:	Job variables
Domain:	JOB-VARIABLES SNAPSET
Privileges:	STD- PROCESSING TSOS

Function

The RESTORE-JV-FROM-SNAPSET command restores job variables of a pubset from a pubset copy which was created on an associated Snapset. During the restore operation, single job variables are copied from the Snapsets onto the active pubset. The process is comparable to an HSMS restore from a backup archive.

The Snapset operand enables a specific backup status (the default is the latest Snapset backup) to be specified, or the user can specify that each job variable should be restored from the Snapset with the latest job variable status. Before restoration takes place, the user can issue the LIST-JV-FROM-SNAPSET command to obtain information on job variables which were saved to a Snapset.

All attributes of a restored job variable are taken over from the original job variable unchanged (including the creation date, date of modification and the protection attributes).

Nonprivileged users can only restore a job variable of a foreign user if they are the co-owner.

Overwriting by the restore must be explicitly permitted for existing job variables (REPLACE operand). For job variables which are protected against unauthorized overwriting by means of a password, the required password must be entered into the caller’s password table (see ADD-PASSWORD).

Job variables can also be restored under a new name (NEW-JV-NAME operand). They are renamed by specifying either another user ID or a name prefix.

If required, the caller can have a log of the restore processing output to SYSOUT or SYSLST (OUTPUT operand). This log can cover either all job variables or only the job variables which, for particular reasons, could not be restored (REPORTING operand).

The Snapsets are temporarily not available if the SHC-OSD subsystem was not active when the pubset was imported. In this case the command is aborted with DMS0622. As soon as SHC-OSD is active, the snapsets are subsequently activated when the SHOW-SNAPSET-CONFIGURATION command is called.

The restoration of job variables is not an explicit SAT event. The SECOS component SAT can only log the DELETE-JV (for overwriting) and CREATE-JV calls which are used internally.

Privileged functions

Systems support (TSOS privilege), as co-owner, can restore a job variable under its original user ID or under a foreign user ID.

When a job variable which still exists is overwritten, systems support can explicitly bypass the protection by means of the IGNORE-PROTECTION operand.

Format

RESTORE**-JV-FROM-SNAPSET**

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>

,**SNAPSET** = ***LATEST** / ***ALL** / <name 1..1 with-low> / <integer -52..-1> / ***INTERVAL**(...)

***INTERVAL**(...)

| **OLD**EST = **-52** / <integer -52..-1>

| ,**NEW**EST = **-1** / <integer -52..-1>

,**REPLACE** = ***NO** / ***Y**ES(...)

***Y**ES(...)

| **IGNORE-PROT**ECTION = ***NO** / ***Y**ES

,**NEW-JV-NAME** = ***SAME** / ***BY-USER-ID**(...) / ***BY-PREFIX**(...)

***BY-USER-ID**(...)

| **NEW-USER-ID** = ***SAME** / <name 1..8>

***BY-PREFIX**(...)

| **NEW-PREFIX** = ***NONE** / <filename 1..8 without-cat-gen-user-vers>

,**REPORTING** = ***ERROR** / ***FULL**

,**OUTPUT** = ***NONE** / list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>
Selects the job variables which are to be restored. The job variables must satisfy the following requirements:

- They must have been cataloged when the Snapset is created.
- The pubset on which they are cataloged must be imported locally.

The catalog and user IDs specified must be unique (i.e. contain no wildcards). Aliases (also partially-qualified aliases) may be specified.

SNAPSET = *LATEST / *ALL / <name 1..1 with-low> /<integer -52..-1> / *INTERVAL(...)
Specifies the Snapset from which the job variables are to be restored. Information about all existing Snapsets for a pubset can be obtained using the SHOW-SNAPSET-CONFIGURATION command.

SNAPSET = *LATEST
The job variables are to be restored from the latest Snapset (i.e. from the most up-to-date pubset backup).

SNAPSET = *ALL
All Snapsets of the pubset concerned are used as a basis for restoration. Each job variable is restored from the Snapset with the latest job variable status, in other words with the latest backup of the job variable.

SNAPSET = <name 1..1 with-low>
Specifies a particular Snapset explicitly by means of the Snapset ID. The maximum of 52 pubsets are distinguished by means of Snapset IDs specified which comprise letters from the 26 lowercase letters a to z and the 26 uppercase letters A to Z.

SNAPSET = <integer -52..-1>
Specifies a particular Snapset explicitly by means of the relative age. The value -1 specifies the latest Snapset.
SNAPSET = *INTERVAL(...)
Restoration takes place as with SNAPSET=*ALL. However, only Snapsets which lie in the specified age range are used as a basis:

OLDEST = -52 / <integer -52..-1>
Specifies the oldest Snapset; the range begins with this Snapset.

NEWEST = -1 / <integer -52..-1>
Specifies the newest Snapset; the range ends with this Snapset.

REPLACE = *NO / *YES(...)
Specifies whether the job variables to be restored may overwrite existing job variables.

REPLACE = *NO
Existing job variables are not overwritten. This means that job variables with the names of existing job variables are not restored.

REPLACE = *YES(...)
Existing job variables may be overwritten by job variables which are to be restored provided the protection attributes permit this. For job variables which are protected against unauthorized overwriting by means of a password, the required password must be entered into the caller’s password table (see the ADD-PASSWORD command).

IGNORE-PROTECTION = *NO / *YES

This operand is only available to privileged users (TSOS privilege).

Specifies whether job variables are to be overwritten without taking into account any write protection which exists.

NEW-JV-NAME = *SAME / *BY-USER-ID(...) / *BY-PREFIX(...)

Specifies whether the job variables are to be renamed when they are restored. When they are renamed, either a different ID or a name prefix can be specified.

NEW-JV-NAME = *SAME

Each job variable is restored under the name of the original job variable.

NEW-JV-NAME = *BY-USER-ID(...)

Each job variable is to be restored under the user ID specified.
Only the co-owner (or TSOS) is able to restore the job variable under a user ID other than the original one.

NEW-USER-ID = *SAME / <name 1..8>

New user ID. The default is *SAME, i.e. the user ID of the original job variable is retained.

NEW-JV-NAME = *BY-PREFIX(...)

Each job variable is to be restored under a new name. The name consists of the specified prefix and the original name, separated by a period.

NEW-PREFIX = *NONE / <filename 1..8 without-cat-gen-user-vers>

Name prefix (up to 8 characters). The default is *NONE, i.e. the original job variable name is retained.

REPORTING = *ERROR / *FULL

Determines the scope of the log if a processing log was requested in the OUTPUT operand.

REPORTING = *ERROR

Only job variables which could not be restored are listed. The reason is displayed by means of a message code.

REPORTING = *FULL

All job variables are listed. For job variables which could not be restored, the reason is displayed by means of a message code.

OUTPUT = *NONE / list-poss(2): *SYSOUT / *SYSLST

Specifies whether a processing log is to be output to SYSOUT and/or SYSLST. The default is *NONE, i.e. no log is output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMD0202	Syntactical or semantic error in the command
	32	DMS0584	A status occurred which prevents processing from continuing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0102	Command aborted after interruption with K2
	64	CMD0216	Required authorization not available
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS05FC	Specified file not in home pubset
	64	DMS0610	Action with wildcards: Error executing a function for one of the selected job variable names
	64	DMS0616	Volume set in SM pubset cannot be accessed
	64	DMS0620	No restorable job variable found
	64	DMS0621	Job variable already cataloged, restoration not performed
	64	DMS0622	Snapset not available
	64	DMS0682	JVS error when executing job
	130	DMS053C	No space in the pubset’s catalog
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0594	Not enough virtual memory available

5.48 RESTORE-PUBSET-FROM-SNAPSET

Restore a pubset on the basis of a Snapset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT SNAPSET
Privileges:	TSOS HSMS-ADMINISTRATION

Function

The RESTORE-PUBSET-FROM-SNAPSET command resets a pubset which is in the INACCESSIBLE state to the status of a Snapset.

This command is executed only if the pubset has not been reduced by one or more volumes since the Snapset to be used for restoration was created.

If the system run aborts while this command is being executed, the pubset can remain in an intermediate state which corresponds to partial execution of the command. In this case restoration can be completed by calling the command again. The pubset is locked until the command has been executed fully.

When remote mirroring is being used and snap copies are also generated in the remote storage system, the pubset is restored using the snap units of the original units which are directly attached. These are identified automatically by the Snapset management.

With ETERNUS DX/AF systems reconstruction of a pubset can be executed on any Snapset of that pubset. All these Snapsets including that one used for reconstruction, are retained and can continue to be used.

-

-

Format

RESTORE-PUBSET-FROM-SNAPSET
PUBSET = <cat-id 1..4> ,**SNAPSET** = ***LATEST** / <name 1..1 with-low> / <integer -52..-1>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset which is to be restored.

SNAPSET =
Specifies the Snapset from which the pubset is to be restored.

SNAPSET = *LATEST
The pubset is restored on the basis of the latest Snapset.

> . While the function is being executed, the pubset is *not* implicitly imported. The F5 label reconstruction takes place when the reconstructed pubset is imported.

SNAPSET = <name 1..1 with-low> / <integer -52..-1>

The pubset is restored on the basis of the explicitly specified Snapset (specification of the Snapset ID or of the relative age).

> While the function is being executed, the pubset is implicitly imported, and it is exported when the function ends. Implicit F5 label reconstruction also takes place.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0216	Required authorization not available
	64	DMS13D5	The Snapset specified does not exist on the pubset
	64	DMS3001	Internal error
	64	DMS3002	Error in message output
	64	DMS3003	Error when requesting more space
	64	DMS3006	DMS error
	64	DMS340D	Error while reserving the disk
	64	DMS3405	Existing pubset type does not match MRSCAT entry
	64	DMS3406	No MRSCAT entry for specified catalog ID
	64	DMS3410	Pubset not in INACCESSIBLE state
	64	DMS3411	VSN not unique
	64	DMS3412	Device management reports volume inconsistency
	64	DMS3414	Pubset does not contain a Snapset catalog
	64	DMS3415	While ascertaining the volumes of the SM pubset, an error occurred when an SVL was accessed
	64	DMS3416	Pubset contains fewer volumes than the Snapset
	64	DMS3417	Error while restoring the snap unit
	64	DMS3418	Error while terminating the snap unit
	64	DMS3419	Snap device is not assigned to the device
	64	DMS341A	Device could not be attached
	64	DMS341B	No Snapset was found for a volume of the pubset
	64	DMS341C	Pubset will be processed by PVSREN
	64	DMS341F	Pubset no longer contains specific volume
	64	DMS3423	Only SNAPSET=*LATEST is permitted for the storage system available
	64	DMS3500	SHC-OSD subsystem is not available
	64	DMS3503	Error while calling the reported interface

Notes

- The pubset which is to be restored must be exported. Until the restore operation has been completed, it is protected against being placed in service by /IMPORT-PUBSET (the PVSREN indicator is set in the SVL). During this period, import attempts are rejected with the message DMS0351 and insert 03. If the data from the snap units is already being copied back, the rejection is indicated by the messages DMS0381 and DMS038F.
- During the restore operation, a temporary copy of the Snapset catalog of the pubset which is to be restored is created on the home pubset and given the file name $TSOS.SYSWRK.SNAPSET.<catid>. This file is only required for restoration and is deleted again once the operation has been completed. During the restore operation it is protected against being deleted because it is used to restart any interrupted restore operation (the command must be called again if the operation is interrupted). If the pubset is restored in a different way, the pubset is deleted when the next pubset import takes place.
- An interrupted restore operation can only be restarted in the same runtime environment, i.e. with the same home pubset, because the copy of the Snapset catalog which is stored there is required for this purpose.

5.49 RESTORE-SDF-INPUT

Restore previous input

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The RESTORE-SDF-INPUT command redisplays an input which has already been made and stored in the input buffer. The user can then use the displayed command or statement again as it is or in modified form without having to retype it. For an input to be reused, however, at least one character in the input string must be changed (e.g. you can overwrite a character with the same character).

The INPUT operand is used to select the input to be displayed. The default *LAST-CMD recalls the last saved command. Earlier inputs can be selected using the relative or absolute input serial number. The SHOW-INPUT-HISTORY command (or standard statement) provides information on all saved (and therefore available) inputs.

The output produced by RESTORE-SDF-INPUT depends on the current guidance mode (see SHOW-SDF-OPTIONS command, output field *GUIDANCE*):

- In guided dialog a temporarily guided dialog is initiated for the command or statement that is to be output. The operand form contains all user inputs.
  A guided dialog is not possible for commands or statements without operands. Therefore, only the help text and the error message CMD0070 are displayed. If you select an AID command, the warning CMD0559 is output because AID commands are not supported in guided dialog.
- In unguided dialog the saved input string is displayed. To use dialog guidance for making modifications, the user can initiate a temporarily guided dialog by entering a question mark directly after the command/statement name.

The input buffer is controlled (activated/deactivated and deleted) via the MODIFY-SDF-OPTIONS command (or standard statement). Inputs in guided dialog are saved in ACCEPTED form, while inputs in unguided dialog are saved in INPUT form.
The RESTORE-SDF-INPUT command or statement is not saved.

Values specified for “secret” operands which match neither the default value nor a value defined via SECRET=*NO are saved in the input buffer with “^”.
If these values are displayed again via RESTORE-SDF-INPUT in unguided dialog, the user can do one of the following:

- send off the command/statement unchanged. In this case, SDF displays a blanked input field for each secret operand for the user to enter the desired value.
- delete the “^” and insert the desired value directly before sending off the command/statement.

In programs with an SDF interface, RESTORE-SDF-INPUT is available as a standard statement with approximately the same syntax and functionality.

Format

RESTORE**-SDF-IN**PUT	Alias: **RRSDFI**
INPUT = ***LAST-CMD** / <integer -100..-1> / <integer 1..9999>	

Operands

INPUT = *LAST-CMD / <integer -100..-1> / <integer 1..9999>
Determines which input from the input buffer is to be redisplayed.

INPUT = *LAST-CMD
The last saved command is displayed.

INPUT = <integer -100..-1>
Identifies the desired input relative to the current input.

INPUT = <integer 1..9999>
Identifies the desired input absolutely via its input serial number, which is automatically assigned by SDF when it is saved. The contents of the input buffer can be displayed with input serial numbers (see SHOW-INPUT-HISTORY command, operand INPUT-SERIAL-NUMBER=*YES).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	0	CMD0001	Output is not possible since the input buffer is empty. Guaranteed message: CMD0558
2	0	CMD0559	AID command not supported in guided dialog. Guaranteed message: CMD0559
1	32	CMD0500	Syntax description in current syntax file invalid. Guaranteed message: CMD0500
1	64	CMD0558	Command execution not successful

Example

```
/mod-f-attr sf.dummy,prot=(basic-acl=(owner=(y,y,y),group=(y,n,n),
                                      others=(y,n,n))) ————————————————  (1)
/show-job-sta job-id=tsn(00as),inf=*envir  ————————————————————————————  (2)
```

```
%  EXC0755 INFORMATION ON TASK WITH (&00) '00AS' CANNOT BE GIVEN
```

```
/restore-sdf                                                              (3)
/show-job-sta job-id=tsn(00ad),inf=*envir                                 (4)
```

```
%NAME      TSN   STATION  PROCESSOR  HOLD MRSCAT
%RALF      00AD   $$$01121 BGDW0121
```

```
/cre-file test      ————————————————————————————————————————————————————  (5)
/show-file-attr test,inf=*min
```

```
%N NNN NW             3 :1OSN:$SDFUSER.TEST
```

```
/show-input i-s-n=y  ————————————————————————————————————————————————————  (6)
```

```
/"  43 :" sh-sdf *u
/"  44 :" show-job-sta
/"  45 :" mod-f-attr sf.dummy,prot=(basic-acl=(owner=(y,y,y),group=(y,n,n),
others=(y,n,n)))
/"  46 :" show-job-sta job-id=tsn(00as),inf=*envir
/"  47 :" show-job-sta job-id=tsn(00ad),inf=*envir
/"  48 :" cre-file test
/"  49 :" show-file-attr test,inf=*min
```

```
/restore-sdf 45     ————————————————————————————————————————————————————  (7)
/mod-f-attr test    ,prot=(basic-acl=(owner=(y,y,y),group=(y,n,n),
                                     others=(y,n,n))) ————————————————  (8)
/restore-sdf
/mod-f-attr?test    ,prot=(basic-acl=(owner=(y,y,y),group=(y,n,n),
                                     others=(y,n,n)))  ————————————————  (9)
```

```
COMMAND  : MODIFY-FILE-ATTRIBUTES
OPERANDS : ...AME=TEST,PROTECTION=*PARAMETERS(BASIC-ACL=*PARAMETERS(OWNER=*PARAM
           ETERS(READ=*YES,WRITE=*YES,EXEC=*YES),GROUP=*PARAMETERS(READ=*YES,
           WRITE=*YES,EXEC=*NO),OTHERS=*PARAMETERS(READ=*YES,WRITE=*YES,EXEC=...
------------------------------------------------------------------------------
FILE-NAME            = TEST
NEW-NAME             = *SAME
SUPPORT              = *UNCHANGED
PROTECTION           = (PROTECTION-ATTR=*UNCHANGED,ACCESS=*BY-PROTECTION-ATTR,US
                       ER-ACCESS=*BY-PROTECTION-ATTR,BASIC-ACL=(OWNER=(READ=Y,WR
                       ITE=Y,EXEC=Y),GROUP=(READ=Y,WRITE=Y,EXEC=N),OTHERS=(READ=
                       Y,WRITE=Y,EXEC=N)),GUARDS=*BY-PROTECTION-ATTR,WRITE-PASSW
                       ORD=*BY-PROT-ATTR-OR-UNCH,READ-PASSWORD=*BY-PROT-ATTR-OR-
```

```
                       UNCH,EXEC-PASSWORD=*BY-PROT-ATTR-OR-UNCH,DESTROY-BY-DELET
                       E=*BY-PROTECTION-ATTR,AUDIT=*UNCHANGED,SPACE-RELEASE-LOCK
                       =*BY-PROTECTION-ATTR,EXPIRATION-DATE=*BY-PROTECTION-ATTR,
                       FREE-FOR-DELETION=*BY-PROT-ATTR-OR-UNCH)
------------------------------------------------------------------------------
NEXT = *down(basic-acl)
       *EXECUTE"F3" / + / Next-cmd / *CONTINUE / *EXIT"K1" / *EXIT-ALL"F1" /
       *TEST"F2"
```

```
COMMAND  : MODIFY-FILE-ATTRIBUTES
STRUCTURE: BASIC-ACL=
OPERANDS : ...AME=TEST,PROTECTION=*PARAMETERS(BASIC-ACL=*PARAMETERS(OWNER=*PARAM
           ETERS(READ=*YES,WRITE=*YES,EXEC=*YES),GROUP=*PARAMETERS(READ=*YES,
           WRITE=*YES,EXEC=*NO),OTHERS=*PARAMETERS(READ=*YES,WRITE=*YES,EXEC=...
------------------------------------------------------------------------------
OWNER                = (READ=Y,WRITE=Y,EXEC=Y)
GROUP                = (READ=Y,WRITE=N,EXEC=y)
OTHERS               = (READ=Y,WRITE=N,EXEC=y)
------------------------------------------------------------------------------
NEXT = *CONTINUE
       *EXECUTE"F3" / + / - / Next-cmd / *CONTINUE / *EXIT"K1" / *EXIT-ALL"F1"
       / *TEST"F2"
```

(1) BASIC-ACL protection is recorded in the catalog entry for the *SF.DUMMY* file (owners have unrestricted rights, groups and others have only read access).

(2) The SHOW-JOB-STATUS command is supposed to display information on the task with the TSN *00AS*, but no such task exists.

(3) The RESTORE-SDF-INPUT command has to redisplay the last input.

(4) The SHOW-JOB-STATUS command (see step 2) is output. In the character string which is output, the TSN is corrected to *00AD* and sent off with [DUE]. Information on this TSN is displayed.

(5) The TEST file is cataloged. The protection rights are then output in abbreviated form via SHOW-FILE-ATTRIBUTES.

(6) SHOW-INPUT-HISTORY outputs the contents of the input buffer with input serial numbers (INPUT-SERIAL-NUMBER=*YES).

(7) RESTORE-SDF-INPUT redisplays the command with the serial number 45.

(8) In the displayed MODIFY-FILE-ATTRIBUTES, the file name is changed to *TEST* and sent off with [DUE]. The TEST file thus receives the same BASIC-ACL protection as the *SF.DUMMY* file did previously.

(9) The user wants to change the protection attributes of the TEST file again. RESTORE-SDF-INPUT displays the last command entered (see step 8). A question mark is inserted after the command name and the line is sent off with [DUE].

(10) SDF switches to temporarily guided dialog and displays the operand form of the MODIFY-FILE-ATTRIBUTES command with the explicitly set specifications for BASIC-ACL. For an overview of the input, the user requests the subform for BASIC-ACL (*PARAMETERS structure) be entering “*down(basic-acl)” in the NEXT line.

(11) The user enters the desired values (groups and others receive execution rights with EXEC=*YES) in the subform and sends it off with [DUE].

Note

The BASIC-ACL access rights can be changed to the shortest possible form by editing the command line output by RESTORE-SDF-INPUT (or by editing the corresponding command line in the output of the SHOW-INPUT-HISTORY command).

5.50 RESTORE-SOFTWARE-INVENTORY

Copy current SCI

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

The RESTORE-SOFTWARE-INVENTORY command can be used to restore the current SCI from a backup copy. When this is done, both physical SCI files (IMON-SCI and IMON-GPN-SCI) are restored.

The command is not executed if the IMON subsystem is currently loaded.

A backup copy of the current SCI can be explicitly created using the SAVE-SOFTWARE-INVENTORY command. Backup copies are also created automatically on system start and during software installation (see the “IMON” User Guide [19]).

Format

RESTORE**-SOFTW**ARE**-INVENT**ORY
FROM-SCI = ***STD** / <filename 1..50>

Operands

FROM-SCI =
Name of the source file (backup copy) from which the current SCI is to be restored.

FROM-SCI = *STD
Uses the SCI backup that was automatically created under the name $TSOS.SYS.IMON.SCI.[GPN.]SAV on the last system start.

FROM-SCI = <filename 1..50>
Explicit specification of the name of the source file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	32	IMO9101	Command terminated abnormally (system error in external call; internal error in IMON-GPN)
	64	CMD0216	Privileges error
	64	IMO9100	IMON subsystem started, error during the restore operation, DMS error

5.51 RESUME-ALIAS-SUBSTITUTION

Cancel effect of HOLD-ALIAS-SUBSTITUTION

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The RESUME-ALIAS-SUBSTITUTION command cancels the effect of the HOLD-ALIAS-SUBSTITUTION command and resumes the interrupted alias substitution function.
One RESUME-ALIAS-SUBSTITUTION command must be entered for each HOLD-ALIAS-SUBSTITUTION command.

Format

RESUME**-ALIAS-SUBST**ITUTION

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
2	0	ACS0041	Alias substitution still inactive
1	0	CMD0001	No action, since the ACS substitution function was not interrupted by HOLD-ALIAS-SUBSTITUTION
	128	ACS0018	ACS not available

Examples

For examples, see the HOLD-ALIAS-SUBSTITUTION and SET-FILE-NAME-PREFIX commands.

5.52 RESUME-HARDWARE-AUDIT

Resume suspended AUDIT mode

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The RESUME-HARDWARE-AUDIT command resumes AUDIT mode after it has been suspended with HOLD-HARDWARE-AUDIT. The command acts like START-HARDWARE-AUDIT with SCOPE=*OWN-JOB, but differs from it in that any existing AUDIT backup table continues to be used to back up the AUDIT table.
The command is rejected if AUDIT mode has been activated but has not been suspended. If AUDIT mode has not been activated, the command activates it (like START-HARDWARE-AUDIT with SCOPE=*OWN-JOB).

The RESUME-HARDWARE-AUDIT command can only relate to the user's own task.

Privileged functions

Systems support (TSOS privilege) can resume hardware AUDIT mode for the privileged processor state TPR (STATE=*SYSTEM).

Format

RESUME**-HARD**WARE**-AUDIT**
STATE = **<u>*USER</u>** / ***SYS**TEM

Operands

STATE =
Processor state for which the AUDIT mode is to be reactivated. If the hardware AUDIT mode is to be activated at the same time for both processor states, the command must be issued twice.

STATE = <u>*USER</u>
The hardware AUDIT mode is to be resumed for the nonprivileged processor state TU.

STATE = *SYSTEM
This operand value is reserved for privileged users.
The hardware AUDIT mode is to be reactivated for the privileged processor state TPR.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	CMD0216	User does not have authorization
	64	IDA0001	Hardware AUDIT not activated
	64	IDA0011	Privilege error
	64	IDA0023	Hardware AUDIT not available due to missing authorization in user entry
	64	IDA0024	Hardware AUDIT not available because of current test option settings for the active task

5.53 RESUME-JOB

Take user job off hold

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The RESUME-JOB command enables systems support staff to take a user job suspended with the HOLD-JOB command off hold (wait state HELD-BY-COMMAND). The job can then be considered once again by job management and can be processed in accordance with its attributes.

If the user job is in the wait state due to a lack of system resources then the availability of the resources is checked and, if they are unavailable, a warning is issued. This wait state can only be cleared by providing the missing resources (by importing the corresponding pubset or releasing the TSN).

The RESUME-TASK command is used to resume tasks that have already been started.

As soon as the user job has been released, a message is displayed on the operator terminal (console).

Format

RESUME**-JOB**

JOB-IDENTIFICATION = ***TSN**(...) / ***MONJV**(...) / <alphanum-name 1..4>

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

Operands

JOB-IDENTIFICATION =
Type of job identification.
The command may refer to the TSN or to a monitoring job variable.

JOB-IDENTIFICATION = *TSN(...)
The job to be taken off hold is identified by its TSN.

TSN = <alphanum-name 1..4)
TSN of the job in the wait state.

JOB-IDENTIFICATION = *MONJV(...)
The job to be released is identified via a monitoring job variable.

MONJV = <filename 1..54 without gen>
Job variable specified for the job that was suspended.

JOB-IDENTIFICATION = <alphanum-name 1..4>
Job number of the suspended job.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	CMD0002	Warning: wait state due to lack of resources
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

5.54 RESUME-JOB-CLASS

Take job class off hold

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The RESUME-JOB-CLASS command enables systems support staff to take a job class suspended with the HOLD-JOB-CLASS command off hold. The batch jobs which were temporarily forced to wait in the job class queue can then be released for starting. Execution of the command is acknowledged by a message displayed on the console.

Systems support staff can obtain an overview of the states of the various job classes using the SHOW-SYSTEM-STATUS command.

Format

RESUME**-JOB-CLASS**
CLASS-NAME = <name 1..8>

Operands

CLASS-NAME = <name 1..8>
Name of the job class to be released.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

5.55 RESUME-JOB-STREAM

Take job stream off hold

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The RESUME-JOB-STREAM command enables systems support staff to take a job stream suspended with the HOLD-JOB-STREAM command off hold. The job scheduler is reactivated and begins selecting the jobs to be started from its assigned number of job classes and passing them to the class scheduler.
The RESUME-JOB-STREAM command is also permitted for the system job stream $SYSJS.

A message is displayed on the console to indicate that scheduling has been resumed.

Format

RESUME**-JOB-STREAM**
STREAM-NAME = <name 1..8>

Operands

STREAM-NAME = <name 1..8>
Name of the job stream to be released.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

Example

/show-system-status inf=*job-stream

```
%JSTREAM  STATE DORM ANCD WAIT STRT HOLD START  STOP    LIFETIME
%$SYSJS   ACT      0    0    0    4    0 ATLOAD ATSHUTD
%JSSTD    ACT      0    0    0    0    0 ATLOAD ATSHUTD
%JSSTD1   ACT      0    0    0    6    0 ATLOAD ATSHUTD
%JSSTD2   HOLD     0    0    0    0    0 ATLOAD ATSHUTD
%JSTSOS   ACT      0    0    0   10    0 ATLOAD ATSHUTD
```

/resume-job-stream jsstd2

```
%  JMS0022 '/RESUME-JOB-STREAM' COMMAND PROCESSED
```

/show-system-status inf=*job-stream

```
%JSTREAM  STATE DORM ANCD WAIT STRT HOLD START  STOP    LIFETIME
%$SYSJS   ACT      0    0    0    4    0 ATLOAD ATSHUTD
%JSSTD    ACT      0    0    0    0    0 ATLOAD ATSHUTD
%JSSTD1   ACT      0    0    0    6    0 ATLOAD ATSHUTD
%JSSTD2   ACT      0    0    0    0    0 ATLOAD ATSHUTD
%JSTSOS   ACT      0    0    0   10    0 ATLOAD ATSHUTD
```

Job stream JSTD2, which is currently on hold (as indicated by the *STATE* output field of the first SHOW-SYSTEM-STATUS command), is reactivated by the RESUME-JOB-STREAM command.

5.56 RESUME-LINKAGE-AUDIT

Resume suspended linkage AUDIT mode

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The RESUME-LINKAGE-AUDIT command resumes linkage AUDIT mode after it has been suspended with HOLD-LINKAGE-AUDIT. Any existing AUDIT backup table continues to be used to back up the linkage AUDIT table.
The command is rejected if linkage AUDIT mode has been activated but has not been suspended. If linkage AUDIT mode has not been activated, the command activates it.

Privileged functions

Systems support (TSOS privilege) can continue linkage AUDIT mode for the privileged processor state TPR (STATE=*SYSTEM).

Format

RESUME-LINKAGE-AUDIT
STATE = ***USER** / ***SYS**TEM

Operands

STATE =
Processor state for which the linkage AUDIT mode is to be resumed. If the linkage AUDIT mode is to be activated at the same time for both processor states, the command must be issued twice.

STATE = *USER
Linkage AUDIT mode is to be resumed for the nonprivileged processor state TU.

STATE = *SYSTEM
This operand value is reserved for privileged users.
Linkage AUDIT mode is to be resumed for the privileged processor state TPR.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	CMD0216	User does not have authorization
	64	IDA0052	Linkage AUDIT not available due to missing authorization in user entry
	64	IDA0053	Linkage AUDIT not available because of current test option settings for the active task
	64	IDA0060	No AUDIT functions throughout the system in this session

5.57 RESUME-PRINT-JOB

Resume print job

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	O

Note

The RESUME-PRINT-JOB command corresponds to the RESUME-SPOOLOUT command; the command name RESUME-SPOOLOUT is still accepted as an alias.

Function

The RESUME-PRINT-JOB command resumes processing of a suspended print job in the local cluster. The print job is identified by its TSN or MONJV. The cluster administrator can address a print job by means of the server name and the TSN on the server on which it is processed.

> Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
>
> This forwarding cannot be continued by /RESUME-PRINT-JOB. The command may therefore now only be used for RSO printers and virtual devices.

Privileged functions

RSO device administrators and spool and cluster administrators can resume any print job scheduled for printing on any device that they manage.
For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “Dprint” [10].

Format

RESUME-PRINT-JOB

JOB-IDENTIFICATION = ***TSN**(...) / ***SERVER-TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***SERVER-TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**SERVER-NAME** = <alphanum-name 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen>

,**PRIO**RITY = ***UNCHA**NGED / <integer 30..255>

,**REST**ART-**POS**ITION = ***UNCHA**NGED / ***BEG**IN-**OF-SP**OOLOUT / ***PAGE**(...) / ***BACK**(...)

***PAGE**(...)

| **PAGE-NUM**BER = <integer 1..10000000>

***BACK**(...)

| **PAGES** = <integer 1..10000000>

Operands

JOB-IDENTIFICATION = *TSN(...) / *SERVER-TSN(...) / *MONJV(...)
Specifies how the job is identified.

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its local TSN.

TSN = <alphanum-name 1..4>
TSN of the job.

JOB-IDENTIFICATION = *SERVER-TSN(...)
The print job is identified by its TSN on the server. Print jobs in the local cluster can be addressed in this way by the cluster administrator.

TSN = <alphanum-name 1..4>
TSN of the job on the server

SERVER-NAME = <name 1..8>
Name of the server on which the print job can be addressed by its TSN.

JOB-IDENTIFICATION = *MONJV(...)
The print job is identified by its monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>
This operand allows print jobs to be addressed by their monitoring job variables, provided the specified MONJV is accessible on the host at which the command is issued.

PRIORITY = *UNCHANGED / <integer 30..255>
Priority for the released spoolout job.

PRIORITY = *UNCHANGED
The priority that the spoolout job previously had remains in force.

RESTART-POSITION =
Defines the point from which the spoolout file is to be output again.

> If there are control characters in the data, they are only interpreted if the value X'A3' is contained in byte 6 of the control character list for the first page to be printed (see the “SPOOL” manual [43]).

RESTART-POSITION = *UNCHANGED
The spoolout job should be repeated from the place specified in the HOLD-PRINT-JOB command.

RESTART-POSITION = *BEGIN-OF-SPOOLOUT
Repeat from the start of the file.

RESTART-POSITION = *PAGE(...)
The spoolout job is to be repeated from a particular page.

PAGE-NUMBER = <integer 1..10000000>
Repeat output from the specified page; all preceding pages are skipped.

RESTART-POSITION = *BACK(...)
The SPOOLOUT job is to be restarted on the page that is before current page by the number of pages specified. All pages before that are ignored.

PAGES = <integer 1..10000000>
Number of pages to leaf back to reach the starting point for repeating output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value Guaranteed message: SPS0968
	128	SCP1051	Subsystem required for operand

5.58 RESUME-PROCEDURE

Resume suspended procedure run

Component:	SYSFILE
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The RESUME-PROCEDURE command ends ESCAPE mode (see the HOLD-PROCEDURE command) and resumes execution of an interrupted procedure.

Format

RESUME**-PROC**EDURE	Alias: **RUP**
MODE = ***ACT**UAL / ***CMD** / ***PROG**RAM	

Operands

MODE =
Mode in which procedure execution is to be continued.

MODE = *ACTUAL
Procedure execution is continued in the mode in effect at the time it was interrupted. Command mode: Control returns to the next command in the procedure file.
Program mode: The interrupted program is resumed at the address at which it was interrupted.

MODE = *CMD
The procedure is to be continued in command mode. If the procedure was interrupted in program mode, the interrupted program remains loaded until a RESUME-PROCEDURE command with MODE=*PROGRAM is given.

MODE = *PROGRAM
The procedure is to be continued in program mode. If no program is loaded, an error message is issued and control is returned to the terminal. The user can then enter the RESUME-PROCEDURE command with MODE=*CMD to continue the procedure run in command mode.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	SSM2018	Command not permitted in batch mode in a noninterruptible procedure
	64	SSM2019	No interrupted procedure exists
	64	SSM2020	MODE=*PROGRAM and no program loaded
	64	SSM2013	No program loaded

Notes

- An interrupted procedure can be continued only by means of the RESUME-PROCEDURE command.
- The RESUME-PROCEDURE command must always be entered in dialog. If it is part of a procedure or part of a batch job, an appropriate error message is issued and the spinoff mechanism is activated.
- If a procedure interrupted in command mode is to be continued in program mode, this can only be done by explicitly specifying the operand MODE=*PROGRAM. The program itself can have been loaded at any desired level and may be continued at any desired level. The program is, however, tied to the system file assignments (ASSIGN command) applicable to whichever is the current level.
- The EXIT-PROCEDURE command causes a direct switch from the ESCAPE mode of the current procedure to the ESCAPE mode of the next lower procedure level. This procedure can then be continued in the current mode by means of the RESUME-PROCEDURE command (without operands). It is also possible to continue the procedure in a different mode by specifying the operand MODE=*PROGRAM/*CMD.

Example

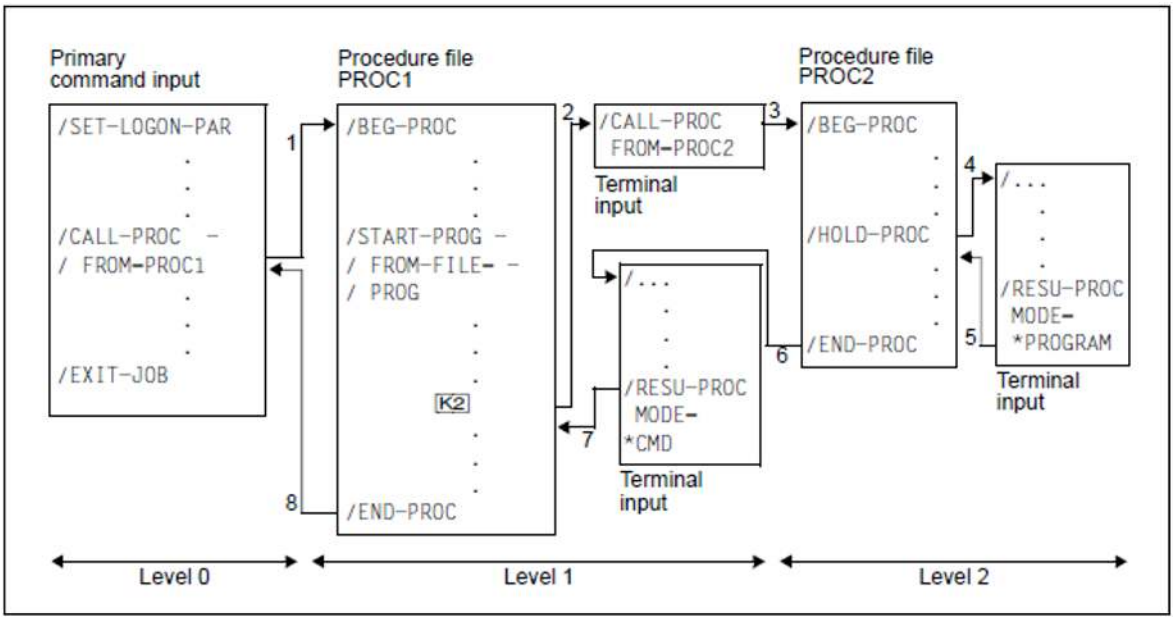


Figure 9: Program execution in different areas

The arrows indicate the sequence in which commands are processed (SYSCMD).

1. With the command `/CALL-PROC FROM=PROC1`, the procedure PROC1 is started and SYSCMD is assigned to the procedure file PROC1.
2. In the procedure the program PROG is loaded and started. The logical system files of procedure level 1 are assigned to the program. The procedure PROC1 is interrupted by pressing [K2] in program mode, i.e. the interruption occurs during execution of the program PROG. SYSCMD is assigned to the terminal (ESCAPE mode).
3. With the command `/CALL-PROC FROM=PROC2`, the procedure PROC2 is started and SYSCMD is assigned to the procedure file PROC2.
4. The procedure PROC2 is interrupted in command mode by a HOLD-PROCEDURE command. SYSCMD is assigned to the terminal (ESCAPE mode).
5. The program PROG interrupted by [K2] is continued at procedure level 2. The logical system files of procedure level 2 are now assigned to the program. If the program run terminates at this procedure level (last instruction executed), control is passed to the procedure PROC2. Processing is continued with the command following the HOLD-PROCEDURE command.
6. Procedure PROC2 is terminated by `/END-PROC`, and SYSCMD is again assigned to the terminal (level-1 ESCAPE mode; level 1 is still in program mode).
7. The RESUME-PROCEDURE command cancels the level-1 ESCAPE mode. Since at this time the program PROG is no longer loaded, the user must specify the operand “MODE=*CMD” in order to switch from program mode to command mode.
8. SYSCMD is again assigned to the primary command input.

5.59 RESUME-PROGRAM

Start loaded program or resume suspended program

Component:	AIDSYSA
Functional area:	Program control
Domain:	PROGRAM
Privileges:	all privileges

Function

The RESUME-PROGRAM command starts a loaded program (see LOAD-EXECUTABLE-PROGRAM command) or resumes it after it has been suspended (e.g. interrupted with the [K2] key).
This command has no operands and is executed immediately. If no program is loaded, the message “IDA0C11 USER PROGRAM NOT LOADED” is displayed.

Format

RESUME**-PROG**RAM	Alias: **RU** / **RUPG**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMD2201	Error in function call: function invalid
	3	CMD2203	Error in function call: version invalid
	64	IDA0C11	Error: no program loaded

5.60 RESUME-PUBSET-RECONFIGURATION

Terminate pubset reconfiguration job normally

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The RESUME-PUBSET-RECONFIGURATION command enables systems support to gracefully terminate reconfiguration jobs which have been abnormally terminated as a result of job cancellation or a change of master. Reconfiguration jobs may have been initiated by a START-/STOP-PUBSET-CACHING, MODIFY-PUBSET-DEFINITION-FILE, MODIFY-PUBSET-PROCESSING, MODIFY-PUBSET-RESTRICTIONS or CREATE-SNAPSET command.

If applied to the pubset of a slave system, the RESUME-PUBSET-RECONFIGURATION command updates the associated MRS catalog entries on the basis of the information in the pubset configuration file.

Format

RESUME-PUBSET-RECONFIGURATION
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which reconfiguration jobs are to be gracefully terminated.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	DMS138A	Internal parameter error
	64	CMD0216	No authorization to issue command
	64	DMS138B	Pubset does not exist
	64	DMS138C	Pubset not accessible
	64	DMS1391	SM pubset has no reconfiguration file
	128	DMS1386	Not enough class 4/5 memory

Return codes of the command which initiated the reconfiguration job may also be issued: START-/STOP-PUBSET-CACHING, MODIFY-PUBSET-DEFINITION-FILE, MODIFY-PUBSET-PROCESSING, MODIFY-PUBSET-RESTRICTIONS or CREATE-SNAPSET.

5.61 RESUME-SUBSYSTEM

Take suspended subsystem off hold

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING SUBSYSTEM-MANAGEMENT
Routing code:	R

Function

The RESUME-SUBSYSTEM command enables systems support staff to take a suspended subsystem off hold. Once this command has been executed successfully, connections can be set up once again to the specified subsystem, provided that the subsystem was previously placed in a defined hold state by means of a HOLD-SUBSYSTEM command. This ensures that all the necessary resources (holder task, address space) are still available and the initialization routine can be executed.

Format

RESUME**-SUBSYS**TEM

SUBSYSTEM-NAME = <structured-name 1..8>

,**VERSION** = ***STD** / <product-version mandatory-man-corr> / <product-version without-man-corr> / ***HIGHEST**

,**SUBSYS**TEM**-PAR**AMETER = ***NONE** / <c-string 1..254>

,**RESET** = ***NO** / ***Y**ES

,**SYNCH**RONOUS = ***NO** / ***Y**ES

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Name of the subsystem which is to be taken off hold.

VERSION = *STD / <product-version mandatory-man-corr> / <product-version without-man-corr> / *HIGHEST
Identifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see description of the data type "product-version" (SDF syntax representation)).

VERSION = *STD
If there is only **one** version of the subsystem that is on hold, the default value applies for this version.
If there are **several** suitable versions, the version must be specified.

VERSION = *HIGHEST
The highest version of the subsystem entered in the static subsystem catalog is selected.

SUBSYSTEM-PARAMETER = *NONE / <c-string 1..254>
Specifies whether special parameters that can only be evaluated by the specified subsystem are to be processed.

RESET =
Determines the mode and urgency of command processing.

RESET = *NO
If the relevant system is not yet in a defined hold state, the command is rejected until this is achieved.

RESET = *YES
The command is accepted irrespective of any cleardown process still outstanding and the subsystem or some components are immediately initialized (see notes).

SYNCHRONOUS =
Enables synchronous or asynchronous processing to be selected.

SYNCHRONOUS = *NO
The command is to be processed asynchronously, i.e. there is no need to wait for it to execute before making another input. No error messages relating to the execution of the command will be output.

SYNCHRONOUS = *YES
The command must be executed before another entry can be made. Any messages relevant to its execution are output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No action necessary; subsystem already on hold
	1	ESM0414	Syntax error: an invalid version was specified
	32	ESM0224	Command not processed
	32	ESM0228	Command terminated abnormally

Notes

- To ensure a high degree of parallelism and data integrity, time-consuming management functions are not performed under the control of the calling task; instead they are transferred to a DSSM task. As a rule, the requested function is checked **synchronously** (i.e. involving a wait state for the calling task). The actual processing, however, is performed by DSSM **asynchronously** and independently of the calling task.
- After the HOLD-SUBSYSTEM command, RESUME-SUBSYSTEM is rejected if DSSM has not yet fully suspended the subsystem. The RESET=*YES operand, however, enables systems support to cancel the hold state for the subsystem unconditionally, without waiting for completion of a HOLD-SUBSYSTEM command. In this case, the initialization routine is initiated. The subsystem involved, which is informed of the RESET, can determine the scope of the initialization routine itself (full initialization, partial initialization, no initialization).

5.62 RESUME-TASK

Release suspended batch task

Component:	BS2000
Functional area:	Job processing
Domain:	SYSTEM-TUNING
Privileges:	TSOS OPERATING
Routing code:	J

Function

A batch task previously placed on hold with the HOLD-TASK command is released with RESUME-TASK.
Only after this release can the job be canceled, if required, with the CANCEL-JOB command. In the case of a task which is waiting for an operator response, if a RESUME-TASK command is issued after a HOLD-TASK command, the following message will appear:

```
EXC0712 TASK NOT PENDED BY HOLD-TASK COMMAND. /RESUME-TASK REJECTED
```

Not until the operator response is entered will the task be put on hold. A second RESUME-TASK command will be required to cancel the hold state for the task.

Format

RESUME**-TASK**

JOB-IDENTIFICATION = ***TSN** (...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-ver>

Operands

JOB-IDENTIFICATION =
The batch job for which the wait state is to be canceled can be identified either by its task sequence number (TSN) or by a declared monitoring job variable (MONJV).

JOB-IDENTIFICATION = *TSN(...)
Preset value: the job is identified by its TSN.

TSN = <alphanum-name 1..4>
TSN of the batch job to be resumed.

JOB-IDENTIFICATION = *MONJV(...)

Preset value: the job is identified by its monitoring job variable.

MONJV = <filename 1..54 without-gen-ver>

Specifies the monitoring job variable of the batch task for which the wait state is to be canceled.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
12	64	EXC0711	Specified task sequence number (TSN) not found
12	64	EXC0712	Task is not on hold
12	64	EXC0715	Command is not allowed for this task type

5.63 RETURN-JOB-TO-VIRTUAL-DEVICE

Return print job to virtual printer

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION

Function

The RETURN-JOB-TO-VIRTUAL-DEVICE command returns the current print job to the virtual device. It is executed in batch mode only.

The POST-ACTION operand determines whether the print job is canceled as a result of being returned or the status which it is assigned when it remains in the Spool&Print queues. This specification ultimately decides whether the application retains control over this print job.

When the print job remains in the keep or wait status, the ERROR-MSG operand can be used to specify that an error message is also output.

The command is part of a set of four commands which enable an application to be created in the form of an S procedure (for an example, see the OPEN-VIRTUAL-DEVICE-DIALOG command). These commands manage the dialog between a virtual device and the application which was started in batch mode as an S procedure:

- OPEN-VIRTUAL-DEVICE-DIALOG
- GET-JOB-FROM-VIRTUAL-DEVICE
- RETURN-JOB-TO-VIRTUAL-DEVICE
- CLOSE-VIRTUAL-DEVICE-DIALOG

Format

RETURN-JOB-TO-VIRTUAL-DEVICE
POST-ACTION = ***WAIT** / ***KEEP** / ***CANCEL-JOB** / ***TERMINATE-JOB** / ***ERROR** ,**ERROR-MSG** = **<u>*NONE</u> /** <alphanum-name 7..7>

Operands

POST-ACTION = *WAIT / *KEEP / *CANCEL-JOB / *TERMINATE-JOB / *ERROR
Specifies which action must be performed on the returned print job.

POST-ACTION = *WAIT
The current print job is set to wait status in the Spool&Print queues.

POST-ACTION = *KEEP
The current print job is set to keep status in the Spool&Print queues. If a message number is specified in the ERROR-MSG operand, this message is displayed on the console and in the output of the SHOW-PRINT-JOB-STATUS command.

POST-ACTION = *CANCEL-JOB
The current print job is no longer displayed in the Spool&Print queues. The status display of any MONJV which is assigned is set to “$A”. The associated file is not deleted (irrespective of the DELETE-AFTER-PRINT option for the print job). In the case of a family job, all the family’s jobs are canceled.

POST-ACTION = *TERMINATE-JOB
The current print job is no longer displayed in the Spool&Print queues. The status display of any MONJV which is assigned is set to “$T”. Whether the associated file is deleted is determined by the DELETE-AFTER-PRINT option for the print job.

POST-ACTION = *ERROR
*ERROR means that the current print job is set to wait status in the Spool&Print queues and the application task is deleted. An error message (ERROR-MSG operand) may be sent to the console.

ERROR-MSG = *NONE / <alphanum-name 7..7>
Specifies whether or which error message is to be displayed on the console. An error message is output only if *KEEP or *ERROR was specified in the POST-ACTION operand.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error; command successfully processed
	32	SCP0974	Unexpected command
5	32	SCP0974	Memory request error

Notes

1. If the dialog cannot be initialized, the command is rejected and a return code is set.
2. If no initialization took place (OPEN-VIRTUAL-DEVICE-DIALOG command), the command is rejected and a return code is set.
3. If no print job was requested (GET-JOB-FROM-VIRTUAL-DEVICE command), the command is rejected and a return code is set.
4. This command can only be used in batch mode.
5. Spin-off processing is activated each time an error is detected.

5.64 RUN

Start command file

Component:	BS2000
Functional area:	Editing command files
Domain:	not allocated
Privileges:	OPERATING
Routing code:	E

Function

This command starts the execution of a command file. The command is acknowledged with console message `NBR1000`, which specifies a RUN ID. This message specifies a RUN ID, which is also displayed in subsequent event messages during RUN processing. The processing of a command file can be canceled by specifying the CANCEL-RUN-PROCESS command together with the RUN ID.

Command file usage is described in “Command files for the operator” in the “Introduction to System Administration” [14].

Restrictions when using the “Operator LOGON” function

When using the “Operator LOGON” function (system parameter NBCONOPI=Y), note the following:

- Explicit issuing of a RUN command prior to “SYSTEM READY” is rejected.
- After “SYSTEM READY”, unrestricted use of the RUN command is possible only for authorized user programs with generated authorization names.
- After “SYSTEM READY”, the operator cannot issue a RUN command until the operator LOGON has been completed (SET-LOGON-PARAMETERS command). The commands in the RUN file are then processed with the file access rights (permissions) and command privileges of the operator ID. Please note the following:
  - If the user ID is not specified explicitly in the name of the RUN file, it defaults to the operator ID. If the specified file does not exist under the operator ID, the system attempts to run the file under the user ID defined in the NBRUNUID system parameter. If the file does not exist under that user ID, or if no user ID is defined in the system parameter, the system makes a third and last attempt to run the file under the TSOS ID. Searching among the various user IDs ends once the specified file is found in one of them. If the file still cannot be executed (no execute permission or invalid content), the RUN command terminates and the call may have to be corrected and repeated. If the catalog ID is not specified, it defaults to the catalog ID defined in the user catalog as the default for the user ID which is established as described above.
  - The RUN file name completion algorithm also applies to RUN command sequences generated when the RUN file is executed.
  - If RUN files under IDs other than the user’s own are accessed, the file protection attributes are evaluated (access control and passwords). This is of particular significance if the operator ID does not have TSOS privilege.
  - RUN command sequences cannot be processed correctly unless the operator ID is authorized to issue the RUN command and all the commands which are invoked within the RUN command sequence (including commands in follow-up sequences).

- The loss of routing codes as the result of an EXIT-JOB command or the failure of the operator terminal takes immediate effect, which means that any commands still awaiting processing which require a routing code other than @ will be rejected. The same applies if operator LOGON has been repeated in the meantime. RUN commands from a physical operator terminal which has become inactive are always rejected, even if @ is the assigned routing code (message NBR1014).
- The SET-LOGON-PARAMETERS and REQUEST- and RELEASE-OPERATOR-ROLE commands are rejected within a RUN command sequence.

Format

RUN

FROM-FILE = <filename 1..54 without-gen-vers> / ***LIB**RARY**-ELEM**ENT(...)

***LIB**RARY**-ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-gen-vers>

| ,**ELEM**ENT = <composed-name 1..64>

,**FILE-PASSWORD** = ***NONE** / <c-string 1..4> / <x-string 2..8> / <integer -2147483648..2147483647>

> With the support of libraries the command syntax has been brought into line with SDF. For reasons of compatibility, the earlier syntax is also accepted for command files which are not contained in a library (FPASS=*STD corresponds to FILE-PASSWORD=*NONE in this case).

Operands

FROM-FILE = <filename 1..54 without-gen-vers> / *LIBRARY-ELEMENT(...)
Name of command file (SAM or ISAM) to be executed.

FROM-FILE = *LIBRARY-ELEMENT(...)
The command file is stored in a PLAM library member.

LIBRARY = <filename 1..54 without-gen-vers>
Name of the PLAM library which contains the command file as a member (type J).

ELEMENT = <composed-name 1..64>
Name of the member.
Only records with format “A” and record type 1 are processed.

FILE-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647>
Execute password of the command file or read password of the PLAM library.

Notes

- The system processes the SHOW-PENDING-MSG command with a higher priority than other commands. If this command is specified in a command file, it can overtake other commands which are ahead of it in the command file.
- Reading of the RUN file can be interrupted by means of an ASTOP command within the file. Commands that have already been read can be processed before reading of the RUN file has been completed. ASTOP wait

states can be canceled by means of AGOGO commands. If not enough AGOGO commands are entered during the ASTOP wait states, reading of the RUN file is resumed after 3 minutes. The system parameter NBRUNWT can be used to set a different wait time.

- An ASTOP command should be included in the RUN file after every 30 commands or so.
- Only one RUN command can be processed at a time. RUN commands in RUN files are not processed until all other commands in the RUN file have been read.
- Processing of a RUN file is aborted if a record is more than 201 bytes long.
- If the content of a record cannot be interpreted or if a record contains an incorrect command, the record is rejected, but processing of the RUN command continues.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
1	0	NBR1018	RUN file empty; command ignored
1	0	NBR1303	RUN library member is empty or contains only unsuitable records (type or format). Command ignored.
2	0	NBR0746	Command revoked
2	0	NBR1005	At least one timeout in ASTOP wait state
	1	CMD0202	Syntax error
	64	NBR0796	Password in command is missing or wrong
	64	NBR0826	Record in RUN file too long
	64	NBR1002	Specified file is missing or contains errors
	64	NBR1003	Read error during command file processing
	64	NBR1015	RUN file on foreign ID and not shareable or protected against execution by GUARDS
	64	NBR1305	RUN library does not exist
	64	NBR1306	RUN library is not a library
	64	NBR1307	RUN library member not found or has incorrect type
	64	NBR1308	Password for RUN library missing or incorrect
	64	NBR1310	RUN file on foreign ID and not shareable or protected against reading by GUARDS
	129	NBR1014	Command rejected because issued from inactive operator terminal
	130	NBR0921	Memory shortage
	130	NBR1017	Catalog not available

	130	NBR1301	General PLAM error, take note of message inserts
	130	NBR1304	Library or library member locked in RUN command
	130	NBR1309	PLAM not available

5.65 SAVE-RETURNCODE

Save current command return code

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SAVE-RETURNCODE command can only be used within S procedures and in dialog blocks.

The SAVE-RETURNCODE command allows the user saves the current command return code in a nonerror situation. The SAVE-RETURNCODE command must directly follow the command concerned. This code can subsequently be queried using the builtin functions SUBCODE1, SUBCODE2 and MAINCODE (see section "SDF-P-BASYS" and “SDF-P” [34]).

Note

When the chargeable SDF-P subsystem is used, the current command return code for a command is implicitly saved by an immediately following IF-CMD-ERROR command. The command return code can then be evaluated in the ELSE branch in a nonerror situation (see the “SDF-P” manual [34]).

Format

SAVE-RETURNCODE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

5.66 SAVE-SOFTWARE-INVENTORY

Copy current SCI

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

The SAVE-SOFTWARE-INVENTORY command is used to back up the current SCI. When this is done, consistent backup copies are created for the two physical files (IMON-SCI and IMON-GPN-SCI).

The name of the backup copy can be specified explicitly. The corresponding IMON-GPN-SCI is backed up under the same file name but with the suffix .GPN. If the length of the SCI name including the catalog ID and the user ID exceeds 50 characters then the command is aborted with an error message.

The command is not executed if the IMON subsystem is not loaded.

Backup copies of the SCI are also automatically created on system start and on software installation (see the “IMON” User Guide [19]).

The RESTORE-SOFTWARE-INVENTORY command can be used to restore the current SCI from a backup copy.

Format

SAVE-SOFTWARE-**INVENT**ORY
TO-SCI = ***STD** / <filename 1..50>

Operands

TO-SCI =
Name of the target file (backup copy).

TO-SCI = *STD
The file name of the currently open SCI is used together with the timestamp (date and time) in the form <yyyymmddhhmmss> as the suffix.

TO-SCI = <filename 1..50>
Explicit specification of the target file name.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	IMO9101	Command terminated abnormally (system error in external call; internal error in IMON-GPN)
	64	CMD0216	Privileges error
	64	IMO9100	IMON subsystem started, DMS error

5.67 SAVE-SUBSYSTEM-CATALOG

Save changes to dynamic subsystem catalog

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

This command allows users with the SUBSYSTEM-MANAGEMENT privilege to save changes to the dynamic subsystem catalog in a static subsystem catalog.

Changes made with the ADD-SUBSYSTEM, REMOVE-SUBSYSTEM and MODIFY-SUBSYSTEM-PARAMETER commands as a rule affect only the dynamic subsystem catalog, not the static catalog.

Consequently, any such changes are lost the next time the system is started up unless they are saved in a static catalog with the aid of the SAVE-SUBSYSTEM-CATALOG command. Note, however, that changes which are useful for the current session may be pointless or even counter-productive after the next startup. (For example: a message file is assigned to a subsystem which has BEFORE-DSSM-LOAD as its activation point. If the subsystem is restarted during the current session, this may well be a useful change to make; but it cannot be implemented the next time the system is started up.)

Format

SAVE-SUBSYSTEM-**CAT**ALOG
CATALOG-**NAME** = ***STD** / ***STARTUP-CAT**ALOG / <filename 1..54 without-gen-vers> ,**FORCED** = ***NO** / ***Y**ES

Operands

CATALOG-NAME = *STD / *STARTUP-CATALOG / <filename 1..54 without-gen-vers>
Designates the file in which the dynamic catalog is to be saved.

CATALOG-NAME = *STD
The dynamic catalog is saved under the default file name '*$.SYS.SSD.CAT.X*'.

CATALOG-NAME = *STARTUP-CATALOG
The dynamic catalog is stored under the name of the catalog used at startup time.

CATALOG-NAME = <filename 1..54 without-gen-vers>
The file named here is used as the static catalog.

FORCED = *NO / *YES
Defines whether, despite errors, the dynamic catalog is saved to the static catalog.

FORCED = *NO
A dynamic catalog which contains errors will not be saved in the static catalog.

FORCED = *YES

The dynamic catalog will be saved in the static catalog even if it contains errors.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	ESM0288	DSSM bourse not available
	32	ESM0296	Request for memory space (REQM) not executed
	32	ESM0350	Internal DSSM error; DSSM task restarted
	32	ESM0360	Error due to insufficient memory
	32	ESM0409	DSSM not initialized
	32	ESM0643	Internal error during save operation
	64	ESM0648	Command not executed

Notes

- The dynamic catalog to be saved may be inconsistent for a number of reasons. For example, the catalog required by DSSM may have been saved using the operand FORCED=*YES, in which case there will be inconsistencies between the subsystems. Another possibility is that changes made by means of /MODIFY-SUBSYSTEM-PARAMETER will be unacceptable at the next BS2000 startup, although they will be accepted in the current BS2000 session. Because of the danger of such inconsistencies, the catalog must first be subjected to a variety of checks before it can be saved. Any errors detected in the course of these checks are reported, and a corresponding message is output via SYSOUT.
- Even if the dynamic catalog was saved without inconsistencies being detected, it cannot be taken for granted that the next startup carried out with this catalog will be successful. For example, if the start time (CREATION-TIME) of a subsystem has been changed by means of an earlier /MODIFY-SUBSYSTEM-PARAMETER so that it is no longer started automatically during BS2000 system startup, this may lead to serious problems for other subsystems.
- If a DMS error relating to the catalog file occurs during saving of the catalog, message ESM1806 is output. The result of the save operation must be checked accordingly. If the same message is output in relation to one of the subsystems involved, it should merely be interpreted as a warning; it has no influence on the result of /SAVE-SUBSYSTEM-CATALOG.
- If the specified catalog name is the same as the name of an existing file, a message is displayed inquiring whether the user wishes to overwrite this file.
- If certain functions cannot be correctly processed, appropriate messages are output via SYSOUT.

Example

Provided that it contains no errors, the dynamic catalog is to be saved as a static catalog under the file name *COPY.DSSMCAT*:

/save-subsystem-catalog catalog-name=copy.dssmcat,forced=*no

```
CHECK REPORT:
**** NO ERROR ****
CHECK OF LINK REFERENCES:
VERSION RANGE CHECK:
**** NO ERROR ****
LINK RELATION CHECK:
**** NO ERROR ****
CHECK OF FUNCTIONAL DEPENDENCE:
VERSION RANGE CHECK:
**** NO ERROR ****
DEPENDENCE RELATION CHECK:
**** NO ERROR ****
CYCLE CHECK:
**** NO ERROR ****
CHECK OF RELATED FILES:
*****************************************************************
*    2 * SUBSYSTEM NAME:      ACS      VERSION:    20.0           *
*****************************************************************
**** NO ERROR ****
*****************************************************************
*    3 * SUBSYSTEM NAME:      AID      VERSION:    03.4           *
*****************************************************************
**** NO ERROR ****
 .
 .
 .
*****************************************************************
*   40 * SUBSYSTEM NAME:      SDF      VERSION:    04.8          *
*****************************************************************
**** NO ERROR ****
 .
 .
 .
%  ESM1200 CATALOG ':MAG2:$TSOS.COPY.DSSMCAT' GENERATED
%  ESM0254 COMMAND 'SAVE-SUBSYSTEM-CATALOG' COMPLETELY PROCESSED
```

5.68 SAVE-VARIABLE-CONTAINER

Save variable container

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION SECURITY-ADMINISTRATION

Function

The SAVE-VARIABLE-CONTAINER command is used to save variable containers.

Format

SAVE-VARIABLE**-CONTAIN**ER

CONTAINER**-NAME** = <composed-name 1..64 with-wild(80)>(...) /

list-poss(2000):<composed-name 1..64>(...)

<composed-name 1..64 with-wild(80)>(...)

| **ELEM**ENT**-VERSION** = ***SAME** / ***INCREMENT**

<composed-name 1..64>(...)

| **ELEM**ENT**-VERSION** = ***SAME** / ***INCREMENT**

Operands

CONTAINER-NAME =
Name of the variable container.

CONTAINER-NAME = <composed-name 1..64 with-wild(80)>(...)
Variable container with name matching the specified pattern string.

ELEMENT-VERSION =
Designates the version of the library element (member).

ELEMENT-VERSION = *SAME
The element version remains unchanged. If the element does not yet exist, it is assigned the version *UPPER-LIMIT.

ELEMENT-VERSION = *INCREMENT
The element version is incremented. If the element does not yet exist, it is assigned the version 001.

LOCK-ELEMENT = *NO must have been specified in OPEN-VARIABLE-CONTAINER and the element version must end with a digit.

CONTAINER-NAME = list-poss(2000): <composed-name 1..64>(...)
Name of the variable container. A (large) number of variable containers can be named in a list.

ELEMENT-VERSION =
Designates the version of the library element (member).

ELEMENT-VERSION = *SAME
The element version remains unchanged. If the element does not yet exist, it is assigned the version *UPPER-LIMIT.

ELEMENT-VERSION = *INCREMENT
The element version is incremented. If the element does not yet exist, it is assigned the version 001.
LOCK-ELEMENT = *NO must have been specified in OPEN-VARIABLE-CONTAINER and the element version must end with a digit.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	Do not have required privilege
	64	SDP0091	Semantic error
	130	SDP0099	No more address space available

Example

See the DECLARE-VARIABLE command.

5.69 SECURE-RESOURCE-ALLOCATION

Request resources

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The SECURE-RESOURCE-ALLOCATION command reserves resources required by the job for execution. This reservation guarantees that subsequent accesses to resources will not be rejected by the system.

Within an interactive or batch job the following resources can be reserved by means of the SECURE-RESOURCE-ALLOCATION command:

- private volumes (disks, tapes)
- devices for private volumes (disk devices, tape devices)
- files, file generations and file generation groups on private and public volumes.

Reservation of a file also results in the reservation of the disk or tape containing it and, in turn, the reservation of the respective device.
Explicit reservations can be made for

- devices, by means of the DEVICE or UNIT operand
- volumes, by means of the DISK or TAPE operand
- files, by means of the FILE operand.

Implicitly reserved are devices or volumes which are required for an explicitly reserved file or volume.
If a device type is both implicitly and explicitly reserved in a command at the same time, the system will attempt to provide the sum of the implicitly and explicitly reserved devices.

A resource is *exclusively* reserved if no other job can use it while it is reserved. It is termed *shareable* if the system ensures free access during the reservation period, although other jobs can use the resource as well.

An existing reservation is canceled:

- with every SECURE-RESOURCE-ALLOCATION command (even without operands). All previously reserved private resources are released (even those reserved only implicitly)
- with the REMOVE-FILE-LINK command.
  REMOVE-FILE-LINK cancels the reservation of a file and of the associated disk/tape as required. The reservation of devices is retained if this is requested in the REMOVE-FILE-LINK command with RELEASE-DEVICE=*NO.
  If disks/tapes or devices assigned to the file are also implicitly reserved by other files or disks/tapes, these disks /tapes and devices are not released until all system references have been cleared.

- with the WAIT-EVENT command (UNTIL=*USER-SWITCHES(...) operand).
- at job end (EXIT-JOB, LOGOFF, CANCEL-JOB).

The SECURE-RESOURCE-ALLOCATION command is rejected if:

- a program is loaded and assignments with USE=SPECIAL exist.
- a tape file to be reserved is open.
- the TFT entry of a tape file to be reserved is locked with /LOCK-FILE-LINK.
- a public volume is supposed to be reserved explicitly.
- one of the requested resources cannot be made available (see WAIT operand).
- implicitly requested devices do not exist or not in adequate numbers
- a nonprivileged user tries to reserve a file under the TSOS user ID or the standard system user ID exclusively.
- the job has opened files on volumes which were to be reserved exclusively This is possible if SECURE-RESOURCE-ALLOCATION is issued within a procedure file and the file was previously allocated to a private volume of a logical system file (e.g. ASSIGN-SYSLST).

Each SECURE-RESOURCE-ALLOCATION command (even one without operands) first releases all private resources which were previously reserved (implicit RELEASE). TFT entries will not be deleted, and do not need to be recreated. However, the device reservations linked to the existing TFT entries are canceled.

If a volume which is not yet mounted is reserved, for tapes by default a PREMOUNT message (for tapes) is sent to the operator terminal (can be changed with MODIFY-MOUNT-PARAMETER). Private disk must be online or be made available during the execution of the command.

If any of the requested resources cannot be reserved, no reservation at all is made. Depending on the job type and what is specified for the WAIT operand, the system either issues a message or places the job in the Secure queue until all requested resources are available or until the specified wait time elapses. Note, however, that the system branches to the next SET-JOB-STEP, EXIT-JOB or LOGOFF command if implicitly requested devices or the necessary number of devices do not exist.

If the operator rejects a resource request (MOUNT message on the console), no reservation is made and the system branches, in batch mode, to the next SET-JOB-STEP, EXIT-JOB or LOGOFF command.

If the command is rejected (e.g. resources not available), all volumes previously made available to the job are released again.

Whether a private disk can be reserved depends on the setting of the parameters “USER-ALLOCATION”, “SYSTEM-ALLOCATION” and “OPERATOR-CONTROL”. The user can query these via the SHOW-DISK-STATUS command.

Notes on tape processing

For any tape volume reserved by /SECURE-RESOURCE-ALLOCATION VOLUME (explicit reservation) or by /SECURE-RESOURCE-ALLOCATION FILE (implicit reservation), the VOLUME-PHASE will be set to PREMOUNT (see the command SHOW-TAPE-STATUS, SHOW-RESOURCE-ALLOCATION). In other words, this tape is pre-reserved solely to prevent the use of the same volume by another job. However, no input/output operations have yet taken place on the volume. There is an implicit device reservation. Between the time of OPEN and CLOSE, the PHASE for the tape is IN-USE (i.e. the tape is being processed). Following the CLOSE, the PHASE is set back to PREMOUNT.

Remote file access (see also the “RFA” manual [31])

Files may also be reserved in a remote system via RFA. However, only files may be specified in this command and these must all belong to the same system.

The local TFT contains entries for all remote files which are being processed. Exclusively reserved remote files are not included; the same applies to remote files after input of the REMOVE-FILE-LINK command.

In order to avoid a deadlock situation, a SECURE-RESOURCE-ALLOCATION command without operands is sent to all RFA partner tasks during the disconnection phase at the start of command execution (unless the task is itself an RFA partner task).

Access to migrated files (for details see the “HSMS” manual [18])

Files migrated by means of HSMS to one of the hierarchical storage levels S1 or S2 can be implicitly recalled via `/SECURE-RESOURCE-ALLOCATION, FILE=*PAR(filename)` (implicit recall). HSMS outputs a summary report in this case.

Format

SECURE-**RES**OURCE-ALLOCATION

DEVICE = ***NO** / list-poss(11): [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **TYPE** = <device> / <structured-name 1..8> / <alphanum-name 1..8>

| ,**NUM**BER = **1** / <integer 0..255>

| ,**LOCATION** = ***USER-DEF**AULT / ***NONE** / <alphanum-name 1..8> / ***BY-FILENAME**(...)

| ***BY-FILENAME**(...)

| | **NAME** = <filename 1..54>

,**UNIT** = ***NO** / list-poss(48): <alphanum-name 2..2> / <alphanum-name 4..4>

,**DISK** = ***NO** / list-poss(48): [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **VOL**UME = <alphanum-name 1..6>

| ,**TYPE** = <device>

| ,**ALLOC**ATION = ***SHARE**D / ***EXCL**USIVE

,**TAPE** = ***NO** / list-poss(48): [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **VOL**UME = <alphanum-name 1..6>

| ,**TYPE** = ***BY-VOL**UME-**CAT**ALOG / <device>

| ,**ACCESS** = ***READ** / ***WR**ITE

```
        |       ,MOUNT = *YES / *NO
,FILE = *NO / list-poss(48): [*PARAMETERS](...)
    [*PARAMETERS](...)
        |       NAME = <filename 1..54>
        |       ,ACCESS = *READ / *WRITE
        |       ,MOUNT = 1 / <integer 0..255>
        |       ,ALLOCATION = *SHARED / *EXCLUSIVE
,WAIT = [*PARAMETERS] (...)
    [*PARAMETERS](...)
        |       TIME = *TASK-STD / <integer 1..2097152 seconds>
        |       ,EVENT = *ALL-MOUNT / *DISK-MOUNT
```

Operands

DEVICE = *NO / list-poss(11): *PARAMETERS(...)
Specifies whether devices are to be reserved.

DEVICE = *NO
No devices will be reserved by their device type.

DEVICE = list-poss(11): *PARAMETERS(...)
Specifies the number and type of devices to be reserved. No more than eleven different types of devices may be reserved.

TYPE = <device> / <structured-name 1..8> / <alphanum-name 1..8>
Specifies which device type is to be reserved.
A disk device should not be reserved using the TYPE operand because the associated disk can be used by privileged applications (such as FDDRL or VOLIN) in usage mode SPECIAL only.
Tape and cartridge tape devices are reserved by specifying a valid volume type (see also section "Device types for DMS tape processing"). Volume types WORK and TAPE can be used only for applications for which WORK and TAPE respectively have also been specified as volume type (in the CREATE-FILE command, for example).
The available device types can be determined from the output from the SHOW-DEVICE-CONFIGURATION command with UNIT=*SELECT(CLASS=*DEVICE, ATTRIBUTE=*ATTACHED) (see also the device table in section "Device type table" (device type column)).
See also the TYPE operand for reserving disks (DISK) and tapes (TAPE).

NUMBER = 1 / <integer 0..255>
Number of devices of the specified type that are to be reserved.

LOCATION = *USER-DEFAULT / *NONE / <alphanum-name 1..8> / *BY-FILENAME(...)
Only for reservation of tape devices
Either describes the way in which the location is determined or designates the location itself.

LOCATION = *USER-DEFAULT
The device administration should select suitable device groups. If the chargeable MAREN subsystem is

loaded, the device administration should use MAREN (MAREN Exit) to obtain the appropriate device depot information.

LOCATION = *NONE
The devices to be reserved should be taken from the device group which is not assigned to a device depot (the RESTPOOL; see ADD-DEVICE-DEPOT command).

LOCATION = <alphanum-name 1..8>
Designates the storage location (device depot) from whose assigned device group the tape devices to be reserved are to be selected. Assignments of tape devices to device depots are defined by system support staff using the ADD-DEVICE-DEPOT command. These assignments can be listed with the SHOW-DEVICE-DEPOT command.

LOCATION = *BY-FILENAME(...)
The device administration must use the chargeable MAREN subsystem to find out where the tape is located. The specified file name is passed to MAREN. In conjunction with MAREN Exit, MAREN uses this name to find out where the relevant tape is stored. The procedure for obtaining depot information on MARENLM or MAREN-Exits is described in the “MAREN” manual [23].

If the location returned by MAREN is not one of the depots declared with ADD-DEVICE-DEPOT, processing continues without a depot specification. In this respect note the following:

1. If all tape devices are assigned to depots, the command is rejected with a return code of NKS0015, and any other device reservation (e.g. using a FILE or OPEN macro) is rejected with an appropriate return code.
2. If suitable devices with no depot assignment are available (from the RESTPOOL), the device request is implemented from this pool.
   If the “devices” in this pool are ones which have simply been generated to allow for future additions but are not physically present, tasks may end up waiting permanently on the device queue. Any such tasks can be listed with the SHOW-RESOURCE-REQUESTS command (the *RESOURCES REQUESTED* output contains a device type designation with no depot specification).
   NAME = <filename 1..54>
   The location of the tape on which the specified file is archived is ascertained.

UNIT = *NO / list-poss(48): <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic (two- or four-character) device name of the device to be reserved. The device is reserved exclusively for this job.
A disk device should not be reserved using the UNIT operand because the associated disk can be used by privileged applications (such as FDDRL or VOLIN) in usage mode SPECIAL only.

UNIT = *NO
No device is being reserved by specifying its UNIT.

UNIT = list-poss(48): <alphanum-name 2..2>
Mnemonic device name (2 characters) of the tape device which is to be reserved; the device will be exclusively reserved, and can also be used in non-DMS mode.

UNIT = list-poss(48): <alphanum-name 4..4>
Mnemonic device name (4 characters) of the tape device which is to be reserved; the device will be exclusively reserved, and can also be used in non-DMS mode.

DISK = *NO / list-poss(48): *PARAMETERS(...)
Specifies whether a private disk is to be reserved.

DISK = list-poss(48): *PARAMETERS(...)
For each private disk which is to be reserved, the volume serial number (VSN), the disk device type and the type of reservation must be specified. A maximum of 48 private disks can be reserved.
The “DMS” usage mode is implicitly defined for the volumes.
Whether a device can be reserved or not depends on the values of the “USER-ALLOCATION”, “SYSTEM-ALLOCATION” and “OPERATOR-CONTROL” settings defined by system support staff using the SET-DISK-DEFAULTS and SET-DISK-PARAMETER commands. Users can request information about these values using the SHOW-DISK-DEFAULTS and SHOW-DISK-STATUS commands.

VOLUME = <alphanum-name 1..6>
Specifies the volume serial number(s) of the disk(s) to be reserved.

TYPE = <device>
Specifies the type of device on which the disk is to be mounted.
Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with DEVICE-TYPE=?.
The available device types are shown in the output of the SHOW-DEVICE-CONFIGURATION command with UNIT=*SELECT(CLASS=*DEVICE,ATTRIBUTE= *ATTACHED) (see also the device table in section "Device type table" (device type column)).

ALLOCATION = *SHARED / *EXCLUSIVE
Specifies the reservation mode for the disk to be reserved.

ALLOCATION = *SHARED
Disk access by other jobs is permitted.

ALLOCATION = *EXCLUSIVE
Exclusive reservation: this means that the resource may not be used by any other jobs.

TAPE = *NO / list-poss(48): *PARAMETERS(...)
Specifies whether a tape is to be reserved. This reservation is always exclusive.

TAPE = list-poss(48): *PARAMETERS(...)
Specifies the volume serial number, device type and desired type of access for each tape to be reserved. A maximum of 48 tapes may be reserved.

The *DMS* usage mode is implicitly defined for the volumes. Reservations for the “SPECIAL” or “WORK” usage modes are possible only in explicit device reservations.

Points to note when using storage locations (MAREN subsystem)

When reserving a volume and the implicit device reservation linked to it, the device administration uses the chargeable MAREN subsystem to determine the storage location of the volume.
If the volume identifier is entered in the MAREN catalog, the storage location indicated there is used for the device reservation. Otherwise, the default storage location supplied by MAREN or the storage location determined by using the MARENLM or MAREN-EXITS routine is used (see the “MAREN, Volume 1” manual [23]).

VOLUME = <alphanum-name 1..6>
Specifies the volume serial number of the volume to be reserved.

TYPE = *BY-VOLUME-CATALOG / <device>
Identifies the type of device on which the volume is to be mounted.
Only device types or volume types known within the system are accepted. In interactive mode, the possible

device and volume types are displayed with DEVICE-TYPE=?. Volume types WORK and TAPE can be used only for applications for which WORK and TAPE respectively have also been specified as volume type (in the CREATE-FILE command, for example).

TYPE = *BY-VOLUME-CATALOG
The device type is determined via MAREN device substitution. If this function is not available, the command is rejected.

ACCESS = *READ / *WRITE
Specifies the type of accesses for which the tape must be mounted. The purpose of this operand is to inform the operator in the mount or premount request whether the tape should be mounted with the write protection lock activated or deactivated.

ACCESS = *READ
The tape is only to be read. The write protection lock must not be disabled.
Tapes are *not* write-protected by default. If a write access is attempted to a tape which was requested without a write-enable ring, the processing will merely be interrupted and the system will request the operator to remount the tape with the write protection lock disabled.

ACCESS = *WRITE
The tape is to be written. The operator will be asked in the mount request to disable the write protection lock.

MOUNT = *YES / *NO
Specifies whether the implicit device reservation is to be executed immediately when the SEC-RES command is executed.

MOUNT = *YES
The system reserves the volume and device and issues the premount message on the operator terminal.

MOUNT = *NO
The system will reserve the volume but not the required device; no premount message will be output. The device will be reserved offline; this reservation will not be output if the command SHOW-RESOURCE-ALLOCATION is issued.

FILE = *NO / list-poss(48): *PARAMETERS(...)
Specifies whether a file, file generation or file generation group is to be reserved. Access to the file must be permitted (see SHOW-FILE-ATTRIBUTES command).

FILE = *NO
No file/file generation is to be reserved.

FILE = list-poss(48): *PARAMETERS(...)
The name must be specified for each file which is to be reserved; for tape files, the reservation details must also be specified (ACCESS, MOUNT), and for disk files the type of reservation. A maximum of 48 files can be reserved. For tape files, the reservation is always exclusive; for disk files, it depends on the ALLOCATION operand.

NAME = <filename 1..54>
Identifies a cataloged file, file generation or system file. If the file/FGG specified by NAME is not cataloged, the job will not be put into the SECURE queue. In interactive mode, an error message will be output, in batch mode spin-off will be initiated.
If the file specified by NAME is cataloged under another user’s ID, the file/FGG must be shareable. All the disks belonging to it will be reserved as shareable and mounted.
For files on SPDs (shareable private disks), the reservation is noted in the F1 label on the disk. This reservation is also taken into account by accesses from other computers. In multiprocessor systems, any

reservation for a file which is not on a locally available pubset will be rejected.
If no other details are specified by a file reservation, the following default values will apply:

- Disk files: The associated disks will be mounted and treated as shareable. The file will be reserved as shareable, but can also be reserved exclusively (ALLOCATION). If the file is spread across several private disks, all the volumes concerned will be reserved.
- Tape files: The associated tapes will *always* be reserved exclusively. This has the effect that all the files which are on these tapes are also exclusively reserved. The tape device will be implicitly reserved (see MOUNT operand).
  The reserved tapes will be mounted with the write protection lock enabled (see ACCESS operand).
  If the file is spread across several tapes, then a device will only be automatically reserved for the first volume (depending on the MOUNT operand).

ACCESS = *READ / *WRITE
This operand is only evaluated for tape files:
Specifies whether the associated tapes are to be mounted for reading only, or for writing as well. The purpose of this operand is to inform the operator in the mount request whether the tape should be mounted with the write protection lock enabled or disabled.

ACCESS = *READ
The tape is only to be read. The write protection lock must not be disabled. Tapes are *not* write-protected by default.

ACCESS = *WRITE
The tape is to be written. The operator will be asked in the mount request to disable the write protection lock.

MOUNT = 1 / <integer 0..255>
This operand is only evaluated for tape files:
Specifies how many tape devices are to be implicitly reserved. The tapes will be selected in the sequence in which they are recorded in the catalog. For these tapes, MOUNT messages will be output on the operator's terminal for the devices which are implicitly reserved.
When using storage locations, the device administration determines the storage location as when reserving via the TAPE operand.

MOUNT = 1
Only one device will be implicitly reserved.

MOUNT = <integer 0..255>
The specified number of devices will be implicitly reserved.

If the number of devices implicitly reserved is less than there are tapes recorded in the catalog, then the remaining tapes will be reserved without a corresponding device reservation (offline).
If the number of devices specified is more than there are tapes recorded in the catalog, then only as many implicit device reservations will be executed as there are tapes in the catalog.

ALLOCATION = *SHARED / *EXCLUSIVE
This operand is only evaluated for disk files: Specifies whether the file/file generation specified by the NAME operand is to be reserved as shareable or exclusive, i.e. whether other jobs may access the reserved disk file or not.

ALLOCATION = *SHARED
A check will be made to see whether the file exists. It is still accessible for other jobs (both read and write access). The required disks and devices will be implicitly reserved and remain shareable (USE=DMS). No

check will be made to see whether the file is already exclusively reserved. The file can still be exclusively reserved by another task.

ALLOCATION = *EXCLUSIVE
The file will be reserved exclusively for the calling job, and is therefore not accessible for other jobs; disks and devices are reserved as shareable. A file can only be reserved exclusively if it is not open or not already exclusively reserved by another job.
Files belonging to the user ID TSOS or the system default ID cannot be exclusively reserved by other users.
If a file generation group is specified, all the file generations which comprise it will be locked against access from outside.

WAIT = *PARAMETERS(...)
Determines the maximum time that the job should wait for the fulfillment of its reservation request. When this waiting time has expired, the request will be rejected.
The waiting time includes also the time required to fetch back any files which have been migrated (by HSMS).

TIME = *TASK-STD / <integer 1..2097152 *seconds*>
Specifies the maximum waiting time in seconds. The accuracy is in the order of minutes. If the command requires volumes to be mounted, any reservation which specifies a waiting time of less than 180 seconds will be rejected.

TIME = *TASK-STD
TASK-STD is the default setting:
The system makes a distinction between interactive and batch modes.
Interactive mode:
The command will be rejected if the requested resources are reserved and it will be necessary to wait for their release.
Batch mode:
There is no limit on the waiting period. As a rule, the job will wait for the defined period for the resources to be mounted and become available. If the requests have not been fulfilled by the end of this period, spin-off will be initiated (branch to /SET-JOB-STEP).

TIME = <integer 1..2097152 *seconds*>
Waiting time in seconds: 0 <= integer <= 2097152 (approx. 582 hours or 24 days); the accuracy is of the order of minutes.
If a number < 180 is specified for the TIME operand, then the command will be rejected if a volume needs to be mounted or confirmation from the operator is required for a disk request.

EVENT = *ALL-MOUNT / *DISK-MOUNT
Specifies whether the mounting of tapes is to be synchronous or not with the reservation within the specified waiting time, i.e. whether to wait for a response to the mount or premount messages.
Mount requests for disks must always be satisfied within the waiting time.

EVENT = *ALL-MOUNT
Within the specified waiting period, the job will wait until all the requested volumes have been mounted, i.e. until the operator has responded to all the MOUNT messages. In this case, the mount requests will be synchronous.

EVENT = *DISK-MOUNT
The job will not wait if tapes have been requested; it will only wait for the mounting of private disks. This means that mount request and reservation are asynchronous for tapes, but on the other hand, for disks they are

synchronous.
Even if a reservation is satisfied, a subsequent mount request may still be rejected, and hence cause an error (spin-off).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	NKS0036	Internal error
	64	NKS0001	Tape file open or in HOLD state
	64	NKS0003	Request local and remote files
	64	NKS0004	Request for a public disk
	64	NKS0005	Incompatible reservation modes
	64	NKS0006	Task deadlock
	64	NKS0007	Request for an invalid device type
	64	NKS0009	Wait time too short for operator contact
	64	NKS0013	Program loaded and USE=SPECIAL considerations
	64	NKS0035	Resources not available at present
	64	NKS0037	Termination due to CANCEL-JOB or shutdown
	64	NKS0044	Syntax error in command
	64	NKS0045	Request for resources from multiple systems
	64	NKS0048	Operator was unable to mount volume
	64	NKS0049	Requested resources not available on the system
	64	NKS0050	Command aborted after wait time elapsed
	64	NKS0051	No exclusive reservation of files under the standard system user ID
	64	NKS0052	Tape not online (wait time too short)
	64	NKS0064	Reservation via device type not permitted
	64	NKS0065	File migrated and HSMS not loaded
	64	NKS0066	File migrated and internal HSMS error
	64	NKS0067	File migrated; recall not possible without delay
	64	NKS0080	Error on processing a list object
	64	NKS0098	Error in RFA call

Examples

Example 1: Reserving a file

The interactive job *DIALOG1* reserves the file X.BEFORE for its use with the command:

/sec-res file=par(name=x.before,alloc=*excl).

Thereafter, if the interactive job *DIALOG2* wants to read this file with the command SHOW-FILE, it receives the error message *DMS0D99*:

/show-user-sta inf=*prog

```
%NAME      TSN TYPE        SIZE CURR-CMD
%DIALOG1  1CZI 3 DIALOG         SECURE-RESOURCE-ALLOCATION
%DIALOG2  1E1C 3 DIALOG         SHOW-USER-STATUS
```

/show-file x.vorher

```
%  SHO0003 'DMS' REPORTED ERROR '0D99'. COMMAND NOT PROCESSED
```

/help-msg dms0d99,lang=E

```
%  DMS0D99 FILEWRITE PROTECTED OR ALREADY IN USE
%  ? Possible errors:
%    1) Attempt to open a locked file.;
%    2) Attempt to open a read-only file in a mode other than INPUT
%       or REVERSE.;
%    3) Attempt to open an ISAM or PAM file in SHARED UPDATE mode when
%       it has already been opened as nonshareable by another user.
%    4) Attempt to open an ISAM or PAM file in an OPEN mode intended to
%       prohibit opening of the file when one or more users have already
%       opened it.
%    5) Attempt to open an ISAM file with LOCKENV=XCS.
%    6) File is currently being processed by a C-COPY command.
%  ! Correct and try again later.
```

Example 2: Reserving two or more magnetic tape cartridge units

```
/sec-res dev=((type=tape-c4,num=1,location=d023ze02),
      (type=tape-u4,num=1,location=d023ze02))————————————————  (1)

/sec-res dev=((type=tape-c4,num=1,location=roboter1),
      (type=tape-u4,num=1,location=roboter2))————————————————  (2)
```

(1) The SECURE-RESOURCE-ALLOCATION command reserves a magnetic tape cartridge device of type *TAPE-C4* and one of type *TAPE-U4*. Both devices should be fetched from the storage location *D023ZE02*.

(2) The SECURE-RESOURCE-ALLOCATION command reserves a magnetic tape cartridge device of type *TAPE-C4* and one of type *TAPE-U4*. The devices should be fetched from the storage locations *ROBOTER1* and *ROBOTER2*.

Example 3: Reserving a tape

```
/set-logon-parameters  ...
```

```
.
.
.
```

```
/sec-res tape=par(vol=b0000a,type=tape) ————————————————————————  (1)

/start-prog from-f=prog.test

/sec-res  ——————————————————————————————————————————————————————  (2)
```

(1) The SECURE-RES command reserves a tape with the volume serial number *B0000A* exclusively for this interactive process. To permit its use, a 9-track tape device is assigned to the job.

(2) All the resources reserved for this job are now released.

See also the example for the SHOW-RESOURCE-ALLOCATION command.

5.70 SELECT-PRODUCT-VERSION

Select product version

Component:	IMON-GPN
Functional area:	Program control
Domain:	PROGRAM PROGRAMMING-SUPPORT UTILITIES
Privileges:	STD-PROCESSING SUBSYSTEM-MANAGEMENT

Function

This command allows nonprivileged users to select the product version of an installation unit or a DSSM subsystem (TU, as of DSSM V3.5). If more than one version of this product is installed and accessible, it is possible to specify the version with which the user wishes to work. When starting the associated program or when setting up a connection to a subsystem, the selected version is used.

The following applies in the case of command calls sharing the same scope (SCOPE operand):

- Only one version of a product can be selected.
- If the command is executed twice with different versions of the same product as the last specified version applies.

The SHOW-SELECTED-PRODUCT-VERSION command provides information on the current version selection.

Privileged function

Systems support can use SCOPE=*SYSTEM to select the product version of an installation unit for the duration of the session.

Format

SELECT-PRODUCT-VERSION

PRODUCT-NAME = <text 1..30 without-sep>

,**VERSION** = ***STD** / <product-version>

,**SCOPE** = ***TASK** / ***PROGRAM** / ***SYSTEM**

Operands

PRODUCT-NAME = <text 1..30 without-sep>
Specifies the name of the software product. For subsystems loaded by DSSM this is the name of the subsystem and /or the name of the IMON installation unit. In relation to DBL, it is the name of a load unit.

VERSION =
Specifies the version of the product to be loaded. The full version need not be specified. In this case, the most suitable version is selected or, in the case of a DSSM subsystem, the exact version is selected.

VERSION = *STD
An earlier version selection is canceled. This means that the system presetting applies again (the highest version is used).

VERSION = <product-version>
Specifies the version of the software product. When loading the software the DBL uses only this version for external reference resolution.

SCOPE =
Specifies how long the selection is to apply for.

SCOPE = *TASK
The selection is valid until the end of the task.

SCOPE = *PROGRAM
The selection is valid until the end of the current or subsequent program.

SCOPE = *SYSTEM
This operand value can only be used by privileged users with the SUBSYSTEM-MANAGEMENT privilege.
The selection (installation units only) is valid throughout the system for this session (until shutdown). This setting cannot be made for DSSM subsystems.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	IMO9101	Command terminated abnormally. Internal error in IMON-GPN
	64	CMD0216	Privilege error
	64	IMO9100	Command not executed. Installation unit or version not found

Notes

The command is accepted for a product and an explicitly specified version in the following two cases:

1. The product name is registered as an installation unit in the SCI: in this case, the version that is explicitly specified in the VERSION operand must exist.
2. The product name is not registered in the SCI: in this case, it must be possible to connect a corresponding DSSM subsystem. This means that the subsystem is declared in the DSSM subsystem catalog under the specified name and version and that it has been started.

5.71 SELECT-PROGRAM-VERSION

Select version of program

Component:	IMON-GPN
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING

Function

The SELECT-PROGRAM-VERSION command lets the user select a specific version of a program to work with. This tells the DBL which version of a load unit to use if it has access to multiple loaded versions of it.

Format

SELECT**-PROG**RAM**-VERS**ION
PROGRAM**-NAME** = <composed-name 1..32> / <text 1..32 without-sep> ,**VERSION** = ***STD** / <composed-name 1..24> ,**SCOPE** = ***PROG**RAM / ***TASK**

Operands

PROGRAM-NAME = <composed-name 1..32> / <text 1..32 without-sep>
Name of the program. From the DBL's viewpoint this is the name of a load unit. This program must not yet be loaded at the time of version selection.

VERSION = *STD / <composed-name 1..24>
Version of the program.
*STD means that the program version is disregarded. DBL acts as if the SELECT-PROGRAM-VERSION command had not been executed.

SCOPE =
Applicability of the version selection.

SCOPE = *PROGRAM
The version selection applies only until a program terminates or a different version is selected. That means the version selection must be repeated each time the program is to be run.

SCOPE = *TASK
The version selection applies until the end of the task or until a different version is selected.

> Separate versions of a program can be selected for SCOPE=*PROGRAM and for SCOPE=*TASK. A subsequent version selection supersedes an earlier selection with the same SCOPE.
>
> SCOPE=*PROGRAM takes precedence over SCOPE=*TASK. If differing scopes are defined for two different versions of a program, only the version defined using SCOPE=*PROGRAM applies.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0150	Warning during program execution
1	32	BLS0152	System error
	64	CMD0216	User not authorized to issue command

5.72 SEND-MSG

Send message to console or program (STXIT routine)

Component:	BS2000
Functional area:	not allocated
Domain:	JOB PROGRAM
Privileges:	STD-PROCESSING OPERATING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	P

> The SEND-MSG command is being replaced by the INFORM-OPERATOR and INFORM-PROGRAM commands. SEND-MSG continues to be supported to ensure backwards compatibility, but the new commands should be used for new applications. All that follows is a brief overview of the command's function, syntax and return codes.

Function

The SEND-MSG command can be used to send a message to the console, to an interrupted program in the user's own interactive task and, for privileged users, to a program in a noninteractive task.

*Console (operand TO=*OPERATOR):*

This function is offered by the INFORM-OPERATOR command.

*Program (operand TO=*PROGRAM):*

This function is offered by the INFORM-PROGRAM command (JOB-IDENTIFICATION= *OWN).

Message to a program in a noninteractive task (privileged function):

This function is offered by the INFORM-PROGRAM command (JOB-IDENTIFICATION= *TSN(...) or *MONJV(...)).

Format

SEND-MSG

TO = ***OPERATOR** (...) / ***PROG**RAM(...)

***OPERATOR**(...)

| **WAIT-RESP**ONSE = ***NO** / ***Y**ES

***PROG**RAM(...)

| **JOB-ID**ENTIFICATION = ***OWN** / ***TSN**(...) / ***MONJV**(...)

| ***TSN**(...)

| | **TSN** = <alphanum-name 1..4>

| ***MONJV**(...)

| | **MONJV** = <filename 1..54 without-gen>

,**MSG** = ***NO** / <c-string 1..230 with-low>

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No action is required because when MSG=*NO is specified no message is sent to the operator
1	1	NBR0950	TO=*OPERATOR cannot be specified from a console
	64	EXC0920	Specified job ID invalid
	64	EXC0921	Command not permitted for an interactive task
	64	EXC0922	No program loaded
	64	EXC0923	No STXIT interface defined for this event in the specified program
	64	EXC0924	No STXIT routine defined for this event in the specified program
	64	EXC0925	STXIT routine already activated
	64	EXC0090	Insufficient storage space

5.73 SET-CONSLOG-READ-MARK

Set read mark in current CONSLOG file

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS SAT-FILE-MANAGEMENT

Function

The SET-CONSLOG-READ-MARK command sets a “read mark” at the current end of the CONSLOG file. Logging continues without a break after the read mark. Read access to the contents of the CONSLOG file ahead of the read mark is then possible without first having to close the file with the CHANGE-CONSLOG-FILE command.

Format

SET-CONSLOG-READ-MARK

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	NBR0905	No active CONSLOG file present
	32	NBR0983	Internal error on command server
	64	CMD0216	No authorization to issue command

Note

The “internal error” return code is generated in the event of bourse, DMS, memory and other system problems.

5.74 SET-DCAM-APPLICATION-LINK

Store specifications for DCAM application in CLT

Component:	DCAM
Functional area:	Data communication control
Domain:	NETWORK-MANAGEMENT
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE

Function

The SET-DCAM-APPLICATION-LINK command can be employed by DCAM users to store specifications for a DCAM application in a job-specific table, the CLT (communication link table).
When the DCAM application is opened by a DCAM user program, the values in the table replace the corresponding entries in the application control block ACB (Assembler) or in the application structure (COBOL). The link between the CLT entry and this program area is established by means of the link name, which must be specified for this purpose both in the command and in the program (see also the “DCAM Program Interfaces” [7] and “DCAM Macros” [6] manuals on the subject of the name assignment function).
Specifications omitted from the command are taken from the program (default value: *BY-PROGRAM in the relevant command operands).

Format

SET-DCAM-APPLICATION-LINK

LINK-NAME = <name 1..8>

,**APPLI**CATION-NAME = ***BY-PROG**RAM / <name 1..8>

,**DISTR**IBUTION-**NAME** = ***BY-PROG**RAM / <name 1..8>

,**PROT**ECTION = ***PAR**AMETERS (...)

***PAR**AMETERS(...)

| **CONN**ECTION-**PASS**WORD = ***BY-PROG**RAM / <c-string 1..4> / <x-string 1..8> / ***SECRET**

| ,**SHARE-PASS**WORD = ***BY-PROG**RAM / <c-string 1..4> / <x-string 1..8> / ***SECRET**

,**SHARE-PASS**WORD = ***BY-PROG**RAM / <c-string 1..4> / <x-string 1..8> / ***SECRET**

,**HOST-NAME** = ***BY-PROG**RAM / <name 1..8>

Operands

LINK-NAME = <name 1..8>
Link name defined in the ACB of the program that is to open a DCAM application or that wishes to connect with an existing DCAM application.

APPLICATION-NAME = *BY-PROGRAM / <name 1..8>
Name of the DCAM application.

DISTRIBUTION-NAME = *BY-PROGRAM / <name 1..8>
Distribution name under which a program may receive messages from the DCAM application.

PROTECTION = *PARAMETERS(...)
Protection attributes for the DCAM application.

CONNECTION-PASSWORD = *BY-PROGRAM / <c-string 1..4> / <x-string 1..8> / *SECRET
Defines the connection password as declared by the primary task and to be specified at each request for connection to this DCAM application.
The operand CONNECTION-PASSWORD is defined as “secret”:

- The value which is input will not be logged.
- In guided dialog, the input field is automatically blanked out.
- In unguided dialog and in foreground procedures, *SECRET or ^ allows for concealed input of the required value. SDF requests the input of the “secret” value and provides a blanked input field for this purpose.

SHARE-PASSWORD = *BY-PROGRAM / <c-string 1..4> / <x-string 1..8> / *SECRET
Defines the application password as defined by the primary task and to be specified by every secondary task when connecting to this DCAM application. The operand SHARE-PASSWORD is defined as “secret”:

- The value which is input will not be logged.
- In guided dialog, the input field is automatically blanked out.
- In unguided dialog and in foreground procedures, *SECRET or ^ allows for concealed input of the required value. SDF requests the input of the “secret” value and provides a blanked input field for this purpose.

SHARE-PASSWORD = *BY-PROGRAM / <c-string 1..4> / <x-string 1..8> / *SECRET
Specifies the application password for connection to a DCAM application, in the way the password was defined in the primary task or was stored in the RDF file.
The operand SHARE-PASSWORD is defined as “secret”:

- The value which is input will not be logged.
- In guided dialog, the input field is automatically blanked out.
- In unguided dialog and in foreground procedures, *SECRET or ^ allows for concealed input of the required value. SDF requests the input of the “secret” value and provides a blanked input field for this purpose.

HOST-NAME = *BY-PROGRAM / <name 1..8>
Specifies the name of the real or virtual host on which the DCAM application is to be opened.

Return codes

The command provides no command-specific command return codes (see section "Return codes").

5.75 SET-DCAM-CONNECTION-LINK

Add virtual DCAM connection to CLT

Component:	DCAM
Functional area:	Data communication control
Domain:	NETWORK-MANAGEMENT
Privileges:	STD-PROCESSING

Function

The SET-DCAM-CONNECTION-LINK command is used by DCAM users in order to store specifications for a logical DCAM connection in a job-specific table, the CLT (communication link table). When such a connection is being established, the values in the table supplement or replace the corresponding entries in the connection control block CCB (Assembler) or in the connection structure (COBOL). The linkage of the CLT entry with this program area is formed by the link name, which must be specified for this purpose both in the command and in the program (see also the “DCAM Program Interfaces” [7] and “DCAM Macros” [6] manuals on the subject of the name assignment function).
Specifications not given in the command are taken from the program (default value: *BY-PROGRAM in the relevant command operands).

Format

SET-DCAM-CONNECTION-LINK

LINK-NAME = <name 1..8>

,**PARTNER-ADDR**ESS = ***PAR**AMETERS (...)

***PAR**AMETERS(...)

| **PARTNER-NAME** = ***BY-PROG**RAM / <name 1..8>

| ,**PROCESS**OR-**NAME** = ***BY-PROG**RAM / <name 1..8>

,**CONN**ECTION-**PASS**WORD = ***BY-PROG**RAM / <c-string 1..4> / <x-string 1..8> / ***SECRET**

,**USER-DATA** = ***BY-PROG**RAM / <c-string 1..4> / <x-string 1..8>

Operands

LINK-NAME = <name 1..8>
Link name defined in the CCB of the program that is to establish the logical connection. This link name forms the link between the entry in a job-specific table (CLT) and an area in the program (CCB or connection structure).

PARTNER-ADDRESS = *PARAMETERS(...)
Specifications regarding the partner to whom a connection is to be established.

PARTNER-NAME = *BY-PROGRAM / <name 1..8>
Name of the partner.

PROCESSOR-NAME = *BY-PROGRAM / <name 1..8>
Name of the processor where the partner is located as a station.

CONNECTION-PASSWORD = *BY-PROGRAM / <c-string 1..4> / <x-string 1..8> / *SECRET
Specifies the connection password as defined by the partner to whom the DCAM connection is to be established.
The CONNECTION-PASSWORD operand is defined as “secret”:

- The input value is not logged.
- The input field is automatically blanked in a guided dialog.
- The specification *SECRET is only permissible in an unguided dialog. This makes it possible to conceal the entry of the desired value. SDF prompts the user to enter the “secret” value and presents a blanked input field after the message.

USER-DATA = *BY-PROGRAM / <c-string 1..4> / <x-string 1..8>
Character string to be passed to the program via the connection as secondary information on a message.
With DCAM-COBOL, this operand is not evaluated.

Return codes

The command provides no command-specific command return codes (see section "Return codes").

5.76 SET-DISK-DEFAULTS

Define default values for disk parameters

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	D

Function

This command defines system-global default values for disk parameters. These apply to all private disks in the DMS use mode for which no special presettings have been made with the SET-DISK-PARAMETER command.

Format

SET-DISK-DEFAULTS

ASSIGN**-TIME** = ***UNCHA**NGED / ***USER** / ***OPERATOR**

,**USER-ALLOC**ATION = ***UNCHA**NGED / ***SHARE** / ***EXCL**USIVE / ***ALL** / ***NO**

,**OPER**ATOR**-CONTR**OL = ***UNCHA**NGED / ***SHARE** / ***EXCL**USIVE / ***ALL** / ***NO**

Operands

Note

For the meanings of the operands and their values see the SET-DISK-PARAMETER command.

ASSIGN-TIME = *UNCHANGED / *USER / *OPERATOR
Defines the default value for the disk parameter ASSIGN-TIME.
The system presetting is *USER; the default value is *UNCHANGED.

USER-ALLOCATION = *UNCHANGED / *SHARE / *EXCLUSIVE / *ALL / *NO
Specifies the default value for the disk parameter USER-ALLOCATION.
The system presetting is *ALL; the default value is *UNCHANGED.

OPERATOR-CONTROL = *UNCHANGED / *SHARE / *EXCLUSIVE / *ALL / *NO
Defines the default value for the disk parameter OPERATOR-CONTROL.
The system presetting is *NO; the default value is *UNCHANGED.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	130	NKVD003	NKA system task not available

5.77 SET-DISK-PARAMETER

Set default values for monitoring disks

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	D

Function

This command sets volume-specific default values for the allocation of private disks in the DMS use mode for:

- automatic allocation by the system (ASSIGN-TIME operand)
- the use mode of the disk with respect to other systems (SYSTEM-ALLOCATION operand)
- permitting allocation requests from users (USER-ALLOCATION operand)
- requesting allocation permission via the operator (OPERATOR-CONTROL operand).

No default values can be set with this command for public disks and for private disks in the SPECIAL use mode (special applications such as VOLIN).

Format

SET-DISK-PARAMETER

UNIT = ***VOL**UME(...) / list-poss(**10**): <alphanum-name 2..2> / <alphanum-name 4..4>

***VOL**UME(...)

| **VOL**UME = list-poss(**10**): <vsn 1..6>

,**DEF**AULT = *__**NO**__ / ***Y**ES

,**TYPE** = __***UNCHA**NGED__ / ***FROM-DEVICE** / ***FROM-USER** / <device>

,**SYS**TEM-**ALLOC**ATION = __***UNCHA**NGED__ / ***EXCL**USIVE

,**ASS**IGN-**TIME** = __***UNCHA**NGED__ / ***STD** / ***USER** / ***OPERATOR**

,**USER-ALLOC**ATION = __***UNCHA**NGED__ / ***STD** / ***SHARE** / ***EXCL**USIVE / ***ALL** / ***NO**

,**OPER**ATOR-**CONTR**OL = __***UNCHA**NGED__ / ***STD** / ***SHARE** / ***EXCL**USIVE / ***ALL** / ***NO**

Operands

UNIT =
Specifies one or more private disks for which default values are to be set.

UNIT = *VOLUME(...)
Specifies the volume serial number of one or more private disks for which default values are to be set.

VOLUME = list-poss(10): <vsn 1..6>
Specifies one or more volume serial numbers (VSNs). Up to 10 VSNs can be listed.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Specifies the mnemonic device name of one or more private disks for which defaults are to be set. A maximum of 10 private disks may be specified.

DEFAULT =
Specifies whether the defined default values (see the SET-DISK-DEFAULT command) are to be set for the ASSIGN-TIME, USER-ALLOCATION and OPERATOR-CONTROL parameters and whether the system presetting (=*ALL) is to be set for the SYSTEM-ALLOCATION parameter.

DEFAULT = *NO
The parameters described above are not changed to the default values.

DEFAULT = *YES
The parameters described above are changed into the default values.

TYPE =
Specifies the device type of the disk units to be used for the disks defined in the UNIT operand.
Specification of an explicit device type is only permitted if the disk is not allocated or as long as no MOUNT message has been received for the appropriate disk (TYPE=*FROM-USER or *FROM-DEVICE is accepted at any time). Specification of an explicit device type for a disk specified by its mnemonic device name is rejected. The original presetting is *FROM-DEVICE.

TYPE = *UNCHANGED
The value valid up to now (previous SET-DISK or presetting) remains unchanged.

TYPE = *FROM-DEVICE
The device type is defined either by mounting the volume on a device or by a user request for a volume which has not yet been mounted (MOUNT message). A user’s request for the disk is rejected if the device type specified does not match the disk already mounted.

TYPE = *FROM-USER
The device administration uses the device type specified in the user’s request.

TYPE = <device>
Explicit specification of the device type. A mount request from a user in which a different device type is specified is rejected.
Only device types known within the system are accepted. In interactive mode, the possible device types are displayed with TYPE=?.
The possible specifications are given in the device table in section "Device types for DMS tape processing" (device type column).

SYSTEM-ALLOCATION =
Specifies the use mode of the disk for the system in relation to other systems.

SPD operation is not supported .

SYSTEM-ALLOCATION = *UNCHANGED
The value valid up to now (previous SET-DISK or system presetting) remains unchanged.

SYSTEM-ALLOCATION = *EXCLUSIVE
The disk can only be allocated by excluding other systems.

ASSIGN-TIME =
Defines the time for allocation and release of a private disk which is to be used for DMS. The system presetting is *STD.

ASSIGN-TIME = *UNCHANGED
The value valid up to now (previous SET-DISK or presetting) remains unchanged.

ASSIGN-TIME = *STD
The value set with the SET-DISK-DEFAULTS command is valid.

ASSIGN-TIME = *USER
The time is defined as the first request or the last return of disk allocation by the user.

ASSIGN-TIME = *OPERATOR
The private disk is allocated independently of a user request from the time the disk is mounted and recognized as being online. The disk is allocated until ASSIGN-TIME=*USER is set.

USER-ALLOCATION =
Defines default values for disk allocation by tasks according to the allocation types task exclusive and task-shareable. The system presetting is *STD.

USER-ALLOCATION = *UNCHANGED
The value valid up to now (previous SET-DISK or presetting) remains unchanged.

USER-ALLOCATION = *STD
The value set with the SET-DISK-DEFAULTS command is valid.

USER-ALLOCATION = *SHARE
Only disk allocations of the allocation type task-shareable are permitted (all disk allocations resulting from DMS applications and reservations by means of SECURE-RESOURCE-ALLOCATION, except exclusive reservation for disks).

USER-ALLOCATION = *EXCLUSIVE
Only disk allocations of the allocation type task-exclusive are permitted (SECURE-RESOURCE-ALLOCATION=*EXCLUSIVE for disks).

USER-ALLOCATION = *ALL
Disk allocations of the allocation types task-shareable and task-exclusive are permitted.

USER-ALLOCATION = *NO
No disk allocations for the user type USE=DMS are permitted.

OPERATOR-CONTROL =
Determines whether the operator intends to check new allocations (first allocation attempt of a job for a private disk). The message is `NKA0004`. In this case, the allocation request is permitted or rejected only after confirmation by the operator. The operator's reply to message `NKA0004` is decisive for further access authorization for the

appropriate job with respect to the disk; i.e. if the operator has not granted access authorization for a job, the job is not permitted to access the private disk unless the setting of this parameter is again changed with the SET-DISK-PARAMETER command. For jobs which already occupy the private disk at the time the parameter is set, the new parameter setting has no effect unless the job releases the disk and then attempts to allocate it again.
Confirmation by the operator is requested only once per job. Consequently, the message prompting the operator to authorize the allocation request is not repeated for a job which allocates the disk again once the operator has already replied to the message, regardless of whether the job has previously released the disk or not.
The system presetting is *STD.

OPERATOR-CONTROL = *UNCHANGED
The value valid up to now (previous SET-DISK or presetting) remains unchanged.

OPERATOR-CONTROL = *STD
The value set with the SET-DISK-DEFAULT command is valid.

OPERATOR-CONTROL = *SHARE
Only new allocations of the type task-shareable are checked.

OPERATOR-CONTROL = *EXCLUSIVE
Only new allocations of the type task-exclusive are checked.

OPERATOR-CONTROL = *ALL
New allocations of the types task-shareable and task-exclusive are checked.

OPERATOR-CONTROL = *NO
New disk allocations are not checked.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKA0094	Command partially processed
	64	NKA0096	Command not processed
	130	NKVD003	NKA system task not available

5.78 SET-DSSM-OPTIONS

Activate/deactivate DSSM logging function

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING SUBSYSTEM-MANAGEMENT
Routing code:	R

Function

This command is used to control the logging function of DSSM. Logging to the DSSMLOG file may diminish performance. For this reason this function should not be activated unless errors actually occur.

The command can be issued independent of the state of subsystem management. At the time of the system start, logging is switched off by default but can be activated by means of the startup parameter LOGGING=*ON.

Format

SET-DSSM-OPTIONS
LOGGING = ***OFF** / ***ON** ,**TITLE** = ***NONE** / <c-string 1..100>

Operands

LOGGING =
Controls whether DSSM-specific logging is performed for error diagnosis.

LOGGING = *OFF
No DSSM-specific logging is performed.

LOGGING = *ON
All DSSM-specific data relevant to error diagnosis is logged to the file DSSMLOG.date.time.

TITLE =
Specifies a header line to be copied into the logging file.

TITLE = *NONE
No additional text is to be included in the logging file.

TITLE = <c-string 1..100>
The specified text is written as the first data record in the logging file.
If the file is already open, no new file is created. Instead, logging is continued at the current position. If the logging function is deactivated, this operand is ignored.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	ESM0432	Command terminated abnormally

5.79 SET-FILE-LINK

tore attributes of file in TFT

Component:	BS2000
Functional area:	not allocated
Domain:	not allocated
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT
Routing code:	$ (with NBCONOPI=N) or E (with NBCONOPI=Y)

> i As of BS2000/OSD V2.0, the SET-FILE-LINK command is superseded by the ADD-FILE-LINK command. SET-FILE-LINK is still supported for reasons of compatibility. The ADD-FILE-LINK command should be used for new applications. This command description is restricted to a brief description and overview of the functions, the syntax format, and the return codes.

Function

The SET-FILE-LINK command saves the specified attribute details for a file, which will normally already exist (e.g. it has been created using a CREATE-FILE command), in the TFT under a particular file link name. These details will then be used when the file is opened, instead of the corresponding details specified in the program.

For more information on the function and purpose of the TFT entry see the Function section of the ADD-FILE-LINK command description.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
Define the file link name for which a TFT entry is to be created	LINK-NAME	
Name of file/file generation to which the SET-FILE-LINK command relates	FILE-NAME	
Access method (ISAM, SAM, BTAM ...)	ACCESS-METHOD	
Access method ISAM	=*ISAM	
• key length		KEY-LENGTH
• key position		KEY-POSITION
• immediate writing out of amended blocks		WRITE-IMMEDIATE
• duplicate keys		DUPLICATE-KEY
• block padding (for sequential processing)		PADDING-FACTOR
• length of value flag		VALUE-FLAG-LENGTH
• evaluation of value flags		PROPAGATE-VALUE-FLAG
• length of logical flags		LOGICAL-FLAG-LENGTH
• overlapped processing		READ-IN-ADVANCE
• define pool link names for the user ISAM pool (NK-ISAM files)		POOL-LINK
OPEN mode	OPEN-MODE	
Record format	RECORD-FORMAT	

variable • record length	=*VARIABLE	RECORD-SIZE
fixed • record length	=*FIXED	RECORD-SIZE
undefined • record length	=*UNDEFINED	RECORD-SIZE
Block length	BUFFER-LENGTH	
Specify device	SUPPORT	
Disk processing	=*DISK	
• mount a private disk		VOLUME-ALLOCATION
• shared update processing		SHARED-UPDATE
• read-after-write check		WRITE-CHECK
• performance attributes		IO-ATTRIBUTES
• closing mode		CLOSE-MODE
Tape processing	=*TAPE	
• mount request		PREMOUNT-LIST
• tapes to mount		VOLUME-LIST
• labels		
• label checking define scope		LABEL-CHECK
• security level		PROTECTION-LEVEL

• supplementary checks		OVERWRITE-PROTECTION
• bypass label checking		BYPASS
• tape positioning		POSITION
• specify label attributes		LABEL
• Define conversion table		CODE
• EBCDIC conversion		EBCDIC-TRANSLATION
• Position tape within a FILE SET		FILE-SEQUENCE
• Automatic checkpoint writing		CHECKPOINT-POSITION
• Buffer offset		BLOCK-OFFSET
• Retention period		RETENTION-PERIOD
• Buffered/unbuffered processing		TAPE-WRITE
• Overwrite residual data		DESTROY-OLD-CONTENTS
• Closing mode		CLOSE-MODE
Chained input/output	IO-CHAINING	
Define file format (BLKCTRL)	BLOCK-CONTROL-INFO	
Output of message on completion of CLOSE processing	FILE-CLOSE-MSG	

Table 85: Overview of the SET-FILE-LINK command functions

Format

SET-FILE-LINK

LINK-NAME = <filename 1..8 without-gen>

,**F**ILE**-NAME** = ***BY-PROG**RAM / ***DUMMY** / <filename 1..54>

,**ACCESS-METHOD** = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***SAM** / ***PAM** / ***BTAM** / ***UPAM** / [***ISAM**](...)

[***ISAM**](...)

| **KEY-LEN**GTH = ***BY-PROG**RAM / ***BY-CAT**ALOG / <integer 1..255>

| ,**KEY-POS**ITION = ***BY-PROG**RAM / ***BY-CAT**ALOG / <integer 1..32767>

| ,**WR**ITE**-IMMED**IATE = ***BY-PROG**RAM / ***NO** / ***Y**ES

| ,**DUP**LICATE**-KEY** = ***BY-PROG**RAM / ***Y**ES / ***NO**

| ,**PAD**DING**-FACT**OR = ***BY-PROG**RAM / <integer 0..99>

| ,**VAL**UE**-FLAG-LEN**GTH = ***BY-PROG**RAM / ***BY-CAT**ALOG / <integer 0..255>

| ,**PROPA**GATE**-VAL**UE-FLAG = ***BY-PROG**RAM / ***MIN**IMUM / ***MAX**IMUM / ***BY-CAT**ALOG

| ,**LOGIC**AL**-FLAG**-LENGTH = ***BY-PROG**RAM / ***BY-CAT**ALOG / <integer 0..255>

| ,**READ-IN-ADV**ANCE = ***BY-PROG**RAM / ***Y**ES / ***NO**

| ,**POOL-LINK** = ***BY-PROG**RAM / <name 1..8>

,**OPEN-MODE** = ***BY-PROG**RAM / ***INPUT** / ***OUTPUT** / ***EXTEND** / ***REV**ERSE / ***UPD**ATE / ***OUTIN** /

***INOUT** / ***SINOUT**

,**REC**ORD**-FORM**AT = ***BY-PROG**RAM / ***VAR**IABLE(...) / ***FIXED**(...) / ***UNDEF**INED(...) / ***BY-CAT**ALOG

***VAR**IABLE(...)

| **REC**ORD**-SIZE** = ***BY-PROG**RAM / ***BUF**FER**-LEN**GTH / <integer 4..32768>

| ,**PRINT-CONTR**OL = ***BY-PROG**RAM / ***NONE** / ***ASA** / ***EBCDIC**

***FIXED**(...)

| **REC**ORD**-SIZE** = ***BY-PROG**RAM / <integer 1..32768>

| ,**PRINT-CONTR**OL = ***BY-PROG**RAM / ***NONE** / ***ASA** / ***EBCDIC**

***UNDEF**INED(...)

| **REG**ISTER**-NUM**BER = ***BY-PROG**RAM / <integer 2..12>

| ,**PRINT-CONTR**OL = ***BY-PROG**RAM / ***NONE** / ***ASA** / ***EBCDIC**

,**BUF**FER**-LEN**GTH = ***BY-PROG**RAM / ***BY-CAT**ALOG / [***STD**](...) / <integer 1..32768>

[***STD**](...)

| **SIZE** = **1** / <integer 1..16>

,**SUP**PORT = ***NONE** / ***DISK**(...) / ***TAPE**(...)

***DISK**(...)

| **VOL**UME-**ALLOC**ATION = ***IMMED**IATE / ***DELAY**ED

| ,**SHARE**D-**UPD**ATE = ***BY-PROG**RAM / ***NO** / ***Y**ES / ***WEAK**

| ,**WR**ITE-**CHECK** = ***BY-PROG**RAM / ***NO** / ***Y**ES

| ,**RET**ENTION-**PER**IOD = ***BY-PROG**RAM / <integer 0..32767>

| ,**IO-ATTRIBUTES** = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***STD** / [***PAR**AMETERS](...)

| [***PAR**AMETERS](...)

| | **PERFORMANCE** = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***STD** / ***HIGH** / ***VERY-HIGH** /

| | ***USER-MAX**

| | ,**USAGE** = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***READ-WRITE** / ***WR**ITE / ***READ**

| ,**CLOSE-MODE** = ***BY-PROG**RAM / ***INVALIDATE**

***TAPE**(...)

| **PREM**OUNT-**LIST** = ***NONE** / list-poss(255): <integer 0..255>

| ,**VOL**UME-**LIST** = ***BY-CAT**ALOG (...) / ***BY-TAPE-SET**(...) / list-poss(255): <alphanum-name 1..6>

| ***BY-CAT**ALOG(...)

| | **START-POS**ITION = ***BY-PROG**RAM / list-poss(255): <integer 1..255>

| ***BY-TAPE-SET**(...)

| | **TAPE-SET-NAME** = <alphanum-name 1..4>

| ,**LABEL-CHECK** = ***BY-PROG**RAM / ***PAR**AMETERS(...) / ***BYPASS**(...)

| ***PAR**AMETERS(...)

| | **PROT**ECTION-**LEV**EL = ***LOW** / ***HIGH**

| | ,**OVERWR**ITE-**PROT**ECTION = ***NO** / ***Y**ES

| ***BYPASS**(...)

| | **POS**ITION = ***NO** / ***ABSO**LUTE(...) / ***FORWARD**(...) / ***BACK**WARD(...)

| | ***ABSO**LUTE(...)

| | | **TAPE-MARK** = <integer 0..32767>

| | ***FORWARD**(...)

| | | **TAPE-MARK** = <integer 0..127>

| | ***BACK**WARD(...)

| | | **TAPE-MARK** = <integer 0..127>

| ,**LABEL** = ***BY-PROG**RAM / ***STD**(...) / ***NON-STD**(...) / ***NO**(...)
| ***STD**(...)
| | **DIN-REV**ISION-**NUM**BER = ***HIGHEST** / <integer 0..3>
| ***NON-STD**(...)
| | **TAPE-MARK** = ***BY-PROG**RAM / ***Y**ES / ***NO**
| ***NO**(...)
| | **TAPE-MARK** = ***BY-PROG**RAM / ***Y**ES / ***NO**
| ,**CODE** = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***EBCDIC** / ***ISO7** / ***OWN**
| ,**EBCDIC**-TRANSLATION = ***BY-PROG**RAM / ***Y**ES / ***NO**
| ,**F**ILE-**SEQ**UENCE = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***UNKNOWN** / ***NEW** / <integer 0..9999>
| ,**CHECKP**OINT-**POS**ITION = ***BY-PROG**RAM / ***NO**(...) / ***FORCED-EOV**(...) / ***BLOCK-LIM**IT(...) /
| ***LATEST**(...)
| ***NO**(...)
| | **REST**ART-**USAGE** = ***Y** ES / ***DUMMY**
| ***FORCED-EOV**(...)
| | **REST**ART-**USAGE** = ***Y** ES / ***DUMMY**
| ***BLOCK-LIM**IT(...)
| | **NUM**BER-**OF-BLOCKS** = <integer 1..999999>
| | ,**REST**ART-**USAGE** = ***Y** ES / ***DUMMY**
| ***LATEST**(...)
| | **NUM**BER-**OF-BLOCKS** = <integer 1..999999>
| | ,**REST**ART-**USAGE** = ***Y** ES / ***DUMMY**
| ,**BLOCK-OFF**SET = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***BY-HDR2** / <integer 0..99>
| ,**RET**ENTION-**PER**IOD = ***BY-PROG**RAM / <integer 0..32767>
| ,**STREAM** = ***NO** / **Y**ES / ***NO**
| ,**TAPE-WRITE** = ***BY-PROG**RAM / ***DEV**ICE-**BUFFER** / ***IMMED**IATE
| ,**DESTROY-OLD**-CONTENTS = ***STD** / ***NO** / ***Y**ES
| ,**CLOSE-MODE** = ***BY-PROG**RAM / ***REWIND** / ***REPOS** / ***UNLOAD** / ***LEAVE**

,**IO-CHAIN**ING = ***BY-PROG**RAM / <integer 1..16> / ***BY-PROG**RAM

,**BLOCK-CONTR**OL-**INFO** = ***BY-PROG**RAM / ***BY-CAT**ALOG / ***NO** / ***WITHIN-DATA-BLOCK** /
***WITHIN-DATA-2K**-BLOCK / ***WITHIN-DATA-4K**-BLOCK / ***PAMKEY**

,**F**ILE**-CLOSE-MSG** = ***STD** / ***NO** / ***Y**ES

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	DMS0546	Catalog entry for specified file has reached maximum size
2	0	DMS054A	Insufficient disk space or access to disk not possible
	1	DMS0576	Invalid operand combination
	1	CMD0202	Syntactical or semantic error in command
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privileges error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog cannot be found
	64	DMS051B	Requested user ID not in pubset
	64	DMS051C	User not authorized to access pubset
	64	DMS0535	Specified file not shareable
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS0587	Use of the specified command has been restricted by the system administrator
	64	DMS0588	It was not possible to allocate disk space
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS06C4	File generation group not yet cataloged
	64	DMS06FF	BCAM connection severed
	128	DMS0506	Function not executed due to change in master
	130	DMS0524	System address space exhausted
	130	DMS053C	Insufficient space for catalog file on pubset
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0586	It is not possible to access or reserve a volume at present

	130	DMS0588	It was not possible to allocate disk space
	130	DMS0594	Not enough virtual memory available
	130	DMS05C8	Maximum permitted number of files reached

5.80 SET-FILE-NAME-PREFIX

Define file name prefix

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SET-FILE-NAME-PREFIX command is used to define a prefix for file or job variable names. This allows the user to effectively switch to a “subcatalog” of the user ID within the task since ACS inserts the defined prefix before all file or job variable names which are specified by the user without a user ID in commands or macro calls. Prefix insertion is not performed if there is already an alias definition for the specified file or job variable name since alias substitutions are given precedence in such cases.
If a prefix already exists and was not defined with the PROTECTED attribute, the existing prefix is overwritten. The user can have the defined prefix displayed by means of the SHOW-FILE-NAME-PREFIX command.

Prefix insertion rules

- No prefix is inserted if the file or job variable name contains a foreign user ID.
- If the file or job variable name contains the user’s own user ID and no catalog ID, the prefix is inserted, but only if it consists of just a catalog ID. Furthermore, there must not be any RFA connection for the catalog ID.
- File or job variable names with the user ID TSOS are excluded (i.e. not supplemented by the insertion of a prefix).
- If the file or job variable name and the prefix contain a catalog ID, the prefix is not inserted.
- If the file or job variable name contains a catalog ID but not a user ID, the prefix is inserted immediately after the catalog ID.
- If the file or job variable name becomes too long after inserting the prefix, the file name is rejected as invalid.
- If the file name already begins with the defined prefix, the prefix is inserted, but only if multiple insertions are permitted (see the DUPLICATE-PREFIX operand).
- The file or job variable name must comply with naming conventions even if a prefix is added to it later.

Format

SET-FILE-NAME-PREFIX	Alias: **STFNP**
PREFIX = ***JOB-NAME** / <partial-filename 2..53> / ***NONE**	
,**DUP**LICATE**-PREFIX** = ***Y**ES / ***NO**	
,**ATTR**IBUTES = ***STD** / ***PROT**ECTED	
,**RANGE** = ***STD** / ***FILE** / ***JV** / ***BOTH**	

Operands

PREFIX = *JOB-NAME / <partial-filename 2..53> / *NONE
New prefix for file or job variable names (followed by a period).

PREFIX = *JOB-NAME
Defines the job name of the task (followed by a period) as the new prefix. If no job name was defined, this specification is equivalent to `PREFIX=*NONE`.

PREFIX = <partial-filename 2..53>
Explicit specification of the prefix. The specified prefix may contain both a user ID and a catalog ID. If a catalog ID is specified, there must not be any existing RFA connection for it.

PREFIX = *NONE
No prefix is to be inserted, but an existing prefix definition is to be removed.

DUPLICATE-PREFIX = *YES / *NO
Specifies whether the prefix is to be inserted even if the file name already begins with the same prefix.

ATTRIBUTES = *STD / *PROTECTED
Specifies whether the defined prefix is to be protected from being overwritten by a new definition. The default value is *STD, which means that the prefix can be overwritten by a new prefix definition.

RANGE = *STD / *FILE / *JV / *BOTH
Determines the range of the prefix definition. Insertion of the prefix can be defined for files and/or job variables.

RANGE = *STD
Default: The prefix is inserted with the ACS setting applicable for the task (ACS option STANDARD-RANGE).

RANGE = *FILE
The prefix is inserted only for files.

RANGE = *JV
The prefix is inserted only for job variables.

RANGE = *BOTH
The prefix is inserted both for files and for job variables.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed normally Guaranteed message: ACS0019
	64	ACS0016	Prefix is protected
	128	ACS0018	ACS is not available
	130	ACS0036	Resource bottleneck

Examples

Example 1: Defining a prefix, studying the effects of its insertion, and logging the insertion

/show-file-attr file. ——————————————————— (1)

```
%         9 :2OS2:$USER1.FILE.1
%         9 :2OS2:$USER1.FILE.2
%:2OS2: PUBLIC:      2 FILES RES=        18  FRE=        4  REL=      0 PAGES
```

/show-file-attr paul. ——————————————————— (2)

```
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:      3 FILES RES=        27  FRE=       8  REL=       3 PAGES
```

/set-file-name-prefix prefix=paul. ——————————————— (3)

```
%  ACS0048 CURRENT FILE NAME PREFIX IS 'PAUL.'. PREFIX IS USED FOR FILES AND
JOBVARIBLES.
```

/show-file-name-prefix ——————————————————— (4)

```
%  ACS0048 CURRENT FILE NAME PREFIX IS 'PAUL.'. PREFIX IS USED FOR FILES AND
JOBVARIBLES.
```

/show-file-attr file. ——————————————————— (5)

```
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:      3 FILES RES=        27  FRE=      8  REL=        3 PAGES
```

/print-doc file.1 ——————————————————— (6)

```
%  SCP0810 SPOOLOUT FOR FILE ':2OS2:$USER01.PAUL.FILE.1' ACCEPTED. TSN: '
196D', SPOOLOUT-NAME: 'ULK', MONJV: '*NONE'
%  SCP1025 PRINT JOB ACCEPTED BY SERVER 'D020H027' WITH TSN '46UH'
```

/copy-file from=file.1,to=file.3 ——————————————————— (7)
/show-file-attr file. ——————————————————— (8)

```
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:      3 FILES RES=        27  FRE=      6  REL=        0 PAGES
```

/show-file-attr $user1.file. ——————————————————— (9)

```
%         9 :2OS2:$USER1.FILE.1
%         9 :2OS2:$USER1.FILE.2
%:2OS2: PUBLIC:      2 FILES RES=        18  FRE=      4  REL=        0 PAGES
```

/show-acs-opt ——————————————————————— (10)

```
% ALIAS CATALOG SYSTEM V20.0
% ===========================
%
% STATUS: INACTIVE
%
% LOGGING: ALIAS-SUBSTITUTION=STD, PREFIX-INSERTION=YES
% SUCCESS-MSG OPTIONS: USER-FILE=YES, SYSTEM-FILE=YES
% COMPLETE-ALIAS-NAMES=NOT-ALLOWED (USER-MODIF=NOT-ALLOWED)
% ALIAS-USERID        =ALLOWED     (USER-MODIF=ALLOWED    )
% STANDARD-RANGE=BOTH
```

/mod-acs-opt log=(prefix-insert=*yes) ——————————————————— (11)
/show-file-attr file ——————————————————— (12)

```
%  ACS0000 FILE NAME 'FILE.' REPLACED BY 'PAUL.FILE.'
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:      3 FILES RES=        27  FRE=      6  REL=        0 PAGES
```

/copy-file from=file.1,to=file.3 ——————————————————— (13)

```
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
%  ACS0000 FILE NAME 'FILE.3' REPLACED BY 'PAUL.FILE.3'
```

/print-doc file.1 ——————————————————————————————— (14)

```
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  SCP0810 SPOOLOUT FOR FILE ':2OS2:$USER01.PAUL.FILE.1' ACCEPTED. TSN: '
196N', SPOOLOUT-NAME: 'ULK', MONJV: '*NONE'
%  SCP1025 PRINT JOB ACCEPTED BY SERVER 'D020H027' WITH TSN '46UW'
```

(1) Shows all catalog entries for files that have names beginning with *FILE*.

(2) Shows all catalog entries for files that have names beginning with *PAUL..*

(3) The SET-FILE-NAME-PREFIX command sets the prefix insertion function for the prefix *PAUL.*

(4) The SHOW-FILE-NAME-PREFIX command indicates the defined prefix.

(5) The name *FILE.* specified in the SHOW-FILE-ATTRIBUTES command has the defined prefix inserted before the command is executed. Consequently, the catalog entries of all files that have names beginning with *PAUL.FILE.* are shown.

(6) The name *FILE.1* specified in the PRINT-DOCUMENT command has the defined prefix inserted before the command is executed. The file named *PAUL.FILE.1* is printed as a result.

(7) The names *FILE.1* and *FILE.3* which are specified in the COPY-FILE command have the defined prefix inserted before the command is executed. The contents of the file *PAUL.FILE.1* are thus copied to the file *PAUL.FILE.3*.

(8) The name *FILE.* specified in the SHOW-FILE-ATTRIBUTES command has the defined prefix inserted before the command is executed. Consequently, the catalog entries of all files that have names beginning with *PAUL.FILE.* are shown.

(9) The insertion of a prefix is prevented by specifying the user *USER1* before *FILE.*. The output of the SHOW-FILE-ATTRIBUTES now shows all files that have names beginning with *FILE..* A file named *FILE.3* was not created with COPY-FILE (see also step 8).

(10) The prefix insertion function can be disabled by specifying the catalog ID or the catalog and user IDs.

(11) Shows the current ACS settings for the task. `PREFIX-INSERTION=NO` has been set, i.e. no messages are output during prefix insertion.

(12) The MODIFY-ACS-OPTIONS command is used to change the ACS settings. Prefix insertions are to be logged on SYSOUT. The name *FILE.* specified in the SHOW-FILE-ATTRIBUTES command has the defined prefix inserted before the command is executed. Consequently, the catalog entries of all files that have names beginning with *PAUL.FILE.* are shown. The insertion of the prefix is indicated by message *ACS0000*.

(13) The names *FILE.1* and *FILE.3* which are specified in the COPY-FILE command have the defined prefix inserted before the command is executed. The contents of the file *PAUL.FILE.1* are thus copied to the file *PAUL.FILE.3*.The insertion of the prefix is indicated by message *ACS0000*. When the file is processed internally, several catalog accesses may be required. ACS inserts the prefix before the file name whenever the catalog is accessed, so message *ACS0000* is output in each such case.

(14) The name *FILE.1* specified in the PRINT-DOCUMENT command has the defined prefix inserted before the command is executed. The file named *PAUL.FILE.1* is printed as a result. The insertion of the prefix is indicated by message *ACS0000*.

Example 2: Preventing duplicate insertions and protecting defined prefixes

/set-f-name-pre paul.,attr=*protect ——————————————————— (1)

```
%  ACS0048 CURRENT FILE NAME PREFIX IS 'PAUL.'. PREFIX IS USED FOR FILES AND
JOBVARIBLES.
```

/cre-file paul.test.1 ——————————————————————— (2)

```
%  ACS0000 FILE NAME 'PAUL.TEST.1' REPLACED BY 'PAUL.PAUL.TEST.1'
%  ACS0000 FILE NAME 'PAUL.TEST.1' REPLACED BY 'PAUL.PAUL.TEST.1'
```

/show-file-attr paul. ——————————————————————— (3)

```
%  ACS0000 FILE NAME 'PAUL.' REPLACED BY 'PAUL.PAUL.'
%         3 :2OS2:$USER1.PAUL.PAUL.TEST.1
%:2OS2: PUBLIC:       1 FILE  RES=       3  FRE=       3  REL=        3 PAGES
```

/show-file-attr *<1,2> ——————————————————————— (4)

```
%  ACS0000 FILE NAME '*<1,2>' REPLACED BY 'PAUL.*<1,2>'
%         3 :2OS2:$USER1.PAUL.PAUL.TEST.1
%:2OS2: PUBLIC:       1 FILE  RES=     3  FRE=        3  REL=        3 PAGES
```

/set-f-name-pre paul.,duplicate=no,attr=protect ——————————————— (5)

```
%  ACS0048 CURRENT FILE NAME PREFIX IS 'PAUL.'. PREFIX IS USED FOR FILES AND
JOBVARIBLES.
```

/cre-file paul.test.1 ——————————————————————— (6)
/show-file-attr test. ——————————————————————— (7)

```
%  ACS0000 FILE NAME 'TEST.' REPLACED BY 'PAUL.TEST.'
%         3 :2OS2:$USER1.PAUL.TEST.1
%:2OS2: PUBLIC:       1 FILE  RES=       3  FRE=       3  REL=        3 PAGES
```

/set-file-name-pre ——————————————————————— (8)

```
%  ACS0016 CURRENT FILE NAME PREFIX PROTECTED. COMMAND REJECTED
```

/set-file-name-pre paul. ——————————————————————— (9)

```
%  ACS0048 CURRENT FILE NAME PREFIX IS 'PAUL.'. PREFIX IS USED FOR FILES AND
JOBVARIBLES.
```

/set-file-name-pre ———————————————————— (10)

```
%  ACS0019 CURRENT FILE NAME PREFIX IS 'ULK.'
```

/cre-file test.1 ———————————————————— (11)

```
%  ACS0000 FILE NAME 'TEST.1' REPLACED BY 'ULK.TEST.1'
%  ACS0000 FILE NAME 'TEST.1' REPLACED BY 'ULK.TEST.1'
```

/show-file-attr test. ———————————————————— (12)

```
%  ACS0000 FILE NAME 'TEST.' REPLACED BY 'ULK.TEST.'
%         3 :2OS2:$USER1.ULK.TEST.1
%:2OS2: PUBLIC:       1 FILE  RES=       3  FRE=       3  REL=        3 PAGES
```

/set-file-name-pre *none ———————————————————— (13)

```
%  ACS0019 CURRENT FILE NAME PREFIX IS '*NONE'
```

/cre-file test.1 ———————————————————— (14)
/show-file-attr test.1 ———————————————————— (15)

```
%         3 :2OS2:$USER1.TEST.1
%:2OS2: PUBLIC:       1 FILE  RES=       3  FRE=       3  REL=        3 PAGES
```

/show-file-attr **test.1 ———————————————————— (16)

```
%         3 :2OS2:$USER1.ULK.TEST.1
%         3 :2OS2:$USER1.PAUL.PAUL.TEST.1
%         3 :2OS2:$USER1.PAUL.TEST.1
%         3 :2OS2:$USER1.TEST.1
%:2OS2: PUBLIC:       4 FILES RES=      12  FRE=      12  REL=       12 PAGES
```

In this example, all prefix insertions are reported (see example 1, step 11).

(1) The SET-FILE-NAME-PREFIX command is used to define the prefix insertion function for the prefix *PAUL.*. The definition is protected against overwriting by means of the PROTECTED attribute.

(2) The name *PAUL.TEST.1* specified in the CREATE-FILE command has the defined prefix inserted before the command is executed, so a catalog entry for the file *PAUL.PAUL.TEST.1* is created. This approach is defined implicitly in the SET-FILE-NAME-PREFIX command (by the default value `DUPLICATE-PREFIX=YES`). In other words, the prefix is inserted even if the specified file name begins with the same prefix.

(3) The name *PAUL.* specified in the SHOW-FILE-ATTRIBUTES command has the defined prefix inserted before the command is executed. Consequently, the catalog entries of all files that have names beginning with *PAUL.PAUL.* are shown.

(4) The wildcard sequence *<1,2> that is specified in the SHOW-FILE-ATTRIBUTES command has the defined prefix inserted before the command is executed. As a result, the catalog entries of all files that have names beginning with *PAUL.* and ending with the number *1* or *2* are shown. The rest of the name may be made up of any characters (even the null string). See also message *ACS0000*.

(5) The command SET-FILE-NAME-PREFIX defines prefix insertion for the prefix *PAUL.* (the previous prefix). The prefix definition is protected against overwriting by the PROTECTED attribute, and duplicate insertions are prevented with `DUPLICATE-PREFIX=*NO.`

(6) The name *PAUL.FILE.* specified in the CREATE-FILE command does not receive the defined prefix, since it already begins with the same prefix (see also Point 2). A catalog entry for the file *PAUL.TEST.1* is created.

(7) The name *TEST.* specified in the SHOW-FILE-ATTRIBUTES command has the defined prefix inserted before the command is executed, so the catalog entries for all files that have names beginning with *PAUL.TEST.* are shown. The user could also specify *PAUL.TEST.* to achieve the same result, since the prefix would already be present in that case and would therefore not be inserted.

(8) The command SET-FILE-NAME-PREFIX is issued without operands. This would have normally defined the job name of the task as the new prefix (default value); however, since the prefix has the PROTECTED attribute (to prevent inadvertent changes), no other prefix can be defined in this case.

(9) The command SET-FILE-NAME-PREFIX is issued for the existing prefix *PAUL.* without any further operands. The settings for DUPLICATE-PREFIX and ATTRIBUTES are restored to default values, i.e. the prefix is no longer protected against changes.

(10) The SET-FILE-NAME-PREFIX command is issued without operands, so the job name of the task is defined as the prefix. The new prefix is *ULK.* (see message *ACS0000*).

(11) The name *TEST.1* specified in the CREATE-FILE command receives the defined prefix before the command is executed. A catalog entry is created for the file *ULK.TEST.1*.

(12) The name *TEST.* specified in the CREATE-FILE command receives the defined prefix before the command is executed, so the catalog entries for all files that have names beginning with *ULK.TEST.* are shown.

(13) The SET-FILE-NAME-PREFIX command with the PREFIX=*NONE specification turns off the prefix insertion function.

(14) The CREATE-FILE command for the name *TEST.1* creates a catalog entry for the file *TEST.1*.

(15) The SHOW-FILE-ATTRIBUTES command for the file name *TEST.1* shows the catalog entry that was created.

(16) The SHOW-FILE-ATTRIBUTES command shows the catalog entries of all files that have names beginning with any arbitrary string (including the null string) and ending with *TEST.1*.

Example 3: Preventing prefix insertion for a file name

/show-file-name-prefix ——————————————————————— (1)

```
%  ACS0019 CURRENT FILE NAME PREFIX IS 'PAUL.'
```

/add-alias-cat alias=file.1,file=*same ——————————————————— (2)

```
%  ACS0020 ALIAS CATALOG ACTIVATED
```

/show-alias ——————————————————————————————— (3)

```
%       ALIAS FILE NAME         ->     FILE NAME
%UB : FILE.1                    -> *SAME
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 1 (FOR SYSTEM: 0, FOR USER: 1)
```

/print-doc file.1 ——————————————————————————— (4)

```
%  SCP0810 SPOOLOUT FOR FILE ':2OS2:$USER1.FILE.1' ACCEPTED. TSN: '1Q14', SPO
OLOUT-NAME: 'ULK', MONJV: '*NONE'
```

/hold-alias ——————————————————————————————— (5)

```
%  ACS0007 /HOLD-ALIAS-SUBSTITUTION PROCESSED
```

/print-doc file.1 ——————————————————————————— (6)

```
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  ACS0000 FILE NAME 'FILE.1' REPLACED BY 'PAUL.FILE.1'
%  SCP0810 SPOOLOUT FOR FILE ':2OS2:$USER01.PAUL.FILE.1' ACCEPTED. TSN: '
197A', SPOOLOUT-NAME: 'ULK', MONJV: '*NONE'
%  SCP1025 PRINT JOB ACCEPTED BY SERVER 'D020H027' WITH TSN '46VE'
```

/resume-alias ——————————————————————————— (7)

```
%  ACS0008 /RESUME-ALIAS-SUBSTITUTION PROCESSED
%  ACS0009 ALIAS CATALOG OPERATION CONTINUES
```

In this example, all prefix insertions are reported (see example 1, step 11).

(1) The command SHOW-FILE-NAME-PREFIX shows that *PAUL.* is defined as the prefix.

(2) The command ADD-ALIAS-CATALOG starts the ACS substitution function and creates the first entry in the task-local alias catalog with the alias *FILE.1* for a file with the same actual file name (FILE-NAME=*SAME). This entry ensures that the name *FILE.1* is neither replaced nor supplemented by the defined prefix.

(3) Output of the entries in the alias catalog.

(4) The file *FILE.1* is specified in the PRINT-DOCUMENT command and printed as a result.

(5) The command HOLD-ALIAS-SUBSTITUTION halts the ACS substitution function.

(6) When *FILE.1* is now specified in the PRINT-DOCUMENT command, the file *PAUL.FILE.1* is printed. The prefix was inserted before executing the command in this case, since the ACS substitution function has been halted, and the alias definition for *FILE.1* is ignored.

(7) The command RESUME-ALIAS-SUBSTITUTION resumes the ACS substitution function, so the alias definition now has precedence over the insertion of a prefix.

5.81 SET-INSTALLATION-PATH

Define/modify installation path

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

The SET-INSTALLATION-PATH command allows systems support staff

- to assign a path name to the logical name of an installation item or to modify this path name.
- modify all path names of an installation unit by replacing a (sub)string of the name with a different string.

The SHOW-INSTALLATION-PATH command provides information on current assignments.

Each installation item has a logical name or identifier. A product is uniquely identified by its name and its version string.

Prerequisites for the command

The product’s installation items must be included in the SCI along with their path names. This precondition is fulfilled in the following cases:

- The product is a standard software product. It was supplied by Fujitsu Technology Solutions (SOLIS2 delivery) and installed correctly using IMON.
- The product is a private software product. It was registered in SCI using a SYSSII file generated by the customer.

The path name is only allocated if its attributes allow it.

The command is a component of IMON-GPN, the nonchargeable part of the IMON software product. IMON is completely described in the “IMON” manual [19].

Format

SET-INSTALLATION-PATH

SCI-NAME = ***STD** / <filename 1..54 without-gen-vers>

,**LEVEL** = ***ITEM**(...) / ***UNIT**(...)

***ITEM**(...)

| **PATH-NAME** = ***NONE** / <filename 1..54 without-gen-vers> / <partial-filename 2..53>

| ,**LOGICAL-IDENTIFIER** = <filename 1..30 without-cat-user-gen-vers>

| ,**TARGET** = ***STD** / **A** / **S** / **P** / **K**

| ,**INSTALLATION-UNIT** = <text 1..30 without-sep>(...)

| <text 1..30 without-sep> (...)

| | **VERSION** = <product-version mandatory-man-corr>

***UNIT**(...)

| ,**INSTALLATION-UNIT** = <text 1..30 without-sep>(...)

| <text 1..30 without-sep> (...)

| | **VERSION** = <product-version mandatory-man-corr> /

| | <product-version mandatory-man-without-corr> / <product-version without-man-corr>

| ,**OLD-STRING** = <filename 1..22 without-gen-vers> / <partial-filename 2..23>

| ,**NEW-STRING** = <filename 1..22 without-gen-vers> / <partial-filename 2..23>

,**ENFORCE** = ***NO** / ***YES**

Operands

SCI-NAME =
Defines the SCI to be processed.

SCI-NAME = *STD
The standard SCI is processed (the files $TSOS.SYS.IMON.SCI and $TSOS.SYS.IMON.SCI.GPN).

SCI-NAME = <filename 1..54 without-gen-vers>
Name of the alien SCI. Alien SCIs (e.g. on imported pubsets) can be modified using this operand. If the name of an IMON SCI is specified, the relevant IMON-GPN-SCI is also accepted by the suffix .GPN automatically being added.

LEVEL =
Defines the operation to be carried out.

LEVEL = *ITEM(...)
A path name is to be set (or possibly reset) and linked with the logical name of an item of an existing installation unit.

PATH-NAME =
Designates the path name assigned to the logical name of the installation item.

PATH-NAME = *NONE
No path name is assigned to the logical name. Any existing assignment is canceled.

PATH-NAME = <filename 1..54 without-gen-vers>
Explicit path name specification.

PATH-NAME = <partial-filename 2..53>
The path name is specified in partially qualified form. It refers to all files assigned to the logical name.

LOGICAL-IDENTIFIER =
Designates the logical name of the installation item.

LOGICAL-IDENTIFIER = <filename 1..30 without-cat-user-gen-vers>
Explicit specification of the logical name of the installation item.

TARGET =
Specifies the hardware version of the subsystem to which the installation item belongs.

TARGET = *STD
The current system's standard selection procedure is used.

TARGET = A
The installation item is independent of the hardware version.

TARGET = S
The installation item pertains to the /390 version of the subsystem (SU /390 and S server).

TARGET = P
This hardware version is meaningless for systems as of BS2000/OSD V9.0.

TARGET = K
The installation item belongs to the X86 version of the subsystem (SU x86).

INSTALLATION-UNIT = <structured-name 1..30>(...)
Name of the installation unit containing the logical name.

VERSION = <product-version mandatory-man-corr>
Explicit installation unit version specification.

LEVEL = *UNIT(...)
A string or substring in all path names of the specified installation unit(s) is to be replaced.

INSTALLATION-UNIT = <text 1..30 without-sep>(...)
Name of the installation unit containing the logical name.

VERSION = <product-version mandatory-man-corr> / <product-version mandatory-man-without-corr> / <product-version without-man-corr>
Explicitly specified version of the installation unit.

OLD-STRING = <filename 1..22 without-gen-vers> / <partial-filename 2..23>
String to be searched for in the path names and to be replaced by the string specified with NEW-STRING.

NEW-STRING = <filename 1..22 without-gen-vers> / <partial-filename 2..23>
New string that will be inserted in the place of the OLD-STRING.

ENFORCE = *NO / YES
Determines whether the path name can be assigned even though the logical name was defined with UPDATE=NO (see the “IMON” manual [19]).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	IMO9101	Command terminated abnormally (internal error in IMON-GPN)
	64	CMD0216	User does not have required privilege
	64	IMO9100	Command not executed. Installation unit or version not found, or path name cannot be modified.

5.82 SET-JOB-STEP

Identify error handling (spin-off) section

Component:	SYSFILE
Functional area:	File processing
Domain:	JOB PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the SET-JOB-STEP command, users can subdivide a procedure or an ENTER file into sections.
Processing branches to SET-JOB-STEP when spin-off is initiated in a procedure or a batch job (see “Spin-off mechanism” below). The command

- clears job switches 16 through 31 (value *OFF),
- resets compiler options set using the ISP PARAMETER command to their default values.

This command may be used only in procedures and ENTER files; it is ignored in interactive mode and consequently not offered in the menu.
If SET-JOB-STEP is issued while a program is loaded, an error message appears.

Spin-off mechanism

If an invalid command is encountered during procedure execution, the following responses are possible:

- the invalid command is ignored and processing continues with the next command;
- the invalid command is rejected but processing ignores the following commands, with the exception of the following commands:
  EXIT-JOB, CANCEL-PROCEDURE, END-PROCEDURE, EXIT-PROCEDURE, LOGOFF, SET-JOB-STEP.

This mechanism is called spin-off.

The EXIT-JOB and LOGOFF commands terminate the job, while the CANCEL-PROCEDURE command terminates the procedure. The END-PROCEDURE and EXIT-PROCEDURE commands cause the system to branch to the last procedure level exited, but without switching off the SPIN-OFF mechanism.

The SET-JOB-STEP command switches off the spin-off mechanism and the procedure continues normally with the next command in the sequence.

Spin-off is initiated in the following cases:

- syntax errors; this applies to all commands
- content errors; this does not apply to all commands.

Format

SET-JOB-STEP	Alias: **STJSP**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	EXC0041	System error
	130	CMD2282	Command not possible because a program is loaded

5.83 SET-JV-LINK

Assign link name to job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The SET-JV-LINK command allows the user to assign a link name to a job variable. This assignment is entered into the JV-LINK table associated with the job. A link name is always assigned uniquely to a job variable, but more than one link name can be assigned to a single job variable.
If the specified job variable does not exist, it is created provided no other user ID has been specified (implicit CREATE-JV).

Using link names enables the names of the job variables used to be kept variable in programs and procedures (e.g. no specific name or user ID needs to be defined). Before invoking the program or procedure, the user creates JV-LINK entries with the specified link names for the job variables that are to be used.

A JV-LINK entry exists up to the end of the job, unless it is deleted beforehand with the REMOVE-JV-LINK command. The entries can be displayed using the SHOW-JV-LINK command.

Default link names

For a job-monitoring job variable, a JV-LINK entry with the link name **SMONJVJ** is automatically created. Similarly, a program-monitoring job variable is assigned the link name **SMONJVP**. This enables a job or program to access its monitoring job variable. Users should not use these default link names for their own JV-LINK entries.

Privileged functions

If systems support (TSOS and OPERATING privileges) specifies a non-existent job variable with a foreign user ID, the job variable is created under this ID. Co-ownership of TSOS can be restricted for permanent job variables when SECOS is used.

Format

SET-JV-LINK	Alias: **STJVL**
LINK-NAME = ***NONE** / <alphanum-name 1..7> ,**JV-NAME** = <filename 1..54 without-gen-vers>	

Operands

LINK-NAME = *NONE / <alphanum-name 1..7>
Link name. The JV can be accessed under this name within the currently executing job. The assignment between link name and JV name is registered in the JV-LINK table for the job.
Only one entry per link name may be present in the JV-LINK table. One JV can however be assigned to more than one link name.
If the specified link name was already assigned to another JV, the old assignment is replaced by the new assignment.

JV-NAME = <filename 1..54 without-gen-vers>
Name of the JV.
If the JV already exists, the user must have access authorization.
If the JV does not yet exist, only the user’s own ID may be specified. The JV is cataloged with the default attributes of the CREATE-JV command.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Example

For an example see the SHOW-JV-LINK command.

5.84 SET-LOGON-PARAMETERS

Initiate interactive or batch job

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	all privileges
Routing code:	@ (only with NBCONOPI=Y)

Function

With the SET-LOGON-PARAMETERS command, users can initiate an interactive job on the terminal. When SET-LOGON-PARAMETERS is given as the first command in an ENTER file, it initiates a batch job on starting with the ENTER-JOB command.

The specifications in the SET-LOGON-PARAMETERS command identify the user (system access authorization check), characterize the job and control logging of job execution.
The access authorization specifications are checked against the user entry; further specifications relating to the job class and to the job attributes (job/run priority, system resources) are also checked against the entry in the job class definition. The entries are accessible to the user by means of the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands. If different specifications appear for RUN-PRIORITY and CPU-LIMIT in the user entry and in the job class definition, the value more favorable to the user is permitted.

The operands of the SET-LOGON-PARAMETERS command are evaluated for batch jobs only if the operator starts the job either on the console or with the ENTER-JOB operand DEFAULT-FROM-FILE=*YES. Explicit specifications in the ENTER-JOB command do, however, have priority, i.e. an operand value from /SET-LOGON-PARAMETERS becomes effective only if this operand also has its preset value unchanged in the ENTER-JOB command (see the ENTER-JOB command).

The JOB-PRIORITY, RERUN-AFTER-CRASH, FLUSH-AFTER-SHUTDOWN operands and a SCHEDULING-TIME not equal to *STD are only possible for batch jobs.

Operator functions on physical consoles

If the “Operator LOGON” function is used (incompatible mode; system parameter NBCONOPI=Y), users can authenticate themselves with the SET-LOGON-PARAMETERS command on physical consoles as well. Values may then be specified for the USER-IDENTIFICATION, ACCOUNT and PASSWORD operands only.

Having successfully logged on, the operator still has no authorization to enter commands (apart from a few SHOW commands). This can be obtained with the REQUEST-OPERATOR-ROLE command; SHOW-OPERATOR-ROLE INFORMATION=*ROUTING-CODES indicates which operator roles a user ID is allowed to assume. The operator task is ended either explicitly by an EXIT-JOB command or by the failure of the console. Without authentication through SET-LOGON-PARAMETERS, all that can be entered at physical consoles is the SHOW-PENDING-MSG command to list any unanswered response messages.

Format

SET-LOGON-PARAMETERS Alias: **STLGP**

USER-IDENTIFICATION = **<u>*NO</u>** / <name 1..8>

,**ACCOUNT** = **<u>*NONE</u>** / <alphanum-name 1..8>

,**PASS**WORD = **<u>*NONE</u>** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET**

,**JOB-CLASS** = **<u>*STD</u>** / <name 1..8>

,**JOB-NAME** = **<u>*NO</u>** / <name 1..8>

,**MONJV** = **<u>*NONE</u>** / <filename 1..54 without-gen-vers>

,**JV-PASS**WORD = **<u>*NONE</u>** / <c-string 1..4> / <x-string 1..8> / ***SECRET** / <integer -2147483648..2147483647>

,**JOB-PRIO**RITY = **<u>*STD</u>** / <integer 1..9>

,**RERUN-AF**TER-**CRASH** = **<u>*NO</u>** / ***Y**ES

,**FLUSH-AF**TER-**SHUTDOWN** = **<u>*NO</u>** / ***Y**ES

,**SCHED**ULING-**TIME** = **<u>*STD</u>** / ***PAR**AMETERS(...) / ***BY-CALENDAR**(...)

***PAR**AMETERS(...)

| **START** = **<u>*STD</u>** / ***SOON** / ***IMMED**IATELY / ***AT-STREAM**-STARTUP / ***WITHIN**(...) / ***AT**(...) /

| ***EARL**IEST(...) / ***LATEST**(...)

| ***WITHIN**(...)

| | **HOURS** = **<u>0</u>** / <integer 0..23 *hours*>

| | ,**MINUT**ES = **<u>0</u>** / <integer 0..59 *minutes*>

| ***AT**(...)

| | **DATE** = **<u>*TODAY</u>** / <date>

| | ,**TIME** = <time>

| ***EARL**IEST(...)

| | **DATE** = **<u>*TODAY</u>** / <date>

| | ,**TIME** = <time>

| ***LATEST**(...)

| | **DATE** = **<u>*TODAY</u>** / <date>

| | ,**TIME** = <time>

| ,**REP**EAT-**JOB** = **<u>*STD</u>** / ***NO** / ***DAILY** / ***WEEKLY** / ***AT-STREAM**-STARTUP / ***PER**IOD(...)

```
        |           *PERIOD(...)
        |                   |       HOURS = 0 / <integer 0..23 hours>
        |                   |       ,MINUTES = 0 / <integer 0..59 minutes>
    *BY-CALENDAR(...)
        |   CALENDAR-NAME = <filename 1..54 without-gen-vers>
        |   ,SYMBOLIC-DATE = <filename 1..20 without-cat-user-vers> /
        |                           <partial-filename 2..20 without-cat-user>
,LIMIT = *STD / <integer 1..32767> / *BY-DATE(...)
    *BY-DATE(...)
        |   DATE = <date>
        |   ,TIME = <time>
,RESOURCES = *PARAMETERS (...)
    *PARAMETERS(...)
        |   RUN-PRIORITY = *STD / <integer 30..255>
        |   ,CPU-LIMIT = *STD / *NO / <integer 1..32767 seconds>
        |   ,SYSLST-LIMIT = *STD / *NO / <integer 0..999999>
,LOGGING = *PARAMETERS (...)
    *PARAMETERS(...)
        |   LISTING = *NO / *YES
        |   ,HARDCOPY = *NO / *YES
,JOB-PARAMETER = *NO / <c-string 1..127>
,PROTECTION = *NONE / *CANCEL
```

Operands

USER-IDENTIFICATION = *NO / <name 1..8>
User ID under which the job is to run.

ACCOUNT = *NONE / <alphanum-name 1..8>
Account number of the user ID under which the job is to run.

PASSWORD = *NONE / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / *SECRET
Password for the user ID.
The long password mechanism is supported (<c-string 9..32>). See the MODIFY-USER-PROTECTION command for details of the long password mechanism.
The PASSWORD operand has the following special characteristics:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

JOB-CLASS = *STD / <name 1..8>
Job class in which the job is to run. The job class must be permitted for the job type (e.g. interactive job). The user can ascertain the job classes he is allowed to use from his user entry for the home pubset (SHOW-USER-ATTRIBUTES command output). This also displays the default job class that is preset with *STD. Users can obtain information about the characteristics of job classes (job class definition) by means of the SHOW-JOB-CLASS command.

JOB-NAME = *NO / <name 1..8>
The name of the job. The job can be accessed using this name (e.g. using SHOW-JOB-STATUS). All unnamed jobs started from within this job are also assigned this name.

JOB-NAME = *NO
The job is to run without a name of its own.
If there is a non-S label prefixed to the SET-LOGON-PARAMETERS command, the job is given the name of the label.

JOB-NAME = <name 1..8>
Job name.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies whether the job is to be monitored by a JV.

MONJV = *NONE
The job is not monitored.

MONJV = <filename 1..54 without-gen-vers>
Applies only if the JV software product is being used
Name of the JV that is to monitor the job.
Job monitoring is only started if the job is accepted by the system's job management facility (`JOB ACCEPTED`).
The job originator must have write authorization because he instructs the system to write to the JV. If the JV is not accessible at the time of command processing, an error message is output to SYSOUT and the command is rejected. If the specified JV does not yet exist, it is - if the requisite authorization exists - created by the system and made available for all users (ACCESS=*WRITE and USER-ACCESS=*ALL-USERS).

Users can address this job via the specified JV (see the "Job Variables" manual [20]):

$S	Job on queue
$R	Job running
$T	Job terminated
$A	Job aborted
$M	Job exported with MOVE-JOBS

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Applies only if the JV software product is being used

Password for the JV.
The operand is only evaluated when job monitoring has been defined (see the MONJV operand). The operand JV-PASSWORD is defined as “secret”:

- The password entered is not logged.
- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.

JOB-PRIORITY = *STD / <integer 1..9>
For batch jobs only
Job priority to be given to the batch job. The lower the value, the higher the priority. The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

JOB-PRIORITY = *STD
The standard priority specified for the job class applies.

RERUN-AFTER-CRASH = *NO / *YES
For batch jobs only
Specifies whether the batch job is to be restarted during the next system session if processing has been aborted as the result of a system error or termination of the system session.

FLUSH-AFTER-SHUTDOWN = *NO / *YES
Specifies whether the batch job is to be removed from the job queue if it has not been processed by the end of the session.

SCHEDULING-TIME = *STD / *PARAMETERS(...) / *BY-CALENDAR(...)
For batch jobs only
Defines how scheduling times are specified for the batch job.

SCHEDULING-TIME = *STD
The default settings for START and REPEAT-JOB scheduling time specifications for the selected job class apply (see the operands of the SCHEDULING-TIME=
*PARAMETERS(...) structure).

SCHEDULING-TIME = *PARAMETERS(...)
Defines a scheduling time (start time) for the batch job. It is also possible to define job repeats (repeat job).

START =
Starting time for the batch job. Values other than *STD are appropriate only if permitted in accordance with the job class definition (see the SHOW-JOB-CLASS command).

START = *STD
The default value for the chosen job class applies.

START = *SOON
The job is to be started as soon as possible, in accordance with its priority.

START = *IMMEDIATELY
The job is to be started immediately.

START = *AT-STREAM-STARTUP
The job is to be started after the next startup of the job scheduler.

START = *WITHIN(...)
The job is to be started within the specified time period.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

START = *AT(...)
The job is to be started exactly at the time specified in the following.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications.
20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

START = *EARLIEST(...)
The job is to be started no earlier than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications.
20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

START = *LATEST(...)
The job is to be started no later than the time specified.

DATE = *TODAY / <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications.
20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day in the format hh:mm, where hh = hours and mm = minutes. Seconds are not interpreted.

REPEAT-JOB =
Time interval at which the batch job is to be repeated. Values other than *STD are appropriate only if permitted in accordance with the job class definition (see the SHOW-JOB-CLASS command). The time interval for the repetitions depends on the specification in the START operand; see the note in this regard, “Combinations of the START and REPEAT-JOB operands”. For the repetitions, the following applies:

- The i-th repetition (i >= 1) of a job is not started until the (i1)th repetition has ended.
- Cancellation of the currently executing job (i) has no effect on the start of (i+1); (i >= 0).
- Cancellation of the entire job: Both the currently executing job (i) and the subsequent job (i+1) must be canceled, (i >= 0); (CANCEL-JOB command, or make job (i) the last job in the series using the command MODIFY-JOB ...,REPEAT-JOB=*NO).

REPEAT-JOB = *STD
The default value for the chosen job class applies.

REPEAT-JOB = *NO
The batch job is not repeated.

REPEAT-JOB = *DAILY
Daily repetition at the time specified with START.

REPEAT-JOB = *WEEKLY
Weekly repetition at the time specified with START.

REPEAT-JOB = *AT-STREAM-STARTUP
Repetition following each startup of the job scheduler.

REPEAT-JOB = *PERIOD(...)
Repetition after the specified time interval.

HOURS = 0 / <integer 0..23 *hours* >
Number of hours.

MINUTES = 0 / <integer 0..59 *minutes* >
Number of minutes.

SCHEDULING-TIME = *BY-CALENDAR(...)
For batch jobs only
The batch job scheduling time and any repeat jobs are specified in the form of a symbolic date defined in a calendar file (calendar job). The entries in a calendar file can be listed with the SHOW-CALENDAR command. Creation of calendar files with the CALENDAR-EDITOR utility is described in the “Calendar” manual [4].

CALENDAR-NAME = <filename 1..54 without-gen-vers>
Name of the calendar file.

SYMBOLIC-DATE = <filename 1..20 without-cat-user-vers> / <partial-filename 2..20 without-cat-user>
Symbolic date which defines the scheduling time and any repetition cycles within the calendar file. The symbolic date may also be given in partially qualified mode. In this way, several scheduling times can be defined for one calendar day with the appropriate definition of SYSDATs.

Example: Definition of SYMDATs in the calendar file:

- WORK.DAY.1 (every other day at 06:00 hrs)
- WORK.DAY.2 (every other day at 6:00 PM hrs)
- WORK.WEEK.1 (every Friday at 21:00 hrs)

A calendar job considering all three scheduling points is started with `SYMBOLIC-DATE=WORK.`.

LIMIT = *STD / <integer 1..32767> / *BY-DATE(...)
Governs how long a calendar job remains in existence. This limit applies in addition to the limits set by the calendar.

LIMIT = *STD
The duration of the calendar job depends entirely on the symbolic date entry in the calendar.

LIMIT = <integer 1..32767>
This specification is only permitted for calendar jobs.
Maximum number of repetitions of the calendar job.

When a single job run ends, the run counter is incremented by 1. Then the run counter is checked against the limit. If this is the case, the entire calendar job is terminated.

LIMIT = *BY-DATE(...)
This specification is only permitted for calendar jobs.
After the specified date has been reached, no repeat jobs for the calendar job are started. A repeat which is currently in progress will abort when the date arrives.
The specified date relates only to the calculated starting date for repeat jobs. Overshoots due to rescheduling of postponed repeats or to delays in the job scheduler are allowed. The date specification consists of the day and the time:

DATE = <date>
Date. This can be specified in the form [yy]yy-mm-dd. Only the last two digits of the year are evaluated, which means that the century is ignored in four-digit year specifications. 20 is automatically prefixed to two-digit year specifications < 80, 19 to two-digit year specifications >= 80.

TIME = <time>
Time of day.

RESOURCES = *PARAMETERS(...)
Values for run priority, CPU time and maximum number of SYSLST records.

RUN-PRIORITY = *STD / <integer 30..255>
Run priority which the job is to be assigned. The lower the value, the higher the priority. The maximum permissible priority value is the lesser of the two values (i.e. the more favorable of the values) from the user catalog and the job class definition.
If no maximum value is defined for the job class, the following rules apply:

- If the value specified explicitly is numerically lower than the value in the user entry, the message JMS0045 is issued. The batch job is assigned the higher of the two values (i.e. the less favorable value) for the run priority from the user entry and the default run priority for the job class.
- If no value is specified explicitly or if *STD is specified explicitly the job is given the default job priority for the job class.

The values can be queried with the SHOW-USER-ATTRIBUTES and SHOW-JOB-CLASS commands.

RUN-PRIORITY = *STD
The standard run priority specified for the job class applies.

CPU-LIMIT = *STD / *NO / <integer 1..32767 *seconds* >
Maximum CPU time, in seconds, that the batch job may consume. The maximum time permitted depends on the job class specified. See also section "Time limits in BS2000".

CPU-LIMIT = *STD
The default value for the chosen job class applies.

CPU-LIMIT = *NO
Specifies no time limit (NTL) for the job run. This operand value is permitted only if the requisite authorization exists in the user entry or the job class definition.

SYSLST-LIMIT = *STD / *NO / <integer 0..999999>
Specifies the maximum number of records the job is allowed to output to the system files SYSLST, SYSLST01, SYSLST02, ..., SYSLST99 and SYSOUT. The records for SYSOUT are counted separately from the records for SYSLST files. In interactive mode, output records on SYSOUT are only counted if the output is

(also) written to a file. In the case of SYSLST, SYSOUT records are not taken into account, even if the setting LISTING=*YES has been made to ensure that they are also written to SYSLST. This value must not be above the limit set in the job class definition. This limit may be queried using the SHOW-JOB-CLASS command.

SYSLST-LIMIT = *STD
The default value for the chosen job class applies. If the specified number is exceeded:

- in interactive mode, the user may specify whether the job is to be continued or terminated. If continued, output is repeated up to “number”.
- in batch mode, the job is terminated abnormally.

SYSLST-LIMIT = *NO
Sets no limit on the number of records output.

LOGGING = *PARAMETERS(...)
Job logging parameters.

LISTING = *NO / *YES
Specifies whether the job run is also to be logged on SYSLST.

HARDCOPY = *NO / *YES
Specifies whether the dialog job is also to be logged at a hardcopy printer.

JOB-PARAMETER =
Specifies additional attributes for the selected job class - assuming that systems support has defined some and made them known.

JOB-PARAMETER = *NO
No additional attributes.

JOB-PARAMETER = <c-string 1..127>
c-string = sequence of any characters; assigned by systems support to identify additional job class attributes.

PROTECTION = *NONE / *CANCEL
Specifies whether a job is to be protected against being canceled unintentionally with the CANCEL-JOB command.

> The PROTECTION specification from the ENTER-JOB command always applies for batch jobs. The value entered here is ignored. This also applies when the operator starts the job on the console or by specifying the ENTER-JOB operand DEFAULT-FROM-FILE=*YES.

PROTECTION = *NONE
The job is not protected against unintentional cancellation.

PROTECTION = *CANCEL
The job is not protected against accidental termination. When an interactive job is terminated with the CANCEL-JOB command, the system demands an additional confirmation from the user. Accidental termination of the job due to incorrect specification of the job number should thus be prevented.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed

	64	JMS0640	Command rejected

If SET-LOGON-PARAMETERS is the **first** command in the dialog (input after connection setup and LOGON prompt) or in an ENTER file, it is rejected in the event of an error (SC1 not 0) and the task aborted. The command return code cannot be evaluated in this case.

5.85 SET-MSG-SUPPRESSION

Suppress console messages

Component:	BS2000
Functional area:	Operator terminal control Message processing
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

The SET-MSG-SUPPRESSION command enables the output of certain messages to be suppressed at operator terminals (consoles). The messages must originate from a message file and have been created by means of the MSG7X macro. Up to 1024 different messages can be suppressed during a session.
The following applies to messages with responses (queries):

Queries connected with commands (request for additional command information with “&”) cannot be suppressed.

All other query types can be suppressed. Suppressed queries, with the exception of queries without responses (knowledgeable queries), will definitely be output (possibly at the main console).

If the “Operator LOGON” function is used (system parameter NBCONOPI=Y), only the values *NO and *OWN are allowed for the CONSOLE-UNIT and APPLICATION-NAME operands, which means that the command cannot be issued for other operator terminals or authorized user programs.

If the “Operator LOGON” function is not used, the operator can issue the command at the main operator terminal with reference to other operator terminals or authorized user programs as well.

In a user task with OPERATING privilege, the command applies only when reading from the event stream of the user’s own task. In this case only the value *NO is permissible for the CONSOLE-UNIT and APPLICATION-NAME operands.

The operator can use the SHOW-MSG-SUPPRESSION command to request a list of the currently defined arrangements to be displayed.

Format

SET-MSG-SUPPRESSION
MSG-ID = list-poss(12): <alphanum-name 7..7> ,**CONSOLE-UNIT** = ***NO** / ***OWN** / ***ALL** / list-poss(20): <name 2..2> ,**APPLI**CATION-**NAME** = ***NO** / ***OWN** / ***ALL** / list-poss(20): <name 4..4>

Operands

MSG-ID = list-poss(12): <alphanum-name 7..7>
Mandatory operand which specifies a seven-digit message number or a list of message numbers identifying messages whose output to the operator terminal is to be suppressed.

Note

Messages with nonexistent message numbers or messages which cannot be suppressed are not rejected (see also “Control of message delivery” in the “Introduction to System Administration” [14]).

CONSOLE-UNIT =
Mnemonic name of the operator terminal on which the specified messages are not to appear.

CONSOLE-UNIT = *NO
The existing definition for the operator terminal is retained. However, when input is from an operator terminal, the change becomes effective for the operator terminal where the input is made.

CONSOLE-UNIT = *OWN
This operand value is only possible when input is made at a console.
The messages are suppressed at the operator terminal on which the command was issued.

CONSOLE-UNIT = *ALL
The arrangements made are to apply to all operator terminals.
This operand may only be used in the mode without operator LOGON at the main operator terminal.

CONSOLE-UNIT = list-poss(20): <name 2..2>
Mnemonic name of the main or standby operator terminal at which the specified messages are no longer to appear. In this operand remote consoles may only be specified in the mode without operator LOGON from the main operator terminal.

APPLICATION-NAME =
Specifies the authorized user program for which the specified messages are to be suppressed.

Note

If messages are suppressed by an authorized user program with generated authorization names, suppression applies until the authorized user program is disconnected. On disconnection, suppression is remembered and comes back into force automatically as soon as the program is reconnected.
In the case of user programs with dynamic authorization names, suppression applies only until disconnection.

APPLICATION-NAME = *OWN APPLICATION-NAME = *NO
The existing definition for the authorized user programs is retained. However, when input is from an authorized user program, the changes become effective for this user program.
This operand value is only permissible when input is from an authorized user program.
Message suppression is to apply to the authorized user program for which the command was issued.

APPLICATION-NAME = *ALL
The specified messages are suppressed for all known authorized user programs.
This operand may only be used in the mode without operator LOGON at the main operator terminal.

APPLICATION-NAME = list-poss(20): <name 4..4>
Name of the authorized user program (4 alphanumeric characters) for which the specified messages are to be suppressed.
Remote authorized user programs may only be specified in the mode without operator LOGON from the main operator terminal.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NBR0884	Command partially executed
	32	NBR0007	OPR task anchor not accessible
	64	NBR0200	Command not available
	1	CMD0202	Syntax error
	64	NBR0865	Authorized application not found
	64	NBR0866	Operator terminal not found
	64	NBR0881	Maximum number of suppressed messages
	64	NBR0883	May only be issued from main operator terminal in this form
	130	NBR0875	Class-4 memory shortage
	130	NBR0877	Message table locked
	130	NBR0921	Class-5 memory shortage

5.86 SET-NET-CLIENT-ALTERNATE

Assign net clients for high availability

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	DEVICE STORAGE-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	G

Function

The SET-NET-CLIENT-ALTERNATE command specifies an assignment of two net clients on redundant HNCs for high availability. This assignment is a symmetrical relationship between the two net clients. There can only ever be one alternative net client for a net client. When one of the two net clients fails, the other takes over the existing Net-Storage connections of the failed net client.

Another SET-NET-CLIENT-ALTERNATE for one of the two net clients has the following effect:

- ALTERNATE-CLIENT=*NONE cancels the existing assignment.
- ALTERNATE-CLIENT=<client> cancels the existing assignment and specifies a new assignment for the specified net clients.

Information on the high availability of net clients can be requested using the SHOW-NET-CLIENT-ALTERNATE command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the "Introductory Guide to DMS" [13].

Format

SET-NET-CLIENT-ALTERNATE

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) / ***IP-ADDR**ESS(...)

***DNS**(...)

| DNS-NAME = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>

,ALTERNATE-CLIENT = <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) / ***IP-ADDR**ESS(...)

***DNS**(...)

| DNS-NAME = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>

Operands

CLIENT =
Specifies the net client to which an alternative net client is to be assigned.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

ALTERNATE-CLIENT =
Specifies the net client which is to be assigned as alternative net client.

ALTERNATE-CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the alternative net client.

ALTERNATE-CLIENT = *DNS(...)
Domain name of the alternative net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

ALTERNATE-CLIENT = *IP-ADDRESS(...)
IP address of the alternative net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
1	0	NKAN015	Alternate assignment already exists
	1	NKAN003	Syntax error in the input
	32	NKAN004	Error in command execution

5.87 SET-PROCEDURE-OPTIONS

Define procedure attributes

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SET-PROCEDURE-OPTIONS command enables the user to define the attributes of an *S procedure*. It is an optional command. If used, it must be the *first* command in the procedure head; if it is not used, the attributes are defined in accordance with the SDF-P default values.
The following options can be set in the SET-PROCEDURE-OPTIONS command (the SDF-P default values are given in parentheses):

- permissible procedure call (CALLER=*ANY)
- implicit declaration of S variables (IMPLICIT-DECLARATION=*YES)
- scope of logging (LOGGING=*YES)
- interruption of the procedure (INTERRUPT-ALLOWED=*YES)
- format of the procedure (INPUT-FORMAT=*FREE-RECORD-LENGTH)
- replacement of variables within data records (DATA-ESCAPE-CHAR=*NONE)
- SYSFILE context of the current procedure level (SYSTEM-FILE-CONTEXT=*STD)
- error recovery when there is a mixture of input data and commands (DATA-ERROR-HANDLING=*YES)
- setting for job variable replacement (default in interactive mode: JV-REPLACEMENT=*AFTER-BUILTIN-FUNCTION; in S procedures JV-REPLACEMENT=*NO)
- setting for error handling (ERROR-MECHANISM=*SPIN-OFF-COMPATIBLE)
- suppression of selected SDF-P messages (SUPPRESS-SDP-MSG=*NONE)

> If the SET-PROCEDURE-OPTIONS command is not specified explicitly, the SDF-P defaults apply. Defaults for the command which have been modified in the activated syntax file apply to the procedure only when the SET-PROCEDURE-OPTIONS command is specified explicitly.

The procedure attributes can be changed by means of the MODIFY-PROCEDURE-OPTIONS command. The “SDF-P message suppression” option can be modified at any time, but the other settings can only be changed if the chargeable SDF-P subsystem is in operation (see the MODIFY-PROCEDURE-OPTIONS command).

Format

SET-PROCEDURE-**OPT**IONS

CALLER = ***ANY** / ***CALL** / ***INCL**UDE

,**IMPL**ICIT-**DECL**ARATION = ***Y**ES / ***NO**

,**LOG**GING-**ALLOW**ED = ***PAR**AMETERS(...) / ***Y**ES / ***NO** /

***PAR**AMETERS(...)

| **CMD** = ***Y**ES / ***NO**

| ,**DATA** = ***Y**ES / ***NO**

,**INTERRUPT-ALLOW**ED = ***Y**ES / ***NO**

,**INP**UT-**FORM**AT = ***FREE-REC**ORD-**LENGTH** / ***BY-SDF-OPT**ION

,**DATA-ESC**APE-**CHAR** = ***NONE** / '&&' / '#' / '*' / '@' / '$' / ***STD**

,**SYS**TEM-**FILE-CONTEXT** = ***STD** / ***SAME-AS-CALL**ER / ***OWN**

,**DATA-ERROR**-HANDLING = ***Y**ES / ***NO**

,**JV-REPL**ACEMENT = ***NONE** / ***AFTER-BUILTIN-FUNC**TION

,**ERROR-MECH**ANISM = ***SPIN-OFF-COMPATIBLE** / ***BY-RETURNCODE**

,**SUP**PRESS-**SDP-MSG** = ***NONE** / list-poss(2000): <alphanum-name 7..7>

,**TRANSLATION-CCS** = ***STD** / ***EDF03IRV** / ***CURR**ENT

Operands

CALLER =
This defines how the procedure may be called.

CALLER = *ANY
The procedure can be called using the commands CALL-PROCEDURE and INCLUDE-PROCEDURE. The latter command is only available if the chargeable subsystem SDF-P is loaded. Invocation as an INCLUDE procedure is described in the “SDF-P” manual [34].

CALLER = *CALL
The procedure can only be called by means of the CALL-PROCEDURE command.

CALLER = *INCLUDE
The procedure can only be called by means of the INCLUDE-PROCEDURE command (which in turn is only possible if the subsystem SDF-P is loaded).

IMPLICIT-DECLARATION = *YES / *NO
This specifies whether S variables may be declared implicitly.
Implicit declaration means that S variables are created automatically when they are assigned for the first time, and corresponds to explicit declaration using DECLARE-VARIABLE and preset values:
A *simple* S variable without an initial value and without definition of the variable type is created in class 5 memory. This S variable is known only within the procedure (see section"SDF-P-BASYS").
S variables which are used as procedure parameters (see the DECLARE-PARAMETER command) are also declared explicitly. They too are created within the procedure only.
If implicit declaration is not permitted, S variables must be created explicitly before they are first assigned. The attributes of the S variables can be defined at this point. Only variables of type ANY are permitted with SDF-P-BASYS.

LOGGING-ALLOWED =
This determines whether logging of procedure execution is permitted. The specification applies only to the current procedure level.
Whether logging is actually performed is determined by the caller in the CALL-PROCEDURE command.

LOGGING-ALLOWED = *PARAMETERS(...)
Logging is permitted. However, the user can grant the requisite authorization separately for commands and data records:

CMD = *YES / *NO
This specifies whether commands can be logged.

DATA = *YES / *NO
This specifies whether data records can be logged.

LOGGING-ALLOWED = *YES
Logging is permitted without restrictions.

LOGGING-ALLOWED = *NO
Logging is not permitted.

INTERRUPT-ALLOWED = *YES / *NO
This specifies whether the procedure may be interrupted by means of the [K2] key or the HOLD-PROCEDURE command. The interrupted procedure can be resumed by means of the RESUME-PROCEDURE command.
If interruption is not permitted, a query to this effect is output after the interrupt request. If the user insists upon an interruption, the system terminates the job immediately.

INPUT-FORMAT =
This specifies the length in which the input records for the procedure are to be evaluated and the positions at which a continuation character is possible.

INPUT-FORMAT = *FREE-RECORD-LENGTH
Input records are evaluated in their full length. The continuation character is located in the last column that does not contain a blank.
The maximum length of an input record is 4096 characters (4 K).

INPUT-FORMAT = *BY-SDF-OPTION
Input records are evaluated up to and including column 72; any subsequent characters are ignored. The location of the continuation character is determined by the current SDF setting (output by means of the SHOW-SDF-OPTIONS command; setting via the CONTINUATION operand of the MODIFY-SDF-OPTIONS command).

DATA-ESCAPE-CHAR = *NONE / '&&' / '#' / '*' / '@' / '$' / *STD
This specifies whether variables are to be replaced and expressions evaluated in data records.
It is possible to define the character with which the relevant variables or expressions begin. Permissible characters are &, #, *, @ and $. Specifying & is equivalent to specifying *STD (as on command level). If the character & is to be specified explicitly, it *must* be entered twice.

SYSTEM-FILE-CONTEXT =
This specifies the system file context with which the procedure is to execute.

SYSTEM-FILE-CONTEXT = *STD
A separate system file context is created. The system file SYSDTA is assigned automatically to the system file SYSCMD (i.e. to the procedure file) and the assignments made by the caller are assumed for the other system files. Modifications to assignments apply solely to the current procedure level. When a procedure is terminated, the system files are again given the assignments made by the caller.

SYSTEM-FILE-CONTEXT = *SAME-AS-CALLER
The procedure executes in the system file context of the caller.
Modifications to assignments within the current procedure level thus *always* affect the system file context of the caller.

SYSTEM-FILE-CONTEXT = *OWN
A separate system file context is created. The assignments made by the caller are adopted for *all* system files (including SYSDTA). Modifications to assignments are only valid within the current procedure level. When a procedure is terminated, the system files are again given the assignments made by the caller.
The specification *OWN corresponds to what was previously valid for *non-S procedures*.

DATA-ERROR-HANDLING =
This specifies whether SDF-P error recovery is to be activated in the following cases:

- data (without a leading slash or with a leading double slash) is found at a point where commands are expected
- *&<variable>* or only *&* occurs within data, and *<variable>* is not known either as an S variable or as a builtin function.

DATA-ERROR-HANDLING = *YES
SDF-P error recovery is triggered in the cases specified above.

DATA-ERROR-HANDLING = *NO
SDF-P error recovery is not triggered in the cases specified above.

JV-REPLACEMENT =
This specifies whether job variable replacement is to be carried out.

JV-REPLACEMENT = *NONE
Job variables are not replaced. Only S variables or builtin functions are replaced. This setting guarantees that builtin functions can be introduced compatibly (i.e. their names will not overlap with JV names already assigned by the user).

JV-REPLACEMENT = *AFTER-BUILTIN-FUNCTION
Job variables are replaced. Replacement occurs in the following sequence: first S variable, then builtin function and finally job variable. Incompatibilities during job variable replacement due to like-named builtin functions can be avoided by specifying the user ID along with the JV names. Moreover, the desired job variable replacement can also be achieved through the builtin function JV.

ERROR-MECHANISM =
Specifies whether SDF-P error handling is triggered in compatible fashion with the previous spin-off mechanism or on a nonzero subcode1.

ERROR-MECHANISM = *SPIN-OFF-COMPATIBLE
SDF-P error handling is triggered in compatible fashion with the previous spin-off mechanism. Subcode1 is **not** taken into consideration.
This setting ensures that the error behavior of S procedures created in BS2000 Version 10.0A remains compatible.

ERROR-MECHANISM = *BY-RETURNCODE
SDF-P error handling is triggered on a nonzero subcode1. Spin-off is **not** taken into consideration. Error handling in the procedure must be based on the possible command return codes of the commands contained in the procedure.

SUPPRESS-SDP-MSG =
Determines whether the output of certain SDF-P messages (message class SDP) is to be suppressed. The option applies only to the calling procedure (it is not propagated).

SUPPRESS-SDP-MSG = *NONE
Message output is not suppressed; all SDF-P messages are output.

SUPPRESS-SDP-MSG = list-poss(2000): <alphanum-name 7..7>
Set of SDF-P messages which are to be suppressed.

TRANSLATION-CCS =
Determines which character set (CCS, Coded Character Set) the built-in functions UPPER-CASE and LOWER-CASE use for conversion to uppercase and lowercase letters.

TRANSLATION-CCS = *STD
The standard character set EDF03IRV is used. When an optional Rep is employed for SDF-P-BASYS, *STD has a system-global effect like *CURRENT.

TRANSLATION-CCS = *EDF03IRV
Forces the use of the standard character set EDF03IRV.

TRANSLATION-CCS = *CURRENT
The character set which is currently set for the task’s input stream is used. The command is rejected in the following cases:

- The character set used is not supported or is not known.
- The character set is not EDF03IRV and the XHCS subsystem is not loaded.
- The character set is a 16-bit character set (only 8-bit character sets are supported).

Return codes

The SET-PROCEDURE-OPTIONS command can only be used as the first command in the procedure head of an S procedure. SDF-P detects errors in the procedure head during preanalysis and terminates the procedure call.
The command return codes can only occur if the command is used outside the procedure head.

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SDP0118	Command in incorrect context
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	130	SDP0099	No further address space available

5.88 SET-PUBSET-ATTRIBUTES

Define attributes of pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

This command is used by systems support to define the following pubset attributes:

- shareability of the pubset
- desired owner (master) of the pubset
- desired master change mode
- desired backup owner (backup master) of the pubset
- system identification (SYSID) of the processor that uses this pubset as the home pubset.
- the pubset’s disk and file properties (> 32 GB)
- maximum permitted number of Snapsets

Only the PUBRES of the pubset in question must be available for execution of the command (in an SM pubset this is the PUBRES of the control volume set). The attributes defined here (the pubset characteristics) are recorded in the SVL (standard volume label) of the PUBRES.
When assigning a SYSID which is used internally as a synonym of the BCAM name, a distinction must be made according to the type of catalog ID.

- Single-character catalog identifier complying with naming convention PUBxyy

```
PUB = distinguishes public from private        |
disks                                          | VSN (6 characters)
x = catalog identifier, 1 character            |
yy = no. within the pubset, 2 characters
```

  The SYSID must be **identical** to the catalog identifier (x).

- Multiple-character catalog identifier complying with naming convention xxx.yy (period notation)

```
xxx = catalog identifier, 2-3 characters long    |
. = delimiter between catalog identifier and     |
no. within the pubset, distinguishes public      | VSN (6 characters)
from private disks                               |
yy = no. within the pubset, 1-3 characters long  |
```

  The SYSID must be an integer in the range **65...192**.
  When assigning the SYSID it must be avoided that two processors of an MSCF network have the same SYSID.

Specification of new attributes is not immediately effective for pubsets that have already been imported but only after the pubset is re-imported.

Format

SET-PUBSET**-ATTR**IBUTES

PUBSET = <catid 1..4>

,**PUB**SET**-TYPE** = ***ANY** / ***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED(...)

***SYS**TEM**-MANAG**ED(...)

| **CONTR**OL**-VOL**UME**-SET** = ***ANY** / <catid 1..4>

,**DEV**ICE**-TYPE** = ***STD** / ***NONE** / <device>

,**SYSID** = ***UNCHA**NGED / <alphanum-name 1..3>

,**MASTER** = ***UNCHA**NGED / ***NONE** / <alphanum-name 1..3>

,**ALTER**NATE**-MASTER** = ***UNCHA**NGED / ***BACKUP-MASTER** / ***NONE**

,**BACKUP-MASTER** = ***UNCHA**NGED / ***NONE** / <alphanum-name 1..3>

,**ALTER**NATE**-BACKUP** = ***UNCHA**NGED / ***BY-OPER**ATOR / ***BY-SHARER** / ***NONE**

,**SHARE** = ***UNCHA**NGED / ***NO** / ***Y**ES

,**LARGE-VOL**UMES = ***UNCHA**NGED / ***ALLOW**ED(...)

***ALLOW**ED(...)

| **LARGE-FILES** = ***UNCHA**NGED / ***ALLOW**ED

,**SNAPSET-LIMIT** = ***UNCHA**NGED / <integer 1..52>

Operands

PUBSET = <cat-id 1..4>
Pubset to which the following declarations are to apply.

PUBSET-TYPE = *ANY / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Specifies the type of pubset involved.
The default applies if an MRSCAT entry exists or if the pubset identifier refers to a single-feature pubset.

PUBSET-TYPE = *ANY
Default: A valid MRSCAT entry exists (the pubset type is irrelevant), or the pubset is a single-feature pubset.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset in question is a single-feature pubset.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset in question is a system-managed pubset.

CONTROL-VOLUME-SET = *ANY
The pubset in question is an SM pubset with a valid MRSCAT entry.

CONTROL-VOLUME-SET = <cat-id 1..4>
The pubset in question is an SM pubset for which there is no MRSCAT entry.

DEVICE-TYPE = *STD / *NONE / <device>
Device type of the PUBRES of the SF pubset or of the control volume set of the SM pubset, as appropriate.

DEVICE-TYPE = *STD
The default value applies if an MRSCAT entry with the device type exists for this pubset.

DEVICE-TYPE = *NONE
A valid MRSCAT entry exists; there is no need to specify the device type.

DEVICE-TYPE = <device>
Device type of the PUBRES or of the control volume set, as appropriate.
Only disk device types known on the system will be accepted.
Entering DEVICE-TYPE=? in interactive mode calls up a list of available device types.

SYSID = *UNCHANGED / <alphanum-name 1..3>
Issues a SYSID assigned to the pubset.

SYSID = <alphanum-name 1..3>
If the pubset with the name convention PUBxyy is used as a home pubset, the specification here, which corresponds to the catalog identifier, is used as the SYSID for the processor. In the case of a catalog identifier with 2-4 characters, a whole number in the range 65 to 192 must be assigned to the pubset as the SYSID.

MASTER = *UNCHANGED / *NONE / <alphanum-name 1..3>
Specifies the ownership of the pubset.

MASTER = *NONE
Ownership is not explicitly declared. Instead, ownership passes to the system that executes the first IMPORT-PUBSET.

MASTER = <alphanum-name 1..3>
SYSID of the desired master system.

BACKUP-MASTER = *UNCHANGED / *NONE / <alphanum-name 1..3>
Specifies which system is to automatically take over the function of master if the owner of a shared pubset fails. The ALTERNATE-BACKUP operand can be used to define a secondary backup system to take over the function of the master if the backup master specified here is also unavailable.

BACKUP-MASTER = *UNCHANGED
Default: the existing backup master setting continues to apply.

BACKUP-MASTER = *NONE
No preselected system is to take over the role of master automatically if the owner of a shared pubset fails.

BACKUP-MASTER = <alphanum-name 1..3>
SYSID of the required backup owner system.
If the specified system is active as a slave at the time when the owner of a shared pubset fails, it automatically takes over the role of master; if it is not active, the ALTERNATE-BACKUP operand determines whether or how the new master can be identified.

After a change of master to the specified backup master, a further change of master can be carried out without modification of the BACKUP-MASTER operand if the system identified by the MASTER operand is active as a slave system.

ALTERNATE-MASTER = *UNCHANGED / *BACKUP-MASTER / *NONE
Specifies whether the backup master is used as owner in case the pubset is imported on it before the specified owner becomes active.

ALTERNATE-MASTER=*UNCHANGED
Default: the existing alternate master setting continues to apply.

ALTERNATE-MASTER =*BACKUP-MASTER
If the pubset is imported on the backup master before it is imported on the owner, the backup master becomes the owner and the originally specified owner becomes the slave.

ALTERNATE-MASTER=*NONE
During the pubset import, the backup master waits for the pubset import of the owner.

ALTERNATE-BACKUP = *UNCHANGED / *NONE / *BY-OPERATOR / *BY-SHARER
Defines how a change of master is to be implemented if the backup master is not active or not defined (BACKUP-MASTER operand). If the backup master is active, the master is changed automatically and the backup master becomes the new master.

ALTERNATE-BACKUP = *UNCHANGED
Default: the existing setting continues to apply.

ALTERNATE-BACKUP = *NONE
No alternate backup master is defined. If there is an explicitly defined backup master which is not active, no other system is allowed to act as master.

ALTERNATE-BACKUP = *BY-OPERATOR
If the backup master is not active or not defined, an operator can nominate an alternate backup master on one of the slave systems and thus initiate a change of masters (using the command `/IMPORT-PUBSET ..., MASTER-CHANGE=*YES`).

ALTERNATE-BACKUP = *BY-SHARER
If the backup master is not active or not defined, the role of master is automatically taken by the system which is the first sharer in the current SVL sharer list and hence currently the oldest slave system.

SHARE = *UNCHANGED / *NO / *YES
Governs whether the pubset may be operated as a shared pubset.

SHARE = *UNCHANGED
Default: the existing setting continues to apply.

SHARE = *NO
The pubset must not be imported as a shared pubset.

SHARE = *YES
The pubset may be imported as a shared pubset.

LARGE-VOLUMES = *UNCHANGED / *ALLOWED(...)
Specifies whether the pubset may contain large volumes (capacity > 32 GB).

LARGE-VOLUMES = *UNCHANGED
Default: the existing setting is unchanged.

LARGE-VOLUMES = *ALLOWED(...)
Once set, this attribute cannot be revoked using a command.
The pubset may contain large volumes.

LARGE-FILES = *UNCHANGED / *ALLOWED
Specifies whether the pubset may contain files >= 32 GB.

LARGE-FILES = *UNCHANGED
Default: the existing setting is unchanged.

LARGE-FILES = *ALLOWED
Once set, this attribute cannot be revoked using a command.
The pubset may contain large volumes.

SNAPSET-LIMIT = *UNCHANGED / <integer 1..52>
Specifies the maximum number of Snapsets permitted for the pubset. Up to 52 Snapsets can exist for a pubset (provided this maximum number is supported by the disk storage system).
Any attempt to reduce the Snapset limit to below the number of existing Snapsets is rejected. However, as this can only be checked in the case of imported pubsets, for safety's sake all snap mirrors are treated as if they belonged to a Snapset in the case of a pubset which was not imported.
An increase to the Snapset limit is rejected if the number of unused snap units is not sufficient for this.

Notes

The /DELETE-SNAPSET SNAPSET=*ALL command causes all Snapsets of a pubset to be deleted, the Snapset catalog also being removed. When the Snapset catalog is removed, the Snapset limit in the SVL is reset to 0.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	DMS03BE	Error during communications processing: • during read access to MRSCAT • during time-stamped read access • during SVL access • during the SYSID conversion call • during output to SYSOUT • in the pubset occupancy
	64	DMS03BE	No authorization to use command
	64	DMS03BE	Device type missing in the MRSCAT
	64	DMS03BE	Current CATID is not a volume set CATID
	64	DMS13DA	Snapset limit not in the possible value range
	64	DMS13DF	SHC-OSD subsystem not available
	64	DMS13E7	No Snapsets are supported for the pubset
	130	DMS03BE	Disk request rejected
	130	DMS03BE	Pubset in process of being exported

Notes

1. A change of master can only take place in a shared pubset network if a backup master is defined and active, or if the ALTERNATE-BACKUP=*BY-SHARER operand is set. If none of the permissible backup masters is active, all pubset sharers are switched to “INACCESSIBLE, QUIET” if the master fails. In this case, a change of master can subsequently take place provided the ALTERNATE-BACKUP=*BY-OPERATOR operand is set. A subsequent change of master must be triggered manually by explicitly issuing an IMPORT-PUBSET command (specifying MASTER-CHANGE=*YES).
2. Once set, the pubset attributes LARGE-VOLUMES=*ALLOWED and LARGE-FILES=*ALLOWED cannot be changed using a command, i.e. they cannot be revoked.

5.89 SET-REPLOG-READ-MARK

Close REPLOG file briefly

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	TSOS SAT-FILE-MANAGEMENT

Function

The SET-REPLOG-READ-MARK command allows systems support under TSOS or SYSAUDIT, to effect temporary closure of the REPLOG file.
All the correction data (REPs) imported for SYSIPL, SYSSTART, for BS2000 and all dynamically loaded subsystems, is logged in the REP logging file `$SYSAUDIT.SYS.REPLOG.<date>.<session-number>.01`.
All data logged up to the point when the file is input can be analyzed or, if desired, copied to a file. Systems support cannot access correction data written to the REPLOG file after this command call until SET-REPLOG-READ-MARK has been issued again.

Format

SET-REPLOG-READ-MARK

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	BLS0979	No REPLOG file available
	32	BLS0152	System error
	32	BLS0994	Error during the Close function
	64	CMD0216	Caller is not privileged

5.90 SET-RESTART-OPTIONS

Control automatic restart

Component:	BS2000
Functional area:	System control and optimization
Domain:	not allocated
Privileges:	OPERATING
Routing code:	R

Function

The SET-RESTART-OPTIONS command specifies whether, and if so when, an automatic restart is to be performed. In the case of an automatic restart, the type of error documentation to be generated before the restart can also be defined.

For information on automatic restart see the “Introduction to System Administration” [14].

Format

SET-RESTART**-OPT**IONS

MODE = ***ON**(...) / ***OFF**

***ON**(...)

| DELAY = ***STD** / <integer 0..32767 *seconds*>

| ,**UPTIME** = ***STD** / <integer 0..32767 *minutes*>

| ,**DUMP** = ***STD** / ***NO** / ***SNAP** / ***SLED**

Operands

MODE =
Specifies whether the automatic restart is to be activated.

MODE = *ON(...)
The automatic restart is to be activated.
In the event of a system crash the system will be reloaded automatically.

DELAY =
After a system crash has been reported (NRTT501 SETS;...) it defines how much time elapses before a memory dump is taken with SLED.
This gives the operator an opportunity to intervene.

DELAY = *STD
No waiting is the default.

DELAY = <integer 0..32767 *seconds*>
Specifies the time in seconds to be waited before making a memory dump.

UPTIME =
Specifies a time interval in minutes after SYSTEM READY. If a system crash occurs within this time, **no** automatic restart is initiated.

UPTIME = *STD
The default time interval after SYSTEM READY is 10 minutes, in which time no automatic restart is to be initiated.

UPTIME = <integer 0..32767 *minutes*>
If a system crash occurs within the time specified in minutes after SYSTEM READY, no automatic restart is to be initiated.

DUMP = *STD / *NO / *SNAP / *SLED
Determines what type of error documentation is to be generated before an automatic restart.
The default value is *STD, i.e. the caller determines the type of error documentation. *SNAP and *SLED specify snapshot and SLED documentation respectively.

MODE = *OFF
The automatic restart is not to be activated.
Any previous SET-RESTART-OPTIONS command with MODE = *ON is ineffective, i.e. the system is not automatically reloaded after a system crash.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	EXC0750	Automatic restart must be set because of STCK error
	1	CMD0202	Syntax error or semantic error
	64	CMD0216	Caller is not privileged
	64	EXC0688	IPL disk is not a public disk

5.91 SET-RFA-CONNECTION

Set up RFA connection

Component:	RFA
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

This command is available only to users who have the RFA software product (see also the “RFA” manual [31]).

Function

This command sets up an RFA connection. The first time a connection to a remote system is set up, a partner task is generated under the specified user ID. This command can also be used for a local catalog. In that case, an RFA connection is set up within the local system; a partner task is not generated.
The user can issue the SHOW-RFA-CONNECTIONS command to get information on all existing RFA connections.

The REMOVE-RFA-CONNECTION command is used to clear down an RFA connection. For each SET-RFA-CONNECTION command, a corresponding REMOVE-RFA-CONNECTION must be given. A partner task on a remote system is not terminated until the last connection is cleared. When the local user task is terminated, all existing RFA connections are automatically cleared down by the system.

Prerequisite

Each processor on which the command will be given must have an entry for the specified catalog ID with the appropriate processor name in the MRS catalog. The user can check up on entries in the MRS catalog with the aid of the SHOW-MASTER-CATALOG-ENTRY command.

Format

SET-RFA-CONNECTION

CATALOG-**ID** = <cat-id 1..4>

,**PROC**ESSING-**ADMIS**SION = ***PAR**AMETERS (...)

***PAR**AMETERS(...)

| **USER-ID**ENTIFICATION = ***SAME** / <name 1..8>

| ,**ACCOUNT** = ***SAME** / <alphanum-name 1..8>

| ,**PASS**WORD = ***NONE** / <c-string 1..8> / <c-string 9..32> / <x-string 1..16> / ***SECRET**

,**CONN**ECTION = ***IMMED**IATE / ***WITHIN**(...)

***WITHIN**(...)

| **SECONDS** = <integer 32..99999999 *seconds*>

,**ANSWER** = ***STD** / **N** / **Y** / ***SYSDTA**

Operands

CATALOG-ID = <cat-id 1..4>
Catalog ID to which the RFA connection is to be set up.
If the catalog ID is not entered in the MRS catalog, or the entry is incorrect or incomplete or the catalog is not accessible, the command is rejected.
The user can issue the command SHOW-MASTER-CATALOG-ENTRY to find out if the catalog ID is entered in the MRS catalog.
If the catalog ID refers to a remote processor, and if the SET-RFA-CONNECTION command is the first for this processor, a partner task will be generated on this processor. If the catalog ID refers to the local system, no partner task is generated.

PROCESSING-ADMISSION = *PARAMETERS(...)
Specifications concerning the partner task to be created.
These specifications are only evaluated if the RFA connection to a remote processor is being set up for the first time. In this case, a partner task is generated and the specifications checked for LOGON authorization.
For subsequent SET-RFA-CONNECTIONS to other catalogs of the remote processor these specifications are ignored. (For exception, see notes for shared pubset "SET-RFA-CONNECTION".) The already-generated partner task is used for access to additional catalogs of this remote processor.

USER-IDENTIFICATION = *SAME / <name 1..8>
User ID under which the partner task is to run.

USER-IDENTIFICATION = *SAME
The user's own user ID (under which the command is issued) applies.

ACCOUNT = *SAME / <alphanum-name 1..8>
Account number under which the partner task is to run.

ACCOUNT = *SAME
The account number of the current user task (under which the command was issued) applies.

PASSWORD = *NONE / <c-string 1..8> / <c-string 9.32>/ <x-string 1..16> / *SECRET
Password of the user ID under which the partner task is to run.
The long password mechanism is supported (<c-string 9..32>). See the MODIFY-USER-PROTECTION command description for details of the long password mechanism.
If the PASSWORD operand is defined as “secret”:

- The value which is input will not be logged.
- In guided dialog, the input field is automatically blanked out.
- In unguided dialog and in foreground procedures, *SECRET or ^ allows for concealed input of the required value. SDF requests the input of the “secret” value and provides a blanked input field for this purpose.

The password must be specified even if it is the same as the one for the current user task. The user ID, account number and password are all checked by the remote system. The other LOGON parameters (JOB-NAME and LOGGING) for the partner task are taken from the current user task.

CONNECTION =
Specifies whether the attempt to set up a connection is to be made only once or more than once within a defined period.

CONNECTION = *IMMEDIATE
The attempt to set up an RFA connection is made just once. If it is unsuccessful, the user is issued an error message.

CONNECTION = *WITHIN(...)
Specification of a period within which the system attempts to set up the RFA connection.

SECONDS = <integer 32..99999999 *seconds*>
Period in seconds within which the system attempts to set up the connection every 32 seconds (if repetition is reasonable).
If the attempts were unsuccessful, an error message is issued.

ANSWER = *STD / N / Y / *SYSDTA

This operand specifies how prompts concerning continued output of the information blocks output by the remote system during connection setup are to be answered.

After the LOGON is processed, the first information block of the bulletin file, containing systems support information, is output.
In the interactive dialog, in the case of ANSWER=*STD /*SYSDTA the user can request the output of the next information block after the CONTINUE Y/N message with the response “Y” or reject it with the response “N” .

ANSWER = *STD
In interactive operation, the prompts of the remote system are sent to the local processor and are to be answered there from the terminal. The responses are sent to the remote system and evaluated there.
In procedure mode and batch mode, ANSWER=N applies, i.e. all prompts are answered with “N”.

ANSWER = N
All prompts from the remote system are answered with “N”.

ANSWER = Y
All prompts from the remote system are answered with “Y”.

ANSWER = *SYSDTA
Only relevant in batch mode

All prompts from the remote system are sent to the local processor, where the responses are expected from SYSDTA in batch mode. The responses are sent to the remote system and evaluated there.
Responses from SYSDTA make sense only if the user knows the number of information blocks in the remote bulletin file, i.e. when the user knows exactly which information blocks he or she wants to receive.

In the interactive dialog, the questions of the remote system must be answered on the local system of the data viewing station.
The same also applies when calling SET-RFA-CONNECTION with ANSER=*SYSDTA within procedures.

Attention:
This behavior differs from the SET-RFA-CONNECTION call with ANSWER=*STD in procedures.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	RFA0002	Command executed
	1	RFA0026	Command for shared pubset rejected
	64	RFA0016	BS2000 version of remote system not supported
	64	RFA0023	RFA connection faulty
	64	RFA0024	No additional RFA connections possible
	64	RFA0027	Configuration error

Notes

- Setting up a connection to a target processor by means of RFA is subject to the following restrictions:
- RFA does not support user authentication via the Kerberos LOGON, i.e. no user ID protected by the Kerberos LOGON may be specified in the target processor in the SET-RFA-CONNECTION command.
- RFA does not support the entry of a personal user ID (SET-PERSONAL-ATTRIBUTES command, see the “SECOS” manual [35]). RFA connection setup to a target ID protected with a “personal LOGON” is only possible if PASSWORD-CHECK=*NO is set for the user ID, but the password is specified anyway in the SET-RFA-CONNECTION command.
- The REMOVE-RFA-CONNECTION command clears down the RFA connection. When the task is terminated, the system automatically clears down any RFA connections which still exist.
- Procedure nesting: if two or more SET-RFA-CONNECTION commands are issued for the same catalog ID (of the remote system), there must be as many REMOVE-RFA-CONNECTION commands as there were SET-RFA-CONNECTION commands in order to clear this connection.

Shared pubsets

- A pubset entered in the MRSCAT in conjunction with SHARED-PUBSET=*YES in the ADD-MASTER-CATALOG-ENTRY or MODIFY-MASTER-CATALOG-ENTRY command can be used as a shared pubset.
  If there is not yet an RFA connection to the processor associated with this pubset, an RFA connection can be set up to the pubset

- if the user ID in the SET-RFA-CONNECTION command matches the user ID of the RFA task;
- if the user ID in the SET-RFA-CONNECTION command is not the same as the user ID of the RFA task, and the pubset is not imported as a shared pubset and not locally accessible.

If there already is an RFA connection to the processor associated with this pubset, an RFA connection to the pubset can only be set up if the user ID in the SET-RFA-CONNECTION command matches the user ID of the RFA task **and** the AFR partner task.
In all other cases, a SET-RFA-CONNECTION command for this pubset is rejected. Due **to this restriction, SHARED-PUBSET=*YES should only be defined for pubsets which are really used as shared pubsets.**

- An RFA connection to a shared pubset with the catalog ID *catid* will not be set up if *catid* is entered in the user catalog as the default catalog ID for the user ID of the local task.

5.92 SET-SNAPSET-PARAMETER

Define the Snapset environment

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT SNAPSET
Privileges:	TSOS HSMS-ADMINISTRATION

Function

The SET-SNAPSET-PARAMETER command sets the processing environment for the Snapsets of an (imported) pubset. The settings are stored in the pubset's Snapset catalog.
The following settings are possible (see the manual "Introduction to System Administration" [14]):

- In the case of remote mirroring, snap copies can also be generated on the remote disk storage system.

Note: With ETERNUS DX/AF systems in SDV mode, the save pool, available as standard in the disk storage system, is implicitly used.

The SHOW-SNAPSET-CONFIGURATION command displays the current settings.

Format

SET-SNAPSET-PARAMETER

PUBSET = <cat-id 1..4>

,**REMOTE-COPY** = ***UNCHAN** GED / ***NO** / ***Y**ES

***Y**ES

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the Snapset processing environment is to be set.

REMOTE-COPY = *UNCHANGED / *NO / *YES
This setting is evaluated only in the case of mirroring in a remote disk storage system.
Specifies whether snap copies are also to be created on the remote disk storage system.

REMOTE-COPY = *UNCHANGED

The current setting is retained.

REMOTE-COPY = *NO

No snap copies are created on the remote disk storage system.

REMOTE-COPY = *YES

Snap copies are also created on the remote disk storage system.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0216	Required authorization not available
	64	DMS1351	Internal error
	64	DMS1386	Error in the memory request
	64	DMS1389	Error in MSCF communication
	64	DMS138B	Not an MRSCAT entry
	64	DMS138C	Pubset not accessible
	64	DMS13D6	Snapset limit exceeded
1	64	DMS13D7	Internal error in Snapset management: Return code of GCF
	64	DMS148F	GCF not loaded

5.93 SET-SPACE-SATURATION-LEVEL

Change allocation parameters

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING
Privileges:	TSOS

The SET-SPACE-SATURATION-LEVEL command is now supported only to ensure backwards compatibility. The following replacement commands should be used for new applications:

- MODIFY-SPACE-SATURATION-LEVELS to set saturation levels
- MODIFY-PUBSET-SPACE-DEFAULTS to modify allocation parameters

Format

SET-SPACE-SATURATION-LEVEL

SATURATION**-LEV**EL = ***STD** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **LEVEL1** = <integer 1..999999 *2Kbyte*>

| ,**LEVEL2** = <integer 1..999999 *2Kbyte*>

| ,**LEVEL3** = <integer 1..999999 *2Kbyte*>

| ,**LEVEL4** = <integer 1..999999 *2Kbyte*>

| ,**LEVEL5** = <integer 1..999999 *2Kbyte*>

,**PUB**LIC**-VOL**UME**-SET** = ***HOME** / <cat-id 1..4>

,**PRIM**ARY**-ALLOC**ATION = ***STD** / <integer 1..999999 *2Kbyte*>

,**SEC**ONDARY**-ALLOC**ATION = ***STD** / <integer 1..32767 *2Kbyte*>

,**MAX**IMAL**-ALLOC**ATION = ***STD** / <integer 1..999999 *2Kbyte*>

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	DMS0670	Syntax error
	64	DMS0668	Caller is not privileged
	64	DMS0671	Pubset is not available
	64	DMS0672	Operand error

5.94 SET-SYSLST-READ-MARK

Set read mark in SYSLST file

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SET-SYSLST-READ-MARK command sets a “read mark” at the current end of the SYSLST file. Further outputs to SYSLST are continued without interruption behind the read mark. When SYSLST is assigned to a file, the content of the file ahead of the read mark can then be accessed in read mode without the assignment of SYSLST having to be changed.

A read mark cannot be set if a library element or an S variable is assigned.

By default, the command applies for the SYSLST file of the user’s own task. The read mark can also be set in files which are assigned to the system files SYSLST01 through SYSLST99.
Specifying a TSN or monitor JV permits nonprivileged users also to issue the command for the SYSLST files of other tasks under their user ID.

The primary allocation and properties of SYSLST are described in section "System files".

Privileged function

The TSOS privilege enables the command to be issued for the SYSLST file of any task.

Format

SET-SYSLST-READ-MARK

JOB-IDENTIFICATION = **_*OWN_** / <alphanum-name 1..4> / ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**SYSLST-NUM**BER = **_*STD_** / <integer 1..99>

Operands

JOB-IDENTIFICATION =
Specifies the job in whose SYSLST file the read mark is to be set. The job can be identified either via its TSN or the JV which monitors it.

JOB-IDENTIFICATION = *OWN
The command is executed for the user's own task.

JOB-IDENTIFICATION = <alphanum-name 1..4>
TSN of the job (see also JOB-IDENTIFICATION=*TSN).

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task serial number (TSN). The command is rejected if the TSN does not exist or a job under a foreign user ID is not concerned.

> **TSN = <alphanum-name 1..4>**
> TSN of the job. Leading zeros can be omitted.

JOB-IDENTIFICATION = *MONJV(...)

The job is identified via the monitoring JV. The command is rejected if the JV cannot be accessed (no read permission or the JV does not exist), if the JV is not monitoring a job or if the job is running on a foreign computer.

> **MONJV = <filename 1..54 without-gen-vers>**
> Name of the JV which monitors the job.

SYSLST-NUMBER = *STD / <integer 1..99>
Specifies the SYSLST file for which the read mark is to be set. *STD presets the system file SYSLST. The specification <integer 1..99> sets the read mark in the file which is assigned to the system file SYSLST01 through SYSLST99.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	0	SSM1205	Wait time for pseudo close has expired; processing will continue
	32	SSM1201	Internal error when setting the read mark
	64	CMD0216	No authorization to execute command
	64	SSM1202	System file is empty or not assigned

5.95 SET-SYSOUT-READ-MARK

Set read mark in SYSOUT file

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROCEDURE PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SET-SYSOUT-READ-MARK command sets a “read mark” at the current end of the SYSOUT file. Further outputs to SYSOUT are continued without interruption behind the read mark. When SYSOUT is assigned to a file, the content of the file ahead of the read mark can then be accessed in read mode without the assignment of SYSOUT having to be changed.

A read mark cannot be set if a library element or an S variable is assigned.

By default, the command applies for the SYSOUT file of the user’s own task.
Specifying a TSN or monitor JV permits nonprivileged users also to issue the command for the SYSOUT files of other tasks under their user ID.

The primary allocation and properties of SYSOUT are described in section "System files".

Privileged function

The TSOS privilege enables the command to be issued for the SYSOUT file of any task.

Format

SET-SYSOUT-READ-MARK

JOB-IDENTIFICATION = ***OWN** / <alphanum-name 1..4> / ***TSN**(...) / ***MONJV**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

Operands

JOB-IDENTIFICATION =
Specifies the job in whose SYSOUT file the read mark is to be set. The job can be identified either via its TSN or the JV which monitors it.

JOB-IDENTIFICATION = *OWN
The command is executed for the user's own task.

JOB-IDENTIFICATION = <alphanum-name 1..4>
TSN of the job (see also JOB-IDENTIFICATION=*TSN).

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task serial number (TSN). The command is rejected if the TSN does not exist or a job under a foreign user ID is not concerned.

TSN = <alphanum-name 1..4>
TSN of the job. Leading zeros can be omitted.

JOB-IDENTIFICATION = *MONJV(...)
This operand is only available to a user with the software product JV.
The job is identified via the monitoring JV. The command is rejected if the JV cannot be accessed (no read permission or the JV does not exist), if the JV is not monitoring a job or if the job is running on a foreign computer.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV which monitors the job.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	0	SSM1205	Wait time for pseudo close has expired; processing will continue
	32	SSM1201	Internal error when setting the read mark
	64	CMD0216	No authorization to execute command
	64	SSM1202	System file is empty or not assigned

5.96 SET-TASKLIB

Assign TASKLIB to object module library

Component:	SYSFILE
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE

Function

The SET-TASKLIB command assigns an object module library as a TASKLIB. The Dynamic Binder Loader (DBL) searches for the object module in the allocated object module library on the following calls:

- When the LOAD or START-EXECUTABLE-PROGRAM command is called, the Tasklib is used as an alternate library (ALTERNATE-LIBRARY=*TASKLIB operand) when searching for symbols.
- When the BIND macro is called with ALTLIB=*TASKLIB, the Tasklib is used as an alternate library when searching for unresolved external references.
- When the LOAD or START-PROGRAM command is called with LIBRARY=*STD and RUN-MODE=*STD, the Tasklib is used as the input source for the object modules.

When the Tasklib is searched, the DBL searches in the following libraries in the following order:

1. The Tasklib assigned with SET-TASKLIB
2. The TASKLIB file under the caller’s user ID or, if this does not exist, the TASKLIB file in the system default ID (DEFLUID)

Format

SET-TASKLIB	Alias: **STTL**
LIBRARY = <filename 1..54 without-gen>	

Operands

LIBRARY = <filename 1..54 without-gen>
Name of the object module library.
After termination of a procedure (END-PROCEDURE, EXIT-PROCEDURE or EOF condition) TASKLIB is given the same assignment it had before the procedure was called (contingent, in *S procedures*, upon the declaration made in SET-PROCEDURE-OPTIONS).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	SSM2036	Operand invalid

5.97 SET-VARIABLE

Assign values to S variable

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The SET-VARIABLE command assigns values to an S variable. If the S variable does not yet exist, it is *implicitly* declared by SDF-P. Implicit declaration of S variables is preset but can be prohibited using the SET-PROCEDURE-OPTIONS command.

> The operands for the SET-VARIABLE command are evaluated by SDF-P only and should be entered as shown below. It is not necessary to include the command name. The SDF abbreviation rules apply to the operands. SDF functions such as information about possible operand values or correction dialog are not available at operand level. Only one input field with “# =” is provided by SDF in guided dialog.

For command entry, it is also possible to abbreviate

`/SET-VARIABLE <variable`$_1$`> = <variable`$_2$`> / <text>`

to

`/<variable`$_1$`> = <variable`$_1$`> / <text>`

The notation without the command name is also recommended for performance reasons (see the “SDF-P” User Guide [34]).

Restrictions

If the chargeable SDF-P subsystem is not available, the SET-VARIABLE command may refer to simple S variables only (TYPE=*ANY and MULTIPLE-ELEMENTS=*NO).
Complex S variables are part of the chargeable SDF-P subsystem; their use is described in the “SDF-P” manual [34].

Format

SET-VARIABLE Alias: **STV**

<composed-name$_1$ 1..255> = <text 0..1800 with-low expr> / <composed-name$_2$ 1..255> /

***STRING-TO-VAR**IABLE(...) / ***LIST**(...)

***STRING-TO-VAR**IABLE(...)

| **STRING** = <text 0..1800 with-low *expr*>

| ,**VALUE-TYPE** = ***STD** / ***STRING**

***LIST(...)**

| **LIST-NAME** = <composed-name 1..255>

| ,**FROM-INDEX** = ***FIRST** / <integer 1..2147483647>

| ,**NUMBER-OF-ELEM**ENTS = **1** / <integer 1..2147483647>

,**WRITE-MODE** = ***REPLAC**E / ***MERGE** / ***EXTEND** / ***PREFIX**

Operands

<composed-name$_1$ 1..255>

Name of an S variable to which a value is assigned.

= <text 0..1800 with-low *expr*>

Assigns the value which results from the evaluation of *expression* to *composed-name*$_1$.

A valid SDF-P expression must be specified for *expression* (see section "SDF-P-BASYS" or the “SDF-P” manual [34]).

= <composed-name$_2$ 1..255>

Assigns the value of the S variable *composed-name*$_2$ to the specified S variable *composed-name*$_1$.

= *STRING-TO-VARIABLE(STRING=<text 0..1800 with-low *string-expr*>, VALUE-TYPE=...)

Only allowed in the case of complex S variables

Assigns to the specified S variable *composed-name*$_1$ the value resulting from the conversion of *string-expression* to an S variable structure. For conversion rules, see the “SDF-P” manual [34].

= *LIST(LIST-NAME=...,FROM-INDEX=...,NUMBER-OF-ELEMENTS=...)

Only allowed in the case of complex S variables

Assigns the elements of a list variable to the specified S variable *composed-name*. Depending on the number of assigned list elements, *composed-name* must be either a simple or a composed S variable.

WRITE-MODE

Defines how the allocation of values is to be carried out.

= *REPLACE

Overwrites an existing value (default).

= *MERGE
Only allowed in the case of complex S variables

= *EXTEND
Only allowed in the case of complex S variables

= *PREFIX
Only allowed in the case of complex S variables

Complex S variables are part of the chargeable SDF-P subsystem; their use is described in the “SDF-P” manual [34].

Return codes

The command return code has no guaranteed value if an error occurs when complex S variables are assigned.

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed message: CMD0001
	1	CMD0202	Syntax error Guaranteed message: CMD0202
	1	SDP0118	Command in incorrect context Guaranteed message: SDP0118
	3	CMD2203	Incorrect syntax file Guaranteed message: CMD2203
	32	CMD0221	System error (internal error) Guaranteed message: CMD0221
	64	SDP0091	Semantic error Guaranteed message: SDP1030
	130	SDP0099	No more address space available

5.98 SHOW-ACCOUNTING-STATUS

Display accounting system information

Component:	BS2000
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS

Function

The following information on the accounting system can be requested by means of the SHOW-ACCOUNTING-STATUS command.

- state of the accounting procedure
- name of the current accounting file
- time at which the file was opened
- names of the continuation files
- list of account records and record extensions that were explicitly activated or deactivated
- frequency of periodic saving of specific accounting records
- names of cyclically monitored job classes

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-ACCOUNTING-STATUS
INFORMATION = ***SUMM**ARY / ***FILES** / ***PAR**AMETERS / ***ALL**

Operands

INFORMATION =
Defines the type of information desired.

INFORMATION = *SUMMARY
If the accounting system is active, the name of the currently active accounting file is displayed in addition to the information `ACCOUNTING ACTIVE`.
If the accounting system is inactive, the following information is displayed:

```
ACCOUNTING NOT ACTIVE.
```

INFORMATION = *FILES
Specifies:

- whether the accounting system is active/inactive
- name of the currently active accounting file
- time and date when the file was opened

- continuation file names

INFORMATION = *PARAMETERS
Displays all accounting records and record extensions that were explicitly activated or deactivated as well as the frequency of the accounting interval and the names of the job classes monitored within this interval.

INFORMATION = *ALL
Displays an overview of all information provided by this command.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NAM3001	Requested action has been performed, but linked with warnings
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	NAM0012	No authorization for the command
	128	CMD2280	Command cannot temporarily be executed

Example

/show-acc

```
ACCOUNTING ACTIVE, FILENAME= :B6F1:$TSOS.SYS.ACCOUNT.2017-01-26.074.01
```

/show-acc inf=*files

```
ACCOUNTING STATUS INFORMATION
=============================
CURRENT ACCOUNTING FILE:            (AUTOMATIC)
------------------------
:SBZ8:$TSOS.SYS.ACCOUNT.2017-01-26.074.01
 OPENED AT : 2017-01-26, 17:02:07-W
ALTERNATE FILENAMES:
--------------------
 ** NONE SPECIFIED **
```

Output in S variables

The command's INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = SUMMARY	1
INFORMATION = FILES	2
INFORMATION = PARAMETERS	3
INFORMATION = ALL	4

Supplementary conditions which work in combination with the INFORMATION specifications:

Supplementary conditions	Abbreviated form used in table
Value assignment; only if ACCOUNT-ACTIVE=TRUE	a
*NONE and <name> cannot appear together as values	b
*ALL and <name> cannot appear together as values	c

Output information	Name of the S variable	T	Contents	Condition
Accounting system active	var(*LIST).ACCOUNT-ACTIVE	B	TRUE FALSE	1-4
Frequency of periodic saving of accounting records	var(*LIST).ACCOUNT-PERIOD	I	<integer>	3,4,a
Names of continuation files	var(*LIST).ALT-FILES (*LIST)	S	*NONE <name>	2,4,a,b
Names of job classes cyclically monitored by the accounting system	var(*LIST).JOB-CLASS (*LIST)	S	*NONE <name>	3,4,a,b
Name of the current accounting files	var(*LIST).NAME	S	<filename>	1,2,4,a
Activation of list of accounting records and record extensions	var(*LIST).NOT-LISTED-REC	S	*ON *OFF	3,4,a
Date when the file was opened	var(*LIST).OPEN-DATE	S	<date>	2,4,a
Time when the file was opened	var(*LIST).OPEN-TIME	S	<open time & season>	2,4,a
Deactivated accounting records	var(*LIST).REM-REC-TYPE(*LIST)	S	*NONE <name>	3,4,a,b
Activated accounting records	var(*LIST).SET-REC-TYPE(*LIST)	S	*ALL <name>	3,4,a,c

5.99 SHOW-ACS-OPTIONS

Show ACS option settings

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING ACS-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-ACS-OPTIONS command writes the following information on the currently set ACS options of the task to SYSOUT:

- status of the alias catalog (INACTIVE, ACTIVE or INHOLD)
- list of all the AC system files and AC files that were loaded since the beginning of the task or since the alias catalog was last deleted
- number of changes made to the current alias catalog with the ADD-, MODIFY- and REMOVE-ALIAS-CATALOG-ENTRY commands
- current settings of all ACS options:
  - Message output when the alias catalog is loaded
  - Logging of alias substitution and prefix insertion
  - Permitting catalog and user IDs in the alias (fully qualified)
  - Permitting user IDs in the alias
  - Standard range of alias substitution and prefix insertion (for files and/or job variables)

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Users with the ACS-ADMINISTRATION privilege can select the SCOPE operand to request details of ACS option settings for the task which is running or of the system-global preset values:

- the logging of ACS actions
- the permissibility of catalog and user IDs in alias names
- the pubset on which temporary SPOOL files are set up.

Format

SHOW-ACS-OPTIONS
SCOPE = ***TASK** / ***SYS**TEM

Operands

SCOPE =
Only for users with ACS-ADMINISTRATION privilege:
Selects whether the task-local or the system-global default settings are being requested.

SCOPE = *TASK
Preset value: only the options specified for the task currently running are to be displayed.

SCOPE = *SYSTEM
Specifies that all the system-global options should be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally

Information output

The output begins with the version of the system component ACS. The following information is then output:

Output field	Meaning
STATUS	Status of the alias catalog (INACTIVE, ACTIVE or IN HOLD)
ACTIVATED ALIAS CATALOG FILE(S):	List of all AC system files and AC files which have been loaded since the start of the task or since the last time the alias catalog was deleted.
• ID	• Symbolic name of the AC system file or AC file
• U-INFO	• User information specified when saving
• DESCR	• Additional information specified when saving
• DATE	• Creation date of the AC system file or AC file
• FILE NAME	• Path name of the AC system file or AC file
ENTRIES ADDED/MODIFIED BY INDIVIDUAL COMMANDS:	Number of modifications to the current alias catalog made using the ADD-, MODIFY- and REMOVE-ALIAS-CATALOG-ENTRY commands.
LOGGING:	Logging:
• ALIAS-SUBSTITUTION=	• when substituting aliases (YES/NO/STD)

• PREFIX-INSERTION=	• when inserting a prefix (YES/NO/STD)
SUCCESS-MSG OPTIONS:	Output of a message after successful loading:
• USER-FILE=	• for an AC system file (YES/NO)
• SYSTEM-FILE=	• for an AC file (YES/NO)
COMPLETE-ALIAS-NAMES	Catalog and user IDs in the alias (fully qualified) • ALLOWED (is permitted) • NOT-ALLOWED (USER-MODIF=ALLOWED/NOT-ALLOWED) Is not permitted; the privileged user can prevent the user-specific modification of this setting
ALIAS-USERID	User IDs in the alias • ALLOWED (is permitted) • NOT-ALLOWED (USER-MODIF=ALLOWED/NOT-ALLOWED) Is not permitted; the privileged user can prevent the user-specific modification of this setting
STANDARD-RANGE	Standard range for substitution of aliases and prefix insertion: • FILE (only for files) • JV (only for job variables) • BOTH (for files and job variables)

Table 86: Output fields for the SHOW-ACS-OPTIONS command

Examples

See the ADD-ALIAS-CATALOG-ENTRY and SET-FILE-NAME-PREFIX commands.

Output in S variable

The SCOPE operand identifies the S variables which are to be created. The possible values for SCOPE are *TASK and *SYSTEM.

Output information	Name of the S variable	T	Contents	Condition
AC file name alias	var(*LIST).ALIAS-CAT-F (*LIST).ALIAS-CAT-ID	S	'' * *OWN <name 1...20>	SCOPE= *TASK
AC file creation date	var(*LIST).ALIAS-CAT-F (*LIST).DATE	S	'' <yyyy-mm-dd>	SCOPE= *TASK
Additional information on AC file	var(*LIST).ALIAS-CAT-F (*LIST).DESCRIPTOR	S	'' <alphan.-name 1..8>	SCOPE= *TASK
Actual file name of AC file	var(*LIST).ALIAS-CAT-F (*LIST).F-NAME	S	'' *SYS <filename 1..54>	SCOPE= *TASK
Additional name for AC file	var(*LIST).ALIAS-CAT-F (*LIST).USER-INFO	S	'' <name 1...8>	SCOPE= *TASK
Output of message ACS0000 each time the alias is substituted	var(*LIST).ALIAS-SUBST	S	*STD *YES	SCOPE= *TASK/ *SYSTEM
User IDs allowed in aliases	var(*LIST).ALIAS-USER-ID	S	*ALLOW *NOT-ALLOW	SCOPE= *TASK/ *SYSTEM
Changing of user IDs allowed in aliases	var(*LIST).ALIAS-USER-ID- MOD	S	*ALLOW *NOT-ALLOW	SCOPE= *TASK/ *SYSTEM
Fully qualified aliases allowed	var(*LIST).COMPL-ALIAS- NAME	S	*ALLOW *NOT-ALLOW	SCOPE= *TASK/ *SYSTEM
Changing of ACS option ALIAS- USERID allowed	var(*LIST).COMPL-USER- MOD	S	*ALLOW *NOT-ALLOW	SCOPE= *TASK/ *SYSTEM
Number of changes to the alias catalog	var(*LIST).NUM-OF-AC- CMD	I	<integer 0...65535>	SCOPE= *TASK
Output of message ACS0000 each time a prefix is inserted	var(*LIST).PREFIX-INS	S	*NO *YES	SCOPE= *TASK/ *SYSTEM

Security level	var(*LIST).SEC-LEV	S	*HIGH *LOW *UNDEF	SCOPE= *SYSTEM
Pubset for spool file	var(*LIST).SPOOL-F-PUBSET	S	*STD <cat-id 1..4>	SCOPE= *SYSTEM
Alias catalog status	var(*LIST).STA	S	*ACTIVE *IN-HOLD *INACTIVE *NOT-AVAIL	SCOPE= *TASK
Range when replacing the alias or adding a prefix (for files and/or job variables)	var(*LIST).STANDARD-RANGE	S	*FILE *JV *BOTH	SCOPE= *TASK/ *SYSTEM
Message output from ACS0001 to an AC device	var(*LIST).SYS-F-MSG	S	*NO *YES	SCOPE= *TASK/ *SYSTEM
Message output from ACS0001 to an AC file	var(*LIST).USER-F-MSG	S	*NO *YES	SCOPE= *TASK/ *SYSTEM

5.100 SHOW-ACS-SYSTEM-FILES

Show names of available AC system files

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-ACS-SYSTEM-FILES command displays the alias catalog IDs and file names of all AC system files that the ACS system administrator has made available to all users. The output is written to SYSOUT. AC system files with the attribute INVISIBLE are shown only to the ACS administrator. The default AC system file is identified in the output by a preceding “>” symbol.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-ACS-SYSTEM**-FILES**
ALIAS-CATALOG**-ID** = **_*ALL_** / ***STD** / <composed-name 1..20>

Operands

ALIAS-CATALOG-ID =
Specifies which AC system files are to be displayed. AC system files which were created by the ACS-administrator with the INVISIBLE attribute are only shown to the ACS administrator.

ALIAS-CATALOG-ID = _*ALL_
Displays all AC system files.

ALIAS-CATALOG-ID = *STD
Displays only the default AC system file.

ALIAS-CATALOG-ID = <composed-name 1..20 with-wild>
ID of the AC system file to be displayed or a wildcard sequence to identify and select AC system files to be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
	32	CMD2009	Error during S variable generation
	32	CMD0221	Internal error
	64	ACS0012	Error: AC system file not found
	64	OPS0001	Insufficient memory for output in S variables
	130	ACS0036	Resource bottleneck

Output in S variables

This command outputs the alias catalog IDs and file names of all the AC system files that the ACS administrator makes available to all users.

Output information	Name of the S variable	T	Contents	Condition
Symbolic name of the AC system file	var(*LIST).ALIAS-CAT-ID	S	<name 1...20 >	
Fully qualified actual file name of the AC system file	var(*LIST).F-NAME	S	*SYS <filename 1..54>	
Entries in the AC system file are added to the task's virtual alias catalog as system entries	var(*LIST).PRIVIL	S	*NO *YES	
The string *SYS is output instead of the file name of the AC system file, if a nonprivileged user outputs his AC system files	var(*LIST).SECRET-F-NAME	S	*NO *YES	
The AC system file acts as a default AC system file	var(*LIST).SYS-DEF	S	*NO *YES	
The AC system file name is displayed if a nonprivileged user has AC system files output	var(*LIST).VISIBLE	S	*NO *YES	

Example

See the ADD-ALIAS-CATALOG-ENTRY command.

5.101 SHOW-ACTIVE-SPOOL-DEVICES

Request information on active SPOOL devices

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	S

Function

The SHOW-ACTIVE-SPOOL-DEVICES command requests information on assigned SPOOL and RSO devices (i.e. on devices to which a START-PRINTER-OUTPUT command has been issued; output to SYSOUT).

> Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high-performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
> The state of the printer in BS2000 has no effect on this forwarding. The SHOW-ACTIVE-SPOOL-DEVICES command is therefore now only relevant for RSO printers and virtual devices.

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Nonprivileged users are only given information on devices whose authorization list contains the user ID or *ALL. RSO device administrators also receive information on the devices they manage, while systems support staff can call down information on all devices. Information on user IDs and account numbers is only output to privileged users (RSO device administrators or systems support).

Effect of the device specification in START-PRINTER-OUTPUT

The following table shows how the devices specified (explicitly/implicitly) in the START-PRINTER-OUTPUT command are displayed in the output of the SHOW-ACTIVE-SPOOL-DEVICES command:

Value specified in SHOW-ACTIVE-SPOOL-DEVICES	**Value specified in START-PRINTER-OUTPUT**				
	***ALL**	**(A, B)**	***EX(A, B)**	**A**	***EX (A)**
*ALL	EXPL	EXPL	EXPL	EXPL	EXPL
A	IMPL	EXPL	====	EXPL	====
C	IMPL	====	IMPL	====	IMPL
*EX(A)	====	====	EXPL	====	EXPL
*EX(C)	====	IMPL	====	IMPL	====
(A,B)	IMPL	EXPL	====	EXPL	IMPL
(A,C)	IMPL	EXPL	IMPL	EXPL	IMPL
*EX(A,B)	====	====	EXPL	IMPL	EXPL
*EX(A,C)	====	IMPL	EXPL	IMPL	EXPL

Table 87: Explicit/implicit specifications in START-PRINTER-OUTPUT

Format

SHOW-ACTIVE**-SPOOL-DEV**ICES

DEVICE-NAME = **_*ALL_** / list-poss(8): <alphanum-name 1..8 with-wild(24)> / <alphanum-name 2..2>

,**INF**ORMATION = **_*STD_** / ***COUNT**

,**SERVER-NAME** = **_*ALL_** / ***HOME** / <alphanum-name 1..8 with-wild(24)> /

list-poss(8): <alphanum-name 1..8>

,**CLUSTER-NAME** = **_*LOCAL-CLUSTER_** / <name 1..8> /

,**SCHED**ULING**-STATE** = **_*NEXT-JOB_** / ***CURR**ENT**-JOB**

,**DEST**INATION = **_*LOC_**AL / ***ALL** / ***REMOTE** / ***PUB**LIC**-REM**OTE /

list-poss(16): ***CENTRAL** / <name 1..8>

,**FORM-NAME** = **_*ALL_** / ***STD** / ***EXCEPT**(...) / list-poss(8): <alphanum-name 1..6>

***EXCEPT**(...)

| **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

,**USER-ID**ENTIFICATION = **_*ALL_** / ***EXCEPT**(...) / list-poss(16): <name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **USER-IDENT-LIST** = list-poss(16): <name 1..8> / <c-string 1..8 with-low>

,**HOST-NAME** = ***ALL-CLUSTERS** / ***HOME** / ***LOCAL-CLUSTER** / ***EXCEPT**(...) /
list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **HOST-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**SPOOLOUT-CLASS** = ***ALL** / ***EXCEPT**(...) / list-poss(16): <integer 1..255>

***EXCEPT**(...)

| **SPOOLOUT-CLASS-LIST** = list-poss(16): <integer 1..255>

,**SPOOLOUT-NAME** = ***ALL** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **SPOOLOUT-NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**ACCOUNT** = ***ALL** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8>

***EXCEPT**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

,**FORMS-OVERLAY** = ***ALL** / ***NONE** / ***ONLY** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 2..2>

***EXCEPT**(...)

| **FORMS-OVERLAY-LIST** = list-poss(16): <alphanum-name 2..2>

,**FORMS-OVERLAY-BUFFER** = ***ANY** / ***ONLY** / ***NO** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = **0** / <integer 0..32767>

| ,**HIGH** = **4032** / <integer 0..32767>

,**PRIORITY** = ***ALL** / ***RANGE**(...)

***RANGE**(...)

| **FROM** = **30** / <integer 30..255>

| ,**TO** = **255** / <integer 30..255>

,**CHARACTER-SET-NUMBER** = ***ALL** / ***ONE** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = **1** / <integer 1..32767>

| ,**HIGH** = **64** / <integer 1..32767>

,**ROT**ATION = * **ANY** / ***Y**ES / ***NO** / ***MANUAL**

,**TWO-UP-PROCESS**SING = ***ANY** / ***Y**ES / ***NO** / ***MODE-1** / ***MODE-2**

Operands

DEVICE-NAME = *ALL / list-poss(8): <alphanum-name 1..8> / <alphanum-name 1..24 with-wild>
Names of active SPOOL devices on which information is requested. If *ALL is specified, brief information is output on each device you are allowed to access. If a device name is specified, only the SCHEDULING-STATE operand may be specified in addition.
If the character string ALL occurs in a name (e.g. FIXALL) and this name is addressed using the *ALL wildcard pattern, the asterisk must be doubled: **ALL.

INFORMATION = *STD / *COUNT
Determines the type of information returned.

INFORMATION = *STD
Returns information on the devices which match the selection criteria either in the form of a summary list if DEVICE-NAME=*ALL or contains wildcards, or in the form of a complete list if an explicit list without wildcards is specified in the DEVICE-NAME operand.

INFORMATION = *COUNT
Returns the number of devices which match the selection criteria with the message SCP1124.

SERVER-NAME = *ALL / *HOME / list-poss(16): <alphanum-name 1..8> / <alphanum-name 1..24 with-wild>
Selects the SPOOL device by means of the server that manages it. An active printer can only process print jobs accepted by the server belonging to the host to which the printer is connected.
If a remote cluster is specified, *ALL is the only value permitted here.

SERVER-NAME = *ALL
Addresses SPOOL devices managed by all the servers on all the hosts in the addressed cluster.

SERVER-NAME = *HOME
Addresses only SPOOL devices managed by the local server. The printers can be started on a distributed or local basis.

SERVER-NAME = list-poss(16): <alphanum-name 1..8>
Selects the SPOOL devices managed by the specified servers on the hosts in the specified clusters.

CLUSTER-NAME = *LOCAL-CLUSTER / <name 1..8>
Selects the SPOOL device by means of the cluster containing the server that manages it.

SCHEDULING-STATE = *NEXT-JOB / *CURRENT-JOB
Determines whether the operand values for the next scheduling operation on SYSOUT (default value) or those valid for the current job should be output. Differences can arise only if changes have been made with MODIFY-PRINTER-OUTPUT during the current job.
The following applies to all the operands that follow:
If several devices are specified information is output only for those devices which satisfy all the selection criteria defined with the subsequent operands. The values ANY and *ALL each mean that there are no restrictions.

DESTINATION = *LOCAL / *ALL / *REMOTE / *PUBLIC-REMOTE / list-poss(16): *CENTRAL / <alphanum-name 1..8>
Information is requested on active SPOOL devices which have been defined in START-PRINTER-OUTPUT under DESTINATION as

- local printers (default value)
- RSO printers - private devices
- RSO printers - public devices
- central printers
- any printers

or the specified active printers.

FORM-NAME = *ALL / *STD / *EXCEPT(...) / list-poss(8): <alphanum-name 1..6>
Information is requested on active SPOOL devices to which the specified forms have been assigned or for which they have been excluded (START-PRINTER-OUTPUT).

FORM-NAME = *EXCEPT(...)
Information is requested on active SPOOL devices for which the specified forms are not admitted.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of forms which are not admitted.

USER-IDENTIFICATION = *ALL / *EXCEPT(...) / list-poss(16): <name 1..8> / <c-string 1..8 with-low>
Information is requested on active SPOOL devices to which the specified user IDs have been assigned or for which they have been excluded (START-PRINTER-OUTPUT).

USER-IDENTIFICATION = *EXCEPT(...)
Information is requested on active SPOOL devices for which the specified user IDs are not admitted.

USER-IDENT-LIST = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
List of user IDs which are not admitted.

HOST-NAME = *ALL-CLUSTERS / *HOME / *LOCAL-CLUSTER / *EXCEPT(...) / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Information is requested on active SPOOL devices on which print jobs coming from the specified host can or cannot be printed (see also the START-PRINTER-OUTPUT command).

HOST-NAME = *ALL-CLUSTERS
Information is output on active SPOOL devices on which print jobs from any host in any cluster can be processed.

HOST-NAME = *HOME
Information is output on active SPOOL devices on which print jobs from the local host can be processed.

HOST-NAME = *LOCAL-CLUSTER
Information is output on active SPOOL devices on which print jobs from any host in the local cluster can be processed.

HOST-NAME = *EXCEPT(...)
Information is output on active SPOOL devices on which print jobs from any host except those specified in this list can be processed.

HOST-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Specifies the active devices that cannot accept print jobs from the specified hosts (see also the START-PRINTER-OUTPUT command).

HOST-NAME = list-poss(16): <alphanum-name 1..8>
Information is output on active SPOOL devices on which print jobs from the specified hosts can be processed.

SPOOLOUT-CLASS = *ALL / *EXCEPT(...) / list-poss(16): <integer 1..255>
Information is requested on active SPOOL devices to which the specified spoolout classes have been assigned or for which they have been excluded (START-PRINTER-OUTPUT).

SPOOLOUT-CLASS = *EXCEPT(...)
Information is requested on active SPOOL devices for which the specified spoolout classes are not admitted.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of spoolout classes which are not admitted.

SPOOLOUT-NAME = *ALL / *EXCEPT(...) / list-poss(16): <alphanum-name 1..8 / <c-string 1..8 with-low>
Information is requested on active SPOOL devices to which the specified job names have been assigned or for which they have been excluded (START-PRINTER-OUTPUT).

SPOOLOUT-NAME = *EXCEPT(...)
Information is requested on active SPOOL devices for which the specified job names are not admitted.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names which are not admitted.

ACCOUNT = *ALL / *EXCEPT(...) / list-poss(16): <alphanum-name 1..8>
Information is requested on active SPOOL devices to which the specified account numbers have been assigned or for which they have been excluded (START-PRINTER-OUTPUT).

ACCOUNT = *EXCEPT(...)
Information is requested on active SPOOL devices for which the specified account numbers are not admitted.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of account numbers which are not admitted.

FORMS-OVERLAY = *ALL / *NONE / *ONLY / *EXCEPT(...) / list-poss(16): <alphanum-name 2..2>
Information is requested on active SPOOL devices to which the specified film overlays have been assigned or for which they have been excluded (START-PRINTER-OUTPUT).

FORMS-OVERLAY = *NONE
Information is requested about devices which do not process film overlays.

FORMS-OVERLAY = *ONLY
Information is requested about devices which do process film overlays.

FORMS-OVERLAY = *EXCEPT(...)
Information is requested on active SPOOL devices for which the specified film overlays are not admitted.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of film overlays which are not admitted.

FORMS-OVERLAY-BUFFER = *ANY / *ONLY / *NO / *RANGE(...)
Information is requested on active SPOOL devices for which matching entries have been made in the FORMS-OVERLAY-BUFFER (FOB data overlays) operand in the START-PRINTER-OUTPUT command.
The values for RANGE in the START-PRINTER-OUTPUT command (number of sublines) must lie within the range specified here.
Information on printers without graphics buffer is only output for the operand value *ANY.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Graphics buffer range.

LOW = 0 / <integer 0..32767>
Lower limit of the range.

HIGH = 4032 / <integer 0..32767>
Upper limit of the range.

PRIORITY = *ALL / *RANGE(...)
Information is requested on active SPOOL devices for which a priority in the range has been defined (START-PRINTER-OUTPUT).

PRIORITY = *RANGE(...)
Priority range.

FROM = 30 / <integer 30..255>
Lower limit of the range.

TO = 255 / <integer 30..255>
Upper limit of the range.

CHARACTER-SET-NUMBER = *ALL / *ONE / *RANGE(...)
Information is requested on active SPOOL devices for which any number character sets or a single character set or a number of character sets within the range (RANGE) are admitted (START-PRINTER-OUTPUT).
Information on non-HP printers is only output if CHARACTER-SET-NUMBER=ALL is specified.

CHARACTER-SET-NUMBER = *RANGE(...)
Information is requested on active SPOOL devices for which a number of character sets within a specified range are admitted.

LOW = 1 / <integer 1..32767>
Lower limit of the range.

HIGH = 64 / <integer 1..32767>
Upper limit of the range.

ROTATION = *ANY / *YES / *NO / *MANUAL
Information is requested on active SPOOL devices according to the entry in the ROTATION operand in the START-PRINTER-OUTPUT or START-TAPE-OUTPUT or START-TAPE-REPLAY command.
Information on printers without page rotation modules is only output for ROTATION=*ANY. (*NO means that ROTATION is deactivated).

TWO-UP-PROCESSING = *ANY / *YES / *NO / *MODE-1 / *MODE-2
Information is requested about printers (LP65) for which the corresponding value for TWO-UP-PROCESSING was specified in the START-PRINTER-OUTPUT command.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SCP1052	Information incomplete
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0976	Invalid operand value
	128	SPS0266	SPOOL subsystem not available

Notes

Within the framework of support for interoperability between BS2000- and UNIX-based systems, new printer statuses based on an ISO reference have been introduced. The following statuses are displayed by means of the SHOW-ACTIVE-SPOOL-DEVICES command:

- I(IDLE): the printer is ready to output; no print job is currently being processed
- R(RUN): the printer is active
- M(Message): there is a console message concerning the printer
- D(DETACHED): this is the status between the entry of the START-PRINTER-OUTPUT command and its execution by the controller task or the status after the STOP-PRINTER-OUTPUT command is entered
- T(TRANSFER): a started spoolout job is waiting for transport confirmation
- U(UNKNOWN): the status is not known

The connections between the statuses above and the statuses in the ISO reference are shown in the following table:

Displayed status	**Print jobs for printers of type**			**ISO statuses**
	Spool	**APA**	**RSO**	
A (ATTACHED)			X	idle
I (IDLE)	X	X	X	idle
T (TRANSFER)	X		X	running
R (RUN)	X	X	X	running
M (MESSAGE)	X	X	X	needs attention
S (STOPPED)			X	needs attention
W (WORKING FOR ADM)			X	needs attention
D (DETACHED)	X	X	X	shutdown
U (UNKNOWN)	X	X	X	shutdown

Output forms

Output when no device is specified or if a device name is specified with a wildcard

```
DEV-NAME DEV-TYPE C-USERID C-TSN EXIT C-FORM C-CL SSU ADM CRI
@@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@   @@@ @@@@@@  ### @@@ @@@ @@@
...      ...      ...      ...    ... ...     ... ... ... ...
```

Meanings of the output fields

Output field	Meaning
DEV-NAME	Device name
DEV-TYPE	Device type
C-USERID	User ID of the current job (output for systems support and RSO device administrator only; otherwise blank).
C-TSN	TSN of the current job (output for systems support and RSO device administrator only; otherwise blank).
EXIT	Exit routines activated: YES/NO
C-FORM	Form used for printing out the current job
C-CL	Spoolout class of the current job
SSU	S: printer status, see notes S: printer area; the printer is started locally (L) or as a distributed printer (C) U: STOP-... command issued. NO/blank.
ADM	Caller of the command is systems support / RSO device administrator for this device: YES/blank
CRI	Selection criteria were all specified explicitly in the START-... command for the specified device (EXP) not specified at all (blank).

Table 88: SHOW-ACTIVE-SPOOL-DEVICES; output with no device specification or with wildcard specification

Output when an individual device is specified

Output for all device types

```
DEV-NAME:  @@@@@@@@  DEV-TYP: @@@@@@@@@ REV: ### SCHED: @@@@-JOB
C-USERID:  @@@@@@@@  PRIORITY: ###/###  USE: @@@ C-TSN: @@@@
CLASSES(@): ### ### ### ### ### ### ### ### ### ### ### ### ###
            ### ### ###
FORM(@@): @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
          @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
          @@@@@@ @@@@@@
PNAME(@): @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
USER (@): @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
ACC  (@): @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@
DESTS: @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
       @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
       ...
       @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
```

Meanings of the output fields

Output field	Meaning
DEV-NAME	Device name
DEV-TYP	Device type
USE	Type of device activation
REV	Revision number; processing state of the device; a counter is incremented by 1 for each MODIFY-PRINTER-OUTPUT-STATUS command
SCHED	SCHEDULING-STATE: During a job, device characteristics can be changed via MODIFY-...-OUTPUT-STATUS; this does not take effect until the subsequent job. The field indicates whether the values output apply to the current job or the next job.
PRIORITY	Value range of the priorities admitted for the specified device
C-USERID	User ID of the current job (output for RSO device administrator and systems support only; otherwise blank)
C-TSN	TSN of the current job (output for RSO device administrator and systems support only; otherwise blank)
CLASSES(@)	Spoolout classes admitted for the specified device.

• Auxiliary field	A : All spoolout classes are admitted P : All specified spoolout classes are admitted N : All spoolout classes except those specified here are admitted
FORM(@@)	Forms admitted for the specified device.
• Auxiliary field 1	A : All forms are admitted. P : All specified forms are admitted. N : All forms except those specified here are admitted.
• Auxiliary field 2	E : The specified forms are equivalent. _ : The specified forms are not equivalent.
PNAME(@)	Job names admitted for the specified device.
• Auxiliary field	A : All job names are admitted P : All specified job names are admitted N : All job names except those specified here are admitted
USER(@)	User IDs admitted for the specified device (output to systems support and RSO device administrator only; otherwise blank).
• Auxiliary field	A : All user IDs are admitted P : All specified user IDs are admitted N : All user IDs except those specified here are admitted
ACC(@)	Account numbers admitted for the specified device (displayed only to systems support and the device administrator; otherwise blank).
• Auxiliary field	A : All account numbers are admitted P : All specified account numbers are admitted N : All account numbers except those specified here are admitted
DESTS	Device pools that can contain the specified device.

Table 89: SHOW-ACTIVE-SPOOL-DEVICES output for all device types

Additional information on local printers

```
CURRENT-FORM: @@@@@@  SAMPLE: @@@        EXIT: @     TRACE: @@@
SERVER-NAME: @@@@@@@@ HOST-NAME : @@@@@@@@
PRINTER-STATE: @      PRINTER-SCOPE: @   PRINTER-ERR-TYPE : @@@@
HOSTS(@): @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
```

Additional information when an APA printer is specified

```
CURRENT-FORM: @@@@@@  TRACE: @@@(LEVEL=@)  EXIT: @
SERVER-NAME: @@@@@@@@ HOST-NAME : @@@@@@@@
PRINTER-STATE: @      PRINTER-SCOPE: @   PRINTER-ERR-TYPE : @@@@
HOSTS(@): @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
```

Meanings of the output fields

Output field	Meaning
CHAR-SET	HP printers only: Number of character sets (range) that can be processed on the specified device.
CURRENT-DIA	Film overlay loaded on the specified device.
CURRENT-FORM	Form loaded on the specified device
DIAS	In local SPOOL only for HP and HP90: List of film overlays that can be processed on the device.
• Auxiliary field:	(A): All film overlays (P): The specified film overlays (positive list) (N): All except the specified film overlays (negative list) (ONLY): Only devices on which film overlays can be processed (NONE): Only devices on which film overlays cannot be processed
EXIT	Exit routines activated for the specified device: yes/no
FOB	HP or LED printers only. Size range of an FOB data overlay that can be processed on the specified device.
PRINTER STATE	See "Notes".
PRINTER SCOPE	Printer scope (L: local or C: distributed).
PRINTER-ERR-TYPE	Error class based on the printer error status: • OPER: Technical error: manual intervention is necessary before the message can be answered at the console. • DATA: Data error: the message at the console must be answered. • LOAD: Loading error: the message at the console must be answered. • JOB: Job error: the message at the console concerning the job just processed by the printer must be answered. • UNDEF: Undefined error.

ROTATION	Jobs that call the page rotation module can be processed on the specified device: YES/NO/ANY/MANUAL (see START-PRINTER-OUTPUT)
SAMPLE	Sample printout: yes/no
T-UP-P	TWO-UP-PROCESSING: output of two pages side by side on HP90 printers
TRACE Auxiliary field:	TRACE activated with START-PRINTER-OUTPUT command y/n LEVEL: trace level activated

Table 90: Output fields of SHOW-ACTIVE-SPOOL-DEVICES for local printers

Additional information when a virtual printer is specified

This information is only output if a virtual printer is specified in the NAME operand.

```
PRINTER-STATE: @      PRINTER-SCOPE: @   PRINTER-ERR-TYPE : @@@@
SERVER-NAME: @@@@@@@@ HOST-NAME : @@@@@@@@ PROGRAM-TASK : @@@@
HOSTS(@): @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
          @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
```

Additional information when an RSO printer is specified

This information is only output if an RSO printer is specified in the NAME operand.

```
CURRENT-FORM: @@@@@@   TRACE: @@@     EXIT: @@@    SAMPLE: @@@
PRINTER-STATE: @   MONJV:@@@@@@@@@@@@@@@@@@@@@@@@
ACCESSES : @@@@ @@@@ @@@@ @@@@
```

Meanings of the output fields

Output field	Meaning
CURRENT-FORM	Form loaded on the specified device.
TRACE	A TRACE file is to be created for the specified device: YES/NO (this is only issued to systems support; the field remains empty in all other cases).
EXIT	EXIT routine activated for the specified device: YES/NO.
SAMPLE	Sample printout: YES/NO
PRINTER STATE	See "Notes".
MONJV	Name of the monitoring job variable if specified in the device record of the SPOOL parameter file ($SYSSPOOL.PRT.RSO.<device-name>), otherwise *NONE
ACCESSES	Access paths allowed, e.g. RSO, UTM

Table 91: Output fields of SHOW-ACTIVE-SPOOL-DEVICES for RSO printers

Information when a printer of a UNIX-based system is specified

This information is only output if a printer of a UNIX-based system is specified in the NAME operand.

```
DEV-NAME CURRENT-FORM PRINTER-STATE
@@@@@@@@ @@@@@@       @
```

Additional information when a tape device is specified

This information is only output if a tape device is specified in the NAME operand.

```
ROTATION: @@@   FOB: #####/#####  CHAR-SET: #####/#####
DIAS    (@@@@): @@ @@ @@ @@ @@ @@ @@ @@ @@ @@ @@ @@ @@ @@ @@ @@
RETPD:    @@@   RMODE: @@@@@      IMPORT: @@@@@@
DENSITY: @@@@@@@@  T-UP-P: @@@@@@
TYPE (@@@@): @@@@@ @@@@@ @@@@@ @@@@@ @@@@@ @@@@@
VSN: @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
     @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
```

Meaning of the output fields

Output field	Meaning
ROTATION	See output for local printers.
FOB	See output for local printers.
CHAR-SET	See output for local printers.
DIAS Auxiliary field:	List of film overlays which can be processed on the device (A): All film overlays (P): The specified film overlays (positive list) (N): All except the specified film overlays (negative list) (ONLY): Only devices on which film overlays can be processed (NONE): Only devices on which film overlays cannot be processed
RETPD	Retention period for tape files in daysTape operating mode
RMODE	Outputs the tape processing mode: COPY/DIRECT.
IMPORT	VSN of the tape on which the directory file is stored
TYPE Auxiliary field:	Scheduling type defined in the SPOOLOUT-TYPE operand (START-TAPE-OUTPUT): LP, HP, FD, LP65, HP90, LP48, LP-EM, 2050-APA, 2090-APA (ALL): All types of job (MAY): Job for which SELECTION-TYPE = MAY has been specified (MUST): Job for which SELECTION-TYPE = MUST has been specified
DENSITY	Recording density for a tape (the recording density is not specified in START-TAPE.. but depends on the output device).

T-UP-P	See output for local printers.
VSN	List of volume serial numbers permitted on the device (output for systems support only; otherwise blank)

Table 92: Output fields of SHOW-ACTIVE-SPOOL-DEVICES for tape devices

Output in S variables

The command's DEVICE-NAME operand identifies the S variables which are to be created. The following specifications are possible for DEVICE-NAME:

Notation used in command	Abbreviated form used in table
DEVICE-NAME=*ALL	DEV =*ALL
DEVICE-NAME= <alphanum-name 1..8>	DEV =<name>
DEVICE-NAME= <alphanum-name 1..24 with-wild>	DEV =<name with-wild>

Note

S variables marked S/X in the “Name of the S variable” column are generated both for SPOOL and for Xprint jobs. All other S variables are generated for SPOOL jobs only.

Output information	Name of the S variable	T	Contents	Condition
Print jobs permitted for the specified device (RSO and UTM print jobs)	var(*LIST).ACCESS (*LIST)	S	' ' <allowed-accesses>	DEV=<name>
Account number	var(*LIST).ACCOUNT (*LIST)	S	' ' <account>	DEV=<name>
Account numbers with authorization for the specified device (output for system administrator/RSO device administrator only) *ALL = all numbers are authorized *NEGATIV = all except those listed *POSITIV = all those listed	var(*LIST).ACCOUNT-ADMIS	S	*ALL *NEGATIV *POSITIV	DEV=<name>
Command issued by the system administrator/RSO device administrator for this device	var(*LIST).ADM	S	*NO *YES	DEV=*ALL/ <name with-wild>
Form used to print the current job	var(*LIST).CURR-FORM S/X	S	' ' <form-name>	DEV=<name>
Current form name	var(*LIST).CURR-FORM-NAME	S	' ' <form-name>	DEV=*ALL/ <name with-wild>
Current forms overlay	var(*LIST).CURR-FORM-OVERLAY	S	<forms-overl>	DEV=<name>
Current SPOOLOUT class	var(*LIST).CURR-PRINT-JOB-CLASS	S	0..255	DEV=*ALL/ <name with-wild>
TSN of the current job	var(*LIST).CURR-TSN	S	' ' <tsn>	
User ID of the current job	var(*LIST).CURR-USER-ID	S	' ' <user-id>	
Number of character sets, bottom of range	var(*LIST).CHAR-SET-NUM.FROM	S	0..32767	DEV=<name>
Number of character sets, top of range	var(*LIST).CHAR-SET-NUM.TO	S	0..32767	DEV=<name>
Recording density supported by a tape	var(*LIST).DENSITY	S	' ' <density>	DEV=<name>
Device pool that may contain the device	var(*LIST).DEST(*LIST)	S	<destination>	DEV=<name>
Device name	var(*LIST).DEV-NAME S/X	S	' ' <dev-name>	

Device type	var(*LIST).DEV-TYPE	S	' ' <dev-type>	
Number of devices which match the selection criteria	var(*LIST).DEVICE-NUMBER	S	<0..999999>	
Error code	var(*LIST).ERR-CODE	S	' ' <error code>	DEV=<name>
Error message	var(*LIST).ERR-MSG	S	' ' <error msg>	DEV=<name>
Are exit routines activated for the specified device?	var(*LIST).EXIT	S	*NO *YES	
Forms overlay buffer, bottom of range	var(*LIST).FOB.FROM	S	0..32767	DEV=<name>
Forms overlay buffer, top of range	var(*LIST).FOB.TO	S	0..32767	DEV=<name>
Form name	var(*LIST).FORM-NAME(*LIST)	S	' ' <form-name>	DEV=<name>
Forms authorized for use on the specified device *ALL = all forms are authorized *NEGATIV = all except those listed *POSITIV = all those listed	var(*LIST).FORM-NAME-ADMIS	S	*ALL *NEGATIV *POSITIV	DEV=<name>
Equivalence of the output forms	var(*LIST).FORM-NAME-EQUIV	S	' ' *EQUIVALENT	DEV=<name>
Name of the forms overlay	var(*LIST).FORM-OVERLAY(*LIST)	S	' ' <forms-overl>	DEV=<name>
Forms overlays which can be processed on the device *ALL = all overlays *POSITIV = all those listed *NEGATIV = all except those listed *ONLY = only devices which support forms overlay processing *NONE = only devices which do not support forms overlay processing	var(*LIST).FORM-OVERLAY-ADMIS	S	*ALL *NEGATIV *NONE *ONLY *POSITIV	DEV=<name>
Host system	var(*LIST).HOST(*LIST)	S	' ' <host-name>	DEV=<name>
Hosts authorized to use the specified device *ALL=all hosts *POSITIV=all those listed *NEGATIV=all except those listed	var(*LIST).HOST-ADMIS	S	*ALL *POSITIV *NEGATIV *LOCAL-HOST *LOCAL-CLUSTER	DEV=<name>

*LOCAL-HOST=local host *LOCAL-CLUSTER=all hosts in the local cluster				
Name of the host	var(*LIST).HOST-NAME	S	' ' <host-name>	DEV=<name>
VSN of the tape containing the directory file	var(*LIST).IMPORT	S	' ' <import>	DEV=<name>
Date of most recent scheduling operation	var(*LIST).LAST-SCHED.DATE	S	*NONE <yyyy-mm-dd>	
Time of most recent scheduling operation	var(*LIST).LAST-SCHED.TIME	S	*NONE <hh:mm>	
Season information for the time of most recent scheduling operation	var(*LIST).LAST-SCHED.SEASON	S	*NONE *SUMMER *WINTER	
Local name of the device as defined in the SPOOL parameters. With local printer: Logical name used when the printer is started. With distributed printer: Name of the logical device which is connected to the distributed printer.	var(*LIST).LOCAL-DEVICE-NAME S/X	S	<device-name>	
Name of the RSO job variables	var(*LIST).MONJV	S	' ' $SYSSPOOL.PRT.RSO.<devicename>	DEV=<name>
Tape operating mode	var(*LIST).OUT-MODE	S	' ' *COPY *DIRECT	DEV=<name>
Spoolout class	var(*LIST).PRINT-JOB-CLASS(*LIST)	S	0..255	DEV=<name>
Spoolout classes authorized for use on the device *ALL = all classes *POSITIV = all those listed *NEGATIV = all except those listed	var(*LIST).PRINT-JOB-CLASS-ADMI	S	*ALL *NEGATIV *POSITIV	DEV=<name>
Spoolout name	var(*LIST).PRINT-JOB-NAME(*LIST)	S	' ' <spool-name>	DEV=<name>
Names of jobs authorized to use the device *ALL = all jobs *POSITIV = all those listed *NEGATIV = all except those listed	var(*LIST).PRINT-JOB-NAME-ADMIS	S	*ALL *NEGATIV *POSITIV	DEV=<name>

Job priority, bottom of range	var(*LIST).PRINT-JOB-PRIO.FROM	S	30..255	DEV=<name>
Job priority, top of range	var(*LIST).PRINT-JOB-PRIO.TO	S	30..255	DEV=<name>
Error class based on the printer error status: *OPER: Hardware error: manual intervention is necessary before the message on the console can be acknowledged. *DATA: Data error: requires the message on the console to be acknowledged. *LOAD: Load error: data error: Requires the message on the console to be acknowledged *JOB: Job error: requires the message on the console concerning the present print job to be acknowledged. *UNDEF: Error undefined.	var(*LIST).PRINTER-ERR-TYPE	S	*OPER *DATA *LOAD *JOB *UNDEF	DEV=<name>
Tape file retention period	var(*LIST).RETENT-PERIOD	S	<integer>	DEV=<name>
Revision number	var(*LIST).REVISION	S	0..255	DEV=<name>
Jobs that call the page rotation module	var(*LIST).ROT	S	' ' *ANY *MAN *NO *YES	DEV=<name>
Specimen printout required	var(*LIST).SAMPLE	S	*NO *YES	DEV=<name>
Applicability (data of current job or next job)	var(*LIST).SCHED-STA	S	*CURR-JOB *NEXT-JOB	DEV=<name>
Scope	var(*LIST).SCOPE	S	*CLUSTER *LOCAL	
Selection criterion	var(*LIST).SEL-CRITERIA	S	' ' *EXP	DEV=*ALL/ <name with-wild>
Name of server	var(*LIST).SERVER-NAME	S	' ' <server-name>	DEV=<name>

Output information	Name of the S variable	T	Contents	Condition
Device types for which spoolout jobs can be processed on the specified devices	var(*LIST).SPOOL-TYPE (*LIST)	S	' ' <spool-type>	DEV=<name>
Device type limitation	var(*LIST).SPOOL-TYPE-ADMIS	S	*MAY *MUST	DEV=<name>
Printer status	var(*LIST).STA$^{S/X}$	S	' ' <print-state>	
Trace file required	var(*LIST).TRACE	S	*NO *YES	DEV=<name>
Active trace level	var(*LIST).TRACE-LEV	S	' ' <trace-level>	DEV=<name>
TWO-UP processing	var(*LIST).TWO-UP-PROCESS	S	' ' *ANY *MODE-1 *MODE-2 *NO *YES	DEV=<name>
Device activation style	var(*LIST).USE	S	' ' *NO	DEV=*ALL/ <name with-wild>
		S	*IN *NO *OUT *PAGE-PRINT-OUT	DEV=<name>
User ID	var(*LIST).USER-ID (*LIST)	S	' ' <user-id>	DEV=<name>
User IDs with authorization for the device *ALL = all user IDs *POSITIV = all those listed *NEGATIV = all except those listed	var(*LIST).USER-ID-ADMIS	S	*ALL *NEGATIV *POSITIV	DEV=<name>
VSN	var(*LIST).VOL(*LIST)	S	' ' <vsn>	DEV=<name>

Example

Four devices have been activated as follows:

```
Device 1:  START-PRINTER-OUTPUT DEV-NAME=L1
Device 2:  START-PRINTER-OUTPUT DEV-NAME=L2,(FORM-NAME=FORM01)
Device 3:  START-PRINTER-OUTPUT DEV-NAME=L3,(FORM-NAME=(FORM01,FORM02))
Device 4:  START-PRINTER-OUTPUT DEV-NAME=L4,(FORM=FORM02)
```

If the FORM operand is omitted in SHOW-ACTIVE-SPOOL-DEVICES, information on all four devices is output. For FORM=FORM01, information on device 2 and device 3 is output. For FORM=FORM02, information on device 3 and device 4 is output.
For FORM=(FORM01,FORM02), information on device 3 is output.

5.1 SHOW-ADDRESS-SPACE-STATUS

Show information on system and user address space

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	STD-PROCESSING SW-MONITOR-ADMINISTRATION TSOS

Function

The SHOW-ADDRESS-SPACE-STATUS command displays information on important and possibly critical values of the system and user address space. The following information is displayed:

- Information on the system address space
  - Size of the system address space
  - Current size of memory classes 1 through 4
  - Maximum size of memory classes 3 and 4 during the session
  - Current and maximum sizes of the system address space used
  - Free gap between memory classes 3 and 4
- Information on the user address space
  - Total size of the user address space
  - Size of the user address space below 2GB (only on SU x86)
  - Maximum size of class 5 and class 6 memory in the user address space during the runtime of the specified task
  - Maximum size of class 5 and class 6 memory below 2GB in the user address space during the runtime of the specified task (only on SU x86)

The information on the system address space is only received by privileged users. The scope of information on the user address space can be defined with the USER-ADDRESS-SPACE operand.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Privileged users (TSOS or SW-MONITOR-ADMINISTRATION privilege) receive information on the system address space and can have information displayed on the user address space of tasks of foreign user IDs.

Indications of critical situations

When class 3 and class 4 memory is requested, the system address space is searched for an adequately sized free area, but in different directions:

- In the case of class 3 memory, the search takes place from the front in the direction of ascending addresses.
- In the case of class 4 memory, the search takes place from the back in the direction of descending addresses.

Normally a gap of many MB remains free between class 3 and class 4 memory. If this gap shrinks to a few MB or disappears totally, larger requests for class 3 or class 4 memory are generally no longer possible. An acute danger of system address space saturation then exists.

Critical situations exist in the following cases:

- The size of the system address space used differs by only a few MB from the maximum size of the system address space.
- The maximum size of the class 5 and class 6 memory of a task differs by just a few MB from the size of the user address space.

Format

SHOW-ADDRESS-SPACE-STATUS

USER-ADDRESS-SPACE = ***OWN** / ***LARGEST**(...) / ***ALL** / ***NONE** / ***TSN** (...)

***LARGEST**(...)

| NUMBER = **5** / <integer 1..4096>

***TSN**(...)

| TSN = <alphanum-name 1..4>

Operands

USER-ADDRESS-SPACE = *OWN / *LARGEST(...) / *ALL / *NONE / *TSN (...)
Determines the scope of the information on the user address space.

USER-ADDRESS-SPACE = *OWN
Information is output on the user address space of the local task.

USER-ADDRESS-SPACE = *LARGEST(...)
Information is output on the user address space of a particular number of tasks which occupy the most user address space. The output takes place in descending order beginning with the task which has reached the highest level of class 5 and class 6 memory. Nonprivileged users are only provided with information relating to tasks running under their own user ID.

NUMBER = 5 / <integer 1..4096>
Specifies the maximum number of tasks for which information will be output. The default is 5 tasks.

USER-ADDRESS-SPACE = *ALL
Information is output on the user address space of all tasks. The output takes place in descending order beginning with the task which has reached the highest level of class 5 and class 6 memory. Nonprivileged users are only provided with information relating to tasks running under their own user ID.

USER-ADDRESS-SPACE = *NONE
No information on the user address space will be output.

USER-ADDRESS-SPACE = *TSN(...)
Information is output on the user address space of the specified task.

TSN = <alphanum-name 1..4>
TSN of the task. Nonprivileged users can only specify a task which is running under their own user ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	32	EMM3601	system error
	64	CMD0216	Error: command privilege missing
	64	EMM3600	Error: access authorization missing
	64	EMM3602	Specified task does not exist
	130	EMM3603	Insufficient storage space

Output format

Sample output

/show-address-space-status user-address-space=*all

```
SYSTEM ADDRESS SPACE REPORT
       SYSSIZE      MAX. USED   MAX. CLASS 3   MAX. CLASS 4   SIZE OF HOLE
       1024 MB      258.25 MB       98.18 MB      104.48 MB      754.18 MB
      SUM SIZE   SIZE CLASS 1   SIZE CLASS 2   SIZE CLASS 3   SIZE CLASS 4
     237.38 MB       36.09 MB        0.28 MB       96.78 MB      104.22 MB
USER ADDRESS SPACE REPORT
 SIZE USER ADDRESS SPACE:           2908 MB
 SIZE USER ADDRESS SPACE < 2GB:     1900 MB
 TASK     MAX. CLASS 5/6 < 2GB     MAX. CLASS 5/6
 1RHC                 15.42 MB           65.07 MB
 1RHE                  7.12 MB           57.54 MB
 1RC0                  7.11 MB           53.53 MB
 ...
 IGPN                  0.01 MB           40.92 MB
 BCAM                  0.03 MB           40.84 MB
 ...
  PGE                  0.00 MB            0.16 MB
  VMM                  0.00 MB            0.16 MB
```

> The field "SIZE USER ADDRESS SPACE < 2GB" and the column "MAX. CLASS 5/6 < 2GB" will be displayed only on SU x86.

Explanation of the output information

Info column	Meaning
SYSTEM ADDRESS SPACE REPORT	Information block for the system address space
SYSSIZE	Size of the system address space
MAX. USED	Maximum system address space used during the session
MAX. CLASS 3	Maximum class 3 memory used during the session
MAX. CLASS 4	Maximum class 4 memory used during the session
SIZE OF HOLE	Size of the gap between class 3 and class 4 memory
SUM SIZE	Current size of the class 1 through class 4 memory
SIZE CLASS 1	Current size of the class 1 memory (=maximum)
SIZE CLASS 2	Current size of the class 2 memory(=maximum)
SIZE CLASS 3	Current size of the class 3 memory
SIZE CLASS 4	Current size of the class 4 memory
USER ADDRESS SPACE REPORT	Information block for the user address space
SIZE USER ADDRESS SPACE:	Total size of the user address space. On SU x86, this also includes the class 5 memory above 2GB.
SIZE USER ADDRESS SPACE < 2GB:	Size of the user address space below 2GB (only on SU x86)
The following values are displayed for each task:	
TASK	The task's TSN
MAX. CLASS 5/6	Maximum class 5 and class 6 memory used by the task (including memory pools)
MAX. CLASS 5/6 < 2GB	Maximum class 5 and class 6 memory below 2GB used by the task (including memory pools) (only on SU x86)

Notes

- The total system and user address space used always remains below 2048 MB on SUs /390 because there the nonprivileged class 4 memory counts neither as user nor as system address space.
  On SUs x86 this total always remains below the maximum possible value of 4096 MB because there the area

between user and system address space is used for shared modules (nonprivileged class 4 memory) and for HAL data.

- The value MAX. USED is generally not equivalent to the total of MAX. CLASS 3, MAX. CLASS 4, SIZE CLASS 1 and SIZE CLASS 2, because MAX. CLASS 3 and MAX. CLASS 4 can be reached at different times during the session.
  In the system address space there are areas which cannot be assigned to any of the memory classes 1 through 4. These areas are contained in the MAX. USED value.

Output in S variable

The command's USER-ADDRESS-SPACE operand identifies the S variables which are to be created.

Notation used in command	Abbreviated form used in table
USER-ADDRESS-SPACE=*OWN / *LARGEST(...) / *ALL / *TSN (...), i.e. not *NONE	1

Output information	Name of the S variable	T	Contents	Condition
Current size of the class 1 memory (=maximum)	var(*LIST).CLASS-1-SIZE	I	<integer 1..2048>	
Current size of the class 2 memory (=maximum)	var(*LIST).CLASS-2-SIZE	I	<integer 1..2048>	
Current size of the class 3 memory	var(*LIST).CLASS-3-SIZE	I	<integer 1..2048>	
Current size of the class 4 memory	var(*LIST).CLASS-4-SIZE	I	<integer 1..2048>	
Size of the gap between class 3 and class 4 memory	var(*LIST).HOLE-SIZE	I	<integer 1..2048>	
Maximum class 3 memory used during the session	var(*LIST).MAX-CLASS-3	I	<integer 1..2048>	
Maximum class 4 memory used during the session	var(*LIST).MAX-CLASS-4	I	<integer 1..2048>	
Maximum system address space used during the session	var(*LIST).MAX-USED	I	<integer 1..2048>	
Number of tasks for which information on the user address is output	var(*LIST).NUM-OF-TASK	I	<integer 1..4096>	1
Current size of the class 1 through class 4 memory	var(*LIST).SUM-SIZE	I	<integer 1..2048>	
Size of the system address space	var(*LIST).SYSSIZE	I	<integer 1..2048>	
Total size of the user address space	var(*LIST).USER-SIZE	I	<integer 1..4096>	1
Size of the user address space < 2GB (only on SU x86)	var(*LIST).USER-SIZE-BELOW-2GB	I	<integer 1..2048>	1
Maximum class 5 and class 6 memory used by the task (including memory pools)	var(*LIST).USER(*LIST).MAX-CLASS-5-6	I	<integer 1..2048>	1
Maximum class 5 and class 6 memory below 2GB used by the task (including memory pools) (only on SU x86)	var(*LIST).USER(*LIST).MAX-CLASS-5-6-LOW	I	<integer 1..2048>	1
The task’s TSN		S	<c-string 4..4>	1

	var(*LIST).USER(*LIST).TASK			

For memory sizes that are displayed with decimal places in the SYSOUT output, the integer MB value is rounded up or off and then written into the S variable.

5.1 SHOW-ALIAS-CATALOG-ENTRY

Show entries in alias catalog

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-ALIAS-CATALOG-ENTRY command outputs AC entries to SYSOUT. Entries with the attribute INVISIBLE are shown to the ACS administrator only. The user selects the entries to be displayed by specifying the defined aliases. If all entries are selected, the scope of the output information can be restricted as follows:

- output of a totals line for all AC entries
- selection based on the scope of entries (user or system entries).
- selection based on the range of the entries (for files and/or job variables)

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-ALIAS-CATALOG**-ENTRY**

ALIAS-FILE-NAME = **<u>*ALL</u>** / <filename 1..80 with-wild>

,**SEL**ECT = **<u>*ALL</u>** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| **TYPE** = **<u>*ALL</u>** / ***USER-ENTRIES** / ***SYS**TEM**-ENTRIES**

| ,**RANGE** = **<u>*ANY</u>** / ***FILE** / ***JV**

,**INF**ORMATION = **<u>*STD</u>** / ***SUMM**ARY

Operands

ALIAS-FILE-NAME = <u>*ALL</u> / <filename 1..80 with-wild>
Selects the AC entries to be output on the basis of the associated alias contained in the entry. Entries with the `INVISIBLE` attribute are shown only to the ACS administration.

ALIAS-FILE-NAME = <u>*ALL</u>
Selects the AC entries for all aliases. The scope of the information to be shown can be restricted.

ALIAS-FILE-NAME = <filename 1..80 with-wild>
Specification of a defined alias or a wildcard sequence to select a set of aliases for which AC entries are to be shown.

SELECT = *ALL / *BY-ATTRIBUTES(...)
The AC entry selection criteria.

SELECT = *ALL
Returns information on all AC entries.

SELECT = *BY-ATTRIBUTES(...)
Restricts the AC entries selected from the set to those which satisfy the following specifications.

TYPE = *ALL / *USER-ENTRIES / *SYSTEM-ENTRIES
Returns information on AC entries depending on the entry type (user or system entries).

TYPE = *ALL
The entry type is not to be used as a selection criterion. Both user and system entries (*ALL) are to be shown.

TYPE = *USER-ENTRIES
Returns information on user entries.

TYPE = *SYSTEM-ENTRIES
Returns information on system entries.

RANGE = *ANY / *FILE / *JV
Returns information on AC entries depending on the range (for files or job variables).

RANGE = *ANY
The range is not to be used as a selection criterion.

RANGE = *FILE
Provides information on all AC entries which are valid for files (i.e. all entries which are set up with the range RANGE=*FILE or *BOTH).

RANGE = *JV
Provides information on all AC entries which are valid for job variables (i.e. all entries which are set up with the range RANGE=*JV or *BOTH).

INFORMATION = *STD / *SUMMARY
Defines the scope of the output.

INFORMATION = *STD
For each ACS entry, the alias and the actual file or job variable name are shown with preceding signs, which meaning are explained in the example below.

The output ends with a totals line containing the total number of aliases selected in the ALIAS-FILE-NAME operand and a breakdown of system and user entries.

INFORMATION = *SUMMARY
Only the totals line is to be shown.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
2	0	ACS0006	Warning: AC entry not found
	32	CMD0221	Internal error
	64	ACS0017	Error: alias catalog not available
	64	ACS0024	Invalid alias catalog entry
	128	ACS0018	ACS is not available

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The possible values for INFORMATION are *STD and *SUMMARY.

Output information	Name of the S variable	T	Contents	Condition
File or job variable name alias	var(*LIST).ACS(*LIST).ALIAS-F-NAME	S	<filename 1..54>	INF=*STD
Actual file or job variable name	var(*LIST).ACS(*LIST).F-NAME	S	<filename 1..54>	INF=*STD
Logging enabled	var(*LIST).ACS(*LIST).LOG	S	*NO *YES	INF=*STD
Alias catalog entry protection enabled	var(*LIST).ACS(*LIST).PROT	S	*NO *YES	INF=*STD
Range of the alias catalog entry (for files and/or job variables)	var(*LIST).ACS(*LIST).RANGE	S	*FILE *JV *BOTH	INF=*STD
Type of alias catalog entry	var(*LIST).ACS(*LIST).TYPE	S	*SYS *USER	INF=*STD
AC entry visible	var(*LIST).ACS(*LIST).VISIBLE	S	*NO *YES	INF=*STD
Number of system entries	var(*LIST).NUM-OF-ENTRY.SYS	I	<integer 0...65535>	INF=*STD/*SUMMARY
Total number of AC entries	var(*LIST).NUM-OF-ENTRY.TOTAL	I	<integer 1...65535>	INF=*STD/*SUMMARY
Number of user entries	var(*LIST).NUM-OF-ENTRY.USER	I	<integer 0...65535>	INF=*STD/*SUMMARY

Examples

```
/SHOW-ALIAS-CATALOG-ENTRY               (Output with the privilege ACS-
ADMINISTRATION)
%       ALIAS FILE NAME         ->     FILE NAME
%UB  : BOTH                     -> FILE-OR-JV-NAME
%UF  : FILE                     -> FILE-NAME
%UJ  : JV                       -> JV-NAME
%UJI : JV.INV                   -> JV-ALIAS.BLIND
%SB  : LOAD-BIND                -> $.BINDER
%SB  : LOAD-PAMCONV             -> $.PAMCONV
%UJIP+ SF                       -> FILE-ALL
%  ACS0037 NUMBER OF ALIAS CATALOG ENTRIES: 7 (FOR SYSTEM: 2, FOR USER: 5)
```

Output of an entry has the following format:

```
EXAMPLE:  %SB  : LOAD-BIND                -> $.BINDER           (Example of a line)
FORMAT:   %abcde alias-name               -> Job variable or file name
```

The first 5 characters mean the following:

```
%abcde      possible    meaning of the
 |||||      content     possible contents
 ||||e      :           Alias replacement not logged
 ||||e      +           Alias replacement logged
 |||d      ' '          Entry not protected
 |||d       P           Protected
 ||c       ' '          Entry shown by SHOW-ALIAS-CATALOG-ENTRY command
 ||c        I           Invisible, entry only shown to the administrator
 |b         F           File   Entry
 |b         J           JV     Entry
 |b         B           Both  (File or JV)
 a          S           System Entry
 a          U           User   Entry
```

For detailed description see the ADD-ALIAS-CATALOG-ENTRY command.
For further examples, please refer to ADD-ALIAS-CATALOG-ENTRY, LOAD-ALIAS-CATALOG and SET-FILE-NAME-PREFIX commands.

5.1 SHOW-ASE-ELEMENT

Display ASE element

Component:	ASE
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS

Function

The SHOW-ASE-ELEMENT command provides information on the properties of all ASE elements which are declared in the system. Specifying the element ID enables information to be displayed for a particular ASE element.

In addition to the declared properties, the element ID, the TSN of the task under which the declaration was made, the number of actions already performed and the date and time of the declaration are displayed.

Format

SHOW-ASE-ELEMENT
ELEMENT**-ID** = ***ALL** / <x-text 2..2>

Operands

ELEMENT-ID = *ALL / <x-text 2..2>
Specifies which ASE elements are to be displayed. The default *ALL causes all elements to be displayed. Specifying the element ID also enables the display of a particular element to be requested.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

Output format

The information is displayed in a table. The output begins with a header line containing the names of the output columns. This is followed by a value line for each declared ASE element. If a range of message numbers, a list with multiple elements or elements that are to be excluded was specified when the SERSLOG events were selected, the value line is followed by one or more continuation lines.
When the value displayed in an output column comes from the declaration made with ADD-ASE-ELEMENT, the corresponding operand is enclosed in parentheses in the explanation.

Sample output

```
ID OWNER RECTYPE  TH S(#, SLEEP  ) ACTION   DONE   CRE-DATE  CRE-TIME TASK
04 (OWN) (ALL)    __ Y(3,UNLIMIT ) LO       0003  2012-02-01 01:30:00 0015
01 0ABC  (ALL)    1F N             LO+CO   *1AFE  2012-02-01 01:30:00 ____
        \IDA
        \AUD0815
02 0ABC  IDA(ALL) 03 N             CO       0000  2012-02-01 01:30:00 ____
        \IDA0BAD
        \IDA0DUM
2A 0ABC  AUD(ALL) 01 N             CO       0000  2012-02-01 01:30:00 ____
22 0ABC  IDA0002- __ N             CO       0000  2012-02-01 01:30:00 ____
         IDA0006
        \IDA0004
3E 1TSN  AUD4711, __ Y(1,01:30:00) CO       0000  2012-02-01 01:30:00 ____
         IDA0911
3F 1TSN  IDA0911  __ Y(1,024hours) LO+CO+TS 0000  2012-02-01 01:30:00 ____
```

Explanation of the output columns

Output column	Meaning
ID	Identifier of the ASE elements which is specified uniquely when the declaration is made. Possible values: <x-text 2..2> or empty in the case of a continuation line
OWNER	TSN of the task which declared the ASE element. Possible values: <alphanum-name 4..4>, (OWN) for the user's own task or empty in the case of a continuation line
RECTYPE	Monitored SERSLOG events (RECORD-ID operand). Possible values: • (ALL) = All SERSLOG records are selected • ccc(ALL) = All SERSLOG records of message class ccc are selected • cccmmmm = The SERSLOG record with message number cccmmmm is selected • cccmmmm, = First element of a list of message numbers (for further list elements see continuation line) • cccmmmm- = Specifies a lower limit for the range (for the upper limit see continuation line) *In event of output in continuation lines* • cccmmmm, = Another list element • cccmmmm = Last list element or upper limit of range • \cccmmmm = Excluded SERSLOG record • \cccm(ALL) = Excluded message class
TH	Threshold value (hexadecimal value of the THRESHOLD operand). Possible values: <x-text 2..2> or "__" for *NONE

Output column	Meaning
S(#, SLEEP)	Handling of duplicated SERSLOG events (SUPPRESS-DUPLICATES operand) Possible values: • N when SUPPRESS-DUPLICATES=*NO • Y(<integer 1..9>, <sleep>) when SUPPRESS-DUPLICATES=*YES, where the values of the AFTER and SLEEP-TIME operands are displayed in parentheses. The following values are possible for <sleep>: UNLIMIT, hh.mm.ss (when the time is specified) or nnn hours (when nnn hours is specified)
ACTION	Action which is to be executed when the defined event occurs (ACTION operand). Possible values: LO (internal logging), CO (console message) or TS (teleservice call); in a list the values are separated from each other by “+”
DONE	Number (hexadecimal display) of the actions executed. A leading asterisk indicates a counter overflow. Possible values: <x-text 4..4>
CRE-ATE	Date of the declaration in the format yyyy-mm-dd
CRE-IME	Time of the declaration in the format hh:mm:ss
TASK	TSN of the task which is monitored (TASK operand). Possible values: <alphanum-name 4..4> or “____” for all tasks

Table 93: Output columns of the SHOW-ASE-ELEMENT command

5.1 SHOW-ASE-LOGGING

Display ASE logging data

Component:	ASE
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS

Function

The SHOW-ASE-LOGGING command outputs all SERSLOG events which have been logged internally (ACTION=*INTERNAL-LOGGING). The output is directed to SYSOUT, and can also optionally be directed to SYSLST. The set of logging records to be output can be restricted to message keys which, in the length specified, match the specified substring.

Format

SHOW-ASE-LOGGING
RECORD-**ID** = ***ALL** / <alphanum-name 1..7> ,**OUTPUT** = list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

RECORD-ID = *ALL / <alphanum-name 1..7>
Specifies the SERSLOG events for which the logged information is to be output. The default *ALL causes all logging records to be output. When a particular message key is specified or part of one, information is output only for the message keys which, in the length specified, match the specified value.

OUTPUT = list-poss(2): *SYSOUT / *SYSLST
Specifies where the information is to be output. The default setting is output to SYSOUT.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

Output format

The information is displayed in a table. The output begins with a header line containing the names of the output columns. This is followed by a value line for each logging record.

```
RECTYPE  TSN       CALLER           DATE       TIME     ELSN CRY0001  83N6 CRYASS +000007C4
2012-02-17  09:29:20 0000AFFE
```

Output column	Meaning
RECTYPE	SERSLOG record identifier (corresponds to message number)
TSN	TSN of the task which triggered the SERSLOG event
CALLER	Address of the $NERLOS call, defined by module name and relative distance (hexadecimal) to the start of the module in the format <name 1..8>+<x-text 8..8>
DATE	Date of the SERSLOG event in the format yyyy-mm-dd
TIME	Time of the SERSLOG event in the format hh-mm-ss
ELSN	Error Logging Sequence Number (hexadecimal) of the SERSLOG event in the format <x-text 8..8>

Table 94: Output columns of the SHOW-ASE-LOGGING column

5.1 SHOW-ASE-PARAMETERS

Display global ASE settings

Component:	ASE
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS

Function

The SHOW-ASE-PARAMETERS command displays global ASE settings which can be changed using the MODIFY-ASE-PARAMETERS command. The output provides information on the current size of the logging buffer.

Format

SHOW-ASE-PARAMETERS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

Output format

The size of the internal logging buffer is displayed in an information line:

```
SIZE OF LOGGING TABLE: n KB
```

Here n is a multiple of 4 from <integer 4..64>.

5.1 SHOW-ASE-STATUS

Display ASE status information

Component: ASE

Functional area: Error logging

Domain: ERROR-LOGGING

Privileges: TSOS

Function

The SHOW-ASE-STATUS command enables status information about the ASE subsystem to be queried. The output provides information on whether ASE buffer areas which are not large enough had to be overwritten. When required, the internal logging buffer can be enlarged using the MODIFY-ASE-PARAMETERS command.

Format

SHOW-ASE-STATUS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	1	ASE0010	Syntax error
	32	CMD0221	System error
	64	ASE0011	Semantic error

Output format

An information line is output for each ASE buffer area.

Sample output

```
LOGGING TABLE WRAPPED: YES

INTERNAL DATA WRAPPED: NO
```

Explanation of the output columns

Output field	Meaning
LOGGING TABLE WRAPPED:	Indicates whether a wrap-around (i.e. the new data overwrites the oldest entries in the event of a buffer overflow) of the internal logging buffer has occurred. If necessary, the buffer can be enlarged using the MODIFY-ASE-PARAMETERS command. Possible values: YES or NO
INTERNAL DATA WRAPPED:	*This information is only relevant for internal diagnostics.* Indicates whether a wrap-around of an internal table has occurred. Possible values: YES or NO

Table 95: Output information of the SHOW-ASE-STATUS command

5.1 SHOW-AUDIT-STATUS

Show status information on linkage and hardware AUDIT

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	TSOS

Function

The SHOW-AUDIT-STATUS command outputs status information on the linkage and hardware AUDIT modes to SYSOUT. Both the system-wide and the task-specific usage of the AUDIT functions in the system are displayed. In addition to the general overview, the display can also show which tasks started the linkage or hardware AUDIT mode.

Format

SHOW-AUDIT-STATUS

INFORMATION = ***SUM**MARY / ***ALL**(...)

***ALL**(...)

| **SEL**ECT = ***ALL** / ***LINK**AGE**-AUDIT** / ***HARD**WARE**-AUDIT**

Operands

INFORMATION = *SUMMARY / *ALL(...)
Specifies the scope of the information which is to be displayed.

INFORMATION = *SUMMARY
The statuses of the following AUDIT functions are displayed:

- processor-local linkage AUDIT
- ALL-JOBS-AUDIT for linkage AUDIT
- ALL-JOBS-AUDIT for hardware AUDIT

The number of tasks in which the linkage or hardware AUDIT is still active (enabled and not on hold) is also shown.

INFORMATION = *ALL(...)
The same information is displayed as with *SUMMARY. Further task-specific information is also displayed for each task which has linkage or hardware AUDIT enabled.

SELECT = *ALL / *LINKAGE-AUDIT / *HARDWARE-AUDIT
Specifies the AUDIT mode for which information is to be displayed.

SELECT = *ALL
Information is displayed for linkage AUDIT and for hardware AUDIT.

SELECT = *LINKAGE-AUDIT
Information is displayed for linkage AUDIT only.

SELECT = *HARDWARE-AUDIT
Information is displayed for hardware AUDIT only.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	CMD0221	System error
	64	CMD0216	Privileges error

Output format

INFORMATION =*SUMMARY causes the 5 following information lines to be displayed which contain global information:

Information line	Meaning
Processor-local LINKAGE-AUDIT:	Status of the processor-local linkage AUDIT: • INTERRUPT-HANDLING (ON for SIH) • SYSTEM-LEVEL (ON for SIH and TPR) • OFF
All-task LINKAGE-AUDIT :	Status of the ALL-JOBS-AUDIT for linkage AUDIT: ON or OFF
All-task HARDWARE-AUDIT :	Status of the ALL-JOBS-AUDIT for hardware AUDIT
LINKAGE-AUDIT active in *nnnn* task(s)	Number of tasks with active linkage AUDIT (ON, but not in HOLD status)
HARDWARE-AUDIT active in *nnnn* task (s)	Number of tasks with active hardware AUDIT (ON, but not in HOLD status)

Table 96: AUDIT status information

INFORMATION =*ALL causes task-specific information to be displayed in addition for each task with the AUDIT function enabled. This detailed information is displayed in table form ahead of the information lines which show the total number of tasks. One value line containing the following information is displayed for each task:

Information column	Meaning
TID	TID of the task displayed
TSN	TSN of the task displayed
TYPE	Type of enabled AUDIT function: • LKA (linkage AUDIT) • HWA (hardware AUDIT)
STATE	Function status of the enabled AUDIT function: • SYSTEM (ON for TPR) • USER (ON for TU)
ACTIVE	Activity status of the enabled AUDIT function: • YES (ON, but not in HOLD status) • NO (ON, but not in HOLD status)

Table 97: AUDIT status information (task-specific information)

Examples

/show-audit-sta inf=*all

```
Processor-local LINKAGE-AUDIT: INTERRUPT-HANDLING
All-task LINKAGE-AUDIT       : OFF
All-task HARDWARE-AUDIT      : OFF
Task-specific AUDITs:
  TID    TSN   TYPE STATE   ACTIVE
00010001  TSC  LKA  SYSTEM  YES
00010002 HERS  HWA  SYSTEM  YES
00010068 0FQ3  LKA  SYSTEM  YES
00010068 0FQ3  LKA  USER    YES
00010068 0FQ3  HWA  SYSTEM  YES
00010068 0FQ3  HWA  USER    YES
0001006C 0FQ7  LKA  USER    NO
0001006D 0FQ8  HWA  SYSTEM  NO
LINKAGE-AUDIT  active in 0002 task(s)
HARDWARE-AUDIT active in 0002 task(s)
```

/show-audit-sta inf=*sum

```
Processor-local LINKAGE-AUDIT: INTERRUPT-HANDLING
All-task LINKAGE-AUDIT       : OFF
All-task HARDWARE-AUDIT      : OFF
LINKAGE-AUDIT  active in 0002 task(s)
HARDWARE-AUDIT active in 0002 task(s)
```

5.1 SHOW-BLOCK-TO-FILE-ASSIGNMENT

Show file name associated with specified block

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING
Privileges:	TSOS

Function

This command tells systems support the names of the files in which the specified blocks are located. Its primary function is to identify the files which are associated with bad blocks. For files to be consistently associated with disks /blocks, the corresponding pubset must not be subject to CMS or allocator actions. Such conditions apply only during a pubset's IMCAT phase or in the case of an exclusively imported pubset.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-BLOCK-TO-FILE-ASSIGNMENT
VOLUME = <vsn 1..6> ,**BLOCK-NUMBER** = list-poss(255): <integer 1..2147483647>

Operands

VOLUME = <vsn 1..6>
Identifies the disk containing the specified blocks by volume serial number (VSN).

BLOCK-NUMBER = list-poss(255): <integer 1..2147483647>
Identifies the physical half-page number of the required block.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	K2 interrupt
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	32	DMS05C7	Internal DMS error
	64	CMD0202	Syntax or semantic error
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS06CC	No file uses the specified block
	64	OPS0002	K2 interrupt on output to S variables
	130	OPS0001	Space problems on output to S variables

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Physical half-page number of a (defective) block which can be associated with a file	var(*LIST).FOUND (*LIST).BLOCK	I	<integer>	
Name of the file containing the (defective) block	var(*LIST).FOUND (*LIST).F-NAME	S	<path-name>	
Physical half-page number of a (defective) block which cannot be associated with a file	var(*LIST).NOT-FOUND (*LIST).BLOCK	I	<integer>	
VSN of the disk on which the (defective) blocks are located	var(*LIST).VOL	S	<vsn>	

5.1 SHOW-CALENDAR

Request information from calendar file

Component:	CALENDAR
Functional area:	Job processing
Domain:	UTILITIES
Privileges:	STD-PROCESSING

Function

The SHOW-CALENDAR command is used to obtain information on the calendar data in the specified calendar file. By default, (SELECT=*TODAY), the following information is output for the current day: the name of the calendar file, the current date, the name of the weekday (Monday...Sunday), the attribute of the current day (free day / working day), the number of associated SYMDATs (symbolic dates), the working hours, and if appropriate the holiday name, the names of the associated SYMDATs, and the time specifications assigned to them.
You use SELECT=*BASIC-INFORMATION to output the basic information of the calendar file: the name of the calendar, the calendar limits, and definitions of the standard working week. Within the standard working week, the attributes and working hours for the weekdays are defined.
You use SELECT=*DATE to output the day information relating to one or more days: the date, the name of the weekday, the attribute, the number of assigned SYMDATs, the working hours, the holiday name if appropriate, and using a special operand the names of the associated SYMDATs and the assigned time specifications.
You use SELECT=*SYMBOLIC-DATE to output information on SYMDATs. These are symbolic dates under whose names calendar days are combined (see the “Calendar” manual [4]).
You use SELECT=*HOLIDAY to output information on holidays. Output can be routed to SYSOUT or SYSLST.

The command supports structured output in S variables (see "Output in S variables").

SHOW-CALENDAR accesses the specified calendar file in read-only mode. You can create and modify calendar files using the CALENDAR utility or the program interface (CALENDR macro). To start the CALENDAR utility you use the START-CALENDAR-EDITOR command. There are in-depth descriptions of the utility and the program interface in the “Calendar” manual [4].

Format

SHOW-CALENDAR

```
CALENDAR-NAME = <filename 1..54>
,SELECT = *TODAY / *BASIC-INFORMATION / *DATE(...) / *SYMBOLIC-DATE(...) / *HOLIDAY(...)
    *DATE(...)
        | FROM = *TODAY / *FIRST-CALENDAR-DATE / <date>
        | ,TO = *SAME / *TODAY / *LAST-CALENDAR-DATE / <date> / *BY-NUMBER-OF-DAYS(...)
        |     *BY-NUMBER-OF-DAYS(...)
        |         |     NUMBER-OF-DAYS = <integer 1..1827 days>
        | ,ASSIGNED-SYM-DATE = *NONE / *ALL(...) /
        |                          <filename 1..20 without-cat-user-gen-vers with-wild>(...)
        |     *ALL(...)
        |         |     ORDER-WITHIN-DAY = *BY-TIME / *BY-SYMBOLIC-DATE
        |     <filename 1..20 without-cat-user-gen-vers with-wild>(...)
        |         |     ORDER-WITHIN-DAY = *BY-TIME / *BY-SYMBOLIC-DATE
    *SYMBOLIC-DATE(...)
        | FROM = *FIRST-SYMBOLIC-DATE / <filename 1..20 without-cat-user-gen-vers with-wild>
        | ,TO = *SAME / *LAST-SYMBOLIC-DATE /
        |         <filename 1..20 without-cat-user-gen-vers with-wild> /
        |         *BY-NUMBER-OF-SYMBOLIC-DATES(...)
        |     *BY-NUMBER-OF-SYMBOLIC-DATES(...)
        |         |     NUMBER-OF-SYM-DATES = <integer 1..4096>
        | ,ASSIGNED-DATES = *NO / *ALL / *NEXT-DATE / *INTERVAL(...)
        |     *INTERVAL(...)
        |         | FROM = *TODAY / *FIRST-ASSIGNED-DATE / <date>
        |         | ,TO = *SAME / *TODAY / *LAST-ASSIGNED-DATE / <date> /
        |         |     *BY-NUMBER-OF-DAYS(...)
        |         |         *BY-NUMBER-OF-DAYS(...)
        |         |             |  NUMBER-OF-DAYS = <integer 1..1827 days>
    *HOLIDAY(...)
```

```
        |   FROM = *FIRST-HOLIDAY / <filename 1..30 without-cat-user-gen-vers with-wild>
        |   ,TO = *SAME / <filename 1..30 without-cat-user-gen-vers with-wild> /
        |         *LAST-HOLIDAY / *BY-NUMBER-OF-HOLIDAYS(...)
        |       *BY-NUMBER-OF-HOLIDAYS(...)
        |             |         NUMBER-OF-HOLIDAYS = <integer 1..1024 days>
        |   ,ASSIGNED-DATES = *NO / *YES
,OUTPUT = *SYSOUT / list-poss(2): *SYSOUT / *SYSLST(...)
    *SYSLST(...)
        |   SYSLST-NUMBER = *STD / <integer 1..99>
```

Operands

CALENDAR-NAME = <filename 1..54>
Name of the calendar file from which information is to be output.

SELECT = *TODAY / *BASIC-INFORMATION / *DATE(...) / *SYMBOLIC-DATE(...) / *HOLIDAY(...)
Specification indicating which information is to be output from the calendar file.

SELECT = *TODAY
Specifies the information for the current day:

- name of the calendar file
- current date
- name of the weekday
- attribute: W = workday or F = free day
- number of associated SYMDATs
- working hours (beginning and end)
- if appropriate, the name of the holiday
- a list containing the names of associated SYMDATs and the time specifications assigned to them (sorted by time)

SELECT = *BASIC-INFORMATION
Specifies the basic information of the calendar:

- name of the calendar file
- calendar limits
- days of the standard working week and their attributes (working day / free day)

SELECT = *DATE(...)
Specifies the day information for a range of days. The desired range is selected using the subordinate operands FROM and TO. The following information is output for each selected day:

- date
- name of the weekday
- attribute: W = workday or F = free day

- number of associated SYMDATs
- working hours (beginning and end)
- if appropriate, the name of the holiday

You can also use the subordinate operand ASSIGNED-SYM-DATE to request a list of the names of associated SYMDATs and the times assigned to them.

FROM = *TODAY / *FIRST-CALENDAR-DATE / <date>
Determines the first day at which output of the information is to begin.

FROM = *TODAY
Output begins from the current day.

FROM = *FIRST-CALENDAR-DATE
Output begins with the first day in the calendar file.

FROM = <date>
Output begins with the specified date.

TO = *SAME / *TODAY / *LAST-CALENDAR-DATE / <date> / *BY-NUMBER-OF-DAYS(...)
Determines the last day at which output of the information is to end.

TO = *SAME
Information is output for the day specified in FROM only.

TO = *TODAY
Output ends with the current day.

TO = *LAST-CALENDAR-DATE
Output ends with the last day in the calendar file.

TO = *BY-NUMBER-OF-DAYS(...)
Determines the size of the desired range in days beginning with the day specified in FROM.

NUMBER-OF-DAYS = <integer 1..1827 *days* >
Number of days.

ASSIGNED-SYM-DATE = *NONE / *ALL(...) / <filename 1..20 without-cat-user-gen-vers with-wild>(...)
Specifies whether the associated SYMDATs are to be output in addition to the calendar days.
The default value is *NONE, i.e. no additional list is output.

ASSIGNED-SYM-DATE = *ALL(...)
All the names of the SYMDATs assigned to the specified calendar days are output.

ORDER-WITHIN-DAY = *BY-TIME / *BY-SYMBOLIC-DATE
Determines the sort criterion. Output is sorted in accordance with the assigned time (*BY-TIME; default) or alphabetically by SYMDAT name (*BY-SYMBOLIC-DATE).

ASSIGNED-SYM-DATE = <filename 1..20 without-cat-user-gen-vers with-wild>(...)
The specified SYMDAT or the group of SYMDATs identified in the pattern string is also output. (You can select several SYMDATs with a single specification using a pattern string, where only the pattern character * is permitted at the end for any character string.)

ORDER-WITHIN-DAY = *BY-TIME / *BY-SYMBOLIC-DATE
Determines the sort criterion.
Output is sorted in accordance with the assigned time (*BY-TIME; default) or alphabetically by SYMDAT name (*BY-SYMBOLIC-DATE).

SELECT = *SYMBOLIC-DATE(...)
Specifies information on the SYMDATs defined in the calendar. The range of output is defined using the subordinate operands FROM and TO. You can also output the assigned days using the subordinate operand ASSIGNED-DATES.

FROM = *FIRST-SYMBOLIC-DATE / <filename 1..20 without-cat-user-gen-vers with-wild>
Specifies the SYMDAT at which output is to begin.

FROM = *FIRST-SYMBOLIC-DATE
Output begins with the first SYMDAT in the alphabetical sequence.

FROM = <filename 1..20 without-cat-user-gen-vers with-wild>
Output begins with the specified SYMDAT or with the group of SYMDATs (in alphabetical order) identified in the pattern string.
(You can select several SYMDATs with a single pattern string, where only the pattern character * is permitted at the end for any character string.)

TO = *SAME / *LAST-SYMBOLIC-DATE / <filename 1..20 without-cat-user-gen-vers with-wild> / *BY-NUMBER-OF-SYMBOLIC-DATES(...)
Specifies the SYMDAT at which output is to end.

TO = *SAME
The specification entered for the FROM operand also applies here.

TO = *LAST-SYMBOLIC-DATE
Output ends with the last SYMDAT in the alphabetical sequence.

TO = <filename 1..20 without-cat-user-gen-vers with-wild>
Output ends with the specified SYMDAT or with the group of SYMDATs (in alphabetical order) identified in the pattern string.
(You can select several SYMDATs with a single pattern string, where only the pattern character * is permitted at the end for any character string.)

TO = *BY-NUMBER-OF-SYMBOLIC-DATES(...)
Determines the number of SYMDATs to be output beginning with the SYMDAT specified in FROM.

NUMBER-OF-SYM-DATES = <integer 1..4096>
Number of SYMDATs.

ASSIGNED-DATES = *NO / *ALL / *NEXT-DATE / *INTERVAL(...)
Specifies whether the calendar days assigned to a selected SYMDAT are also to be output.
The default value is *NO, i.e. no additional list is output.

ASSIGNED-DATES = *ALL
All calendar days assigned to the selected SYMDAT are also output.

ASSIGNED-DATES = *NEXT-DATE
All calendar days assigned to the selected SYMDAT which occur after the current date are also output.

ASSIGNED-DATES = *INTERVAL(...)
Defines a range of days to be listed.

FROM = *TODAY / *FIRST-ASSIGNED-DATE / <date>
First day in the range of days to be listed.

FROM = *TODAY
The range begins with the current day.

FROM = *FIRST-ASSIGNED-DATE
The range begins with the next assigned day.

FROM = <date>
The range begins with the specified day.

TO = *SAME / *TODAY / *LAST-ASSIGNED-DATE / <date> / *BY-NUMBER-OF-DAYS(...)
Last day in the range of days to be listed.

TO = *SAME
The specification entered for the FROM operand also applies here.

TO = *TODAY
The range ends with the current day.

TO = *LAST-ASSIGNED-DATE
The range ends with the last assigned day.

TO = <date>
The range ends with the specified day.

TO = *BY-NUMBER-OF-DAYS(...)
Determines the number of days to be listed beginning with the day specified in FROM.

NUMBER-OF-DAYS = <integer 1..1827 *days* >
Number of days.

SELECT = *HOLIDAY(...)
Specifies information on holidays. This includes the names of the holidays and their properties (type: cyclic / non-cyclic; activation status: yes / no). The range of output is defined using the subordinate operands FROM and TO. You can also request a list of assigned days using the subordinate operand ASSIGNED-DATES.

FROM = *FIRST-HOLIDAY / <filename 1..30 without-cat-user-gen-vers with-wild>
Specifies the holiday at which output is to begin.

FROM = *FIRST-HOLIDAY
Output begins with the first holiday (alphabetically) in the calendar file.

FROM = <filename 1..30 without-cat-user-gen-vers with-wild>
Output begins with the specified holiday or with the group of holidays (in alphabetical order) identified in the pattern string.
(You can select several holidays with a single pattern string, where only the pattern character * is permitted at the end for any character string.)

TO = *SAME / <filename 1..30 without-cat-user-gen-vers with-wild> / *LAST-HOLIDAY / *BY-NUMBER-OF-HOLIDAYS(...)
Specifies the holiday at which output is to end.

TO = *SAME
The specification entered for the FROM operand also applies here.

TO = *LAST-HOLIDAY
Output ends with the last holiday (alphabetically) in the calendar file.

TO = <filename 1..30 without-cat-user-gen-vers with-wild>
Output ends with the specified holiday or with the group of holidays (in alphabetical order) identified in the pattern string.
(You can select several holidays with a single pattern string, where only the pattern character * is permitted at the end for any character string.)

TO = *BY-NUMBER-OF-HOLIDAYS(...)
Determines the number of holidays to be output beginning with the holiday specified in FROM.

NUMBER-OF-HOLIDAYS = <integer 1..1024 *days* >
Number of days to be output.

ASSIGNED-DATES = *NO / *YES
Specifies whether all calendar days that fall on the selected holidays are also to be listed.
The default value is *NO, i.e. no additional list is output.

OUTPUT = *SYSOUT / list-poss(2): *SYSOUT / *SYSLST(...)
Specifies whether output is to be written to SYSOUT or SYSLST.
The default value is *SYSOUT. Simultaneous output to both SYSLST and SYSOUT is possible (list specification).

OUTPUT = *SYSLST(...)
Output is written to SYSLST.

SYSLST-NUMBER = *STD / <integer 1..99>
Number of the SYSLST file.
The default value is *STD, i.e. output is written to SYSLST.
When entering a number, you must make sure that a cataloged file is assigned to the corresponding SYSLST file (SYSLST01 through SYSLST99) (see ASSIGN-SYSLST command).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	64	CLD1031	Calendar file does not exist
	64	CLD1032	DMS error when accessing calendar file

Output formats

You can use the OUTPUT operand to route the desired output to SYSOUT and/or SYSLST. If desired, the user has the option of using a German-language interface. The layouts of the English interface, which are described below, are identical for SYSOUT and SYSLST.

`SHOW-CALENDAR calendar.work-2`

```
%------------------------------------------------------------------------
%                      INFORMATION ABOUT CURRENT DAY
%------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-3
%
%------------------------------------------------------------------------
%     DATE     DAY ATTR #SYM  WORKING HOURS HOLIDAY
%------------------------------------------------------------------------
%
%  2012-01-30  MON   W     2  07:30-15:00
%
%- SYMBOLIC DATE ---------- TIME ----- SYMBOLIC DATE ---------- TIME ----
%
%  INFOTAG                13:00:00     ULTIMO                 13:00:00
%------------------------------------------------------------------------
```

`SHOW-CALENDAR calendar.work-2,SELECT=*BASIC-INFORMATION`

```
%------------------------------------------------------------------------
%                           BASIC INFORMATION
%------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-3
%
%------------------------------------------------------------------------
%  CALENDAR LIMITS             START :  2011-01-30
%                              END   :  2012-01-30
%------------------------------------------------------------------------
%  STANDARD WEEK                                  WORKING HOURS
%                                                 START  END
%         DAY               ATTR                (HH:MM) (HH:MM)
%------------------------------------------------------------------------
%         MON                 W                  08:30 - 17:00
%         TUE                 W                  08:30 - 17:00
%         WED                 W                  08:30 - 17:00
%         THU                 W                  08:30 - 17:00
%         FRI                 W                  07:30 - 15:00
%         SAT                 F                  00:00 - 23:59
%         SUN                 F                  00:00 - 23:59
%------------------------------------------------------------------------
```

```
SHOW-CALENDAR calendar.work-2,SELECT=*DATE(FROM=2011-12-20,TO=2012-01-02)

/sh-cal calendar.work-3,sel=*date(from=2011-12-20,to=2012-01-02)
```

```
%---------------------------------------------------------------------------
%                              LIST OF DAYS
%---------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-3
%
%---------------------------------------------------------------------------
%     DATE     DAY ATTR #SYM  WORKING HOURS HOLIDAY
%---------------------------------------------------------------------------
%
%  2011-12-20  TUE   F     0  00:00-23:59
%  2011-12-21  WED   F     0  00:00-23:59
%  2011-12-22  THU   W     0  08:30-17:00
%  2011-12-23  FRI   W     0  08:30-17:00
%  2011-12-24  SAT   W     0  08:30-17:00
%  2011-12-25  SUN   F     0  08:30-17:00  ERSTER.WEIHNACHTSFEIERTAG
%  2011-12-26  MON   F     0  07:30-15:00  ZWEITER.WEIHNACHTSFEIERTAG
%  2011-12-27  TUE   F     0  00:00-23:59
%  2011-12-28  WED   F     0  00:00-23:59
%  2011-12-29  THU   W     0  08:30-17:00
%  2011-12-30  FRI   W     0  08:30-17:00
%  2011-12-31  SAT   W     2  08:30-17:00
%  2012-01-01  SUN   F     0  08:30-17:00  NEUJAHR
%  2012-01-02  MON   W     0  07:30-15:00
%---------------------------------------------------------------------------
```

```
SHOW-CALENDAR calendar.work-2,SELECT=*DATE(FROM=2012-01-29,
                            TO=2012-02-01,ASSIGNED-SYM-DATE=*ALL)
```

```
%---------------------------------------------------------------------------
%                            DAY INFORMATION
%---------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-3
%
%---------------------------------------------------------------------------
%     DATE     DAY ATTR #SYM  WORKING HOURS HOLIDAY
%---------------------------------------------------------------------------
%
%  2012-01-29  THU   W     0  08:30-17:00
%
%---------------------------------------------------------------------------
%     DATE     DAY ATTR #SYM  WORKING HOURS HOLIDAY
%---------------------------------------------------------------------------
%
%  2012-01-30  FRI   W     2  07:30-15:00
%
%- SYMBOLIC DATE ---------- TIME ----- SYMBOLIC DATE ---------- TIME ----
%
%  INFOTAG                13:00:00     ULTIMO                 13:00:00
%---------------------------------------------------------------------------
%     DATE     DAY ATTR #SYM  WORKING HOURS HOLIDAY
%---------------------------------------------------------------------------
%
%  2012-01-31  SAT   F     0  00:00-23:59
%
%---------------------------------------------------------------------------
%     DATE     DAY ATTR #SYM  WORKING HOURS HOLIDAY
%---------------------------------------------------------------------------
%
%  2012-02-01  SUN   F     0  00:00-23:59
%
%---------------------------------------------------------------------------
```

```
SHOW-CALENDAR calendar.work-2,SELECT=*SYMBOLIC-DATE
              (FROM=*FIRST-SYMBOLIC-DATE,TO=*LAST-SYMBOLIC-DATE)
```

```
%---------------------------------------------------------------------------
%                         LIST OF SYMBOLIC DATES
%---------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-3
%
%---------------------------------------------------------------------------
%  SYMBOLIC DATE              TIME    TYPE   CYCLTYP  CYCLVAL   CYCLALT
%---------------------------------------------------------------------------
%
%  MONATSINFO              09:00:00    C    MONTH          1   AFTER
%  ULTIMO                  13:00:00    C    MONTH          1   BEFORE
%---------------------------------------------------------------------------
```

```
SHOW-CALENDAR calendar.work-2,SELECT=*SYMBOLIC-DATE
              (FROM=*FIRST-SYMBOLIC-DATE,TO=*LAST-SYMBOLIC-DATE,
              ASSIGNED-DATES=*INTERVAL(FROM=*TODAY,TO=2012-02-09))
```

```
%---------------------------------------------------------------------------
%                        SYMBOLIC DATE INFORMATION
%---------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-3
%
%---------------------------------------------------------------------------
%  SYMBOLIC DATE              TIME    TYPE   CYCLTYP  CYCLVAL   CYCLALT
%---------------------------------------------------------------------------
%
%  MONATSINFO               09:00:00    C    MONTH          1   AFTER
%
%--------------------------- ASSIGNED DATES ----------------------------
%
%   2012-02-09
%---------------------------------------------------------------------------
%  SYMBOLIC DATE              TIME    TYPE   CYCLTYP  CYCLVAL   CYCLALT
%---------------------------------------------------------------------------
%
%  ULTIMO                   13:00:00    C    MONTH          1   BEFORE
%
%--------------------------- ASSIGNED DATES ----------------------------
%
%   2012-01-30    2012-02-27
%---------------------------------------------------------------------------
/
```

Note

The following example is based on the German calendar file.

```
SHOW-CALENDAR calendar.work-2,SELECT=*HOLIDAY(FROM=*FIRST, TO=neujahr)
```

```
%---------------------------------------------------------------------------
%                            LIST OF HOLIDAYS
%---------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-2
%
%---------------------------------------------------------------------------
%  HOLIDAY NAME                       TYPE   ACTIVE
%---------------------------------------------------------------------------
%
%  CHRISTI.HIMMELFAHRT                  N      Y
%  ERSTER.WEIHNACHTSFEIERTAG            C      Y
%  FRONLEICHNAM                         N      Y
%  KARFREITAG                           N      Y
%  MAIFEIERTAG                          C      Y
%  NEUJAHR                              C      Y
%---------------------------------------------------------------------------
```

```
SHOW-CALENDAR calendar.work-2, SELECT = *HOLIDAY(FROM=oster*,
                                TO=*SAME,ASSIGNED-DATES=*YES)
```

```
%---------------------------------------------------------------------------
%  CALENDAR NAME:  :2OSG:$USER1.CALENDAR.WORK-2
%
%---------------------------------------------------------------------------
%  HOLIDAY NAME                       TYPE   ACTIVE     DATE
%---------------------------------------------------------------------------
%
%  OSTERMONTAG                          N      Y
%
%--------------------------- ASSIGNED DATES ----------------------------
%
%   2011-04-25    2012-03-09
%---------------------------------------------------------------------------
%  HOLIDAY NAME                       TYPE   ACTIVE     DATE
%---------------------------------------------------------------------------
%
%  OSTERSONNTAG                         N      Y
%
%--------------------------- ASSIGNED DATES ----------------------------
%
%   2011-04-24    2012-03-08
%---------------------------------------------------------------------------
```

Description of output fields

Output field	Meaning
ACTIVE	Activation status of the holiday: Y = activated, N = not activated
ASSIGNED DATES	Dates of the calendar days assigned to a SYMDAT or a holiday; output in yyyy-mm-dd format
ATTR	Attribute of the weekday: W = working day, F = free day
CALENDAR LIMITS	Calendar limits:
• START	First date in the calendar (lower calendar limit); output in yyyy-mm-dd format
• END	Last date in the calendar (upper calendar limit); output in yyyy-mm-dd format
CALENDAR NAME	Name of the calendar file
CYCLALT	Alternative for a case where a calculated SYMDAT entry is a free day; possible values: BEFORE = insert before free day, AFTER = insert after free day, SKIP = skip day, ON = insert on free day
CYCLTYP	Cycle type of the SYMDAT: DAY, WORKDAY, MONTH, WEEK
CYCLVAL	Cycle value
DATE	Date; output in yyyy-mm-dd format; for cyclic holidays, output in format: ****-mm-dd
DAY	Name of the weekday: MON (Monday), TUE (Tuesday), WED (Wednesday), THU (Thursday), FRI (Friday), SAT (Saturday), SUN (Sunday)
HOLIDAY	Name of the associated holiday
HOLIDAY NAME	Name of the holiday; max. 30 characters
SYMBOLIC DATE	Name of a SYMDAT; max. 20 characters
STANDARD WEEK	Definitions of the standard working week include the following information: DAY, ATTR, and WORKING HOURS (see relevant descriptions)
TIME	Time entry assigned to the SYMDAT; output in hh:mm:ss format
TYPE	Type of SYMDAT or holiday: C = cyclic, N = non-cyclic
WORKING HOURS	Beginning and end of the working hours; output in hh:mm-hh:mm format
#SYM	Number of SYMDATs assigned to a particular day

Table 98: Output fields of the SHOW-CALENDAR command

Output in S variables

The command's SELECT operand identifies the S variables which are to be created. The following specifications are possible for SELECT

Notation used in command	Abbreviated form used in table
SEL=*BASIC-INFORMATION	1
SEL=*DATE(ASSIGNED-SYM-DATE=*NONE)	2
SEL=*DATE(ASSIGNED-SYM-DATE=*ALL/name)	3
SEL=*HOLIDAY(ASSIGNED-DATES=*NO)	4
SEL=*HOLIDAY(ASSIGNED-DATES=*YES)	5
SEL=*SYMBOLIC-DATE(ASSIGNED-DATES=*NO)	6
SEL=*SYMBOLIC-DATE(ASSIGNED-DATES=*ALL/*NEXT-DATE /*INTERVAL)	7
SEL=*TODAY	8

Output information	Name of the S variable	T	Contents	Condition
Public holidays activated	var(*LIST).ACTIVE	S	*NO *YES	4,5
Alternative in case the calculated SYMDAT falls on a free day *AFTER=enter the first available working day after the calculated SYMDAT[1] *BEFORE=enter the first available working day before the calculated SYMDAT [2] *ON=do not search; enter the SYMDAT on the free day *SKIP=do not search; do not enter an alternative date	var(*LIST).ALT	S	*AFTER *BEFORE *ON *SKIP	6,7
Date of the days assigned to the SYMDAT or holiday	var(*LIST).ASS-DATE (*LIST)	S	<yyyy-mm-dd>	5,7
Type of day *FREE=free day *WORK=working day	var(*LIST).ATTR	S	*FREE *WORK	2,3,8
First date in the calendar (beginning of range)	var(*LIST).CALEN-BEGIN	S	<yyyy-mm-dd>	1

Last date in the calendar (end of range)	var(*LIST).CALEN-END	S	<yyyy-mm-dd>	1
Name of the calendar file	var(*LIST).CALEN-NAME	S	<filename 1..54>	1,2,3,4,5,6,7,8
Cycle type for symbolic date	var(*LIST).CYCL-TYPE	S	*DAY *MONTH *WEEK *WORKDAY	6,7
Cycle value	var(*LIST).CYCL-VAL	I	<integer 1..9999>	6,7
Date If 5: date assigned to the public holiday; the S variable is assigned a value only for cyclic holidays. In this case, the output for yyyy is ****. In the case of non-cyclic holidays the output consists of a blank.	var(*LIST).DATE	S	<yyyy-mm-dd>	2,3,5,8
Name of the day of the week	var(*LIST).DAY	S	MON TUE WED THU FRI SAT SUN	2,3,8
The designated day is a holiday(see var (*LIST).DATE)	var(*LIST).HOLIDAY	S	*NO *YES	2,3,8
Name of the holiday	var(*LIST).HOLIDAY-NAME	S	'' <name 1..30>	2,3,4,5,8
Number of SYMDATs associated with the day (see var(*LIST).DATE)	var(*LIST).NUM-OF-SYMB-DATE	I	<integer ..4096>	2,3,8
Type of day *FREE=free day *WORK=working day (standard working week)	var(*LIST).STD-WEEK (*LIST).ATTR	S	*FREE *WORK	1
Name of the day of the week (standard working week)	var(*LIST).STD-WEEK (*LIST).DAY	S	MON TUE WED THU FRI SAT SUN	1
Start of working hours (standard working week)	var(*LIST).STD-WEEK (*LIST).WORK-TIME-BEGIN	S	<hh:mm>	1

Output information	Name of the S variable	T	Contents	Condition
End of working hours (standard working week)	var(*LIST).STD-WEEK (*LIST).WORK-TIME-END	S	<hh:mm>	1
Name of the SYMDAT (lexically ascending series starts with the specified SYMDAT)	var(*LIST).SYMB-DATE-NAME	S	<name 1..20>	6,7
Name of the SYMDAT assigned to the day (see var(*LIST).DATE); if no SYMDAT is defined, the S variable is not generated	var(*LIST).SYMB-DATE (*LIST).NAME	S	<name 1..20>	3,8
Time of day on the SYMDAT assigned to the day (see var(*LIST).DATE); if no SYMDAT is defined, the S variable is not generated	var(*LIST).SYMB-DATE (*LIST).TIME	S	<hh:mm:ss>	3,8
Time of day assigned to the SYMDAT	var(*LIST).TIME	S	<hh:mm:ss>	6,7
Type of SYMDAT or holiday	var(*LIST).TYPE	S	*CYCL *NOT-CYCL	4,5,6,7
Start of working hours	var(*LIST).WORK-TIME-BEGIN	S	<hh:mm>	2,3,8
End of working hours	var(*LIST).WORK-TIME-END	S	<hh:mm>	2,3,8

*Key to var(*LIST).ALT:*

1 *AFTER: The next working day is searched for in the range “calculated date + (cycle value - 1)”. If the search is successful, the alternative day is entered *after* the date originally calculated. If no working day is found within the period, the entry is dropped.

2 *BEFORE: The next working day is searched for in the range “calculated date - (cycle value - 1)”. If the search is successful, the alternative day is entered *before* the date originally calculated. If no working day is found within the period, the entry is dropped.

5.1 SHOW-CCOPY-SESSION

Display information on CCOPY sessions

Component:	CCOPY
Functional area:	Pubset and MRSCAT management
Domain:	STORAGE-MANAGEMENT
Privileges:	TSOS HSMS-ADMINISTRATION

Function

The user can obtain information on all existing CCOPY sessions using the SHOW-CCOPY-SESSION command (as of CCOPY V3.0A). Output can be directed to either SYSOUT or SYSLST. The INFORMATION operand can be used in order to define whether only the attributes of the installed CCOPY sessions are to be output (e.g. identification, status, name and size of work file) or whether the relevant objects (files and job variables) are to be displayed as well.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-CCOPY-SESSION

SESSION-ID = ***ALL** / <alphanum-name 8..8>

,INFORMATION = ***ATTRIBUTES** / ***OBJECTS-AND-ATTRIBUTES**

,OUTPUT = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| SYSLST-NUMBER = ***STD** / <integer 1..99>

Operands

SESSION-ID = *ALL / <alphanum-name 8..8>
Specifies whether information is to be output on all CCOPY sessions or only on a specific CCOPY session.

SESSION-ID = *ALL
Information is to be output on all CCOPY sessions

SESSION-ID = <alphanum-name 8..8>
Information is to be output on the specified CCOPY session only.

INFORMATION = *ATTRIBUTES / *OBJECTS-AND-ATTRIBUTES
Defines the scope of the information that is to be output for each CCOPY session that is selected.

INFORMATION = *ATTRIBUTES
The attributes of the installed CCOPY sessions are output (e.g. identification, status, name and size of the work file).

INFORMATION = *OBJECTS-AND-ATTRIBUTES
The same information is output as with INFORMATION=*ATTRIBUTES, but with additional information on the objects (e.g. object name, object type and object status).

OUTPUT = *SYSOUT / *SYSLST(...)
Defines the destination to which the information is output.

OUTPUT = *SYSOUT
Output is directed into the SYSOUT system file.

OUTPUT = *SYSLST(...)
Output is directed into the SYSLST system file.

SYSLST-NUMBER = *STD /<integer 1..99>
For SYSLST-NUMBER=*STD, output is directed to SYSLST or into a SYSLST file whose name consists of “SYSLST” and a number between 1 and 99 (SYSLST01 to SYSLST99).

Return codes

(SC2)	SC1	Maincode	Meaning
	00	CMD0001	No error
	32	CMD2009	VAS / OPS reports an internal error
	32	DCH0005	Internal error occurred when setting / releasing a lock in the CCOPY subsystem
	32	DCH000D	System error occurred on program execution
	32	DCH000E	System error during output in S variable
	64	CMD0216	User not privileged
	64	DCH0006	No CCOPY session
	64	DCH0007	Invalid SESSION-ID
	130	OPS0001	Insufficient storage for output in S variable

Output in S variables

Output information	Name of the S variable	T	Contents
Creation date	var(*LIST).CRE-DATE	S	<c-string 10..10: yyyy-mm-dd>
Creation time	var(*LIST).CRE-TIME	S	<c-string 8..8: hh:mm:ss>
Runtime environment *HOST= local *CCS= shared pubset network	var(*LIST).ENVIR	S	*HOST *CCS
Number of objects	var(*LIST).NUM-OF-OBJECT	I	<integer 0..2147483647>
Number of objects already backed up	var(*LIST).OBJECT-PROCESS	I	<integer 0..2147483647>
Object status *OMIT=object will not be backed up *SEL-FOR-SAVE=object will be backed up *SAVE-START=backing up *SAVE-ABORT=backup aborted *OBJECT-SAVE=object has been backed up *WORK-FILE=object is a work file and will not be backed up	var(*LIST).OBJECT-STA	S	*OMIT' *SEL-FOR-SAVE *SAVE-START *SAVE-ABORT *OBJECT-SAVE *WORK-FILE
Number of objects to be backed up	var(*LIST).OBJECT-TO-SAVE	I	<integer 0..2147483647>
Fully qualified object name	var(*LIST).OBJECT (*LIST). OBJECT-NAME	S	<c-string 1..54>
Object type *FILE=file *FGGI=file generation index *FGG=file generation group *JV=job variable	var(*LIST).OBJECT (*LIST). OBJECT-TYPE	S	*FILE *FGGI *FGG *JV
CCOPY session ID (eight characters long)	var(*LIST).SESSION-ID	S	<c-string 8..8>
Status of CCOPY session *IN-CRE=being created *RUN=running *BACKUP-IN-PROGRESS=backing up *TERM=terminated *ABORT=aborted	var(*LIST).STA	S	*IN-CRE *RUN *BACKUP-IN-PROGRESS *TERM *ABORT
Fully qualified name of work file	var(*LIST).WORK-FILE-NAME	S	<c-sting 1..54>

Size of work file	var(*LIST).WORK-FILE-SIZE	I	<integer 0..2147483647>

Examples

*Output format for INFORMATION=*ATTRIBUTES*

```
======================== CCOPY - SESSION - DATA ============================
SESSION-ID = 00010001     STATUS = RUNNING                     ENV = HOST
CRE-DATE = 2012-03-31     CRE-TIME = 12:00:00
OBJECTS-TO-SAVE = 10      OBJECTS-PROCESSED = 7
WORK-FILE-NAME = <work file>
WORK-FILE-SIZE = 48 KB
```

An output block as shown in this example is issued for every CCOPY session (if SESSION-ID=*ALL was specified) or for the session chosen.

*Output format for INFORMATION=*OBJECTS-AND-ATTRIBUTES*

```
======================== CCOPY - SESSION - DATA ============================
SESSION-ID = 00010001     STATUS = RUNNING                     ENV = HOST
CRE-DATE = 2012-03-31     CRE-TIME = 12:00:00
OBJECTS-TO-SAVE = 10      OBJECTS-PROCESSED = 7
WORK-FILE-NAME = <work file>
WORK-FILE-SIZE = 48 KB
----------------------- OBJECTS ------------- TYPE ------- STATUS -------
<filename>                                    FILE      SELECTED-FOR-SAVE
<filename>                                    FILE      SELECTED-FOR-SAVE
<filename>                                    FGGI      SELECTED-FOR-SAVE
<filename>                                    JV        SELECTED-FOR-SAVE
<filename>                                    FILE      SELECTED-FOR-SAVE
...
```

5.1 SHOW-CE-LOCK

Display locks for catalog entries

Component:	BS2000
Functional area:	File processing
Domain:	FILE FILE-GENERATION
Privileges:	STD-PROCESSING TSOS

Function

The SHOW-CE-LOCK command determines whether a lock (CE lock) exists for the catalog entry of a file or job variable. If a lock exists the TID (task ID) of the lock holder and the SYSID (system identification) of the system in which the task is running are output to SYSOUT.
The catalog entry cannot be modified while it is locked. Systems support staff can reset a CE lock that is hung, e.g. due to an error in systems communication (see REMOVE-CE-LOCK command).

For a shared pubset, this command can be entered from any system in the network.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-CE-LOCK
FILE**-NAME** = <filename 1..54> ,**OBJECT** = ***FILE** / ***JV**

Operands

FILE-NAME = <filename 1..54>
Name of the file or job variable whose catalog entry is to be examined for CE locks. A file generation may not be specified relatively.

OBJECT = *FILE / *JV
Specifies whether the catalog entry of a file or of a job variable is to be examined.

Return code

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	DMS1342	No CE lock
	1	CMD0202	Syntax error
	32	CMD0221	Internal error
	32	CMD2009	Error during output to S variable (e.g. subsystem not available)
	64	CMD0501	Catalog not available
	64	DMS0505	Error during systems communication
	64	DMS0512	Catalog unknown in the system
	64	DMS1343	Master change underway for the pubset
	64	OPS0001	SDF-P reports insufficient storage (poss. reaction: FREE-VARIABLE and repeat command)

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Name of the file or JV	var(*LIST).NAME	S	<filename 1..54>	
Sysid of the system in which the lockholder operates	var(*LIST).SYSID	S	<sys-id>	
Task identifier (TID) of the lockholder	var(*LIST).TID	S	<x-text 4..4>	

5.1 SHOW-CHANGE-DATES

Display changeover times

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS

Function

The SHOW-CHANGE-DATES command displays changeover times from standard daylight time to daylight saving time (or vice versa).

Format

SHOW-CHANGE-DATES
SELECT = ***NEXT** / ***PREV**IOUS / ***FUTURE** / ***PAST** / ***ALL**

Operands

SELECT = *NEXT / *PREVIOUS / *FUTURE / *PAST / *ALL
Selects the changeover times which are to be displayed.

SELECT = *NEXT
The next future changeover time is displayed.

SELECT = *PREVIOUS
The most recent past changeover time is displayed.

SELECT = *FUTURE
All future changeover times are displayed.

SELECT = *PAST
All past changeover times are displayed.

SELECT = *ALL
All changeover times are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CHD0010	Syntax error in the command
	32	CMD0221	System error in the command
	64	CHD0011	Semantic error in the command

Output format

/SHOW-CHANGE-DATES SELECT=*FUTURE

```
   DATE    TIME W/S
2011-10-30 03:00(S)
2012-03-25 02:00(W)
```

Output field	Meaning / Information
DATE	Date of the changeover time.
TIME	Time of day of the changeover time.
W/S	(W): Specification of standard daylight time. Changeover time from standard daylight time to daylight saving time. (S): Specification of daylight saving time. Changeover time from daylight saving time to standard daylight time. *Exception:* In the first changeover time the specification refers to the next current season.

Table 99: Meaning of the output fields of the SHOW-CHANGE-DATES command

5.1 SHOW-CJC-STATUS

Display conditional job control information

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	E

Function

The SHOW-CJC-STATUS command displays information about jobs that are currently using CJC (conditional job control) functions.
The query may be limited to the user's own processor, but may also be extended to include any or all processors in an existing multiprocessor network. When queries concern "foreign" processors, only information about jobs using job variables belonging to the user's processor is displayed. Nonprivileged users are only supplied with information about jobs running under their own user ID.
Furthermore, it is possible to limit the information to one or more job variables, identified by name. In this case, only those jobs are shown that have functions in which the job variables named occur in conditional expressions.

The following information can be output:

- number of jobs, number of user IDs, referenced catalogs (INFORMATION = *SUMMARY).
- job numbers of the jobs, user IDs (listed under TSOS only), referenced catalogs (INFORMATION = *USER-LIST).

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Systems support staff (TSOS user ID or OPERATING privilege) are supplied with information about all jobs.

Format

SHOW-CJC-STATUS

HOST = ***OWN** / ***ALL** / ***FOR**EIGN / ***CAT**ALOG(...) /

list-poss(25): <c-string 1..8> / <filename 1..54 without-gen>

***CAT**ALOG(...)

| **CAT**ALOG-**ID** = list-poss(25): <c-string 1..4> / <filename 1..54 without-gen>

,**JV**-NAME = ***ALL** / list-poss(25): <filename 1..54 without-gen> / <partial-filename 2..53>

,**INF**ORMATION = ***SUMM**ARY / ***USER-LIST**

Operands

HOST =
Processor or catalog IDs to which the query refers. Non-local processors may be specified only if the software product HIPLEX MSCF is installed (see the “HIPLEX MSCF” manual [25]).
With non-local processors, jobs are taken into account only if in CJC functions they use at least one job variable not cataloged in the local processor.

HOST = *OWN
Local processor.

HOST = *ALL
All processors in the MSCF network.

HOST = *FOREIGN
All processors in the MSCF network, with the exception of the local processor.

HOST = *CATALOG(...)
Catalog ID, specified in the following.

CATALOG-ID = list-poss(25): <c-string 1..4> / <filename 1..54 without-gen>
Catalog ID of the processor to which the query refers, or name of a JV whose value denotes the catalog ID (left-justified, no following characters or blanks).

HOST = list-poss(25): <c-string 1..8> / <filename 1..54 without-gen>
BCAM name (left-justified with no trailing characters or blanks) of the processor in the MSCF network to which the query refers, or name of a JV whose value denotes the BCAM name of a processor. If a list is specified, BCAM and job variable names may not be mixed.

JV-NAME = *ALL / list-poss(25): <filename 1..54 without-gen> / <partial-filename 2..53>
JVs to which the query refers.
Default: All JVs.
Only jobs using one of the specified JVs in CJC functions are taken into account. The argument “JV-NAME=:cat1:”, for example, refers to all jobs which use JVs cataloged on pubset cat1 in CJC functions.
Special job variables must not be specified.

INFORMATION = *SUMMARY / *USER-LIST
Type of information to be displayed.

INFORMATION = *SUMMARY
For each processor:

- local catalogs of the processor
- number of jobs
- number of user IDs
- referenced catalogs (slave processors of a shared pubset obtain, if required, information on a catalog which is not available locally)

INFORMATION = *USER-LIST
For each processor:

- local catalogs of the processor
- task sequence number (TSN) of the jobs
- user IDs (under TSOS only)
- referenced catalogs (slave processors of a shared pubset obtain, if required, information on a catalog which is not available locally)

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Buffer overflow or output not possible, syntax error
	32	CMD2009	Error during S variable generation
	32	CMD0221	Internal error
	130	CJC0070	No access to other processors because MSCF is not active

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The possible values for INFORMATION are *SUMMARY and *USER-LIST.

Output information	Name of the S variable	T	Contents	Condition
Name of the host	var(*LIST).HOST	S	*LOC <host-name>	INF=*SUM/ *USER-LIST
Local catalog IDs of the host	var(*LIST).LOC-CAT-ID(*LIST)	S	<cat-id>	INF=*SUM/ *USER-LIST
Number of jobs; on error (RESULT=*ERROR) NUM-OF-TSN is set to -1.	var(*LIST).NUM-OF-TSN	I	-1 <integer>	INF=*SUM
Number of user IDs; on error (RESULT=*ERROR) NUM-OF-USER is set to -1.	var(*LIST).NUM-OF-USER	I	-1 <integer>	INF=*SUM
Referenced catalogs	var(*LIST).REF-CAT-ID(*LIST)	S	'' <cat-id>	INF=*SUM
Result of the query	var(*LIST).RESULT	S	*ERROR *NO-CJC *NO-ERROR	INF=*SUM/ *USER-LIST
Catalogs referenced for the job	var(*LIST).TASK(*LIST).REF-CAT-ID(*LIST)	S	'' <cat-id>	INF=*USER-LIST
TSN of the job currently using the CJC function; on error (RESULT=*ERROR) TASK (*LIST).TSN is set to ''.	var(*LIST).TASK(*LIST).TSN	S	'' *NO-TASK <tsn>	INF=*USER-LIST
User ID under which the job is running; on error (RESULT= *ERROR) TASK (*LIST).USER-ID is set to ''.	var(*LIST).TASK(*LIST).USER-ID	S	'' *NO-USER <user-id>	INF=*USER-LIST

Example (privileged user)

/show-cjc

```
 HOST    !CAT.LOC.             ! # TASKS  # USERS  CAT.REF.
-------------------------------------------------------------------------
 *LOC    !1STZ                 !       4        2  1STZ
```

/show-cjc inf=*user-list

```
 HOST    !CAT.LOC.             ! TSN      USER     CAT.REF.
-------------------------------------------------------------------------
 *LOC    !1STZ                 ! 042M     TSOS     1STZ
         !                     ! 05BT     FT       1STZ
         !                     ! 05BP     FT       1STZ
         !                     ! 042P     TSOS     1STZ
```

Example (S variable output)

/declare-var var-name=var(type=struc),multiple-elem=*list
/exec-cmd (show-cjc-status inf=*summary),text-output=*none,struc-output=var
/show-var var,inf=*par(val=*c-literal)

```
VAR(*LIST).HOST = '*LOC'
VAR(*LIST).LOC-CAT-ID(*LIST) = '1SBZ'
VAR(*LIST).RESULT = '*NO-ERROR'
VAR(*LIST).NUM-OF-TSN = 2
VAR(*LIST).NUM-OF-USER = 1
VAR(*LIST).REF-CAT-ID(*LIST) = '1SBZ'
```

/exec-cmd (show-cjc-status inf=*user-list),text-output=*none,struc-output=var
/show-var var,inf=*par(val=*c-literal)

```
VAR(*LIST).HOST = '*LOC'
VAR(*LIST).LOC-CAT-ID(*LIST) = '1SBZ'
VAR(*LIST).RESULT = '*NO-ERROR'
VAR(*LIST).TASK(*LIST).TSN = '08NB'
VAR(*LIST).TASK(*LIST).USER-ID = 'TSOS'
VAR(*LIST).TASK(*LIST).REF-CAT-ID(*LIST) = '1SBZ'
VAR(*LIST).TASK(*LIST).TSN = '08ND'
VAR(*LIST).TASK(*LIST).USER-ID = 'TSOS'
VAR(*LIST).TASK(*LIST).REF-CAT-ID(*LIST) = '1SBZ'
```

5.1 SHOW-CMD

Output command syntax description

Component: SDF

Functional area: SDF control

Domain: SDF

Privileges: STD-PROCESSING
HARDWARE-MAINTENANCE
SAT-FILE-EVALUATION
SAT-FILE-MANAGEMENT
SECURITY-ADMINISTRATION

Function

The SHOW-CMD command outputs the syntax description of a command. In addition, the name and type of the employed syntax file are displayed. CMD-NAME= *ALL produces a list of all command names. Using wildcards in the command name, the user can display a list of command names which match the search pattern.
Output can be directed to either SYSOUT or to SYSLST.

The INFORMATION operand controls the scope of the syntax description. INFORMATION= *MINIMUM displays the command name, the name of the syntax file containing the syntax description, the operand names and any default values. Alternative operand values are displayed with INFORMATION=*MEDIUM, while with INFORMATION=*MAXIMUM help texts are also displayed.
The output only shows the syntax description of the assigned syntax files. In particular, task-specific default values are not displayed.

The FORM operand controls output of syntax objects whose input is not permitted in guided dialog. FORM=*UNGUIDED shows the command syntax which can also be entered in unguided dialog, or a command list which also contains aliases of the command names. Commands and operands which are not permitted in unguided dialog are indicated in the output with an asterisk (*).

The CHECK-PRIVILEGES operand determines whether the output will take account of the privileges of the user. If CHECK-PRIVILEGES=*YES is specified, the output only contains information on operands and operand values of commands which the user’s privileges allow him/her to use. If a list of command names is output, commands which the user is not authorized to use are marked with an asterisk (*).

The CHECK-INPUT-MODE operand controls the output of syntax objects which may only be input in a particular input mode. Users can thus inform themselves as to which operands and values are permissible, for example, for input in batch mode. If no input mode is specified (*NO), commands and operands for which restrictions exist as regards the input modes (interactive mode, batch mode, procedure in interactive or batch mode) are marked with an asterisk (*).

Format

SHOW-CMD

CMD-NAME = ***ALL** / <structured-name 1..30 with-wild>

,INFORMATION = ***MIN**IMUM / ***MED**IUM / ***MAX**IMUM

,FORM = ***GUIDED** / ***UNGUIDED**

,CHECK-PRIVILEGES = ***Y**ES / ***NO**

,CHECK-INPUT-MODE = ***CURRENT** / ***DIALOG** / ***DIALOG-PROC** / ***BATCH** / ***BATCH-PROC** / ***NO**

,OUTPUT = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| SYSLST-NUMBER = ***STD** / <integer 1..99>

| ,LINES-PER-PAGE = ***STD** / ***UNLIM**ITED / <integer 1..200>

Operands

CMD-NAME = *ALL / <structured-name 1..30 with-wild>
Name of the desired command.

CMD-NAME = *ALL
Lists all commands in alphabetical order. FORM=*UNGUIDED also displays defined aliases (in separate output lines).

CMD-NAME = <structured-name 1..30 with-wild>
Name of the command whose syntax is to be output. If you specify an alias, the real command name is displayed followed by the alias in parentheses.
If wildcards are used, all commands which match the search pattern are listed in alphabetical order. FORM=*UNGUIDED also outputs defined aliases (in separate output lines).

INFORMATION = *MINIMUM / *MEDIUM / *MAXIMUM
Determines the scope of the output. When lists of commands are output, the SIZE operand is ignored.

INFORMATION = *MINIMUM
The output contains the command names, operands and preset operand values.

INFORMATION = *MEDIUM
The output contains the command names, operands, preset operand values and alternative operand values.

INFORMATION = *MAXIMUM
The output contains the command names, operands, preset and alternative operand values and help texts.

FORM = *GUIDED / *UNGUIDED
Determines whether the syntax for guided or unguided dialog is to be output.

FORM = *GUIDED
Operands and operand values which are not allowed in guided dialog are not output.

FORM = *UNGUIDED
The output also contains operands and operand values which are not allowed in guided dialog. When lists of commands are displayed (CMD=*ALL), these also contain the aliases.

CHECK-PRIVILEGES = *YES / *NO
Specifies whether the output is to take account of the privileges of the user.

CHECK-PRIVILEGES = *YES
Information is displayed only on commands, operands and operand values which the user is authorized to use.

CHECK-PRIVILEGES = *NO
Information is displayed on all commands, operands and operand values, regardless of the user's privileges.

CHECK-INPUT-MODE = *CURRENT / *DIALOG / *DIALOG-PROC / *BATCH / *BATCH-PROC / *NO
Determines the input mode for which the syntax is to be displayed. Only those syntax objects are displayed for the user which are permissible in the specified input mode.

CHECK-INPUT-MODE = *CURRENT
The output contains only the syntax objects permitted for the current input mode.

CHECK-INPUT-MODE = *DIALOG
The output contains only the syntax objects permitted for interactive mode.

CHECK-INPUT-MODE = *DIALOG-PROC
The output contains only the syntax objects permitted for the interactive procedure mode.

CHECK-INPUT-MODE = *BATCH
The output contains only the syntax objects permitted for batch mode.

CHECK-INPUT-MODE = *BATCH-PROC
The output contains only the syntax objects permitted for the batch procedure mode.

CHECK-INPUT-MODE = *NO
Output takes place independently of the input mode. The output lines with commands and operands which are not permitted in the current input mode are marked with an asterisk (*).

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The information is output to the system file SYSOUT.

OUTPUT = *SYSLST(...)
The information is output ready for printing to the system file SYSLST.
The first byte of each output record is X'40'. The LINES-PER-PAGES operand defines after how many output records a header line with page feed is generated.

> **SYSLST-NUMBER = *STD / <integer 1..99>**
> Specifies whether the information is to be output to the system file SYSLST or to a SYSLST file from the set SYSLST01 through SYSLST99.
> The default is *STD, i.e. output is directed to the system file SYSLST.
>
> **LINES-PER-PAGE = *STD / *UNLIMITED / <integer 1..200>**
> Defines after how many output records a new page is to begin. Each printed page begins with a header line which contains a page-feed control character in the first byte. The header contains the name of the displayed command and the page number.

LINES-PER-PAGE = *STD

A new page begins after 55 output records.

LINES-PER-PAGE = *UNLIMITED

The output is not divided into printed pages. No header lines are output.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	32	CMD0500	Syntax description in current syntax file invalid
1	64	CMD0812	Command execution not successful. Guaranteed messages: CMD0500, CMD0812

Examples

/show-cmd cmd=add-pass ——————————————————————————— (1)

```
%ADD-PASSWORD (ADD-PASS,ADPW)
%   FROM :2OSH:$TSOS.SYSSDF.BS2CP.190 (SYSTEM)
%        PASSWORD =
```

/show-cmd cmd=add-pass,information=max ——————————————————— (2)

```
%ADD-PASSWORD (ADD-PASS,ADPW)
%   FROM :2OSH:$TSOS.SYSSDF.BS2CP.190 (SYSTEM)
%Adds passwords for files or job variables to the password table of the
%task
%        PASSWORD =
%            -list-possible (63)-: x-string_1..8 or c-string_1..4 or
%            integer_-2147483648..2147483647
%            Specifies passwords to be added to the password table
```

/show-cmd cmd=write* ——————————————————————————————— (3)

```
% WRITE-ACCOUNTING-RECORD
% WRITE-SPOOL-TAPE
% WRITE-TEXT
```

(1) The syntax of the ADD-PASSWORD command is output.

(2) The syntax of the ADD-PASSWORD command is output with all operands, operand values and help texts (INFORMATION=*MAXIMUM).

(3) All commands beginning with the string “WRITE” are output.

5.1 SHOW-CMD-ATTRIBUTES

Display information on operator commands

Component:	BS2000
Functional area:	Operator terminal control
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

This command provides the operator with an overview of the authorization and type of the operator commands.

The CMD-NAME and SELECT operands are used to select the commands to be queried. The INFORMATION operand controls the scope of the information to be output.

Restriction

The command can be entered only at logical or physical operator terminals (consoles). It must not be issued from a user task with the OPERATING privilege.

Format

SHOW-CMD-ATTRIBUTES

CMD-NAME = ***ALL** / <structured-name 1..30>

,**SEL**ECT = ***ALL** / ***EXTERNAL-SERVER**(...) / ***INTERNAL-SERVER**(...) / ***AUTHORIZATION-CODE**(...)

***EXTERNAL-SERVER**(...)

| **APPLI**CATION-NAME = ***ALL** / ***OWN** / <name 1..4>

***INTERNAL-SERVER**(...)

| **ENTRY** = ***ALL** / ***NONE** / ***ENTRY-NAME**(...) / ***ENTRY-ADDR**ESS(...)

| ***ENTRY-NAME**(...)

| | **ENTRY-NAME** = ***ALL** / <name 1..8>

| ***ENTRY-ADDR**ESS(...)

| | **ENTRY-ADDR**ESS = ***ALL** / <x-string 1..8>

***AUTHORIZATION-CODE**(...)

| **AUTHORIZATION-CODE** = ***ALL** / <alphanum-name 1..1> / *****

,**INF**ORMATION = ***MIN**IMUM / ***MED**IUM / ***MAX**IMUM

Operands

CMD-NAME =
Specifies the command name for which an entry in the command table is to be displayed.

CMD-NAME = *ALL
All operator commands are to be displayed.
If SHOW-CMD-ATTRIBUTES CMD-NAME=*ALL is entered, the command output is sorted, with identical commands grouped together. The first command listed (in the previously valid format) is the primary command, which is fully abbreviable. This is usually the longest of the identical commands (current exception: SET/RESET /SHOW-MSG-SUPPRESSION).
Then the aliases of the given command are listed. They are marked as aliases by being indented by one column in the associated output line. These aliases cannot be abbreviated.

CMD-NAME = <structured-name 1..30>
Specifies the name of the command for which the entry in the command table is to be displayed. The command name can be up to 30 characters long and must comply with the naming convention for command names.

SELECT =
Selects the information.

SELECT = *ALL
All command names are to be output.

SELECT = *EXTERNAL-SERVER(...)
Specifies that information on special operator commands is to be displayed. Special operator commands are commands that are executed in $CONSOLE applications (authorized user programs).

APPLICATION-NAME =
Specifies the names of the $CONSOLE applications.

APPLICATION-NAME = *ALL
Information on all special operator commands is requested.

APPLICATION-NAME = *OWN
Information is listed on all special operator commands for which the command issuer is also the command processor. The scope of the information is defined in the INFORMATION operand. In this form, the command can only be issued from $CONSOLE applications.

APPLICATION-NAME = <alphanum-name 4..4>
Lists the set of special operator commands for which the specified $CONSOLE application acts as command processor.

SELECT = *INTERNAL-SERVER(...)
The information should relate to standard operator commands.
These commands are executed in system components.

ENTRY =
Selects the commands via the call interface.

ENTRY = *ALL
Selects all call interfaces.

ENTRY = *NONE
Selects all standard operator commands for which there are no entries in the command table relating to the call interface.

ENTRY = *ENTRY-NAME(...)
Selects standard operator commands whose call interface is entered by name.

ENTRY-NAME = *ALL
Displays all the commands whose call interface is entered by name in the table.

ENTRY-NAME = <name 1..8>
Name of the call interface which the command uses.

ENTRY = *ENTRY-ADDRESS(...)
Selects the standard operator commands whose call interface is entered via the address.

ENTRY-ADDRESS = *ALL
Displays all commands for which the address of their call interface is entered into the table.

ENTRY-ADDRESS = <x-string 1..8>
Address of the call interface which the command uses.

SELECT = *AUTHORIZATION-CODE(...)
The commands that are to be displayed are to be selected on the basis of the routing code (authorization code) needed to be able to issue them at an operator terminal.

AUTHORIZATION-CODE =
Commands are selected by routing code.

AUTHORIZATION-CODE = *ALL
All commands which are protected by any routing code are to be displayed.

AUTHORIZATION-CODE = <alphanum-name 1..1> / *
All the commands protected by the specified routing code (one of the characters A..Z, 0..9, #, @ and *) are to be displayed.

INFORMATION =
Defines the scope of the information to be output on the selected command.

INFORMATION = *MINIMUM
For each selected command, the command name and routing code required for its use are output.

INFORMATION = *MEDIUM
As for INFORMATION=*MAXIMUM, all available information is displayed (see below).
The only difference between *MEDIUM and *MAXIMUM is that *MEDIUM outputs the current values and *MAXIMUM also outputs the “inactive” table entries. Normally, where the command is entered just once in the table, the output of *MEDIUM and *MAXIMUM is identical; you have multiple table entries for the following cases only:

- multiple command name logon (see CONNECT-CMD-SERVER)
- for “safe” system commands for which all the four maximum table entries possible are occupied to prevent anyone else logging on for the command.

INFORMATION = *MAXIMUM
All available information is displayed for each selected command.
The following information is output:

- the command name
- the authorization lock of the command
- the command type (INTERNAL = command execution in system components EXTERNAL = command execution in authorized user programs)
- the call interface (D=direct, S=SDF, $=$CONSOLE)
- the communication interval limit (unit = *n* seconds)

The specified number multiplied by *n* (the unit n is governed by the class 2 system parameter NBRCILU) gives the time that may elapse during command processing before the next command waiting for execution is started.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NBR1111	No output of command/server links
	1	CMD0202	Syntax error
1	64	NBR1115	Semantic operand error

Example

/show-cmd-attr show-conslog

```
+XAAN |SHOW-CONSLOG-ATTRIBUTES       |E|
+XAAN-000.115709 % NBR1122 USE/HELP-MSG-INFORMATION MSG-IDENTIFICATION=NBR112
3 FOR EXPLANATION OF OUTPUT
! UCO-000.115709  %  NBR0740 COMMAND COMPLETED ,SHOW-CMD-ATTR'; (RESULT: SC2=000,
SC1=000, MC=CMD0001); DATE: 2012-06-30
```

/SHOW-CMD-ATTR SHOW-CONSLOG,INF=*MAX

```
+XAAN |SHOW-CONSLOG-ATTRIBUTES       |E|N|I|S|
     |  1|-|1|


+XAAN-000.115821  %  NBR1122 USE /HELP-MSG-INFORMATION MSG-IDENTIFICATION=NBR112
3 FOR EXPLANATION OF OUTPUT
! UCO-000.115821  %  NBR0740 COMMAND COMPLETED ,SHOW-CMD-ATTR'; (RESULT: SC2=000 SC1=000,
MC=CMD0001); DATE: 2012-06-30
```

/show-cmd-attr cmd-name=*all,entry-name=nbtop,inf=*max

```
+XAAN |FSTATUS                       |@|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | FS                           |@|N|I|D|X'71802EB8'|  1|-|1|
+XAAN |SHOW-FILE-ATTRIBUTES          |@|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | SHOW-FILE-ATTR               |@|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | SHFA                         |@|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | SH                           |@|N|I|D|X'71802EB8'|  1|-|1|
                  :
+XAAN |SHOW-SPOOL-DEVICES            |$|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | SHOW-SPOOL-DEV              |$|N|I|D|X'71802EB8'|  1|-|1|
+XAAN |SHOW-SPOOL-FORMS              |$|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | SHOW-SPOOL-FORM             |$|N|I|D|X'71802EB8'|  1|-|1|
+XAAN |SHOW-SPOOL-CHARACTER-SETS     |$|N|I|D|X'71802EB8'|  1|-|1|
+XAAN | SHOW-SPOOL-CHAR             |$|N|I|D|X'71802EB8'|  1|-|1|
+XAAN-000.120432  %  NBR1122 USE /HELP-MSG-INFORMATION MSG-IDENTIFICATION=NBR112
3 FOR EXPLANATION OF OUTPUT
! UCO-000.120432  %  NBR0740 COMMAND COMPLETED ,SHOW-CMD-ATTR'; (RESULT: SC2=0000,
SC1=000, MC=CMD0001); DATE: 2012-06-30
```

/help-msg nbr1123

```
+XAAN-000.120525  %  NBR1123 STRUCTURE OF OUTPUT OF /SHOW-CMD-ATTRIBUTES:
+XAAN-000.120525  %  ? ! Command     !C!P!T!M!  Server   !CIL!A!P!
+XAAN-000.120525  %    +-------------+ ! ! ! !           !   ! ! !
+XAAN-000.120525  %    ! Auth.-Code    ! ! ! !           !   ! ! !
+XAAN-000.120525  %    +---------------+ ! ! !           !   ! ! !
+XAAN-000.120525  %    ! Password  P=yes ! ! !           !   ! ! !
+XAAN-000.120525  %    ! possible  N=no  ! ! !           !   ! ! !
+XAAN-000.120525  %    +-----------------+ ! !           !   ! ! !
+XAAN-000.120525  %    ! Type  I=int E=ext ! !           !   ! ! !
+XAAN-000.120525  %    +-------------------+ +-----------+   ! ! !
+XAAN-000.120525  %    ! Method of call                  !   ! ! !
+XAAN-000.120525  %    ! D=direct    S=SDF    $=$CONSOLE !   ! ! !
+XAAN-000.120525  %    ! - =not available                !   ! ! !
+XAAN-000.120525  %    +---------------------------------+   ! ! !
+XAAN-000.120525  %    ! Comm.-Interval   Unit = 5 seconds   ! ! !
+XAAN-000.120525  %    +-------------------------------------+ ! !
+XAAN-000.120525  %    ! Administrability          A=yes  N=no ! !
+XAAN-000.120525  %    +---------------------------------------+ !
+XAAN-000.120525  %    ! Priority of server         1=max  4=min !
+XAAN-000.120525  %    +-----------------------------------------+
+XAAN-000.120525  %  RESPONSE : NONE
! UCO-000.120525  %  NBR0740 COMMAND COMPLETED ,HELP-MSG'; (RESULT: SC2=000, SC1=000,
MC=CMD0001); DATE: 2012-06-3
```

5.1 SHOW-CONSLOG-ATTRIBUTES

Show system logging information

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING SECURITY-ADMINISTRATION
Privileges:	OPERATING SAT-FILE-MANAGEMENT TSOS
Routing code:	@

Function

The SHOW-CONSLOG-ATTRIBUTES command shows whether logging is active or inactive and the name of the current logging file.
Using the NBKESNR system parameter, systems support can define whether the CONSLOG file is cataloged under the user ID TSOS or SYSAUDIT and whether the serial number of the file is to have two or three digits.

Using the FMTYFNLG system parameter, systems support can define whether the date contained in the name of the CONSLOG file is to have two digits (without the century, in yy.mm.dd format) or four digits (with the century, in yyyy-mm-dd format).

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-CONSLOG-ATTRIBUTES

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NBR0905	CONSLOG inactive

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Catalog ID of the logging file	var(*LIST).CAT-ID	S	<cat-id 1..4>	
Logging file creation date; the output format is governed by the class 2 system parameter FMTYFNLG: FMTYFNLG=2: <yy.mm.dd> FMTYFNLG=4: <yyyy-mm-dd>	var(*LIST).CRE-DATE	S	<yyyy-mm-dd>	
Logging file path name	var(*LIST).F-NAME	S	<path-name>	
Logging file sequence number; the output format is governed by the class 2 system parameter NBKESNR: NBKESNR=0/1:<integer 1..999> NBKESNR=2/3:<integer 1..99>	var(*LIST).SEQ-NUM	I	<integer>	
System session number	var(*LIST).SESSION-NUM	I	<integer 1..999>	
Logging file base name	var(*LIST).SHORT-F-NAME	S	<filename>	
Logging file user ID	var(*LIST).USER-ID	S	<name 1..8>	

5.1 SHOW-CONSOLE-FILTER

Show filter levels for routing codes

Component:	BS2000
Functional area:	Operator terminal control
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

This command provides operators with information on the filter levels defined for the various routing codes. The information relates only to the console or authorized user program from which the command was issued.

For details of the routing code and filter level mechanism see the manuals “Introduction to System Administration” [14].

Utilization in a user task with the OPERATING privilege

Like any operator terminal, the user task can display only those filter levels which are set for itself. The filter levels apply only to event stream read operations.
When the user task terminates, all the filter levels that it has set are reset.

The command supports structured output in S variables (see "Output in S variables").

These functions are available regardless of any system parameter settings.

Format

SHOW-CONSOLE-FILTER

SELECT = ***FILTER** (...) / ***ROUT**ING-**CODE**(...)

***FILTER**(...)

| **FILTER** = ***ANY** / **ALL** / list-poss(5): <integer 1..5>

***ROUT**ING-**CODE**(...)

| **ROUT**ING-**CODE** = ***ALL** / list-poss(40): <alphanum-name 1..1> / *

Operands

SELECT = *FILTER (...) / *ROUTING-CODE (...)
Indicates whether to sort the output data by filter level or by routing code.

SELECT = *FILTER (...)
The output data is to be sorted by filter level.
The output shows which routing codes are associated with each filter level.

FILTER = *ANY
There are five filter levels. Message NBR1063 is issued for each filter level, indicating the routing codes associated with that filter level at the console where the command was entered. If there are no routing codes associated with a particular filter level, message NBR1064 is issued.

FILTER = *ALL
Message NBR1065 lists all the routing codes for which all filter levels are set on the console where the command was entered. If there are no routing codes with all the filter levels set, message NBR1066 is issued.

FILTER = list-poss(5): <integer 1..5>
Message NBR1063 is issued for each of the specified filter levels, indicating the routing codes associated with that filter level. If there are no routing codes associated with a particular filter level, message NBR1064 is issued.

SELECT = *ROUTING-CODE (...)
The output data is to be sorted by routing code.
The output shows which filter levels are allocated to each routing code.

ROUTING-CODE = *ALL
Message NBR1062 is issued for each of the 40 routing codes defined on the system, indicating the filter levels associated with that routing code on the console where the command was entered. If there are no filter levels set for a particular routing code, message NBR1061 is issued; if a particular routing code is not assigned to the input console, message NBR1061 is issued.

ROUTING-CODE = list-poss(40): <alphanum-name 1..1> / *
Routing code for which the filter level settings are to be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	1	CMD0202	Syntax error in command
	2	CMD0198	Shutdown in progress
	32	CMD2009	Error on output to structured S variable
	64	CMD0216	User does not have required privilege
	130	NBR1042	Not enough class 5 memory; filter levels cannot be displayed

Example

/show-console-filter sel=*routing

```
%  NBR1061 ROUTING-CODE '*' FILTER NONE
%  NBR1061 ROUTING-CODE 'A' FILTER NONE
%  NBR1061 ROUTING-CODE 'B' FILTER NONE
%  NBR1061 ROUTING-CODE 'C' FILTER NONE
%  NBR1061 ROUTING-CODE 'D' FILTER NONE
%  NBR1061 ROUTING-CODE 'E' FILTER NONE
%  NBR1061 ROUTING-CODE 'F' FILTER NONE
%  NBR1061 ROUTING-CODE 'G' FILTER NONE
%  NBR1061 ROUTING-CODE 'H' FILTER NONE
%  NBR1061 ROUTING-CODE 'I' FILTER NONE
%  NBR1061 ROUTING-CODE 'J' FILTER NONE
%  NBR1061 ROUTING-CODE 'K' FILTER NONE
%  NBR1061 ROUTING-CODE 'L' FILTER NONE
%  NBR1061 ROUTING-CODE 'M' FILTER NONE
%  NBR1061 ROUTING-CODE 'N' FILTER NONE
%  NBR1061 ROUTING-CODE 'O' FILTER NONE
%  NBR1061 ROUTING-CODE 'P' FILTER NONE
%  NBR1061 ROUTING-CODE 'Q' FILTER NONE
%  NBR1061 ROUTING-CODE 'R' FILTER NONE
%  NBR1061 ROUTING-CODE 'S' FILTER NONE
%  NBR1061 ROUTING-CODE 'T' FILTER NONE
%  NBR1061 ROUTING-CODE 'U' FILTER NONE
%  NBR1061 ROUTING-CODE 'V' FILTER NONE
%  NBR1061 ROUTING-CODE 'W' FILTER NONE
%  NBR1061 ROUTING-CODE 'X' FILTER NONE
%  NBR1061 ROUTING-CODE 'Y' FILTER NONE
%  NBR1061 ROUTING-CODE 'Z' FILTER NONE
%  NBR1061 ROUTING-CODE '0' FILTER NONE
%  NBR1061 ROUTING-CODE '1' FILTER NONE
%  NBR1061 ROUTING-CODE '2' FILTER NONE
%  NBR1061 ROUTING-CODE '3' FILTER NONE
%  NBR1061 ROUTING-CODE '4' FILTER NONE
%  NBR1061 ROUTING-CODE '5' FILTER NONE
%  NBR1061 ROUTING-CODE '6' FILTER NONE
%  NBR1061 ROUTING-CODE '7' FILTER NONE
%  NBR1061 ROUTING-CODE '8' FILTER NONE
%  NBR1061 ROUTING-CODE '9' FILTER NONE
%  NBR1061 ROUTING-CODE '$' FILTER NONE
%  NBR1061 ROUTING-CODE '#' FILTER NONE
%  NBR1061 ROUTING-CODE '@' FILTER NONE
```

/show-console-filter

```
%  NBR1064 FILTER 1 ROUTING-CODES NONE
%  NBR1064 FILTER 2 ROUTING-CODES NONE
%  NBR1064 FILTER 3 ROUTING-CODES NONE
%  NBR1064 FILTER 4 ROUTING-CODES NONE
%  NBR1064 FILTER 5 ROUTING-CODES NONE
```

Output in S variables

The SELECT operand of this command identifies the S variables which are to be created. The possible values for SELECT are *FILTER and *ROUTING-CODE (given in the table in abbreviated form as SEL=*FILT/*ROUT):

Output information	Name of the S variable	T	Contents	Condition
Filter assigned	var(*LIST).FILTER	S	<filter>	SEL=*FILT
Routing code to which the filter is assigned	var(*LIST).ROUT-CODE(*LIST)	S	<routing-code>	SEL=*FILT
Filter levels set for the specified routing code	var(*LIST).FILTER(*LIST)	S	<filter>	SEL=*ROUT
Routing code assigned	var(*LIST).ROUT-CODE	S	<routing-code>	SEL=*ROUT

5.1 SHOW-CONSOLE-OPTIONS

Display console output control settings

Component:	BS2000
Functional area:	Operator terminal control
Domain:	not allocated
Privileges:	OPERATING
Routing code:	@

Function

The SHOW-CONSOLE-OPTIONS command displays information on the values set by means of the MODIFY-CONSOLE-OPTIONS command for controlling operator terminal output.

Format

SHOW-CONSOLE-OPTIONS
CONSOLE-UNIT = ***OWN** / <alphanum-name 2..2>

Operands

CONSOLE-UNIT =
Specifies the operator terminal about which information is to be displayed.

CONSOLE-UNIT = *OWN
The information displayed refers to the operator terminal at which the command was issued (default).

CONSOLE-UNIT = <alphanum-name 2..2>
Mnemonic device name of the operator terminal about which information is to be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NBR0928	Warning: not all operands could be processed
	1	CMD0002	Syntax error
1	32	NBR0926	Internal error in the command server
	64	CMD0216	Privilege violation
2	64	NBR0923	Invalid console name
	130	NBR0921	Memory shortage

5.1 SHOW-CONSOLE-STATUS

Fetch information on console and authorized user programs

Component:	BS2000
Functional area:	Operator terminal control
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

This command supplies operators with the following information:

- device mnemonics for operator consoles or authorization names for authorized user programs
- station and processor names of available authorized user programs
- set of routing codes
- availability of consoles and authorized user programs
- current main console

If entered from a user task with OPERATING privilege, the command supports structured output in S variables (see "Output in S variable").

Format

SHOW-CONSOLE-STATUS

CONSOLE = ***OWN** / ***ALL**(...) / list-poss(216): <alphanum-name 2..2> / <name 4..4>

***ALL**(...)

| TYPE = ***ANY** / ***PHYSICAL** / ***LOGICAL**

| ,**STATE** = ***ANY** / ***OPERABLE** / ***INOP**ERABLE

Operands

CONSOLE = *OWN / *ALL(...) / list-poss(216): <alphanum-name 2..2> / <name 4..4>
Selects the consoles and authorized user programs for which status information is required.

CONSOLE = *OWN
Status information is required for the command issuer’s own console.

CONSOLE = *ALL(...)
Status information is required for all consoles and authorized user programs.

TYPE = *ANY
The information is output for all consoles and authorized user programs.

TYPE = *PHYSICAL
This information is output for consoles only.

TYPE = *LOGICAL
This information is output for authorized user programs only.

STATE = *ANY
This information is output irrespective of the state.

STATE = *OPERABLE
Information is only output for consoles or user programs ready for operation.

STATE = *INOPERABLE
Information is only output for consoles or user programs not ready for operation (status INOP).

CONSOLE = list-poss(216): <alphanum-name 2..2> / <name 4..4>
Up to 216 mnemonic console names (2-character) or names of authorized applications (4-character) can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
2	0	NBR1074	Some of the specified console names not found. Commando only partially executed
	1	CMD0202	Syntax error in command
	2	CMD0198	Shutdown in progress
	32	CMD2009	Error on output to structured S variable
	64	CMD0216	Required authorization not available
	64	NBR1073	None of the specified console names found. Command not executed

Notes

In interactive mode, [K2] may be used as an interrupt key. In this case no return code is supplied.

The station and processor name information for an authorized user program allows operators to disconnect the identified user program (command /BCCONN PARTNER= (NEA,<station-name><processor-name>); see the “BCAM” manual [2]).

Results

Each time the command is entered, the following message is issued:

```
NBR1071 MAIN CONSOLE IS '(&00)'
```

In conjunction with the Operator LOGON function: if the physical main console has implicitly gained additional message output routing codes owing to the non-availability of other consoles, the following message is also issued:

```
NBR1054 CONSOLE ,(&00)‘ IMPLICIT CODES: '(&01)'
```

In the case of physical consoles, the following additional message is output:

```
NBR1052 CONSOLE '(&00)' ASSIGNED CODES: '(&01)'
```

If the console is not assigned any routing codes, the value of Insert 01 is “NONE”.

If the routing code set of a physical console has been temporarily extended because that console is currently acting as substitute for other unavailable physical consoles, the following message indicates the temporary additions:

```
NBR1053 CONSOLE '(&00)' TEMPORARY CODES: '(&01)'
```

If the Operator LOGON function is used, message NBR1053 does not appear.

If an operator has logged on at a physical console, the operator ID is included in the following message:

```
NBR1078 CONSOLE '(&00)' OPERATOR-ID '(&01)'
```

If a physical console is defective (INOP) or has been switched off (OFF) with the command CONSOLE SWITCH, OFF=<mn>, or if no operator has logged on there (INACTIVE), this is indicated by the following message:

```
NBR1077 CONSOLE '(&00)' STATES: (&01)
```

The value of Insert 01 may be “INOP”, “OFF” or “INACTIVE”. INACTIVE is possible only in conjunction with the Operator LOGON function, in which case OFF is not possible. If the INOP state applies, the INACTIVE state is not displayed; but the combination of INOP and OFF is possible.

The following message reports the routing codes assigned to each authorized user program selected:

```
NBR1051 APPLICATION '(&00)' CODES: '(&01)'
```

If the authorized user program is not assigned any routing codes, the value of Insert 01 is “NONE”.

If an authorized user program is unavailable, the following message is issued:

```
NBR1076 APPLICATION '(&00)' STATES: '(&01)'
```

The value of Insert 01 may be “INOP”.

The following message reports on connected authorized user programs:

```
NBR1075 APPLICATION '(&00)' PROCESSOR '(&01)' STATION '(&02)'
```

If an operator has logged on to a user program with dynamic authorization names, the operator ID is included in the following message:

```
NBR1079 APPLICATION '(&00)' OPERATOR-ID '(&01)'
```

If consoles or authorized user programs have been explicitly specified and the given names do not exist, message NBR1072 is issued for each nonexistent name.

If CONSOLE=*ALL is specified, the number of unavailable authorized user programs is indicated by the following message:

```
NBR1058 /SHOW-CONSOLE-STATUS: (&00) FUTHER APPLICATIONS WITH DYNAMICAL
        AUTHORIZATION NAMES ARE NOT CONNECTED
```

Output in S variable

The CONSOLE operand identifies the S variables which are to be created. The following specifications are possible for CONSOLE:

Notation used in command	Abbreviated form used in table
CONSOLE=*ALL	1
CONSOLE=<alphanum-name 2..2> (corresponds to console)	2
CONSOLE=<name 4..4> (corresponds to user program)	3
CONSOLE=*OWN	4

The command allows consoles and authorized user programs to be included together in a list. In this case all the S variables are generated.

Output information	Name of the S variable	T	Contents	Condition
Availability of the authorized user program	var(*LIST).APPL(*LIST).CONN-STA	S	*CONN *DISCONN	1.3
Routing code of the authorized user program	var(*LIST).APPL(*LIST).NAME	S	'' <application-name>	1.3
Operator ID (*)	var(*LIST).APPL(*LIST).OPER-ID	S	<operator-id>	1.3
Processor name of the authorized user program	var(*LIST).APPL(*LIST).PROCESSOR-NAME	S	'' <processor-name>	1.3
Routing code for authorized user program	var(*LIST).APPL(*LIST).ROUT-CODE(*LIST)	S	'' <routing-code>	1.3
Station name of the authorized user program	var(*LIST).APPL(*LIST).STATION-NAME	S	'' <station-name>	1.3
Status of the console	var(*LIST).CONS(*LIST).OPERABLE-STA	S	*INOP *OPERABLE	1.2
Operator ID (*)	var(*LIST).CONS(*LIST).OPER-ID	S	<operator-id>	1.2
Routing code for console	var(*LIST).CONS(*LIST).ROUT-CODE(*LIST)	S	'' <routing-code>	1.2
Mnemonic device name of the console	var(*LIST).CONS(*LIST).UNIT	S	<mnemo-name>	1.2
Implicit routing code	var(*LIST).IMPL-ROUT-CODE(*LIST)	S	<routing-code>	NBCONOPI=Y
Mnemonic device name of the main console	var(*LIST).MAIN-CONS-UNIT	S	<mnemo-name>	
Routing code for user task with OPR privilege	var(*LIST).TASK(*LIST).ROUT-CODE(*LIST)	S	'' <routing-code>	4
TSN of the user task with OPR privilege	var(*LIST).TASK(*LIST).TSN	S	<tsn>	4

(*) For physical consoles and authorized user programs 8 blanks are output as the operator ID if the “operator logon” function is not used or if nobody has logged on as the operator. The same contents are also output for authorized user programs with static authorization names.

Examples

/decl-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd (show-console-status console=@002),text-output=*none,strucoutput=var
/show-var var,inf=*par(val=*c-literal)

```
VAR(*LIST).MAIN-CONS-UNIT = 'C0'
VAR(*LIST).APPL(*LIST).NAME = '@002'
VAR(*LIST).APPL(*LIST).CONN-STA = '*CONN'
VAR(*LIST).APPL(*LIST).STATION-NAME = 'BT200226'
VAR(*LIST).APPL(*LIST).PROCESS = 'D016ZE07'
VAR(*LIST).APPL(*LIST).OPER-ID = 'TSOS    '
VAR(*LIST).APPL(*LIST).ROUT-CODE(*LIST) = ''
```

/exec-cmd (show-console-status console=C0),text-output=*none,struc-output=var
/show-var var,inf=*par(val=*c-literal)

```
VAR(*LIST).MAIN-CONS-UNIT = 'C0'
VAR(*LIST).CONS(*LIST).UNIT = 'C0'
VAR(*LIST).CONS(*LIST).OPERABLE-STA = '*OPERABLE'
VAR(*LIST).CONS(*LIST).OPER-ID = '        '
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '*'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'A'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'B'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'C'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'D'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'E'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'F'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'G'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'H'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'I'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'J'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'K'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'L'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'M'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'N'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'O'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'P'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'Q'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'R'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'S'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'T'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'U'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'V'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'W'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'X'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'Y'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = 'Z'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '0'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '1'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '2'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '3'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '4'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '5'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '6'
```

```
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '7'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '8'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '9'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '$'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '#'
VAR(*LIST).CONS(*LIST).ROUT-CODE(*LIST) = '@
```

5.1 SHOW-DBL-DEFAULTS

Show defaults for DBL calls

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING

Function

The SHOW-DBL-DEFAULTS command outputs the current defaults for DBL (dynamic binder loader) calls on SYSOUT.

These settings can be modified with the MODIFY-DBL-DEFAULTS command or restored to the original DBL defaults with RESET-DBL-DEFAULTS.

Format

SHOW-DBL-DEFAULTS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	32	BLS0152	System error
	64	CMD0216	User is not authorized to issue the command

Output information

The following example illustrates the output of SHOW-DBL-DEFAULTS. For explanations of the listed operands which apply to command calls (CMD-CALLS output field), see the LOAD- and START-EXECUTABLE-PROGRAM commands. For explanations of operands which apply only to programs calls (PROG-CALLS output field), see the MODIFY-DBL-DEFAULTS command.
The defaults for command and program calls are shown separately for each operand. The right-hand column of the output shows the value of the PRIORITY operand (see the MODIFY-DBL-DEFAULTS command).

```
%#############################################################################
%######################### D B L   D E F A U L T S ###########################
%#  VALUES ASSOCIATED TO SCOPE                                    PRIORITY   #
%# LIBRARY                                                                   #
%#   CMD-CALLS : *STD                                                        #
%#   PROG-CALLS: *STD                                                        #
%# LOADING DEFAULTS                                                          #
%#   PROGRAM-MODE                                                            #
%#     CMD-CALLS : *STD                                          *STD    #
%#     PROG-CALLS: *ANY                                          *STD    #
%#   LOAD-INFORMATION                                                        #
%#     CMD-CALLS : *DEFINITIONS                                  *STD    #
%#     PROG-CALLS: *DEFINITIONS                                  *STD    #
%#   REP-FILE                                                                #
%#     CMD-CALLS : *NONE                                                     #
%#     PROG-CALLS: *NONE                                                     #
%#   IGNORE-ATTRIBUTES                                                       #
%#     CMD-CALLS : *NONE                                         *STD    #
%#     PROG-CALLS: *NONE                                         *STD    #
%#   REP-SCOPE                                                               #
%#     PROG-CALLS: *CONTEXT                                      *STD    #
%#   CONTEXT-NAME                                                            #
%#     PROG-CALLS: LOCAL#DEFAULT                                             #
%#   CONTEXT-STATE                                                           #
%#     PROG-CALLS: *ANY                                                      #
%#   CLOSE-LIBRARIES                                                         #
%#     PROG-CALLS: *ALL                                          *STD    #
%#   PROGRAM-MMODE                                                           #
%#     CMD-CALLS : *STD                                          *STD    #
%#   AMODE-CHECK                                                             #
%#     CMD-CALLS : *STD                                          *STD    #
%#     PROG-CALLS: *STD                                          *STD    #
%# RESOLUTION DEFAULTS                                                       #
%#   SHARE-SCOPE                                                             #
%#     CMD-CALLS : *SYSTEM-MEMORY                                *STD    #
%#     PROG-CALLS: *SYSTEM-MEMORY                                *STD    #
%#   PROGRAM-VERSION                                                         #
%#     CMD-CALLS : *STD                                                      #
%#     PROG-CALLS: *STD                                                      #
%#   ALTERNATE-LIBRARIES                                                     #
%#     CMD-CALLS : *NO                                           *STD    #
%#     PROG-CALLS: *NO                                           *STD    #
%#   AUTOLINK                                                                #
%#     CMD-CALLS : *YES                                          *STD    #
%#     PROG-CALLS: *YES                                          *STD    #
%#   RESOL-TYPE                                                              #
%#     PROG-CALLS: *STD                                          *STD    #
```

```
%#   PUBLIC-RESOL-TYPE                                                          #
%#     PROG-CALLS: *STD                                                *STD    #
%#   MMODE-CHECK                                                                #
%#     CMD-CALLS : *YES                                                *STD    #
%#     PROG-CALLS: *YES                                                *STD    #
%# ERROR PROCESSING DEFAULTS                                                    #
%#   NAME-COLLISION                                                             #
%#     CMD-CALLS : *STD                                                *STD    #
%#     PROG-CALLS: *STD                                                *STD    #
%#   UNRESOLVED-EXTERNS                                                         #
%#     CMD-CALLS : *STD                                                *STD    #
%#     PROG-CALLS: *STD                                                *STD    #
%#   ERROR-EXIT                                                                 #
%#     CMD-CALLS : FFFFFFFF                                            *STD    #
%#     PROG-CALLS: FFFFFFFF                                            *STD    #
%# REPORTING DEFAULTS                                                           #
%#   MESSAGE-CONTROL                                                            #
%#     CMD-CALLS : *INFORMATION                                        *STD    #
%#     PROG-CALLS: *INFORMATION                                        *STD    #
%#   PROGRAM-MAP                                                                #
%#     CMD-CALLS : *NO                                                 *STD    #
%#     PROG-CALLS: *NO                                                 *STD    #
%# TEST-OPTIONS                                                                 #
%#   CMD-CALLS : *NONE                                                 *STD    #
%#   PROG-CALLS: *NONE                                                 *STD    #
%# RUN-MODE                                                                     #
%#   CMD-CALLS : *STD                                                  *STD    #
%# CISC-COMPILATION                                                             #
%#   CMD-CALLS : *YES (WORKSPACE=     *STD,                            *STD    #
%#                     SHOW-MEMORY-USAGE=*NO)                                   #
%################################################################################
```

5.1 SHOW-DEVICE-CONFIGURATION

Display system configuration and hardware unit availability

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SW-MONITOR-ADMINISTRATION
Routing code:	E

Function

This command provides information about the system configuration and the availability of hardware units (see also section "Information services of device management: Meanings of the output values of SHOW commands").

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-DEVICE-**CON**FIGURATION

UNIT = **_STD_** / ***SEL**ECT(...) / ***CPU**(...) / ***CHANNEL**(...) / ***CONTR**OLLER(...) /

***CHANNEL-RANGE**(...) / ***PUB**SET-**DEV**ICES(...) /

list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>

***SEL**ECT(...)

| **CLASS** = **_ALL_** / ***CENTRAL-P**ROCESSOR / ***CHANNEL** / ***CONTR**OLLER / ***DEV**ICE(...)

| ***DEV**ICE(...)

| | **TYPE** = **_ALL_** / <device>

| | ,**VM-ASSIGNMENT** = **_ANY_** / ***NO** / ***Y**ES / ***BY-GUEST-POSSIBLE**

| ,**ATTR**IBUTE = **_ALL_** / ***ATTACH**ED / ***DETACH**ED / ***DET**ACH-**PEND**ING / ***ATTACH-PENDING** /

| **INVALID** / ***ENABLED** / ***DISABLED**

***CPU**(...)

| **CPU-ID**ENTIFIER = list-poss(26): <alphanum-name 2..2 with-wild(10)>

***CHANNEL**(...)

| **CHANNEL-PATH-ID** = list-poss(26): <alphanum-name 2..2 with-wild(10)>

***CONTR**OLLER(...)

| **CONTR**OLLER-**UNIT** = list-poss(26): <alphanum-name 2..2 with-wild(20)> /

| <alphanum-name 4..4 with-wild(20)>

***CHANNEL-RANGE**(...)

| **FROM** = <alphanum-name 2..2>

| ,**TO** = <alphanum-name 2..2>

***PUB**SET-**DEV**ICES(...)

| **PUB**SET = <cat-id 1..4> / ***BY-PUBRES-DEV**ICE(...)

| *__BY-PUBRES-DEV__ICE(...)

| | **UNIT** = <alphanum-name 2..2> / <x-text 4..4>

,**INF**ORMATION = **_STD_** / ***INNER** / ***OUTER** / ***ALL** / ***PATH** / ***VM2000** / ***PAV**

Operands

UNIT = *STD / *SELECT(...) / *CPU(...) / *CHANNEL(...) / *CONTROLLER(...) / *CHANNEL-RANGE(...) / *PUBSET-DEVICES(...) / list-poss(26): <alphanum-name 4..4>
Selection of hardware units by device class or device mnemonic (2 or 4 symbols). A maximum of 26 device mnemonics may be specified.

UNIT = *STD
The default value is output for all generated units. Users should note that the output may be very extensive.
The command is rejected if entered at the console, since the output of the entire configuration can be extensive and may occupy the operating terminal for too long.

UNIT = *SELECT(...)
Specifies a subset of the hardware units known to the system for which information is to be output. Hardware units are selected by the following device class and state:

CLASS = *ALL / *CENTRAL-PROCESSOR / *CHANNEL / *CONTROLLER / *DEVICE(...)
Device class. Default information is output for all hardware units belonging to the device class specified.
The following device classes can be specified:

Operand value (device class)	Meaning
*ALL	any device class
*CENTRAL-PROCESSOR	central processors
*CHANNEL	channels
*CONTROLLER	controllers
*DEVICE(...)	devices

CLASS = *DEVICE(...)
Information on devices is output.

TYPE = *ALL / <device>
Information on devices belonging to the specified type is output. The default setting is *ALL, i.e. all device types are displayed. If a device type is explicitly specified then only device or volume types known within the system are accepted.
To display the possible types, enter TYPE=? in the dialog.

The device type can be specified for all devices (see see also the device table (device type column) of the “System Installation” manual [46]). For tape devices, volume types can also be specified (see section "Device types for DMS tape processing").

VM-ASSIGNMENT = *ANY / *NO / *YES / *BY-GUEST-POSSIBLE
If INFORMATION=*VM2000 is specified, information is displayed on terminal devices which possess the specified status. The default setting is *ANY, i.e. output is independent of the status.

VM-ASSIGNMENT = *NO
Information is displayed on terminal devices which are not assigned to the user’s own VM.

VM-ASSIGNMENT = *YES
Information is displayed on terminal devices which are assigned to the user’s own VM.

VM-ASSIGNMENT = *BY-GUEST-POSSIBLE
Information is displayed on terminal devices which are not assigned to the user's own VM. but which can currently be assigned explicitly (e.g. with the ATTACH-DEVICE command).

ATTRIBUTE = *ALL / *ATTACHED / *DETACHED / *DETACH-PENDING / *ATTACH-PENDING / INVALID / * ENABLED / *DISABLED
Specifies the state of hardware units for which default information is to be output. The following states can be specified:

Operand value (state)	Information about
*ALL	Hardware units in any state
*ATTACHED	Hardware units attached to the system
*DETACHED	Hardware units detached from the system
*DETACH-PENDING	Hardware units which are currently assigned but will be unavailable when the assignment ends
*ATTACH-PENDING	Hardware units which are currently not available owing to ATTACH processing
*INVALID	Unusable hardware units (see the "System Installation" manual [46])
*ENABLED	All FastDPAV alias devices in the ENABLED state (FastDPAV see "Introduction to System Administration" [14])
*DISABLED	All FastDPAV alias devices in the DISABLED state

When specifying the operand values *ATTACHED, *DETACHED, *ATTACH-PENDING, *DETACH-PENDING, and *INVALID, no FastDPAV alias devices are output.

UNIT = *CPU(...)
Denotes one or more CPUs for which information is output.

CPU-IDENTIFIER = list-poss(26): <alphanum-name 2..2 with-wild(10)>
Identifiers for the CPUs.

UNIT = *CHANNEL(...)
Denotes one or more channels for which information is output.

CHANNEL-PATH-ID = list-poss(26): <alphanum-name 2..2 with-wild(10)>
Channel path IDs for the channels. In the case of channels, the device name (MN) is the same as the channel path ID in hexadecimal representation.

UNIT = *CONTROLLER(...)
Denotes one or more controllers for which information is output.

CONTROLLER-UNIT = list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
Mnemonic device names (MN) of the controllers.

UNIT = *CHANNEL-RANGE(...)
Denotes a range of channels for which information is output.

FROM = <alphanum-name 2..2>
First channel path ID of a range of channels.

TO = <alphanum-name 2..2>
Last channel path ID of a range of channels.

UNIT = *PUBSET-DEVICES(...)
Specifies that information on a pubset's disks is to be output.
The pubset must have been imported at least once. The mnemonic device codes (MNs) of the associated disks are administered in the system disk's SVL. This entry is made on IMPORT-PUBSET, EXPORT-PUBSET or MODIFY-PUBSET-PROCESSING. If the system disk or the associated mirror disk is not attached then it is implicitly attached and the information is then read from the SVL before the disk is implicitly detached again. Under VM2000, the disk must also be assigned to the guest system.
If pubset disks are mirrored then the following should be noted:

- In the case of mirroring in a disk storage system then only the standard disks (source units) are output. If the mirror disks are to be output, then the mirror disk (target unit) of the system disk (pubres) must be specified in the PUBSET operand. For detailed
  information on mirroring in disk storage systems, see, for example, the "SHC-OSD" manual [37].

PUBSET =
Designates the pubset whose disks are to be output. The pubset can be specified via the catalog ID or the device code of its system disk.

PUBSET = <cat-id 1..4>
Specifies the pubset's catalog ID. A corresponding entry must exist in the MRS catalog. If no such entry exists then the disks can only be output by specifying the system disk (see PUBSET=*BY-PUBRES-DEVICE).

PUBSET = *BY-PUBRES-DEVICE(...)
Specifies the pubset's system disk (pubres).

UNIT = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code (MN) of the pubres.

UNIT = list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
Denotes one or more devices for which information is output, using their mnemonic device names (2 or 4 alphanumeric characters; see Notes). A maximum of 26 devices can be specified.

INFORMATION = *STD / *INNER / *OUTER / *PATH / *ALL / *VM2000 / *PAV
Type of information desired. If UNIT=*SELECT is specified, only standard information is output, i.e. any specification other than *STD is ignored.
A header line is output, followed by a new line for each device containing the values.

INFORMATION = *STD
Default information.

Output format:

```
  MNEM        UN-CLASS    UN-TYPE      CONF-STATE        POOL/SIDE
```

INFORMATION = *INNER
In addition to the default information, information about all inner connections (i.e. from the specified unit to the CPU) is output.

Output format:

```
UN-TYPE      CONF-STATE        INNER CONNECTION
```

INFORMATION = *OUTER
In addition to the default information, information about all outer connections (i.e. from the specified unit to peripherals) is output.

Output format:

```
UN-TYPE      CONF-STATE        OUTER CONNECTION
```

INFORMATION = *ALL
In addition to the standard information, information about all internal and external connections of the designated units is output.

INFORMATION = *PATH
Information about the possible I/O paths of the designated terminals and their status is output. In the case of devices with path groups (disk and MTC devices), output may be delayed since the command triggers an internal update of the path statuses with
Sense-Path-Group-Id.

Output format:

```
DVC  DEV-TYPE CONF-STATE PID  CTL  CHPID PM  DEV-ADDR PATH
```

INFORMATION = *VM2000

Information on possible assignment to the own VM and on usage mode.

The VM2000 specific information of this command is described in detail in the VM2000 manual [50].

Output format:

```
MNEM        UN-CLASS    UN-TYPE     CONF-STATE  VM-ASSIGN   VM-USAGE
```

INFORMATION = *PAV
Information on PAV devices (**P**arallel **A**ccess **V**olumes, see the “Introduction to System Administration” [14]). The basic device name and the alias device names (max. 7) combined with the relevant status information are output for each logical PAV device.

Output format:

```
BASE     ALIAS1    ALIAS2    ALIAS3      ALIAS4 ...     ALIAS7
```

For FastDPAV devices, when entering `UNIT=*CONTROLLER(...)`, the basis control and alias control names are output additionally, as well as the number of FastDPAV devices in the state ENABLED and DISABLED. The column MAX USED shows the maximum number of FastDPAV devices simultaneously used at alias controlling.

Output format:

```
FPAV BASE CTL   FPAV ALIAS CTL   ENABLED ALIAS   DISABLED ALIAS   MAX USED
```

Note:

- For the DVC device class, no external connections exist.
- For the CPU device class, no defined connections exist.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
4	1	NKD0001	Syntax error in subprocedure
	1	NKD0013	Syntax error in SHOW-DEVICE-CONFIGURATION
	32	CMD2009	Error on output to S variable (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Internal error during initialization of the command server or: Syntax error in NKDDEVC procedure
	64	NKD0024	No information available for <unit class> and <config state>
	64	NKD0025	No information available for <unit> and <information>
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Note

Mnemonics which cannot be generated are treated as unknown mnemonics.

Examples

Example 1: Information about an device

/show-dev-conf unit=hf

```
%  MNEM UN-CLASS UN-TYPE  CONF-STATE   POOL/SIDE
%  HF   DVC      3590E    DET(EX)        SW
```

/show-dev-conf unit=hf,inf=*inner

```
%  MNEM UN-CLASS UN-TYPE  CONF-STATE  INNER-CONNECTION
%  HF   DVC      3590E    DET(EX)     CTL    :HY  ,INCLUDED
%                                     CTL    :HZ  ,INCLUDED
```

/show-dev-conf unit=8000,inf=*path

```
%DVC  DEV-TYPE CONF-STATE PID  CTL  CHPID PM DEV-ADDR PATH
%8000 D3435    DET(EX)    007C 8000 0A    80 0A000000 AVAIL
%                            8000 0D    40 0D000000 AVAIL
%                            8001 4A    20 4A000000 AVAIL
%                            8001 4B    10 4B000000 AVAIL
```

Example 2: Information about CPUs (SU700-100 system with 1 spare CPU)

/show-dev-conf unit=*select(class=*central-proc)

```
%  MNEM UN-CLASS UN-TYPE      CONF-STATE     POOL
%  00   CPU      SU700-100    ATTACH /ON     NORMAL
%  01   CPU      SU700-100    ATTACH /ON     NORMAL
%  02   CPU      SU700-100    ATTACH /ON     NORMAL
%  03   CPU      SU700-100    ATTACH /ON     NORMAL
%  04   CPU      SU700-100    ATTACH /ON     NORMAL
%  05   CPU      SU700-100    ATTACH /ON     NORMAL
%  06   CPU      SU700-100    DET(EX)/OFF    SPARE
```

/show-dev-conf unit=*cpu(00),inf=*outer

```
%  NKD0030 OPERAND CHANGED TO 'INFORMATION = STD'. PROCESSING CONTINUES
%  MNEM UN-CLASS UN-TYPE      CONF-STATE     POOL
%  00   CPU      SU700-100    ATTACH /ON     NORMAL
```

Example 3: Information about CPUs (SU740-70 system with 1 extra and 1 spare CPU)

/show-dev-conf unit=*select(class=*central-proc)

```
%  MNEM UN-CLASS UN-TYPE      CONF-STATE     POOL
%  00   CPU      SU740-70     ATTACH /ON     NORMAL
%  01   CPU      SU740-70     ATTACH /ON     NORMAL
%  02   CPU      SU740-70     DET(EX)/OFF    EXTRA
%  03   CPU      SU740-70     DET(EX)/OFF    SPARE
```

Example 4: Information about an controller

/show-dev-conf unit=*contr(contr-unit=2900)

```
%  MNEM UN-CLASS UN-TYPE  CONF-STATE  INNER-CONNECTION
%  2900 CTL      DISK01   ATTACHED    CHN    :4A  ,INCLUDED
%                                     WWPN=500000E0DAC19A00
%                                     CHN    :0D  ,INCLUDED
%                                     WWPN=500000E0DAC19AC5
```

Output in S variables

The command's INFORMATION operand identifies the S variables which are to be created. The following values are possible for INFORMATION: *STD/*ALL/*INNER/OUTER/*PATH/*VM2000 and *PAV.

Output information	Name of the S variable	T	Contents	Condition
Mnemonic base name of a PAV device x='P' for Prefered Device, otherwise '-' y= 'A' for Active, 'R' for Ready or 'N' for Not Ready	var(*LIST).BASE	S	<mnemo-name>-xy x = 'P' / '-' y = 'A' / 'R' / 'N'	INF=*PAV
Mnemonic alias name n of a PAV device (for a definition of the extension xy, see BASE), where x = 'F' of a FastDPAV device	var(*LIST).ALIASn	S	<mnemo-name>-xy x = 'F' / 'P' / '-' y = 'A' / 'R' / 'N'	INF=*PAV
Device class *CHN: channel *CTL: device controller *CPU: CPU *DVC: device	var(*LIST).CLASS	S	*CHN *CTL *CPU *DVC	INF=ALL/ INNER/ OUTER/ STD
Configuration state	var(*LIST).CONF-STA	S	ATTACHED ATTACH-PENDING DETACHED DETACH-PENDING DETACH-PEND(EX) DETACH-PEND (EX+IM) DETACH-PEND(IM)	INF=ALL/ INNER/ OUTER/ PATH/ STD

			DETACHED (EXPLICIT) DETACHED(EX+IM) DETACHED (IMPLICIT) INVALID	
Channel path ID of the I/O path	var(*LIST).CONN(*LIST). CHAN-PATH-ID	S	<mnemo-name>	INF=PATH
Device class of the inner or outer unit	var(*LIST).CONN(*LIST). CLASS	S	*CHN *CTL *CPU *DVC	INF=INNER/ OUTER
I/O path control unit	var(*LIST).CONN(*LIST). CONTR-UNIT	S	'' <mnemo-name>	INF=PATH
Path mask	var(*LIST).CONN(*LIST). PATH-MASK	S	'' <mnemo-name>	INF=PATH
Physical address of the I/O path	var(*LIST).CONN(*LIST). PHYS-ADDR	S	<cuu>	INF=PATH
Configuration status of the I/O path or	var(*LIST).CONN(*LIST). STA	S	AVAIL NOT-AVAIL	INF=PATH
Configuration status of the inner or outer unit		S	INCLUDED INVALID REMOVED REMOVED (EXPLICIT) REMOVED (IMPLICIT) REMOVED(EX+IM) REMOVE-PENDING REMOVE-PEND (EX) REMOVE-PEND(IM) REMOVE-PEND (EX+IM)	INF=INNER/ OUTER
Device mnemonic of the inner or outer unit	var(*LIST).CONN(*LIST). UNIT	S	<mnemo-name>	INF=INNER/ OUTER
WWPN of the FC channel	var(*LIST).CONN(*LIST). WWPN	S	<wwpn>	INF=INNER
Configuration status of the CPU	var(*LIST).CPU(*LIST). CONF-STA	S	ATTACHED ATTACH-PENDING DETACHED DETACH-PENDING	INF=STD

			DETACH-PEND(EX) DETACH-PEND (EX+IM) DETACH-PEND(IM) DETACHED (EXPLICIT) DETACHED(EX+IM) DETACHED (IMPLICIT) ENABLED DISABLED INVALID	
CPU ID	var(*LIST).CPU(*LIST).ID	S	<mnemo-name>	INF=STD
Number of FastDPAV devices in the DISABLED configuration mode	var(*LIST).DISABLED-ALIAS	I	<integer>	INF=PAV
Number of FastDPAV devices in the ENABLED configuration mode	var(*LIST).ENABLED-ALIAS	I	<integer>	INF=PAV
Device mnemonic of FastDPAV alias controlling	var(*LIST).FPAV-ALIAS-CTL	S	<mnemo-name>	INF=PAV
Device mnemonic of FastDPAV base controlling	var(*LIST).FPAV-BASE-CTL	S	<mnemo-name>	INF=PAV
Hardware status	var(*LIST).HARDWARE-STA	S	'' OFF ON	INF=ALL/ INNER/ OUTER/ STD
Device class of the inner unit	var(*LIST).INNER-CONN(*LIST).CLASS	S	*CHN *CTL *CPU *DVC	INF=ALL
Configuration status of the inner unit	var(*LIST).INNER-CONN(*LIST).STA	S	INCLUDED INVALID REMOVED REMOVED (EXPLICIT) REMOVED (IMPLICIT) REMOVED(EX+IM) REMOVE-PENDING REMOVE-PEND (EX) REMOVE-PEND(IM) REMOVE-PEND (EX+IM)	INF=ALL

Device mnemonic of the inner unit	var(*LIST).INNER-CONN (*LIST).UNIT	S	<mnemo-name>	INF=ALL
Maximum number of simultaneously used FastDPAV alias devices at alias controlling	var(*LIST).MAX-USED	I	<integer>	INF=PAV
Device class of the outer unit	var(*LIST).OUTER-CONN(*LIST).CLASS	S	*CHN *CTL *CPU *DVC	INF=ALL
Configuration status of the outer unit	var(*LIST).OUTER-CONN(*LIST).STA	S	INCLUDED INVALID REMOVED REMOVED (EXPLICIT) REMOVED (IMPLICIT) REMOVED(EX+IM) REMOVE-PENDING REMOVE-PEND (EX) REMOVE-PEND(IM) REMOVE-PEND (EX+IM)	INF=ALL
Device mnemonic of the outer unit	var(*LIST).OUTER-CONN(*LIST).UNIT	S	<mnemo-name>	INF=ALL
ID of the physical device used for I/O	var(*LIST).PHYS-DEV-ID	S	'' <phys-dev-id>	INF=PATH
Shared availability of a device (CLASS=*CTL/*DVC); displayed with NONE, SHARED or SWITCHABLE or CPU attribute (CLASS=*CPU); displayed with NORMAL, EXTRA, SPARE or ERROR	var(*LIST).POOL-ATTR	S	NONE SHARED SWITCHABLE NORMAL EXTRA SPARE ERROR	INF=STD
Hardware unit type (with INF=PATH this refers to a terminal device)	var(*LIST).TYPE	S	<cpu-type> <device-type> BLCK-MUX FL-DISK IBL IBL(XS) IBF/FCP IBS/CNC IBY IBY(XS)	INF=ALL/ INNER/ OUTER/ PATH/ STD

			IE1(XS) L-PRNTR MBS/SEL OFFL/SEL PPS/BLM SBL SBL(XS) SBS/SEL SBY SBY(XS) SELECTOR	
Hardware unit mnemonic (configuration element) (with INF=PATH this refers to a terminal device)	var(*LIST).UNIT	S	<mnemo-name>	INF=ALL/ INNER/ OUTER/ PATH/ STD
Assignment mode or option of the own VM	var(*LIST).VM-ASS	S	BY-GUEST BY-VM-ADM VM-INHIBIT DEV-INHIBIT ELSEWHERE BY-GUEST-POSSIBLE	INF=*VM2000
Utilization by a VM	var(*LIST).VM-USAGE	S	NONE EXCL SH(D) SH(I)	INF=*VM2000

5.1 SHOW-DEVICE-DEPOT

Show assignment of tape devices to storage locations

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE
Routing code:	E

Function

The SHOW-DEVICE-DEPOT command provides information on the assignment of tape devices to volume storage locations.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-DEVICE**-DEPOT**

UNIT = ***SEL**ECT(...) / ***LOCATION**(...) /

list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>

***SEL**ECT(...)

| **ROUT**ING**-CODE** = ***ANY** / <name 1..1>

***LOCATION**(...)

| **LOCATION** = list-poss(10): <alphanum-name 1..8 with-wild(40)>

Operands

UNIT =
Selection criterion for information output. Possible specifications: storage locations, routing codes of storage locations, device mnemonics.

UNIT = *SELECT(...)
Specification of a subset of the possible selection parameters that determine the scope of the output.

ROUTING-CODE = *ANY / <name 1..1>
Provides information about device sets to which storage locations with the specified routing code are assigned.

ROUTING-CODE = *ANY
Provides information about device sets, not depending on the routing codes of the assigned storage locations.

ROUTING-CODE = <name 1..1>
The storage locations with the specified routing code are selected.

UNIT = *LOCATION(...)
Specifies one or more depots whose assigned tape devices are to be output.

LOCATION = list-poss(10): <alphanum-name 1..8 with-wild(40)>
Depot names (1 - 8 characters long). A maximum of 10 depots can be specified.

UNIT = list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
Specification of tape devices whose storage location is to be output. Up to 26 devices can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
	32	CMD2009	Error on output to S variable (e.g. subsystem not available)
	64	NKD0006	Internal error during initialization of the command server
	64	NKD0002	No information available
	64	NKD0006	Software error in NKDDEVD procedure
	64	NKD0023	No information available
	64	NKD0036	No information available for LOCATION list
	64	NKD0037	No information available for routing code
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Output format

All three command options have the following header line:

```
LOCATION RTC TAPE-MNEMONICS
```

Example

/show-dev-depot

```
%  LOCATION RTC TAPE-MNEMONICS
%  ROBOTER1  T  E0  ,E1  ,E2  ,E3  ,E4  ,E5  ,E6  ,E7  ,E8
%               E9  ,EC  ,ED  ,EA  ,EB  ,EE  ,EF
%  ROBOTER2  T  EU  ,EX  ,ES  ,ET  ,EW  ,EV  ,EY  ,EZ  ,EK
%               EL  ,EO  ,EP  ,EM  ,EN  ,EQ  ,ER
%  D016ZE04  T  TE  ,TL  ,MA  ,MB  ,MC  ,ME  ,MD  ,MF  ,MM
%               MN  ,MO  ,MP  ,MQ  ,MR
```

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Name of the depot	var(*LIST).LOCATION	S	'' <location>	
Routing code of the depot	var(*LIST).ROUT-CODE	S	'' <alphan.-name 1..1>	
Tape device mnemonic	var(*LIST).UNIT(*LIST)	S	'' <mnemo-name>	

Note

For technical reasons the output of storage locations with more than 128 tape devices assigned is split: SYSOUT output as well as variable output contains more than one storage location in this case. However, all these locations have the same name, and with respect to the last one all have exactly 128 devices assigned.

Therefore the use of SDF-P function SIZE is recommended when processing the variable output: As long as var (*LIST).UNIT has 128 elements, the current element and the next element in var(*LIST) could belong to the same storage location, i.e. var(*LIST).LOCATION of both elements could be identical.

5.1 SHOW-DEVICE-STATUS

Show assignment and monitoring of devices

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION SW-MONITOR-ADMINISTRATION TAPE-ADMINISTRATION
Routing code:	E

Function

The SHOW-DEVICE-STATUS command displays information on device assignment and monitoring. Nonprivileged users obtain information only on devices reserved for their own jobs. Information on volumes is displayed only if the volumes are physically online (in contrast to SHOW-DISK-STATUS). If there is no volume online on a device, the output indicates which volume should be mounted on that device.

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Systems support staff are shown information about all devices.

Format

SHOW-DEVICE**-STA**TUS

UNIT = ***STD** / ***SEL**ECT**-T**YPE(...) / ***SEL**ECT**-LOC**ATION(...) / ***DEV**ICE**-RANGE**(...) /

list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>

***SEL**ECT**-T**YPE(...)

| TYPE = ***ALL** / <composed-name 1..8> / <structured-name 1..8> / <device>

| ,**ATTR**IBUTE = ***ALL** / ***ATTACH**ED / ***DETACH**ED / ***DET**ACH**-PEND**ING / ***ATTACH-PENDING** /

| ***INVALID** / ***FREE** / ***DMS** / ***EXCL**USIVE / ***PUB**LIC / ***SWITCH** / ***SHARE** /

| ***ENABLED** / ***DISABLED**

***DEV**ICE**-RANGE**(...)

| FROM = <alphanum-name 2..2> / <x-text 4..4>

| ,TO = <alphanum-name 2..2> / <x-text 4..4>

***SEL**ECT**-LOC**ATION(...)

| LOCATION = ***ALL** / list-poss(10): <structured-name 1..8 with-wild(40)>

,**INF**ORMATION = ***STD** / ***SUMM**ARY / ***TASK** / ***ALL** / ***LOCATION**

Operands

UNIT = *STD(...) / *SELECT-TYPE(...) / *SELECT-LOCATION / *DEVICE-RANGE(...) / list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
Specifies the hardware units for which information is to be output. The selection is made on the basis of device type, device family or device mnemonic (two or four characters). Mnemonic device names that cannot be generated are handled like nongenerated devices. A maximum of 26 device mnemonics may be specified.

UNIT = *STD
The scope of the information displayed depends on the user's privilege level. Nonprivileged users (privilege STD-PROCESSING) receive information about all devices occupied by their own jobs. The possible scope of the output should be borne in mind. Privileged users receive information for all devices. UNIT=*STD is rejected at operating consoles, since the output may be very extensive.

UNIT = *SELECT-TYPE(...)
Information is output for the devices known to the system that have the specified type and attributes.

TYPE = *ALL / <composed-name 1..8> / <alphanum-name 1..8> / <device>
Information is output for all devices (TYPE=*ALL) or for all devices of the specified type.

In interactive mode, TYPE=? displays the possible type specifications.

The device type and device family are possible values for all devices (see also the device table (device type column or “Family” column) of the “System Installation” [46] manual). Volume types can also be specified for tape devices.

Possible values may be found in the device table, device type column, (see device table (device type column) of the “System Installation” manual [46]). For tape devices, the possible values may be found in the volume types table.

ATTRIBUTE = *ALL / *ATTACHED / *DETACHED / *DETACH-PENDING / *ATTACH-PENDING / *INVALID / *FREE / *DMS / *EXCLUSIVE / *PUBLIC / *SWITCH / *SHARE / *ENABLED / *DISABLED
Device attribute. The hardware units corresponding to the specified device attribute are selected.

Operand value (device attribute)	Meaning
*ALL	any attribute
	configuration-state
*ATTACHED	attached to the system
*DETACHED	not attached to the system
*DET[ACHED]-P[ENDING]	currently assigned, no longer available thereafter
*ATT[ACHED]-P[ENDING]	currently not available
*INVALID	not available
*ENABLED	FastDPAV alias devices are ENABLED
*DISABLED	FastDPAV alias devices are DISABLED
	device-allocation-state
*FREE	attached to the system
*DMS	occupied by DMS application
*EXCL[USIVE]	exclusively reserved
*PUB[LIC]	occupied by public disk
	pool-attribute
*SWITCH	generated for multiple systems
*SHARE	shareable

UNIT = *SELECT-LOCATION(...)
Information is output for devices that are assigned to the storage locations.

LOCATION =
Denotes the storage locations assigned to the devices.

LOCATION = ALL
Information is output for the devices of all storage locations.

LOCATION = list-poss(10): <structured-name 1..8 with-wild(40)>
Information is output for the devices of the specified storage locations. A maximum of 10 storage locations can be specified.

UNIT = *DEVICE-RANGE(...)
Information is output for a set of devices which exist in the specified range of device codes. Starting with the device designated in the FROM operand, up to 256 devices are determined until the TO operand is reached. The output only includes existing devices; nonexistent devices are ignored.

FROM = <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) of the first device.

TO = <alphanum-name 2..2> / <x-text 4..4>
Specifies the mnemonic device code (MN) of the last device.

UNIT = list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
Specifies by their mnemonic device name one or more devices for which information is output. You can specify up to 26 devices.

INFORMATION = *STD / *SUMMARY / *TASK / *ALL / *LOCATION
Type of information is output. If UNIT = <mn> is specified, only the value *STD is permitted here.

INFORMATION = *STD
Standard information is output.

Output format:

```
MNEM     DEV-TYPE   CONF-STATE   POOL   VSN   DEV-A    PHASE     ACTION
```

INFORMATION = *SUMMARY
A summary of configuration and assignment status, related to device type, is output.

Output format:

```
DEV-TYPE  AVAIL  PRE-/IN-USE   RES-BY-MN  RES-BY-TYPE  ATT  DET  DET-P
```

INFORMATION = *TASK
A summary of the occupying or reserving tasks is generated for the specified type. The nonprivileged user receives information only about assignments for his own task.

Output format:

1. List of assignments/reservations with device reference

   ```
   MNEM      TYPE      DEV-A      PHASE     MNEM      TYPE     DEV-A...
   ```

2. List of assignments/reservations without device reference

   ```
   TYPE         TASKS-WITH-RESERVATIONS
   ```

INFORMATION = *ALL
Output of *STD, *SUMMARY and *TASK.

INFORMATION = *LOCATION
Outputs the scope of *SUMMARY and *TASK, arranged by storage location. The nonprivileged user receives information only about assignments for his own task.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
2	0	NKD0030	Warning: INFORMATION parameter changed
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
	1	NKD0013	Syntax error in SH-DEV-STATUS
	32	CMD2009	Error on output to S variable (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Software error in NKDDEVS procedure
	64	NKD0021	No information available for type and attribute
	64	NKD0023	No information available for MN list
	64	NKD0036	No information available for the specified storage locations
	64	NKD0038	No device of specified type is assigned to a storage location
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
4	130	NKD0009	The disk monitor is temporarily not available; the information may be incomplete
8	130	NKD0009	The tape monitor is temporarily not available; the information may be incomplete
12	130	NKD0009	The disk and tape monitors are not available
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Notes

- A VSN can appear in two output records at the same time during a remount operation: in the record of the device on which the volume is physically online, and in the record of the device on which the volume is to be mounted.
- Mnemonics or VSNs which cannot be generated are treated as unknown mnemonics or VSNs.
  If VSNs are specified which are currently unknown to the system, “empty” records containing only VSN and “NO ACTION” are returned. Only if ‘*’ is specified in the VSN operand will no records be output for unknown VSNs.
- ATTRIBUTES=*ENABLED or *DISABLED selects all FastDPAV devices in the mentioned state (FastDPAV see “Introduction to System Administration” [14])

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following values are possible for INFORMATION: *STD/*SUMMARY/*TASK/*ALL/ *LOCATION.

Output information	Name of the S variable	T	Contents	Condition
Mount operation being performed for the volume by the volume monitoring system	var(*LIST).ACTION	S	'' *CANCEL *DISMOUNT INOP *MOUNT NO-ACTION *NO-DEV *POS *PREMOUNT *RECOVER REMOUNT SNATCHED *SVL-UPDATE *UNLOCK WP-MISSING	INF=ALL/STD
Number of devices in the “ATTACHED” state (available)	var(*LIST).ATTACH	I	<integer>	INF=LOCATION
Number of available devices	var(*LIST).AVAIL	I	<integer>	INF=LOCATION
Configuration state of the specified device. *ENABLED / *DISABLED states are only possible for FastDPAV alias devices	var(*LIST).CONF-STA	S	'' *ATTACH ATTACH-* *ATTACH-PEND *DET *DET-PEND *INVALID *ENABLED *DISABLED	INF=ALL/STD
Number of devices in the “DETACHED” state (unavailable)	var(*LIST).DET	I	<integer>	INF=LOCATION

Number of devices in the “DETACHED-PENDING” state (not shareable after use)	var(*LIST).DET-PEND	I	<integer>	INF=LOCATION
Type of device allocation; if the device is reserved exclusively, the TSN is output	var(*LIST).DEV-ALLOC	S	'' *DMS DMS-DRV DMS-PAGING *DRV DRV-PAGING *FREE PAGING PUB-DRV *PUBLIC <tsn>	INF=ALL/STD
Name of the depot	var(*LIST).LOCATION	S	'' <location>	INF=LOCATION
Volume monitoring mode	var(*LIST).PHASE	S	'' IN-CARTRIDGE *IN-USE INVENTORY *MOUNT OFF-CARTRIDGE *ONLINE *PREMOUNT RAID1-SUB RAID5-SPARE	INF=ALL/STD
Device availability in relation to multiple systems	var(*LIST).POOL-ATTR	S	'' *SHARE *SWITCHABLE NO	INF=ALL/STD
Number of devices implicitly reserved by volumes of the relevant phase	var(*LIST).PRE-IN-USE	I	<integer>	INF=LOCATION
Number of devices reserved by SECURE-RESOURCE-ALLOCATION UNIT=<mn>	var(*LIST).RESERVED-BY-MN	I	<integer>	INF=LOCATION
Number of devices needed to handle the requested allocation/reservation	var(*LIST).RESERVED-BY-TYPE	I	<integer>	INF=LOCATION
Location of the reserved volume	var(*LIST).RESERVED.LOCATION	S	'' <location>	INF=LOCATION

Output information	Name of the S variable	T	Contents	Condition
Device type of the volume reserved by the task	var(*LIST).RESERVED.TYPE	S	" <dev-type>	INF=ALL /LOCATION /TASK
Number of tasks reserving a specific device type	var(*LIST).RESERVED.TYPE-RES(*LIST).NUM	I	<integer>	INF=ALL /LOCATION /TASK
TSN of the tasks reserving a specific device type	var(*LIST).RESERVED.TYPE-RES(*LIST).TSN	S	" <tsn>	INF=ALL /LOCATION /TASK
Total number of devices of the specified type (see SUMM.TYPE) which are in the “ATTACHED” state	var(*LIST).SUMM.ATTACH	I	<integer>	INF=ALL /SUMMARY
Total number of available devices of the specified type (see SUMM.TYPE)	var(*LIST).SUMM.AVAIL	I	<integer>	INF=ALL /SUMMARY
Total number of devices of the specified type (see SUMM.TYPE) which are in the “DETACHED” state	var(*LIST).SUMM.DET	I	<integer>	INF=ALL /SUMMARY
Total number of devices of the specified type (see SUMM.TYPE) which are in the “DETACHED-PENDING” state	var(*LIST).SUMM.DET-PEND	I	<integer>	INF=ALL /SUMMARY
Total number of devices of the specified type (see SUMM.TYPE) which are implicitly reserved by volumes of the relevant phase	var(*LIST).SUMM.PRE-IN-USE	I	<integer>	INF=ALL /SUMMARY
Total number of devices of the specified type (see SUMM.TYPE) which have been reserved using SECURE-RESOURCE-ALLOCATION UNIT=<mn>	var(*LIST).SUMM.RESERVED-BY-MN	I	<integer>	INF=ALL /SUMMARY
Total number of devices of the specified type (see SUMM.TYPE) needed to handle reservation and allocation requests	var(*LIST).SUMM.RESERVED-BY-TYPE	I	<integer>	INF=ALL /SUMMARY
Volume device type	var(*LIST).SUMM.TYPE	S	" <dev-type>	INF=ALL /SUMMARY
Type of device allocation by the task; if the device is reserved exclusively, the TSN is output	var(*LIST).TASK.DEV-ALLOC	S	" *DMS DMS-DRV DMS-PAGING *DRV *DRV-PAGING *FREE	INF=ALL /TASK

			PAGING PUB-DRV *PUBLIC <tsn>	
Volume monitoring mode used by the task	var(*LIST).TASK.PHASE	S	'' IN-CARTRIDGE *IN-USE INVENTORY *MOUNT OFF-CARTRIDGE *ONLINE *PREMOUNT RAID1-SUB RAID5-SPARE	INF=ALL /TASK
Device type of the device reserved by the task	var(*LIST).TASK.TYPE	S	'' <dev-type>	INF=ALL /TASK
Device mnemonic of the unit reserved by the task	var(*LIST).TASK.UNIT	S	'' <mnemo-name>	INF=ALL /TASK
Volume device type	var(*LIST).TYPE	S	'' <dev-type>	INF=ALL /STD /LOCATION
Device unit mnemonic	var(*LIST).UNIT	S	'' <mnemo-name>	INF=ALL /STD
Volume serial number	var(*LIST).VOL	S	'' <vsn>	INF=ALL /STD

Examples

*Output to SYSOUT with INFORMATION=*SUMMARY*

/show-dev-sta inf=*summary

```
%  DEV-TYPE AVAIL PRE-/IN-USE RES-BY-MN RES-BY-TYPE ATT  DET DET-P
%   SKP2        2       0           0          0        2   32    0
%   HNC         4       6           0          0       10  232    0
%   D3490-30    0       2           0          0        2    0    0
%   D3490-40    0       2           0          0        2    0    0
%   D3435     170     590           0          0      760 3318    0
%   STDDISK     0       0           0          0        0  632    0
%   3590E      10       0           0          0       10  104    0
%   BM1662FS    0       0           0          0        0    2    0
```

*Output in S variables with INFORMATION=*SUMMARY*

/exec-cmd (show-device-status inf=sum),text-output=*none,struc-output=var
/show-var var,inf=*par(val=*c-lit)

```
OUT#1.SUMM.TYPE = 'SKP2'
OUT#1.SUMM.AVAIL = 2
OUT#1.SUMM.PRE-IN-USE = 0
OUT#1.SUMM.RESERVED-BY-MN = 0
OUT#1.SUMM.RESERVED-BY-TYPE = 0
OUT#1.SUMM.ATTACH = 2
OUT#1.SUMM.DET = 32
OUT#1.SUMM.DET-PEND = 0
*END-OF-VAR
...........
...........
```

*Output in S variables with INFORMATION=*TASK*

```
/declare-var var-name=out(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-device-status inf=task),text-output=*none,structureoutput=out
/show-var out,inf=*par(val=*c-literal)
```

```
OUT#1.SUMM.TYPE = 'CON3027'
OUT#1.SUMM.AVAIL = 0
OUT#1.SUMM.PRE-IN-USE = 0
OUT#1.SUMM.RESERVED-BY-MN = 0
OUT#1.SUMM.RESERVED-BY-TYPE = 0
OUT#1.SUMM.ATTACH = 0
OUT#1.SUMM.DET = 2
OUT#1.SUMM.DET-PEND = 0
*END-OF-VAR
OUT#2.SUMM.TYPE = 'CON3027C'
OUT#2.SUMM.AVAIL = 1
OUT#2.SUMM.PRE-IN-USE = 0
OUT#2.SUMM.RESERVED-BY-MN = 0
OUT#2.SUMM.RESERVED-BY-TYPE = 0
OUT#2.SUMM.ATTACH = 1
OUT#2.SUMM.DET = 11
OUT#2.SUMM.DET-PEND = 0
*END-OF-VAR
............
............
OUT#26.SUMM.TYPE = 'BM1662'
OUT#26.SUMM.AVAIL = 0
OUT#26.SUMM.PRE-IN-USE = 0
OUT#26.SUMM.RESERVED-BY-MN = 0
OUT#26.SUMM.RESERVED-BY-TYPE = 0
OUT#26.SUMM.ATTACH = 0
OUT#26.SUMM.DET = 1
OUT#26.SUMM.DET-PEND = 0
*END-OF-VAR
OUT#27.SUMM.TYPE = 'BM1662FS'
OUT#27.SUMM.AVAIL = 0
OUT#27.SUMM.PRE-IN-USE = 0
OUT#27.SUMM.RESERVED-BY-MN = 0
OUT#27.SUMM.RESERVED-BY-TYPE = 0
OUT#27.SUMM.ATTACH = 0
OUT#27.SUMM.DET = 2
OUT#27.SUMM.DET-PEND = 0
*END-OF-VAR
```

5.1 SHOW-DISK-DEFAULTS

Show default values for DISK parameters

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SW-MONITOR-ADMINISTRATION
Routing code:	E

Function

With the SHOW-DISK-DEFAULTS command, users can obtain information on the default values for the assignment of private disks. These values do not apply to private disks requested with USE=SPECIAL.
The following presettings are possible:

- Time of device assignment or release (ASSIGN-TIME)
  The following values can be set for ASSIGN-TIME:

  USER: Default value; the time of assignment or release of the device corresponds to the time the user assigns or releases the private disk.

  OPERATOR: If the private disk is mounted (online), the assignment is executed immediately. Otherwise, the assignment cannot be made until the disk is placed online.

- Permissible initial job allocation types SHARED or EXCLUSIVE (USER-ALLOCATION)The following values can be set for USER-ALLOCATION:

  NO: permits no initial allocations.

  ALL: permits SHARED and EXCLUSIVE initial allocations.

  EXCL(usive): permits only EXCLUSIVE initial allocations.

  SHARE: permits only SHARED initial allocations.

- Monitor of initial job allocations SHARED or EXCLUSIVE
  The following values can be set for OPERATOR-CONTROL:

  NO: monitors no initial allocations.

  ALL: SHARED and EXCLUSIVE initial allocations must be confirmed by the operator.

  EXCL(usive): EXCLUSIVE initial allocations must be confirmed by the operator.

  SHARE: SHARED initial allocations must be confirmed by the operator.

  The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-DISK-DEFAULTS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
4	1	NKD0001	Syntax error in subprocedure
	32	CMD2009	Error on output to S variable (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Internal error during initialization of the command server
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Output format

A header line and a values line are displayed.

```
Header line:
ASSIGN-TIME      USER-ALLOCATION     OPERATOR-CONTROL
Values line:
<assign-time>    <user-allocation>   <operator-control>
```

The output fields and their meanings are described in section "Information services of device management: Meanings of the output values of SHOW commands".

Example

Example of information displayed

/show-disk-def

```
%  ASSIGN-TIME   USER-ALLOCATION  OPERATOR-CONTROL
%      USER           ALL              NO
```

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Time of device assignment/release	var(*LIST).ASS-TIME	S	'' *OPER *USER	
Amount of information for the operator about new disk allocations for tasks	var(*LIST).OPER-CONTR	S	'' *ALL *EXCL *NO *SHARE	
Type of disk allocation request the user is allowed to make	var(*LIST).USER-ALLOC	S	'' *ALL *EXCL *NO *SHARE	

5.1 SHOW-DISK-STATUS

Show information about assignment, DISK parameters and monitoring of disks

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	E

Function

The SHOW-DISK-STATUS command provides information relating to the assignment, disk parameters and volume monitoring of the specified disks. The VSN of the disk can also be specified using a wildcard. The information displayed refers to the reserving disk, irrespective of which volume is physically online (in contrast to SHOW-DEVICE-STATUS). Nonprivileged users are shown information only on private disks on which their own jobs have reserved space.

The various output fields and their functions are described in section "Information services of device management: Meanings of the output values of SHOW commands".

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

System support staff are supplied with information for all devices. If they select *TASK or *SYSTEMS with the INFORMATION operand they are shown all the available information.

Format

SHOW-DISK-STATUS

UNIT = ***SEL**ECT (...) / ***VOL**UME(...) / list-poss(26): <alphanum-name 2..2 with-wild(20)> /

<alphanum-name 4..4 with-wild(20)>

***SEL**ECT(...)

| ATTRIBUTE = ***ALL** / ***FREE** / ***EXCL**USIVE / ***SHARE** / ***PUB**LIC / ***ONLINE** / ***MOUNT**ING /

| ***IN-USE** / ***CAN**CELLED / ***NO-DEV**ICE / ***RECOVER** / ***DMS** / ***SPECIAL** /

| ***DISMOUNT** / ***UNLOCK** / ***SVL-UPD**ATE / ***STD** / ***NON-STD** / ***BS1**000

***VOL**UME(...)

| VOLUME = list-poss(10): <vsn 1..6> / <alphanum-name 1..6 with-wild(30)>

,INFORMATION = ***STD** / ***PAR**AMETER / ***TASK** / ***SYSTEMS** / ***ALL**

Operands

UNIT = *SELECT(...) / *VOLUME(...) /list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
Selection of disks by attributes, volume serial numbers or the mnemonic (two- or four-character) device name of the device on which the disk is mounted. At most 26 mnemonic device names are permitted.
Mnemonic device names that cannot be generated are handled like non-generated devices.

UNIT = *SELECT(...)
Selection by attributes.

ATTRIBUTE =
Information is output for the disks with the specified attribute.

ATTRIBUTE = *ALL
Information is output for all specified disks.

ATTRIBUTE = *FREE / *EXCLUSIVE / *SHARE / *PUBLIC / *ONLINE / *MOUNTING / *IN-USE / *CANCELLED / *NO-DEVICE / *RECOVER / *DMS / *SPECIAL / *DISMOUNT / *UNLOCK / *SVL-UPDATE / *STD / *NON-STD / *BS1000
Default information is output for all disks with the specified attribute.
Possible specifications:

Operand value (device attribute)	Meaning
*ALL	any attribute
	volume-allocation-state
*FREE	free

*EXCL[USIVE]	exclusively reserved
*SHARE	shareable
	device-allocation-state
*PUB[LIC]	public
	volume-phase
*ONLINE	mounted, but not assigned
*MOUNTING	waiting for operator answer
*IN-USE	assigned
	action-state
*CAN[CELLED]	permanently locked
*NO-DEV[ICE	no device assignment
*REC[OVER]	interrupt handling
*DISMOUNT	REMOUNT or MOUNT message still pending
*UNLOCK	UNLOCK job being executed
*SVL-UPD[ATE]	system occupancy log being stored
	use-mode
*DMS	occupied by DMS application
*SPECIAL	occupied by special application
	label-type
*STD	standard labels
*N[ON]-STD	nonstandard labels
*BS1000	BS1000 labels

UNIT = *VOLUME(...)

Specifies the volume serial numbers of the disks for which information is to be output.

VOLUME = list-poss(10): <vsn 1..6> / <alphanum-name 1..6 with-wild(30)>

Specifies the volume serial numbers (VSN, up to 6 characters) of the disks for which information is to be output.

A maximum of 10 VSNs can be specified.

With certain restrictions, wildcard characters may also be used in the volume serial numbers; an asterisk “*” may be specified in place of any character string. If two or more asterisks are entered, they must be separated in each case by at least one character.

UNIT = list-poss(26): <alphanum-name 2..2> / <alphanum-name 4..4>
Lists up to 10 disks for which information is to be output.

INFORMATION =
Type of information to be displayed. This operand is only evaluated if device names or volume serial numbers (UNIT or VOLUME operand) are used to select the disks. If ATTRIBUTE is specified, only INFORMATION=*STD is possible.

INFORMATION = *STD
For each private disk occupied by the task, a record is displayed with global occupancy and monitoring information (e.g. access by START-PROGRAM to a program on private disk).

INFORMATION = *PARAMETER
Parameters set with the SET-DISK-PARAMETER or SET-DISK-DEFAULTS command are displayed. Parameter values set with SET-DISK-DEFAULTS are marked with “(D)”. Output is independent of occupancy by the task.
No information can be requested for public disks with this operand.

INFORMATION = *TASK
*For nonprivileged users, INFORMATION = *STD applies*.
A list of the TSNs that are occupying this disk in DMS usage mode is displayed.

INFORMATION = *SYSTEMS
For nonprivileged users, only the first line for the disks occupied by them is displayed.
A list of systems occupying this disk is displayed.

INFORMATION = *ALL
For nonprivileged users, only STD, PARAMETER and SYSTEMS information is displayed.
Displays all four output records for the specified disks (*STD, *PARAMETER, *TASK, and the second output line of *SYSTEMS).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
2	0	NKD0030	Warning: INFORMATION parameter changed
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
	1	NKD0013	Syntax error in SHOW-DISK-STATUS
	64	NKD0002	No information available
	64	NKD0005	No information available for MN list
	64	NKD0006	Software error in NKDDISC procedure
	64	NKD0032	No information available for ATTRIBUTE
4	130	NKD0010	The disk monitor is temporarily not available; try again later

Output formats

The output shows a header line followed by one values line for each disk specified. Five display formats are possible, depending on the entry made in the INFORMATION operand.

The meaning of the output columns and possible values are explained in section "Information services of device management: Meanings of the output values of SHOW commands".

*1. Standard output record (INFORMATION=*STD)*

```
Header line
MNEM  VSN   USE           DEV-A       VOL-A       PHASE    ACTION
Values
mn    vsn   use           device      volume      volume   action
            mode          allocation  allocation  phase    state
                          state       state
```

Note

The distinction between PAGING and PUBLIC assignments (dynamic paging area modification) also affects information columns DEV-A and VOL-A. The meanings of the possible combinations of values in these two columns are as follows:

DEV-A	VOL-A	Meaning
PUBLIC	PUBLIC	The disk is imported and is not used for PAGING.
PUBLIC	PAGING	The disk is imported and is used for PAGING.
PAGING	PAGING	The disk is used exclusively for PAGING.
PUB-DRV	PAGING	The disk is imported as a DRV volume and is used for PAGING.
DRV-PAG	PAGING	The disk is used for PAGING in DRV mode.
DRV-PAG		The matching second disk of a DRV pair is used for PAGING in DRV mode.
DMS-PAG	SHARE	The disk is used for PAGING and is also shareable for tasks.

2. Output record for INFORMATION=*PARAMETER

```
Header line
ALLOC VSN   TYPE    SYS-ALLOC   ASS-TIME   USER-ALLOC   OP-CTL    ACCESS
Values
<Y/N> vsn   device  system      assign     user         operator  access
            type    allocation  time       allocation   access    mode
                    mode                   type         control
```

*3. Output record for INFORMATION=*TASK*

```
Header line
MNEM   VSN  TSN S
Values
mn     vsn  tsn,tsn,...
```

*4. Output record for INFORMATION=*SYSTEMS*

```
Header line 1
MNEM  VSN             TIME-STAMP  SVL-RECORDING-MODE
Values
mn    *vsn            time-stamp  svl-recording-mode
Header line 2
MNEM  VSN   #PHYS-HALF-PAGES      PAMKEY/FRMT
Values
mn    *vsn  #php                  pamkey/format
Header line 3  (privileged users only)
MNEM  VSN   VTOC-SYS              SVL-ALLOC                  SYSTEMS
Values
mn    *vsn  vtoc-sys              system allocation mode     sys-id[,...]
```

where:

`format`	=	disk format (2K or 4K)
`time stamp`	=	yyyy-mm-dd hh:mm:ss (time of last occupancy of the disk)
`vtoc-tsn`	=	designates the task in the user's own system that is locking or wishes to lock the VTOC of the disk, but has not yet successfully completed the SVL I/O operation.
`vtoc-sys`	=	System ID of the system that is occupying the VTOC of the disk. In this phase, no VTOC operations by other systems are possible.

Notes

- Nonprivileged users are shown no information for public disks if they specify INFORMATION=*PARAMETER or *ALL.
  Privileged users are shown no information if they specify INFORMATION=*PARAMETER or *TASK and are shown information only for *STD and *SYSTEMS if they specify INFORMATION=*ALL.
- If more than one disk with the same VSN exists within one system, only one record is displayed if INFORMATION=*PARAMETER or *TASK or *SYSTEMS is specified.
- A VSN may appear in two or more output records: For all devices on which the volumes are also physically available.
- MNs or VSNs which cannot be generated are handled like unknown MNs or VSNs. If VSNs are specified which are not known to the system at present, “empty” records containing only VSN and “NO ACTION” are returned. Only when “*” is specified in the VSN operand are no records output for unknown VSNs.

Examples

*Example 1: Output for private disk with INFORMATION=*PARAMETER*

/show-disk-sta *vol(work01),inf=*par

```
%  ALLOC VSN    TYPE    SYS-ALLOC ASS-TIME USER-ALLOC OP-CTL ACCESS
%   Y   WORK01 D3435     EXCL    OPERATOR   SHARE     NO     WRITE
```

*Example 2: Output for private disk with INFORMATION=*SYSTEM*

/show-disk-sta *vol(work01),inf=*sys

```
%  MNEM VSN        TIME-STAMP      SVL-RECORDING-MODE
%  B156 WORK01 2017-02-27 07:04:09 SRV
```

*Example 3: Output for private disk with INFORMATION=*ALL and device reservation information*

/show-disk-sta *vol(work01),inf=*all

```
%  MNEM VSN     USE    DEV-A    VOL-A    PHASE    ACTION
%  B156 WORK01  DMS     DMS    SHARE    IN-USE  NO ACTION
%  ALLOC VSN    TYPE    SYS-ALLOC ASS-TIME USER-ALLOC OP-CTL ACCESS
%   Y   WORK01 D3435     EXCL    OPERATOR   SHARE     NO     WRITE
%  MNEM VSN        TIME-STAMP      SVL-RECORDING-MODE
%  B156 WORK01 2017-02-27 07:04:09 SRV
```

/show-res-alloc

```
%  MNEM  TYPE     VSN     VOL-A  TSN  NAME/ID    PHASE    ACTION
%  B156 D3435    WORK01   SHARE  3QLJ ALF        IN-USE  NO ACTION
```

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following values are possible for INFORMATION: *STD/*PARAMETER/*TASK/ *SYSTEMS/*ALL:

Output information	Name of the S variable	T	Contents	Condition
Read or write access to data on the disk	var(*LIST).ACCESS	S	'' WRITE ALL	INF=PAR
Mount operation being performed for the disk from the volume monitoring system	var(*LIST).ACTION	S	'' *CANCEL *DISMOUNT INOP *MOUNT NO-ACTION *NO-DEV *PREMOUNT REMOUNT *RECOVER SNATCHED *SVL-UPDATE *UNLOCK WP-MISSING	INF=STD
Disk is allocated	var(*LIST).ALLOC	S	Y N	INF=PAR
Time of device assignment/release If “(D)” is appended, the data has been taken from the disk defaults	var(*LIST).ASS-TIME	S	'' *OPER *USER	INF=PAR
Date of last disk allocation	var(*LIST).DATE	S	'' <yyyy-mm-dd>	INF=SYS
Type of device allocation	var(*LIST).DEV-ALLOC	S	'' *DMS DMS-DRV DMS-PAGING *DRV DRV-PAGING *FREE PAGING PUB-DRV *PUBLIC	INF=STD
A REMOUNT or MOUNT message is pending for the DISMOUNT volume on this device	var(*LIST).DISMOUNT-ACTION	S	'' *DISMOUNT	INF=STD

DISMOUNT volume	var(*LIST).DISMOUNT-VOL	S	'' <vsn>	INF=STD
Mnemnonic of the corresponding DRV unit	var(*LIST).DRV-UNIT	S	'' <mnemo-name>	INF=TASK
Disk format	var(*LIST).FORM	S	'' 2KB 4KB	INF=SYS
Inconsistency indicator in SVL (Standard Volume Lable)	var(*LIST).INCONS	S	YES NO	INF=SYS
Disk capacity in PAM pages (PHP: physical half pages)	var(*LIST).NUM-OF-PHP	S	<number-of-php>	INF=SYS
Amount of information for the operator about new disk allocations for tasks If “(D)” is appended, the data has been taken from the disk defaults	var(*LIST).OPER-CONTR	S	'' *ALL *EXCL *NO *SHARE *STD	INF=PAR
Use of the PAM key allowed	var(*LIST).PAM-KEY	S	'' NO YES	INF=SYS
Disk monitoring mode	var(*LIST).PHASE	S	'' *IN-USE *MOUNT *ONLINE *PREMOUNT RAID1-SUB RAID5-SPARE	INF=STD
Recording mode last used for the disk	var(*LIST).REC-MODE	S	'' *DRV *SRV	INF=SYS
Actual disk allocation mode	var(*LIST).SVL-ALLOC	S	'' *EXCL *SHARE	INF=SYS
Disk operating mode for the system	var(*LIST).SYS-ALLOC	S	'' *ALL *EXCL EXCL(A) *SHARE SHARE(A)	INF=PAR
System ID	var(*LIST).SYSID(*LIST)	S	'' <sys-id>	INF=SYS

Time of last allocation	var(*LIST).TIME	S	'' <hh:mm:ss>	INF=SYS
TSN of the task	var(*LIST).TSN(*LIST)	S	'' <tsn>,<tsn>,...	INF=TASK
Device type from which the information is retrieved	var(*LIST).TYPE	S	'' <dev-type>	INF=PAR
Device unit mnemonic	var(*LIST).UNIT	S	'' <mnemo-name>	INF=TASK/ STD/SYS
Usage mode in which the mounted volume is to be operated	var(*LIST).USE	S	'' *DMS *SPECIAL *WORK	INF=STD
Type of disk allocation request the user is allowed to make. If “(D)” is appended, the data has been taken from the disk defaults	var(*LIST).USER-ALLOC	S	'' *ALL *EXCL *NO *SHARE	INF=PAR
VSN of the private disk	var(*LIST).VOL	S	'' <vsn>	
Mounted disk type	var(*LIST).VOL-ALLOC	S	'' *CANCEL *EXCL *FREE *PAGING *PUBLIC *SHARE	INF=STD
System ID of the system currently holding the VTOC lock for the disk	var(*LIST).VTOC-SYS	S	'' <vtoc-sys>	INF=SYS

5.1 SHOW-DSSM-INFORMATION

Show information on DSSM

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

The SHOW-DSSM-INFORMATION command outputs information on the Dynamic Subsystem Management (DSSM). The following information is provided for diagnostic purposes:

- DSSM version
- Memory class of the DSSM task (class-4 or class-5 memory)
- Status of DSSM logging
- Path name of the object module library from which DSSM was loaded at the last startup
- Path name of the REP file which was used at the last startup to load DSSM
- Path name of the subsystem catalog which DSSM used to initialize the system

Format

SHOW-DSSM-INFORMATION

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Without errors
	1	ESM0431	Privilege errors

Example

/show-dssm-info

```
------------------------     FROM PARAMETER FILE     ------------------------
-
DSSM VERSION          : 043
CREATION MEMORY CLASS : CL5
DSSM LOGGING          : OFF
------------------------          FILES              ------------------------
-
DSSM LIBRARY          : :SBZ8:$TSOS.SYSLNK.DSSM.043
DSSM REPFILE          : :SBZ8:$TSOS.SYSREP.DSSM.043
INITIAL DSSM CATALOG  : :SBZ8:$TSOS.SYS.SSD.CAT.X
```

6 SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS

The manual "Commands" is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

6.1 SHOW-FILE

Display contents of file

Component:	SHOW-FILE
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-FILE command displays the contents of a file on the terminal without requiring the user to load an editor program. The following file types are supported:

- SAM file
- ISAM file
- PAM file
- PLAM library element with the following record types:
  - records of the B format are contained in elements of the type C (executable program), L (LLM) and H (compiler information file). The record length is always a multiple n of 2048 bytes (1 <= n <= 128).
  - records of the A format can occur in any element type. The record length is variable.

  If an element contains both record types, only the records of the B format are displayed.

After the command has been entered, the specified file or library element is opened and the first section is displayed on the terminal. The program then expects further statements from the user, e.g. scrolling in the file (vertical/horizontal), searching for a character string, modification of the output format, reading in of another element from the specified library, termination of file output.

This command may be used only in interactive mode.

With the help of XHCS, SHOW-FILE can also display files if the terminal does not support the data character set (e. g. Unicode). For details, see section "Character sets". If the XHCS subsystem is not active, SHOW-FILE terminates and message `SHO0021` is issued.

Format

SHOW-FILE Alias: **SHF**

FILE-**NAME** = ***LIB**RARY-**ELEM**ENT(...) / <filename 1..54>

***LIB**RARY-**ELEM**ENT(...)

| **LIB**RARY = <filename 1..54>

| ,**ELEM**ENT = <composed-name 1..64 with-under>(...)

| <composed-name 1..64 with-under>(...)

| | **VERSION** = ***HIGH**EST-**EXIST**ING / <composed-name 1..24 with-under>

| ,**TYPE** = <alphanum-name 1..8>

,**OUT**PUT-FORMAT = ***STD** / ***DUMP** / ***CHAR**ACTER / ***HEX**

Operands

FILE-NAME = *LIBRARY-ELEMENT(...) / <filename 1..54>
Name of the file to be output.

FILE-NAME = *LIBRARY-ELEMENT(...)
Indicates the PLAM library element to be output.

LIBRARY = <filename 1..54>
Name of the PLAM library containing the element to be output.

ELEMENT = <composed-name 1..64 with-under>(...)
Name of the element to be output. Further elements of the same library can be output with the OPEN statement without calling the command again (see "OPEN").

VERSION = *HIGHEST-EXISTING / <composed-name 1..24 with-under>
Version number of the element (max. 24 characters).

VERSION = *HIGHEST-EXISTING
The element with the highest version and variant number is opened.

TYPE = <alphanum-name 1..8>
Designation of the element type.

OUTPUT-FORMAT =
Determines the output format.

OUTPUT-FORMAT = *STD
SAM and ISAM files, in addition to library elements, which contain exclusively A records, are displayed in a character-oriented text format, the character format (OUTPUT-FORMAT=*CHARACTER).
Library elements which contain records of the format B and PAM files are displayed in dump format (OUTPUT-FORMAT=*DUMP), but tape files with nonstandard blocks are not supported.

OUTPUT-FORMAT = *CHARACTER

Library elements which contain B records are displayed in dump format after message SHO0313 has been issued.
The data is output in a character-oriented text format, the character format. The data is output as characters. The substitute character specified is output in place of nonprintable characters (see SUBSTITUTE-CHARACTER in the output of the SHOW-TERMINAL-OPTIONS command).

When the characters are displayed, the bytes in the specified data character set which are read from the file are interpreted and displayed in the specified communication character set. Interpretation begins with the character which is logically the first in each record (depending on the specified OFFSET).

The position count begins with the first character with the *not displayable* or *not defined* attribute; characters which cannot be converted to the communication character set are replaced by the specified substitute character. In this context, the null character is regarded as displayable (in accordance with the XHCS attribute but contrary to the Unicode convention).

In the case of UTFE or UTF8, byte sequences which are illegal in the data character set are converted byte by byte to the substitute character. The restart point is the continuation byte for the byte which is substituted. Illegal UTF16 characters are replaced completely (2 bytes) by the substitute character. Any isolated remainder byte which is present at the end of the record is also replaced by the substitute character.

When the output is supposed to be to a file, in other words, if SYSOUT is assigned to a file in procedure mode, these specifications apply analogously, with the file's CCS being taken as the communication character set.

Each record is terminated with a logical end-of-line character. An empty recorded is displayed with just the logical end-of-line character. The logical end-of-line character is not output if SYSOUT is assigned to a file in procedure mode. When a 3270 data display terminal is used, no logical end-of-line characters are displayed, either, but the lines are filled with null characters.

The HEX ON statement is used to switch the display to hex format (see OUTPUT-FORMAT=*HEX).

OUTPUT-FORMAT = *HEX

Library elements which contain B records are displayed in dump format after message SHO0313 has been issued.
The data is edited in a character-oriented text format, hex format. This output complies with character format; the hexadecimal character encoding is displayed in printable form in additional lines:

- The data is output as characters in the first lines (as with character format).
- Pairs of hex lines which display the content of each byte are then output. The upper line contains the high-order half byte, the lower line the low-order half byte.
  Depending on the data character set, the number of these line pairs can vary: precisely one line pair is required with 7/8-bit character sets.
  Two hex lines are generally not sufficient for output in the case of Unicode files. With UTF16 two line pairs are required for the hex display, with UTF8 up to three line pairs, and with UTFE as many as four line pairs. However, with UTF8 and UTFE one line pair is normally adequate as the characters can be encoded with variable lengths, and more line pairs are needed only for special characters (such as umlauts, "ß" or the euro sign).
- An edited record is followed by a format line as an optical separator to the next record.

If the hexadecimal output of a record no longer fits completely in the data window, this record, and possibly others, will only be displayed in character format in the remaining lines and will only be edited when further positioning takes place.
The HEX OFF statement can be used to switch to character format (see OUTPUT-FORMAT=*CHARACTER).

OUTPUT-FORMAT = *DUMP

This output format is not allowed for library elements that only contain A records or for tape files with nonstandard blocks.

Output takes place in dump format. For this purpose SHOW-FILE opens the file to be output using the PAM access method or opens the library element with PLAM and outputs the content in 2-Kbyte units (PAM page):

Each line begins with an 8-digit hexadecimal number, the byte number of the first data byte in the line in the current PAM page. The output follows as an eight-digit decimal number in parentheses.
The byte number is followed by 16 data bytes in groups of 4 bytes each as hexadecimal constants. 32 bytes are displayed in screen format F2.
The data bytes are then displayed as printable characters. As with character format, the substitute character is displayed in place of nonprintable characters. The line ends with a logical end-of-line character. The position count begins with 0, i.e. the first byte of a record occupies byte position 0.

Multibyte sequences of variable length (UTF8, UTFE) are displayed in the part edited for printing in such a way that the character is output at the position of the 1st byte; null characters are output as filler characters at the positions of the 2nd, 3rd and 4th bytes (depending on the length of the sequence). Interpretation begins with the first byte displayed in the data window. Multibyte sequences which extend over more than one screen line result in the character string concerned being made up when it is edited for printing.

Multibyte sequences of fixed length (UTF16) are displayed without filler characters, i.e. two bytes are displayed as one character. If in the case of UTF16, the problem occurs that interspersed 1-byte characters cause the interpretation to be incorrect up to the end of the block, this is simple to correct by shifting the area displayed by one byte. This also applies for the case that unaligned UTF16 character strings in the file which it would not be possible to correct using the OFFSET statement occur in the middle of the block.
As the dump format should in particular also display files which do not have consistent encoding, it is accepted that (in contrast to the text output formats) horizontal displacement might change how the characters are interpreted. The OFFSET statement is consequently also rejected for dump format with message SHO0128.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
2	0	SHO0004	File is empty (HIGHEST-USED-PAGE=0)
	1	CMD0202	Error while executing in batch mode
	32	SHO0001	Internal error
	32	SHO0003	Error during execution of a system component Guaranteed message: SHO0003
	32	SHO0023	PLAM error during library processing
	64	SHO0002	PLAM reported DMS error Guaranteed message: SHO0002
	64	SHO0005	Only SAM, ISAM, PAM files and PLAM libraries are supported
	64	SHO0006	Files with RECORD-FORMAT=UNDEFINED are not supported
	64	SHO0008	PLAM library elements cannot be output in dump format
	64	SHO0011	Specified file is not a PLAM library
	64	SHO0012	Specified PLAM library element is not known
	64	SHO0015	Terminal type is not supported
	64	SHO0016	Device type is not supported
	64	SHO0017	EOF in the case of SYSDTA in procedure mode
	64	SHO0018	WROUT error
	64	SHO0019	Invalid character set for SYSDTA
	64	SHO0020	Invalid character set for SYSOUT
	64	SHO0021	XHCS not available
	64	SHO0022	Dump format not possible with SAM or ISAM access method

Character sets

SHOW-FILE V17.1A or higher also supports the output of files with the character sets UTFE, UTF8 and UTF16 and further ASCII character sets. As BS2000 terminals only directly support selected EBCDIC character sets, a distinction must be made between the character set in which the data is available/interpreted and the character set in which the data is displayed.

SHOW-FILE interprets the data in the data character set and converts it to the communication character set for output. The contents of files can consequently be output in all the character sets supported by XHCS with the help of XHCS. This is also the case if the data character set is not supported by the terminal.

If XHCS is not active, SHOW-FILE cannot output the file and terminates with SH00021.

Data character set

The data character set is the character set in which SHOW-FILE interprets the content of the file. SHOW-FILE uses the character set which is stored in the catalog entry of the file or in the metadata of the library element (CCS, Coded Character Set) as the data character set. If no character set (*NONE) is entered, the EDF03IRV character set is used.
If the character set is not known in XHCS, EDF03IRV is also used and warning SH00314 is output.

The data character set specified automatically by SHOW-FILE can be changed explicitly using the CODENAME statement. This also permits, for instance, a file to be displayed in which the character set from the catalog entry or the EDF03IRV character set which is used as a replacement does not match the character set actually used.

Communication character set

The communication character set is the character set in which the work window is displayed on the terminal and inputs from the terminal are received. The communication character set must be a character set which is accepted by the terminal. When SHOW-FILE is called, it determines the communication character set as follows:

- The data character set if it is accepted by the terminal.
- A comprehensive character set of the EBCDIC equivalent of the data character set if it is accepted by the terminal.
- EDF041 (or EDF03IRV in the case of 7-bit terminals) if the terminal does not accept a comprehensive character set (e.g. data character set UTF16, but the terminal does not support UTFE).

This then results in the following substitutions:

Original	EBCDIC equivalent	Accepted by the terminal
ISO88591	EDF041	EDF041
UTF16	UTFE	UTFE
EDF03DRV	EDF03DRV	EDF041

The communication character set specified automatically by SHOW-FILE can also be changed explicitly using the TERMINAL statement.

Input and output character sets

In procedure mode (see "SHOW-FILE") SHOW-FILE uses the following character sets:

- Input character set for reading the statements:
  - Communication character set when SYSDTA has primary allocation (terminal)
  - CCS of the file to which SYSDTA is assigned
- As output characters for outputting the data:
  - Communication character set when SYSOUT has primary allocation (terminal)
  - CCS of the file to which SYSOUT is assigned

Both the input and output character set must be an EBCDIC character set. If this is not the case, SHOW-FILE issues message SHO0019 (input character set) or SHO0020 (output character set) and terminates.

Displaying nondisplayable characters

It may not be possible to display a byte code for the following reasons:

- Byte code is flagged in XHCS with the “not displayable” attribute (e.g. control character).
- Byte code is not defined in the character set (e.g. X'B5' in EDF03IRV).
- Byte code is illegal in the character set (e.g. X'5454' in UTFE, two consecutive multibyte start characters).
- Byte code cannot be converted to the communication character set (e.g. X'B5' = '§' in EDF041 with communication character set EDF03IRV).

Instead of the nondisplayable byte code the substitute character which is specified as the SUBSTITUTE-CHARACTER in the terminal options is output (see the SHOW-TERMINAL-OPTIONS command).

In the case of illegal byte sequences, the individual bytes of a sequence are replaced byte by byte via the substitute character. The restart point is the continuation byte for the byte which is substituted.

In the case of files in UTF16 character code, occasionally the problem is encountered that a single byte is inserted in the actual UTF16 sequence.
A typical case is that the UTF16 sequence is preceded by a 1-byte printer feed control character (e.g. in IBM print files). Such a file can be displayed effectively if the OFFSET statement is used to ignore the first n bytes of each record.

SHOW-FILE in procedure mode

If job switch 5 is on when the command is called, SHOW-FILE operates in procedure mode, i.e. it reads its inputs from SYSDTA and writes its outputs to SYSOUT.

The maximum record length when reading from SYSDTA is 80 characters.

If a FIND or OPEN statement was entered incompletely up to an interrupt point, the next record which is read in is interpreted as a continuation line.

When SYSDTA or SYSOUT is assigned to the terminal, reading/writing takes place in the communication character set. When they are assigned to a file, this is the CCS of the file concerned. In this case, only EBCDIC character sets are permitted (the communication character set can also only be an EBCDIC character set) to permit the statements to be interpreted.

In procedure mode, INFORMATION also outputs the input and output character sets.

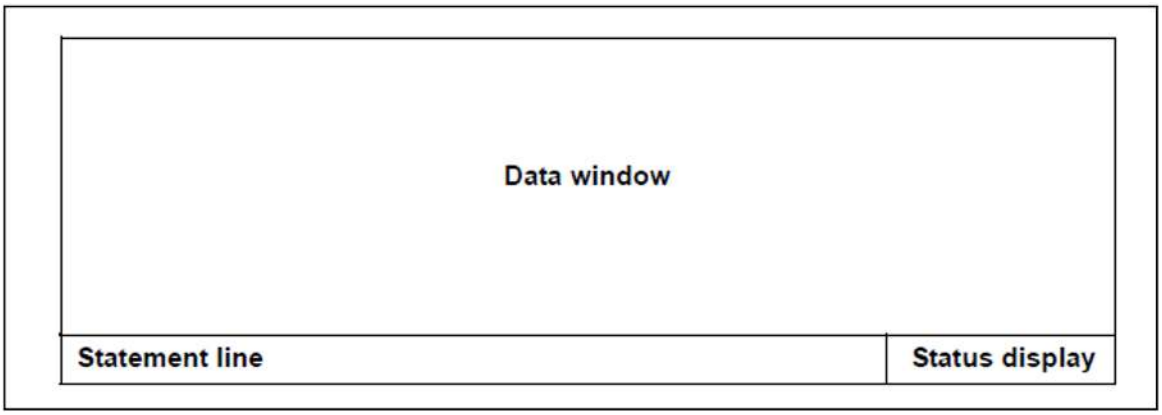
The penultimate line of the work window only contains the status indicator. The RDATA prompt appears in the last line if SYSDTA is assigned to a terminal.

For the output the screen is output to SYSOUT in its normal layout with all control characters. The terminating logical end-of-line characters are not output when a file is output.

Screen display

SHOW-FILE displays the opened file or the library element in the work window on the screen in formatted form. The size of the work window depends on the properties of the data display terminal or terminal emulation used. On a 975x terminal 24 lines each 80 characters long are available for the screen display. The same values apply for a 9763 terminal in start format (F1 format). Here the VDT statement (see "VDT - Specify a new screen format") can also be used to set other formats (F2, F3 or F4 format). In the case of terminals which do not support the F1 format, the format which they support is used as the start format.

The work window subdivides the screen into three areas with different functions:



Data window

The data in the file or of the library element is output in the data window. All lines on the screen except the last line are available for this purpose in their full length. Normally this means 23 lines each containing 80 columns. When a different screen format is specified (see the VDT statement, "SHOW-FILE"), the values change accordingly.

When required, the lower lines of the data window are used to output information lines (2 or 6 lines, see the INFORMATION statement), for message output (1 line) or to provide continuation lines (up to the maximum number of lines in the data window minus 1. After the screen has been refreshed (e.g. using [K3]), the original data lines are visible again.

Statement line

The statement line occupies the last line on the screen (by default line 24) with the exception of the last 26 characters, which are reserved for the status display.

In procedure mode, this line is not displayed in the last line, but one line above this. The RDATA prompt becomes visible in the last line, and the statements can be entered there.

Status indicator

The status indicator provides information on the file type and positional attributes of the file section displayed. The display is in the form:

'BLANK'`<type>*<reference><direction><recordno>(<recordpos>)`

where:

Position	Content	Meaning and value range
1	'BLANK'	Blank
2	<type>	File type: I (=ISAM), S (=SAM), P (=PAM) or L (=PLAM)
3	*	Separator
4	`<reference>`	Reference position for `recordno` with • SOF=start of file • EOF=end of file • KEY=last record searched for with ISAM key For PLAM libraries (file type=L), the PLAM record type is shown.
7	`<direction>`	Direction specifies the sign for the record number in relation to the reference position: + or - In the case of library elements, only a blank is displayed.

Position	Content	Meaning and value range
8	<recordno>	Record number relative to the reference position (see <reference>) in the case of a SAM or ISAM file. For PAM files, the PAM page number is shown. For library elements, the record number is shown: • In the case of A records, the record number within the record type displayed • In the case of B records, the record number within the chain of records of the format B In the case of record numbers with more than 10 characters, the high-order part is truncated: the character # followed by the last 9 characters in the record number is displayed.
18	(	Separator
19	<recordpos>	Record position, i.e. number of the first character on the screen. For PAM files, the position within the PAM page is displayed. For library elements with B format records, the current record position is specified. Starting with the position <recordpos>, the section of the B record is displayed in dump format.
25	)	Separator
26		Not assigned or [LZE]in procedure mode

Table 100: Status indicator of the SHOW-FILE command

Example

```
S*SOF+ 1( 1)
```

Maximum character/byte position

Horizontal scrolling in character and hex format is possible to the maximum character position, and in dump format to the maximum byte position. The maximum character/byte position applies irrespective of whether records of this length exist.

The maximum character position in character and hex format specifies the (theoretical) maximum length for a record in this file. This applies irrespective of whether the file contains records of this length at all. The existence of a record length field is taken into account here, but no other file or device properties.
In the case of SAM and ISAM files with fixed record length, the maximum character position is exactly the record length defined in the catalog.
In the case of SAM and ISAM files with variable record length, the maximum character position is the block size minus 4.
In the case of library elements which only contain A records, the maximum character position is 32764.

In dump format the maximum byte position for files is 2047 (PAM page), and for library elements which contain B records 256 Kbytes-1.

In the text formats, scrolling to the right takes place only as far as to permit the maximum character position to be displayed in the first column of the data window.

In dump format, scrolling to the right takes place only as far as to permit the maximum byte position to be displayed in the first byte position of the data window.

Entering statements

One or more statements can be entered in the statement line. If several statements are entered, they must be separated by semicolons.

The statements are interpreted in EBCDIC. A distinction between uppercase/lowercase is only made within c-strings of the FIND statement if this has been preset using the LOWER operand or the LOWER statement. Keywords are not case-sensitive.
Null characters are treated like blanks when they are entered.

When job switch 5 is on, SHOW-FILE operates in procedure mode (see "SHOW-FILE in procedure mode").

Commands can only be entered again after SHOW-FILE has terminated (e.g. /HELP-MSG-INFORMATION to explain an error message).
The [K3] key can be used to restore the screen contents if, for example, the screen has been overwritten by a message from the operator.

Continuation lines

The space required for the OPEN or CLOSE statement can be more than one line. If the statement completely fills and overruns the line allocated to it, the required continuation lines are provided.

When a search string is being entered, a continuation line is offered until the maximum search string length of 256 bytes (256 characters in the case of a c-string and 512 characters in the case of an X string) is reached or a concluding apostrophe is entered. When the maximum search string length is exceeded, the input is aborted with message SHO0113.
No more than the maximum number of continuation lines required to make another data line visible is offered. If the statement is still incomplete after this, the input is aborted with message SHO0101.

Interrupting long-running statements

Positioning and searching in big files may take a long time. In such cases, it is possible to interrupt long-running statements of the SHOW-FILE command by pressing the [K2] key. This applies to the following statements:

- sequential forward positioning with +n
- sequential backward positioning with -n
- search for string (c-string or x-string) with FIND

In procedure mode, interruption by the [K2] key is not possible.

If one of the above statements is interrupted, the warning SHO0307 is issued and SHOW-FILE waits for your next input. Screen output resumes at the position that had just been reached. The presetting of the statement line depends on the interrupted statement (see "Presettings for the statement line").

Presettings for the statement line

In interactive dialog, SHOW-FILE presets the statement line after a positioning statement has been entered or the FIND and OPEN statements have been issued with a plausible continuation statement. This permits, for example, the file to be scrolled through simply using [DUE] without reentering “+”.

After SHOW-FILE has been called, “+” is initially preset in the statement line if the file contains more than one record.

Input	Preset with	No presetting
+[n]	+[n]	Only one record is displayed.
++	- + if fewer records exist than can be displayed in the data window	Only one record exists.
-[n]	-[n]	The first record is displayed.
--	+	Only one record exists.
>[n]	>[n]	Maximum character or byte position has been reached.
<[n]	<[n]	First character or byte position is displayed.
<<	>	
FIND [REVERSE]	FIND [REVERSE]	No hit found.
OPEN	+	The element contains only one record.

The statement line is not preset in the following cases:

- SHOW-FILE was called in procedure mode (job switch 5 is set).
- The file consists of only one record,
- When errors occur, the last entry is output once more in the statement line. If the statement line was overwritten, the presetting can be made visible again with [K3].

Overview of the statements

The table below lists all the statement in the order in which they are subsequently described. Statement names and operands can be abbreviated from left to right as long as they remain unambiguous.

Statement	Function
Statements for vertical positioning (scrolling)	
++	Position to end of file
+[n]	Scroll forward n lines
-[n]	Scroll backward n lines
--	Position to start of file
Rn	Position to a particular record
Statements for horizontal positioning	
<<	Position to first character or byte 1
<[n]	Move n characters/bytes to the left
>[n]	Move n characters/bytes to the right
Sn	Position to a particular character or byte
Further instructions	
FIND	Search for character string or ISAM key
LOWER	Preset conversion of lowercase letters in search strings
HEX	Enable/disable hexadecimal presentation
OFFSET	Ignore bytes at start of record
CODE-NAME	Specify a new data character set
TERMINAL	Specify a new communication character set
VDT	Specify a new screen format
INFORMATION	Output information about file or library element
OPEN	Open new library element
END	Terminate file output

Table 101: Statement overview (SHOW-FILE command)

Statements for scrolling

The character or byte position currently set is not changed when vertical scrolling takes place. This also applies if the records in the new display are shorter than the position set.

++ Position to the end of file, i.e. the last record is (if possible) displayed in the last line of the data window.

In the text formats, the last record is displayed as far down in the data window as possible when scrolling takes place.
In hex output format it is ensured that the last recorded is displayed in edited form.
To enable the first record in the data window also to be displayed in edited form, unused lines (filled with null characters) may appear at the end of the data window.

In dump format, the last record is scrolled to.

In the case of tape files, this statement is rejected with message SHO0129.

-- Position to the start of file, i.e. the first record is displayed in the first line of the data window.

+[n] Scroll forward in the file (toward the end of file).
n determines the number of records by which you scroll forward.
Values where n=<integer 0..9223372036854775807> are accepted. Leading zeros are ignored.

If n is not specified, you scroll forward by the number of lines contained in the data window. If records which had not yet been edited were visible in hex output format, you scroll to the first record which has not been edited.
Any hidden lines are taken into account in the text formats.
In hex output format it is ensured that this record is displayed in edited form. To permit the first record in the data window to be displayed in edited form, records which were already visible in the current data window may be displayed again at the end of the data window.

You scroll forward no further than to the last record. If n goes beyond this, you scroll to the last record and message SHO0301 is issued.

-[n] Scroll backward in the file (toward the start of file).
n determines the number of records by which you scroll backward.
Values where n=<integer 0..9223372036854775807> are accepted. Leading zeros are ignored.

If n is not specified, you scroll in such a manner that the record preceding the first record visible in the data window is displayed as far down as possible in the data window.
In hex output format it is ensured that this record is displayed in edited form. To permit the first record in the data window to be displayed in edited form, records which were already visible in the current data window may be displayed again at the end of the data window.

You scroll backward no further than to the first record. If n goes beyond this, you scroll to the first record and message SHO0302 is issued.

Vertical positioning to a specific record

Rn Position to the nth record, in the case of a display in dump format to the nth PAM page.
Values where n=<integer 0..9223372036854775807> are accepted. Leading zeros are ignored.

The records in the file are regarded as being numbered consecutively. This is also the case for library elements in which the numbering is displayed for each record type.
When n=0, the position is set to the first record. If n is greater than the number of the last record, the position is set to the last record and message `SHO0301` is issued.

Statements for horizontal positioning

<< Move the record section to the left, to the start of the record.
The record section displayed then begins at character position 1 or byte position 0.

<[n] Move the record section to the left character by character or byte by byte (toward the start of the record). n determines the number of characters or bytes by which it is moved.
Values where n=<integer 0..2147483647> are accepted. Leading zeros are ignored.

If n is not specified, the following default applies:

- With the text formats, the record section is moved to the left by the current line length.
- With dump format, the record section is moved to the left by the number of bytes visible in the data window.

If n is greater than the current character or byte position, the position is set to the first character position or the first byte (byte position 0) and message `SHO0316` is issued.

>[n] Move the record section to the right character by character or byte by byte (toward the end of the record and beyond). n determines the number of characters or bytes by which it is moved.
Values where n=<integer 0..2147483647> are accepted. Leading zeros are ignored.

If n is not specified, the following default applies:

- With the text formats, the record section is moved to the right by the current line length.
- With dump format, the record section is moved to the right by the number of bytes visible in the data window.

However, the record section is moved to the right no farther than to permit the maximum character position of a record to be displayed in the first column of the data window or to permit the maximum byte position of a record to be displayed in the first byte position of the data window (see "Maximum character /byte position").

Horizontal positioning to a particular character or byte

S[n] Position the record section displayed to the nth character, in the case of display in dump format to the nth byte of the PAM page.

Values where n=<integer 0..2147483647> are accepted. Leading zeros are ignored. Default: n = 1.
If n=0 is specified, the position is set to column 1 in the text formats, and in dump format to byte position 0.

The position is set to the right no farther than to permit the maximum character position of a record to be displayed in the first column of the data window or to permit the maximum byte position of a record to be displayed in the first byte position of the data window (see "Maximum character/byte position").

FIND - Search for a character string or an ISAM key

The FIND statement is used to search for character strings or ISAM keys and sets the position to the first hit.

Format:

```
FIND  [ [K] { [C]'string' [,LOWER = { ON / OFF }] / X'hexstring' } [,ALL] ]
      [,REVERSE]
```

Meaning of the operands

K	Specifies that the search string is to be interpreted as an ISAM key. A search string which does not comply with the key length is filled with null characters on the right if it has too few characters or truncated on the right if it has too many. The ALL and REVERSE operands are ignored. If the current file was not opened with ISAM, SHOW-FILE rejects the statement with message SHO0118.
[C]'string'	Search string (character string containing a maximum of 256 characters from the communication character set or the CCS assigned to SYSDTA). Quotes within the search string must be doubled. If the character string is too long, the statement is rejected with SHO0113. If the character string is empty, the statement is rejected with SHO0122. The character string is converted to the data character set for the search. If that is not possible, the statement is rejected with SHO0402.
X'hexstring'	Search string in hexadecimal format (character string containing a maximum of 512 hexadecimal characters). An even number of characters must be specified. Otherwise, the statement is rejected with SHO0115. If the character string is too long, the statement is rejected with SHO0113. If the character string is empty, the statement is rejected with SHO0122.
LOWER=	Specifies whether lowercase letters in the search string are to be converted to uppercase letters. If this operand is not specified, the default value of the LWER statement applies (see "LOWER - Preset conversion of lowercase letters in search strings").
ON	Lowercase letters are retained. A hit is found only if uppercase/lowercase match.

OFF	Lowercase letters are converted to uppercase letters. Even when lowercase letters are entered, only uppercase letters are found.
ALL	Selects the hit-based search strategy (see "Search strategies"). This operand can only be specified in conjunction with a search string. The operand is ignored in a search for ISAM keys.
REVERSE	Reverses the search direction, i.e. the search is made toward the start of file. The operand is ignored in a search for ISAM keys.

Hit display when searching for ISAM keys

When the K operand is specified, the specified search string is interpreted as an ISAM key and the search is restricted to the ISAM keys. The following applies for the hit display:

- Data is output starts at the record with the specified ISAM key, the character/byte position in the record remains unchanged.
- If no corresponding key exists, error message SHO0409 is issued and the position is set to the record with the next highest existing key. If there is no record with a higher key, the position is set to the last record.

Search strategies

In a new search (a character or byte string was specified) FIND starts at the current character or byte position in the uppermost record which is displayed in the data window. Depending on the data type and the ALL operand, the FIND statement uses two different search strategies when searching for character or byte strings:

- The **record-based strategy** is employed for SAM and ISAM files and library elements with records of the A format if they are displayed in a text format and the ALL operand is not specified. In the event of a hit, i.e. when a record is found which contains the search string at least once, the position is set to the start of the hit record. The search for the next hit begins at the start of the record following the hit record or, in the case of REVERSE, at the start of the preceding record.
- The **hit-based strategy** is always employed for PAM files and library elements with format B records. It is also always employed for SAM and ISAM files if these are displayed in dump format. In all other cases, it is employed only if the ALL operand is specified. To permit the hit-based strategy to be used in the reverse direction, the search direction is also reversed within the record. In the event of a hit, the position is set to the first byte of the character string or byte string found. If, when searching for byte strings, a hit is recorded within a character encoded in several bytes, the position is set to the first byte of this character. The search for the next hit begins with the first byte following the hit byte or, in the case of REVERSE, with the byte preceding the hit byte.

Further information

- In the event of a hit, the statement line is preset with FIND or FIND REVERSE, thus enabling the search to be continued in the same direction simply by pressing [DUE]. If the continued search (FIND without a search string) yields no further hits, message SHO0303 is issued and the statement line is no longer preset.
- If no hit is found in the first search (FIND with a search string), error message SHO0408 is issued. To search the entire file backward in accordance with the hit-based strategy, the position must first be set to the last character or byte of the last record (or behind it).
- If no operand or only the REVERSE operand is specified, the search is continued with the last search string specified, and if required the search direction is changed. If no search string has been saved, the statement is rejected with message SHO0401.

LOWER - Preset conversion of lowercase letters in search strings

The LOWER statement determines whether SHOW-FILE should convert lowercase letters in the search string to uppercase letters if the LOWER parameter is not specified in a FIND statement.

Format: **LOWER** [**ON** / **OFF**]

Meaning of the operands:

ON Lowercase letters are retained if no other specification is made within a search statement.

OFF Lowercase letters are converted if no other specification is made within a search statement.

LOWER OFF is preset when SHOW-FILE is called.

HEX - Switch hexadecimal on/off

The HEX statement switches the display between the two text output formats.

Format: **HEX** [**ON** / **OFF**]

Meaning of the operands:

ON Output takes place in hex format (see OUTPUT-FORMAT=*HEX).

OFF Output takes place in character format (see OUTPUT-FORMAT= *CHARACTER).

In dump format, the statement is rejected with message SHO0119.

OFFSET - Ignore bytes at the start of a record

In text formats the OFFSET statement causes the first n bytes in each record to be ignored. In dump format the statement is rejected with message SHO0128.
In this display mode records with a length <= n are treated like records with a length of zero.

Format: **OFFSET** [n]

Meaning of the operands:

n Number of bytes which are to be ignored at the start of the record. Values where n=<integer 0.. 2147483647> are accepted. Leading zeros are ignored.
When the maximum search string length is exceeded, the input is aborted with message SHO0125.
If n is not specified, no bytes are ignored (corresponds to n=0).

When the statement is executed, the character position for the display is implicitly reset to 1 because the way the characters are interpreted may change.

CODENAME - Specify a new data character set

The CODENAME statement is used to explicitly specify the data character set in which the content of the file is interpreted.

Format: **CODENAME** [ccs-name]

Meaning of the operands:

css-name Name of the communication character set to be specified (<name 1..8>).

The character set named must be known to XHCS and must be accepted by the terminal. Otherwise, SHOW-FILE will reject the statement with message SH00405.

If the operand is not specified, SHOW-FILE once again specifies the communication character set which was determined automatically (see also "SHOW-FILE").

Switching the data character set implicitly triggers a number of actions:

- If automatic selection of the communication character set is active (see the TERMINAL statement), it is determined again and, if necessary, specified once more.
- The last search string is invalidated, i.e. a FIND statement without a search string is then rejected.
- The character position is reset to 1 or the byte position to 0 because the way the data is interpreted may have changed.

The file position remains unchanged so that the user can recognize the effects which changing the character set has on the record which is currently being examined.

TERMINAL - Specify a new communication character set

The TERMINAL statement is used to explicitly specify the communication character set.

Format: **TERMINAL** [ccs-name]

Meaning of the operands:

css-name Name of the communication character set to be specified (<name 1..8>).The character set named must be known to XHCS and must be accepted by the terminal, otherwise SHOW-FILE will reject the statement with message SH00405.

If the statement is specified without an operand, SHOW-FILE once again specifies the communication character set which was determined automatically (see also "SHOW-FILE").

VDT - Specify a new screen format

The VDT statement is used to explicitly specify a screen format (see also "Screen display") if the terminal supports the format specified.

Format: **VDT** [**F1** / **F2** / **F3** / **F4**]

Meaning of the operands:

F1 Sets the screen format to 24 lines and 80 columns.

F2 Sets the screen format to 27 lines and 132 columns.

F3 Sets the screen format to 32 lines and 80 columns.

F4 Sets the screen format to 43 lines and 80 columns.

Screen formats F2, F3, and F4 are only supported by terminals of the type 9763. If the terminal does not support the format specified, the statement is rejected with message SHO0306.

INFORMATION - Output information about a file or library element

The INFORMATION statement outputs information about the file or library element which is currently displayed.

Format: **INFORMATION**

In the case of files, the information output overwrites the last two data lines (by default lines 22-23). The file name and an information line containing the character sets concerned (CCS of the file, data character set, and communication character set) are displayed:

```
FILE: <filename 1..54>
CCSN: FILE=<name 1..8> DATA=<name 1..8> TERM=<name 1..8>
FILE: <filename 1..54>
CCSN: FILE=<name 1..8> DATA=<name 1..8> TERM=<name 1..8>
```

In the case of library elements, the information output overwrites the last six data lines (by default lines 19-23). The library name, element name, element type, version, and variant are displayed, as well as an information line containing the character sets concerned (CCS of the file, data character set and communication character set):

```
LIBRARY: <filename 1..54>
ELEMENT: <composed-name 1..64>
TYPE:    <name 1..8>
VERSION: <text 1..24>
VARIANT: <integer 1..9999>
CCSN: FILE=<name 1..8> DATA=<name 1..8> TERM=<name 1..8>
```

The information displayed can be cleared by pressing [DUE] (send key) or by entering the next statement. It disappears the next time the screen is redrawn.

If INFORMATION is entered as part of a statement chain, the information is displayed on the next screen of output information. Processing of the statement chain is not interrupted. If output of another message is pending at the same time, it takes precedence over the INFORMATION output.

Example

If you enter **+;inf;find c'find'** and the ‘find’ string is not found, the message “SHO0408 SPECIFIED STRING DOES NOT EXIST” is output instead of the information.

OPEN - Open new library element

This statement opens a new element in the library specified with the SHOW-FILE call. Any element which had already been opened is automatically closed. If a file is specified in the SHOW-FILE call instead of a library element, the statement is rejected with message SHO0107.

Format: **OPEN (**[type[,elname[,version]]]**)**

Meaning of the operands:

type	Element type (see also the TYPE operand). If this specification is missing, SHOW-FILE selects the last available element type in alphabetical order.
elname	Element name (see also the ELEMENT operand). If this specification is missing, SHOW-FILE selects the last available element in alphabetical order.
version	Version of the element (see also the VERSION operand). If this specification is missing, SHOW-FILE selects the highest available version of the element in alphabetical order.

Notes:

- When the new element is opened, the data character set and the output format are determined again in accordance with the element's properties.
- The communication character set is determined again if automatic selection is enabled.
- The position is reset and the search string is invalidated.
- Any communication character set which is explicitly specified, the screen format and the default for converting lowercase letters to search strings (see the LOWER statement) are retained.
- If the element does not exist, SHOW-FILE issues message SHO0407. No library element can then be opened and SHOW-FILE only accepts the OPEN and END statements.

END - Terminate file output

The END statement closes the file or library element which is currently being displayed and terminates SHOW-FILE. The terminating message SHO0500 contains the complete file name of the last file displayed or the library name, element name, version, variant and element type of the last library element displayed.

Format: **END**

The [K1] key has the same effect as the END statement. However, specifications in the statement line are ignored.

Notes for disk files

- Files with BLOCK-CONTROL-INFORMATION=*PAMKEY or *WITHIN-DATA-BLOCK may exhibit interblock gaps, i.e. logical blocks which are in fact reserved for a file but not yet actually occupied. These logical blocks are recognized via their invalid CFIDs. As these blocks may still contain data that does not belong to the file, the PAM pages of such blocks are output as “empty” PAM pages (2048 * X’00’). In addition, a message is issued pointing out that
  - the currently displayed PAM page (OUTPUT-FORMAT=*DUMP) or
  - one or more PAM pages (in the case of PAM files and OUTPUT-FORMAT=*CHAR or *HEX)

  is/are not occupied.

  This applies to all PAM files (regardless of the OUTPUT-FORMAT) and to all ISAM and SAM files with OUTPUT-FORMAT=*DUMP.
- If DMS error ‘0BB7’ (record with invalid length was read) occurs when a SAM file is being displayed, SHOW-FILE is terminated with a message.
- The following disk files are opened with SHARED-UPDATE=*YES:
  - PAM files, irrespective of the output format
  - ISAM files, only when displayed in one of the text formats

  Write accesses of another task are not possible if the file is also opened with SHARED-UPDATE=*YES.

Notes for tape files

- The SHOW-FILE command can also be used to display the contents of tape files, in which case attention must be paid to the following:
- Positioning to the end of the file (using ++) is not possible and is rejected with message `SHO0129.`
- Tape files of the type PAM (in all output formats) and type files of the type SAM (in dump format) can be displayed only if the catalog entry contains the correct number of data blocks.
- Tape files of the type SAM without a catalog entry (foreign files) can be displayed in the text formats as follows:
  - Create catalog entry with IMPORT-FILE, e.g.:

    ```
    /import-file support=*tape(volume=vol001,
                dev-type=tape,file-name=tape.file)
    ```

  - Create TFT entry with the link name DSHOW and the access method SAM using ADD-FILE-LINK, e.g.:

    ```
    /add-file-link link=dshow, file-name=band.datei, access-method=*sam
    ```

  - Open the file with SHOW-FILE, e.g.:

    ```
    /show-file tape.file
    ```

  - Tape files should be displayed sequentially right to the end of the file in a single SHOW-FILE call. When the output is concluded the current block counter is transferred to the catalog entry as the number of file data blocks (see SHOW-FILE-ATTRIBUTES command, BLK-COUNT output field).
    If SHOW-FILE is terminated before the end of the file is reached, the file will only be output up to this data block the next time SHOW-FILE is called, the remaining data blocks will not be displayed.
    In order to resolve this, the catalog entry may have to be deleted and recreated (EXPORT-FILE and IMPORT-FILE commands).
- Tape files of the type SAM which have no catalog entry cannot be displayed in dump format. Tape files of the type PAM which have no catalog entry can never be displayed.

Examples

Hex format display of a file in the UTFE character set (=data character set):

```
Habe nun, ach! Philosophie,<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
C88849A96488854D8899A998886- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
81250545B0138A078936267895B- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
Juristerei und Medizin,<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
DA98AA89884A984D888A896- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
1499235959045404549995B- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
Und leider auch Theologie«????????»,<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
E98498888948A884E889998885AAAAAAAA56- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
45403594590143803856367954DDEDDDDD4B- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - F9AB8AFD8F- - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - AD04BBAAFA- - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 9- - - - - - - - 8- - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - A- - - - - - - - A- - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
Durchaus studiert, mit heißem Bemühn.<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
CA9888AA4AAA8889A6498A48889894C896894- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
44938142023449593B04930859E540254885B- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - A- - - - - - B- - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - B- - - - - - 7- - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
Da steh ich nun ich armer Tor!<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -
+- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - -  S*SOF+         1(     1)
```

Dump format display of a file in the UTFE character set (=data character set):

```
00000000 (       0)  3DA7841C 00000001 01000000 000001E4  ?xd?- - - - ??- - - - ?U<- - - - -
00000010 (      16)  01D44040 E6859595 40A28983 88404541  - M  Wenn sich Â- <- - - - -
00000020 (      32)  EA45AA8B 45AA9045 AABE45AA 9D45AAB7  - ë- - à- - ä- - è- - ì- - <- - -
- -
00000030 (      48)  45AA9D45 B0416B40 9EB29285 6B40E672  è- - ?- - , Å- ke, W<- - - - -
00000040 (      64)  B08184A8 A272B081 A640A495 8440FC8F  - adys?- aw und Á- <- - - - -
00000050 (      80)  AEB5ADDA AD8BAD8B ADA0ADDA ADABAEB0  - - - - - - - - <- - - - -
00000060 (      96)  40858995 85954054 B2BA40A3 85899385   einen _- -  teile<- - - - -
00000070 (     112)  956B4082 85929694 94A34091 85848599  n, bekommt jeder<- - - - -
00000080 (     128)  4067B754 B2BA4B40 E6859595 40A28983   14- _- - . Wenn sic<- - - - -
...
...
...
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - -  P*SOF+         1(     0)
```

6.2 SHOW-FILE-ATTRIBUTES

Output file attributes from catalog

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	@ (bei NBCONOPI=N) bzw. E (bei NBCONOPI=Y)

Function

The SHOW-FILE-ATTRIBUTES command enables users to request information on the catalog entries which they are permitted to access, for files, file generations, and file generation groups. This information can be a simple listing of the names of files, etc., which satisfy the criteria specified in the SHOW-FILE-ATTRIBUTES command; or on the other hand, detailed information from the catalog entry can be requested. Users can request information on all files under their own user IDs and on files under user IDs for which they are co-owners (see "Privileged functions" in the CREATE-FILE command), as well all other users' files that they are permitted to access (see USER-ACCESS, BASIC-ACL, GUARDS, and PROTECTION-ACTIVE). The request can cover all the information stored in the catalog (INFORMATION=*ALL-ATTRIBUTES) or the following information units:

- Names and storage space allocations for the selected files (INFORMATION=*NAME-AND-SPACE; default)
- The total number of PAM pages allocated to the selected files, split into storage space on public volumes, on Net-Storage and on private volumes (INFORMATION=*SPACE-SUMMARY)
- The following blocks of information, individually or in any combination (INFORMATION=*PARAMETERS):
    - history block with historic data of the file: time of creation, time of last access, time the file was last changed, number of storage space extensions (secondary allocations).
    - security block with the protection attributes of the file
    - backup block with all the file attributes for backing up data
    - organization block with all the file attributes related to the file structure
    - allocation block with all the relevant information on storage space allocation
- Brief information on the access method with which the file was created, the password protection, and the highest activated access control (INFORMATION=*MINIMUM)
- Storage space allocation for all selected files and file generations, with totals for each type of volume (INFORMATION=*STATISTICS).

The FILE-NAME and SELECT operands are used to select the files for which the required information is to be output:

- FILE-NAME: the selection criteria are the catalog ID, user ID, and file name (fully or partially qualified, wildcards are permitted in catalog number and file name). Default value: all permanent files under the user's own user ID from the default catalog on the local computer (FILE-NAME=*ALL).
- SELECT: restricts the selection of files within those with the specified FILE-NAME. File attributes are used as selection criteria. Only the files which have the specified file attributes will be selected from the file set defined by FILE-NAME. Default value: the complete file set defined by FILE-NAME (SELECT=*ALL).

Temporary files must be addressed using the tempfile prefix (# or @).

If wildcards are used in the catalog number, only files on locally imported pubsets are displayed.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

By default, systems support (TSOS privilege) can obtain information on the temporary or permanent files belonging to any user ID. However, if SECOS is used it is possible to restrict TSOS co-ownership of a user ID for permanent files.

Wildcards are supported within the user ID. Please note the following:

- Files in nonlocal pubsets are not displayed, even if they can be accessed through an MSCF or RFA connection.
- If no catalog ID is specified, information is supplied about files in the associated default pubsets of the selected user IDs.

In interactive mode, INFORMATION=*PAR(PASSWORDS=*YES) causes passwords to be displayed explicitly.

Overview of functions

Function / Meaning	Level 1 operands	Level 2/3 operands
File name of the file whose catalog entries are to be output.	FILE-NAME =	
Scope of information to be output	INFORMATION =	
File name and reserved storage space	INFORMATION = *NAME-AND-SPACE	
Total occupied, reserved and free storage space for all selected files	INFORMATION = *SPACE-SUMMARY	
Total catalog entry	INFORMATION = *ALL-ATTRIBUTES	
Selection of individual data blocks of the catalog entry	INFORMATION =*PARAMETERS(...)	
• information on password protection		PASSWORDS =
• attributes of storage space allocation		ALLOCATION =
• attributes of data backup		BACKUP =
• attributes of historical nature		HISTORY =
• attributes of file organization		ORGANIZATION =
• attributes of file protection		SECURITY =
Statistical information on all selected files	INFORMATION = *STATISTICS	
Brief information on access control and file structure	INFORMATION = *MINIMUM	
Selection criteria for files whose catalog entries are to be output	SELECT = *BY-ATTRIBUTES (...)	
Date specification		

• Creation date ○ Time		CREATION-DATE =
• Expiration date (implicit retention period) ○ Time		EXPIRATION-DATE =
• Date when file is freed for deletion ○ Time		FREE-FOR-DELETION =
• date of last access ○ Time		LAST-ACCESS-DATE =
• Date of last write access ○ Time		LAST-CHANGE-DATE =
• Number of accesses to the file		ACCESS-COUNTER =
• Type of volume		SUPPORT =
○ Pubset and Net-Storage		• *PUBLIC-DISK
○ Private disk		• *PRIVATE-DISK
○ tape		• *TAPE
• VOLUME-SET		VOLUME-SET =
• Volume identifier (VSN)		VOLUME =
• Availability		AVAILABILITY =
• Storage type		STORAGE-TYPE =

○ File type (on Net-Storage)		• FILE-TYPE =
• Storage class		STORAGE-CLASS =
Storage space		
• Reserved storage space		SIZE =
• Number of extents		NUMBER-OF-EXTENTS =
• Size of reserved storage space not yet used		NUMBER-OF-FREE-PAGES =
• Number of the last page used (last page pointer)		HIGHEST-USED-PAGE =
• Last-byte pointer		LAST-BYTE-POINTER = *NOT-ZERO
• Number of logical blocks in a tape file		BLOCK-COUNTER =
File security/file protection		
• Access		ACCESS =
• Shareability		USER-ACCESS =
• Basic access control list		BASIC-ACL =
• Password protection		GUARDS =
• Highest activated access control		PROTECTION-ACTIVE =
• Password protection		PASSWORD =

• protection against release of storage space		SPACE-RELEASE-LOCK =
• Work file attribute		WORK-FILE =
• BACKUP level		BACKUP-CLASS =
• Type of file		TYPE-OF-FILES =
○ file generation groups only		• *FILE-GROUP
○ PLAM libraries only		• *PLAM-LIBRARY
• information on each generation in a file generation group		GENERATIONS =
• preferred file format		FILE-PREFORMAT =
• Type of file encryption		ENCRYPTION =
• file format		BLOCK-CONTROL-INFO =
• Access method at creation		FILE-STRUCTURE =
• Code table (XHCS)		ACCESS-COUNTER =
Performance attributes ○ Performance requirements ○ Type of I/O operations		IO-ATTRIBUTES =
• Time of ensuring data consistency after write operations		DISK-WRITE =

Function / Meaning	Level 1 operands	Level 2/3 operands
• Information source		FROM-CATALOG =
○ File catalog of the default pubset		• *STD
○ All locally available file catalogs		• *LOCAL
○ VTOC of a private disk		• *PRIVATE
○ Catalog of a Net-Storage volume		• *NET
• Status of the file		STATUS =
○ Closed		• CLOSED-OUTPUT
○ Processed in a cache		• CACHED
○ Not closed properly and not yet reconstructed		• REPAIR-NEEDED
○ Locked due to inconsistency		• OPEN-ALLOWED
○ Contains defective disk blocks		• DEFECT-REPORTED
○ Modified data not written out to disk when closed		• CACHE-NOT-SAVED
• user information		USER-INFORMATION =
• systems support information		ADM-INFORMATION =
HSMS-related file attributes		

Function / Meaning	Level 1 operands	Level 2/3 operands
• Ability to migrate from processing level (S0) to background level (S1 or S2)		MIGRATE = *ANY
• Ability to migrate within processing level (S0)		S0-MIGRATION =
• Storage level		STORAGE-LEVEL =
• Storage management class		MANAGEMENT-CLASS =
• Participation in version backup		VERSION-BACKUP =
Control information output	OUTPUT =	
Suppress output	OUTPUT = *NONE	
Output to SYSOUT	OUTPUT = *SYSOUT	
Output to SYSLST	OUTPUT = *SYSLST(...)	
• Control print editing		FORM-NAME=
○ File names only		• *FILE-NAME
○ File name and other information in table form		• *STD
Output to printer	OUTPUT = *PRINTER(...)	
• Control print editing		FORM-NAME=
○ File names only		• *FILE-NAME
○ File name and other information in table form		• *STD
Output to a file	OUTPUT = <file-name>(...)	

Function / Meaning	Level 1 operands	Level 2/3 operands
• Control print editing		FORM-NAME=
Output option	OUTPUT-OPTIONS =*PARAMETERS(...)	
• Sequence of information units		SORT-LIST=
○ Alphabetically sorted by file names		• *BY-FILENAME
○ Not sorted (as in the file catalog)		• *NO

Table 102: Overview of SHOW-FILE-ATTRIBUTES command functions

Format

SHOW-FILE-ATTRIBUTES Alias: **SH** / **SHFA**

FILE-**NAME** = ***ALL** / <filename 1..54 with-wild(80)>

,**INF**ORMATION = ***NAME-AND-SPACE** / ***SPACE-SUMMARY** / ***ALL-ATTR**IBUTES / [***PAR**AMETERS](...) /
***STATIS**TICS / ***MIN**IMUM

[***PAR**AMETERS](...)

| **ALLOC**ATION = ***NO** / ***Y**ES

| ,**BACKUP** = ***NO** / ***Y**ES

| ,**HISTORY** = ***NO** / ***Y**ES

| ,**ORG**ANIZATION = ***NO** / ***Y**ES

| ,**PASS**WORDS = ***NO** / ***Y**ES

| ,**SECURITY** = ***NO** / ***Y**ES

| ,**STAND**ARD = ***NO** / ***Y**ES

| ,**PROT**ECTION = ***NO** / ***Y**ES

| ,**FILE** = ***NO** / ***Y**ES / ***FILE**

,**SEL**ECT = ***ALL** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| **CRE**ATION-**DATE** = ***ANY** / ***TODAY**(...) / ***YESTERDAY**(...) / <integer -99999..991231>(...) /
<date>(...) / ***INTERVAL**(...) / ***NONE**

| ***TODAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

[***INTERVAL**](...)

| | **FROM** = **00:00:00** / <time>

| | , **TO** = **23:59:59** / <time>

| ***YESTERDAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

[***INTERVAL**](...)

| | **FROM** = **00:00:00** / <time>

| | ,**TO** = **23:59:59** / <time>

| <integer -99999..991231>(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

```
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       <date>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |       FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TODAY(...) /
|           |               *YESTERDAY(...)
|           |           <integer -99999..991231>(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |           *TODAY(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |       ,TO = *TODAY (...) / *YESTERDAY(...) / <integer -99999..991231>(...) /
|           |                       <date>(...)
|           |           *TODAY(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           *YESTERDAY(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           <integer -99999..991231>(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |                   |           TIME = 23:59:59 / <time>
|   ,EXPIRATION-DATE = *ANY / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|                       <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...) / *NONE
|       *TOMORROW(...)
|           |       TIME = *ANY / [*INTERVAL](...)
```

```
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       *TODAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       *YESTERDAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       <integer -99999..991231>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       <date>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |       FROM = 1950-01-01 / <integer -99999..991231>(...) / *TOMORROW(...) / *TODAY(...) /
|           |               *YESTERDAY(...) / <date>(...)
|           |           <integer -99999..991231>(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |           *TOMORROW(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |           *TODAY(...)
```

```
|           |                   |           TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |                   |           TIME = 00:00:00 / <time>
|           |       ,TO = *ANY / TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|           |                       <integer -99999..991231>(...) / <date>(...) / *ANY
|           |           *TODAY(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           *TOMORROW(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           *YESTERDAY(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           <integer -99999..991231>(...)
|           |                   |           TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |                   |           TIME = 23:59:59 / <time>
|       ,LAST-ACCESS-DATE = *ANY / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) /
|                               <date>(...) / *INTERVAL(...) / *NONE
|       *TODAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       *YESTERDAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       <integer -99999..991231>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |                   |           FROM = 00:00:00 / <time>
|           |                   |           ,TO = 23:59:59 / <time>
|       <date>(...)
```

```
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |       FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TOMORROW /
|           |           *TODAY(...) / *YESTERDAY(...)
|           |           <integer -99999..991231>(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           *TODAY(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |               |           TIME = 00:00:00 / <time>
|           |       ,TO = *TODAY (...) / *TOMORROW / *YESTERDAY(...) /
|           |       <integer -99999..991231>(...) / <date>(...)
|           |           *TODAY(...)
|           |               |           TIME = 23:59:59 / <time>
|           |           *YESTERDAY(...)
|           |               |           TIME = 23:59:59 / <time>
|           |           <integer -99999..991231>(...)
|           |               |           TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |               |           TIME = 23:59:59 / <time>
|   ,LAST-CHANGE-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) /
|                           <integer -99999..0>(...) / <date>(...) / *INTERVAL(...)
|       *TODAY(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           ,TO = 23:59:59 / <time>
|       *YESTERDAY(...)
```

```
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           , TO = 23:59:59 / <time>
|       <integer -99999..0>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           ,TO = 23:59:59 / <time>
|       <date>(...)
|           |       TIME = *ANY / [*INTERVAL](...)
|           |           [*INTERVAL](...)
|           |               |           FROM = 00:00:00 / <time>
|           |               |           ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|           |       FROM = 1950-01-01 / <integer -99999..0>(...) / <date>(...) / *TODAY(...) /
|           |           *YESTERDAY(...)
|           |           <integer -99999..0>(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           *TODAY(...)
|           |               |           TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |               |           TIME = 00:00:00 / <time>
|           |       ,TO = *TODAY / <integer -99999..0>(...) / <date>(...) / *TODAY(...) /
|           |           *YESTERDAY(...)
|           |           <integer -99999..0>(...)
|           |               |           TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |               |           TIME = 23:59:59 / <time>
|           |           *TODAY(...)
|           |               |           TIME = 23:59:59 / <time>
```

| | | ***YESTERDAY**(...)
| | | | **TIME** = **23:59:59** / <time>
| ,**SUP**PORT = ***ANY** / list-poss(3): ***PUB**LIC**-DISK** / ***PRIV**ATE**-DISK** / ***TAPE**
| ,**STOR**AGE **-TYPE** = ***ANY** / ***PUBLIC-SPACE** / ***NET-STORAGE**(...)
| ***NET-STORAGE**(...)
| | **FILE-TYPE** = ***ANY** / ***BS2000** / ***NODE-FILE**
| ,**VOL**UME = ***ANY** / <vsn 1..6>
| ,**SIZE** = ***ANY** / ***FREESIZE** / <integer 0..2147483647> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = **0** / <integer 0..2147483647>
| | ,**TO** = **2147483647** / **STD** / <integer 0..2147483647>
| ,**NUM**BER**-OF-EXT**ENTS = ***ANY** / ***NOT-ZERO** / <integer 0..65535> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = **0** / <integer 0..65535>
| | ,**TO** = **65535** / <integer 0..65535>
| ,**NUM**BER**-OF-FREE**-PAGES = ***ANY** / ***ALL-ALLOC**ATED / ***NOT-ZERO** /
| <integer 0..2147483647> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = **0** / <integer 0..2147483647>
| | ,**TO** = **2147483647** / <integer 0..2147483647>
| ,**HIGH**EST**-USED-PAGE** = ***ANY** / <integer 0..2147483647> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = **0** / <integer 0..2147483647>
| | ,**TO** = **2147483647** / <integer 0..2147483647>
| ,**BLOCK-COUNT**ER = ***ANY** / <integer 0..2147483647> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | **FROM** = **0** / <integer 0..2147483647>
| | ,**TO** = **2147483647** / <integer 0..2147483647>
| ,**ACCESS** = ***ANY** / ***READ** / ***WR**ITE
| ,**PASS**WORD = ***ANY** / list-poss(4): ***NONE** / ***READ-PASS**WORD / ***WR**ITE**-PASS**WORD /
| ***EXEC-PASS**WORD
| ,**USER-ACCESS** = ***ANY** / list-poss(3): ***OWNER-ONLY** / ***ALL-USERS** / ***SPECIAL**
| ,**BASIC-ACL** = ***ANY** / ***NONE** / ***Y**ES / [***PAR**AMETERS](...)

```
|       [*PAR]AMETERS](...)
|           |       OWNER = *ANY / *NO-ACCESS / [*PAR]AMETERS](...)
|           |           [*PAR]AMETERS](...)
|           |               |           READ = *ANY / *NO / *YES
|           |               |           ,WRITE = *ANY / *NO / *YES
|           |               |           ,EXEC = *ANY / *NO / *YES
|           |       ,GROUP = *ANY / *NO-ACCESS / [*PAR]AMETERS](...)
|           |           [*PAR]AMETERS](...)
|           |               |           READ = *ANY / *NO / *YES
|           |               |           ,WRITE = *ANY / *NO / *YES
|           |               |           ,EXEC = *ANY / *NO / *YES
|           |       ,OTHERS = *ANY / *NO-ACCESS / [*PAR]AMETERS](...)
|           |           [*PAR]AMETERS](...)
|           |               |           READ = *ANY / *NO / *YES
|           |               |           ,WRITE = *ANY / *NO / *YES
|           |               |           ,EXEC = *ANY / *NO / *YES
|       ,GUARDS = *ANY / *YES / *NO / [*PAR]AMETERS](...)
|           [*PAR]AMETERS](...)
|           |       READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|           |       ,WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|           |       ,EXEC = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
|       ,PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
|       ,STATUS = *ANY / [*PAR]AMETERS](...)
|           [*PAR]AMETERS](...)
|           |       CLOSED-OUTPUT = *ANY / *YES / *NO
|           |       ,CACHED = *ANY / *YES / *NO
|           |       ,REPAIR-NEEDED = *ANY / *YES
|           |       ,OPEN-ALLOWED = *ANY / *YES / *NO
|           |       ,DEFECT-REPORTED = *ANY / *YES
|           |       ,CACHE-NOT-SAVED = *ANY / *YES
|       ,FILE-STRUCTURE = *ANY / list-poss(5): *PAM / *SAM / *ISAM / *BTAM / *NONE
|       ,BLOCK-CONTROL-INFO = *ANY / list-poss(9): *NONE / *NO / *WITHIN-DATA-BLOCK /
|       *WITHIN-DATA-2K-BLOCK / *WITHIN-DATA-4K-BLOCK / *PAMKEY /
```

```
|       *NK / *NK2 / *NK4
|       ,LAST-BYTE-POINTER = *ANY / *NO / *YES / *ZERO / *NOT-ZERO
|       ,BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
|       ,MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
|       ,VERSION-BACKUP = *ANY / list-poss(2): *ENABLED / *DISABLED
|       ,STORAGE-LEVEL = *ANY / list-poss(3): *S0 / *S1 / *S2
|       ,GENERATIONS = *NO / *YES
|       ,TYPE-OF-FILES = *ANY / list-poss(2): *FILE-GROUP / *PLAM-LIBRARY
|       ,FROM-CATALOG = *STD / *PRIVATE(...) / *NET(...) / *LOCAL
|          *PRIVATE(...)
|             |       VOLUME = <vsn 1..6>
|             |       ,DEVICE = <device>
|          *NET(...)
|             |       VOLUME = <vsn 1..6>
|             |       ,FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
|       ,IO-ATTRIBUTES = *ANY / [*PARAMETERS](...)
|          [*PARAMETERS](...)
|             |       PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
|             |       ,USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
|       ,DISK-WRITE = *ANY / *IMMEDIATE / *BY-CLOSE
|       ,FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|                                  <integer -99999..99999>(...) / <date>(...) / *INTERVAL(...)
|          *TOMORROW(...)
|             |       TIME = *ANY / *INTERVAL(...)
|             |             *INTERVAL(...)
|             |                   |       FROM = 00:00:00 / <time>
|             |                   |       , TO = 23:59:59 / <time>
|          *TODAY(...)
|             |       TIME = *ANY / *INTERVAL(...)
|             |             *INTERVAL(...)
|             |                   |       FROM = 00:00:00 / <time>
|             |                   |       ,TO = 23:59:59 / <time>
|          *YESTERDAY(...)
```

```
|       |       TIME = *ANY / *INTERVAL(...)
|       |           *INTERVAL(...)
|       |               |           FROM = 00:00:00 / <time>
|       |               |           ,TO = 23:59:59 / <time>
|       <integer -99999..99999>(...)
|       |       TIME = *ANY / *INTERVAL(...)
|       |           *INTERVAL(...)
|       |               |           FROM = 00:00:00 / <time>
|       |               |           , TO = 23:59:59 / <time>
|       <date>(...)
|       |       TIME = *ANY / *INTERVAL(...)
|       |           *INTERVAL(...)
|       |               |           FROM = 00:00:00 / <time>
|       |               |           ,TO = 23:59:59 / <time>
|       *INTERVAL(...)
|       |       FROM = 1900-01-01 / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) /
|       |           <integer -99999..99999>(...) / <date>(...)
|       |           *TOMORROW(...)
|       |               |           TIME = 00:00:00 / <time>
|       |           *TODAY(...)
|       |               |           TIME = 00:00:00 / <time>
|       |           *YESTERDAY(...)
|       |               |           TIME = 00:00:00 / <time>
|       |           <integer -99999..99999>(...)
|       |               |           TIME = 00:00:00 / <time>
|       |           <date>(...)
|       |               |           TIME = 00:00:00 / <time>
|       |       ,TO = *ANY / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|       |           <integer -99999..99999>(...) / <date>(...)
|       |           *TODAY(...)
|       |               |           TIME = 23:59:59 / <time>
|       |           *TOMORROW(...)
|       |               |           TIME = 23:59:59 / <time>
```

| | | ***YESTERDAY**(...)
| | | | TIME = **23:59:59** / <time>
| | | <integer -99999..99999>(...)
| | | | TIME = **23:59:59** / <time>
| | | <date>(...)
| | | | TIME = **23:59:59** / <time>
| ,**STOR**AGE-**CLASS** = ***ANY** / ***NONE** / <composed-name 1..8>
| ,**MANAG**EMENT-**CLASS** = ***ANY** / ***NONE** / <composed-name 1..8>
| ,**ADM-INF**ORMATION = ***ANY** / ***NONE** / <c-string 1..8 with-low>
| ,**USER-INF**ORMATION = ***ANY** / ***NONE** / <c-string 1..8 with-low>
| ,**VOL**UME-**SET** = ***ANY** / <cat-id 1..4>
| ,**AVAIL**ABILITY = ***ANY** / list-poss(2): ***STD** / ***HIGH**
| ,**S0-MIG**RATION = ***ANY** / list-poss(2): ***ALLOW**ED / ***FORBIDDEN**
| ,**WORK-FILE** = ***ANY** / ***NO** / ***Y**ES
| ,**FILE-PREFORMAT** = ***ANY** / list-poss(4): ***NONE** / ***K** / ***NK2** / ***NK4**
| ,**ACCESS-COUNT**ER = ***ANY** / <integer 0..2147483647> / [***INTERVAL**](...)
| [***INTERVAL**](...)
| | FROM = **0** / <integer 0..2147483647>
| | ,**TO** = **2147483647** / <integer 0..2147483647>
| ,**CODED-CHAR**ACTER-**SET** = ***ANY** / ***NONE** / <name 1..8>
| ,**SPACE-RELE**ASE-**LOCK** = ***ANY** / ***NO** / ***Y**ES
| ,**ENCRYPTION** = ***ANY** / list-poss(3): ***NONE** / ***AES** / ***DES**

,**OUTPUT** = ***SYSOUT** / ***NONE** / ***SYSLST**(...) / ***PRINT**ER(...) / <filename 1..54 without-gen-vers>(...)

***SYSLST**(...)
| FORM-NAME = ***STD** / ***F**ILE-**NAME**

***PRINT**ER(...)
| FORM-NAME = ***STD** / ***F**ILE-**NAME**

<filename 1..54 without-gen-vers>(...)
| FORM-NAME = ***STD** / ***F**ILE-**NAME**

,**OUT**PUT-**OPT**IONS = [***PAR**AMETERS] (...)

[***PAR**AMETERS](...)
| SORT-LIST = ***BY-FILENAME** / ***NO**

Operands

FILE-NAME = *ALL / <filename 1..54 with-wild(80)>
The name of the file(s) for which information is to be output. If the SHOW-FILE-ATTRIBUTES command is issued without selection operands or with the default values (FILE-NAME=*ALL, SELECT=*ALL), the output will show the storage space reservation and path name for all (permanent) files under the user's own user ID, in alphabetical order. If a user ID for which the user is listed as co-owner is specified (see "Privileged functions" in the CREATE-FILE command), information can be requested for all permanent files. If a "foreign" user ID is specified, the only files for which information can be requested are those which the catalog entry shows the user is authorized to access (see USER-ACCESS, BASIC-ACL, GUARDS, and PROTECTION-ACTIVE).
If the FILE-NAME operand identifies a file generation group, only information about the group entry will be output and none about the individual generations. The latter information will only be output if the operand GENERATIONS=*YES is also specified (under SELECT=*BY-ATTRIBUTES). This also applies to FILE-NAME=*ALL.
With the special prefix characters (# or @) for temporary files, the user can request information on all the temporary files for the current job. The special prefix character is replaced in the SYSOUT or SYSLST log by the name component used internally by the system.
For files addressed by an alias or the defined ACS prefix, the actual name from the file catalog appears in the output (see the ACS functions described in the LOAD-ALIAS-CATALOG and SET-FILE-NAME-PREFIX commands).

FILE-NAME = *ALL
The storage space reservation and file name will be output, in alphabetical order, for all the files recorded in the default catalog on the local computer under the user's own user ID.

FILE-NAME = <filename 1..54 with-wild(80)>
FILE-NAME specifies the files or file generation groups for which information is required. The user can obtain information on either permanent files or temporary files (by specifying the tempfile prefix), but not both.

INFORMATION = *NAME-AND-SPACE / *SPACE-SUMMARY / *ALL-ATTRIBUTES / *PARAMETERS(...) / *STATISTICS / *MINIMUM
The type of information to be shown on output to SYSOUT (see OUTPUT operand).

INFORMATION = *NAME-AND-SPACE
For the selected files, the number of PAM pages used will be output with the file name, in alphabetical order of file name.

INFORMATION = *SPACE-SUMMARY
Provides information on the storage space usage of the files and file generations identified in the current SHOW-FILE-ATTRIBUTES command, because GEN=*YES applies implicitly. The output shows separate details for files on public volumes, for files on Net-Storage and files on private volumes.

INFORMATION = *ALL-ATTRIBUTES
For the selected files, outputs all the information held in the catalog (*NAME-AND-SPACE, *PARAMETERS). In the table"File attribute output fields for the SHOW-FILE-ATTRIBUTES command" the output fields are shown in alphabetical order, with further explanation of their possible values.

INFORMATION = *PARAMETERS(...)
Returns only the selected information for the files in question. The information from the catalog is logically arranged into information blocks. Only those information blocks which are explicitly selected by the user are output. Total lines with the overall storage space allocation for each selected file are shown at the end of the returned information (see INFORMATION=*SPACE-SUMMARY).

STANDARD = *NO / *YES
Specifies whether standard information is to be output.

> The STANDARD operand is only supported for compatibility reasons. It is not offered in guided dialog. STANDARD=*YES is equivalent to `INFORMATION=*PARAMETERS(ORGANIZATION=*YES, ALLOCATION=*YES)`.

PROTECTION = *NO / *YES
Specifies whether information concerning the file protection and expiration date is to be output.

> The PROTECTION operand is only supported for compatibility reasons. It is not offered in guided dialog. PROTECTION=*YES is equivalent to INFORMATION=*PARAMETERS (ORGANIZATION=*YES,SECURITY=*YES, `BACKUP=*YES`).

FILE = *NO / *YES
Output: storage space used in PAM pages, and file attributes.

> The FILE operand is only supported for compatibility reasons. It is not offered in guided dialog. FILE=*YES is equivalent to `INFORMATION=*PARAMETERS(ORGANIZATION=*YES, ALLOCATION=*YES)`.

PASSWORDS = *NO / *YES
Specifies whether the information on passwords is to be output. A header line with the title “PASSWORDS” and a line with the information on file passwords (which corresponds to the first information line of the security block) are output.

PASSWORDS = *NO
No PASSWORD information is to be output.

PASSWORDS = *YES
The first line of the security block is output.
This line provides information on the types of password which protect a file or file generation group. The passwords themselves are not shown to the nonprivileged user. If a user forgets a file password, only the system administrator can help him (see "Privileged functions"). The following attributes are output:

Header line with the word “PASSWORDS”

EXEC-PASS protection with execution password

READ-PASS protection with read password

WRITE-PASS protection with write password

ALLOCATION = *NO / *YES
Outputs the allocation block for the selected files, i.e. all file attributes that affect the allocation of storage space. The allocation block contains the following attributes:

Header line with the word “ALLOCATION”

DEVICE-TYPE device type for volume

EXTENTS	total number of extents for the file
HIGH-US-PA	highest used PAM page
NUM-OF-EXT	Number of extents
S-ALLOC	secondary allocation for file extension
SUPPORT	type of volume
VOLUME	volume serial number

BACKUP = *NO / *YES

Outputs the backup block for the selected files, i.e. all file attributes that affect backups. The backup block contains the following attributes:

Header line with the word “BACKUP”	
BACK-CLASS	backup level for ARCHIVE or HSMS
#BACK-VERS	Maximal number of file versions in the version backup archive
MAN-CLASS	HSMS storage management class
MIGRATE	indicates whether the file may be migrated
SAVED-PAG	indicates whether the file must always be fully saved
STOR-LEVEL	indicates the storage level for migrated files
VERSION	internal attribute for incremental saving with the ARCHIVE or HSMS utility routine

HISTORY = *NO / *YES

Outputs the history block for the selected files, i.e. all file attributes related to the file history. The history block contains the following attributes:

Header line with the word “HISTORY”	
ACC-COUNT	access counter
ACC-DATE	date of last access
ACC-TIME	time of last access
CHANG-DATE	date the file was last changed (written to)
CHANG-TIME	time the file was last changed (written to)
CRE-DATE	creation date
CRE-TIME	time of creation
S-ALLO-NUM	number of secondary allocations

ORGANIZATION = *NO / *YES

Outputs the organization block for the selected files, i.e. all file attributes related to the structure of the file. The organization block contains the following attributes:

ADM-INFO	systems support information
AVAIL	availability
BLK-CONTR	Block control information
BLK-COUNT	block counter (tape files)
BLK-OFFSET	block offset (tape files)
BUF-LEN	block type (standard or nonstandard block)
COD-CH-SET	coded character set (CCS) with XHCS support
NET-COD-CH-SET	Only for node files: character set with which the file is created on Net-Storage
CODE	code specification for tape files
DISK-WRITE	suitability of file for processing in a volatile cache
F-PREFORM	preferred file format
FILE-SEQ	file sequence number (tape file)
FILE-STRUC	access method when the file was created
IO(PERF)	performance requirement for file processing
IO(USAGE)	type of I/O operations for performance requirement
KEY-LEN	Length of ISAM key
KEY-POS	position of ISAM key
LABEL	standard version of labels (tape file)
LOG-FL-LEN	length of logical ISAM flag
PROPA-VAL	propagation of ISAM flag
REC-FORM	Record format
REC-SIZE	Record length
STOR-CLASS	Storage class
S0-MIGR	specifies whether the file may be migrated on processing level
USER-INFO	user information
VAL-FL-LEN	length of ISAM value flag

WORK-FILE	work file attribute

The information block for file generation groups begins with the header line “GENERATION-INFO” and contains the following attributes:

BASE-NUM	base value for relative generation numbers
DEVICE-TYPE	device type for volume
EXTENTS	total number of extents for the file
FIRST-GEN	oldest existing file generation
LAST-GEN	most recent or last cataloged file generation
MAXIMUM	maximum number of simultaneously cataloged generations
OVERFL-OPT	overflow option when maximum number is reached
VOLUME	volume serial number

SECURITY = *NO / *YES

Outputs the security block for the selected files, i.e. all file attributes related to the file security. The security block contains the following attributes:

Header line with the word “SECURITY”

ACCESS	type of access (standard access control)
ACL	file protection with ACL (only supported for reasons of compatibility)
AUDIT	file monitoring
DESTROY	data automatically destroyed on deletion
ENCRYPTION	encryption method
EXEC-PASS	protection with execution password
EXPIR-DATE	date on which the file may be changed again
EXPIR-TIME	time relative to EXPIR-DATE
FREE-DEL-D	free-for-deletion date
FREE-DEL-T	time relative to free-for-deletion date
GUARD-READ	read protection using a guard
GUARD-WRIT	write protection using a guard
GUARD-EXEC	protection with execute guard
GROUP	access rights of user class “group” (BASIC-ACL)
OTHERS	access rights of user class “others” (BASIC-ACL)

OWNER	access rights of file owner (BASIC-ACL)
READ-PASS	protection with read password
SP-REL-LOCK	protection against release of storage space
USER-ACC	shareability attribute (standard access control)
WRITE-PASS	protection with write password

INFORMATION = *STATISTICS
Returns information on storage space allocation for all selected files. The storage space allocations for files and file generation groups are output separately and include additional information for each type of volume (public disks, private disks, and tapes). The files on public disk include both the files on the pubset and the files on Net-Storage. Files for which no entry has been made in the volume list are indicated in a separate line with “NO VSN”.

INFORMATION = *MINIMUM
Outputs a line of information with the most important file attributes in summarized form for each selected file. This line contains brief information on the FILE-STRUCTURE, passwords, highest activated access protection level, the number of reserved PAM pages, and the file name (there may be a line break if the file name is of maximum length). The brief information is indicated as follows:

- the access method with which the file was created: indicated by the first letter in the value of FILE-STRUCTURE;
- information for read, write, and execute passwords: shown in each case with “Y” or “N” to indicate whether the corresponding password was assigned;
- information on the highest activated access control method: see the PROTECTION-ACTIVE operand. When standard access control is the highest protection:
  - USER-ACCESS with “Y” for ALL-USERS or SPECIAL; “N” for OWNER-ONLY
  - ACCESS with “W” for write access or “R” for read access only.

  When basic access control list (BASIC-ACL) is the highest protection:the access rights assigned for each of the user groups OWNER, GROUP and OTHERS are shown (“RWX” or “-” for an access right that has not been set).

  When access control via GUARDS is the highest protection: the value “GUARDS” and the protected access mode (“RWX” or “-” for an access mode not granted) are shown.

SELECT = *ALL / *BY-ATTRIBUTES(...)
The file selection criteria.

SELECT = *ALL
Returns information on all the files which the user is authorized to access.

SELECT = *BY-ATTRIBUTES(...)
Restricts the files selected from the set specified by FILE-NAME to those which satisfy the following specifications. The default values *ANY or ANY for an attribute mean that the file set is not to be restricted to particular values of that attribute.

CREATION-DATE = *ANY / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...) / *NONE
Returns information on files and FGGs on the basis of their creation date (CREATION-DATE); range specifications are inclusive of the limit values. It is meaningless to specify a CREATION-DATE which lies in the future!

CREATION-DATE = *ANY
The creation date is not to be used as a selection criterion.

CREATION-DATE = *TODAY(...)
Returns information for files which have today's date entered as the CREATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on files that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = *YESTERDAY(...)
Returns information for files which have yesterday's date entered as the CREATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on files that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = <integer -99999..991231>(...)
Returns information on files which were created on the specified date. Here, the user can specify the creation date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on files that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = <date>(...)
Returns information on files which were created on the specified date.
The user can specify the creation date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on files that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of creation <= the specified time.

CREATION-DATE = *INTERVAL(...)
Returns information on files which were created within the specified time period. The upper and lower limits are both included in the range specified. See also the explanation of how dates are specified in the EXPIRATION-DATE=<integer ...> operand. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TODAY(...) / *YESTERDAY(...)
Returns information on files which were created after the specified date (i.e. CREATION-DATE >= specified date).

FROM = <integer -99999..991231>(...)
Returns information on files which were created after the specified date (i.e. CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

FROM = <date>(...)
Returns information on files which were created after the specified date (i.e. CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

FROM = *TODAY(...)
Returns information on files which were created after the specified date (i.e. CREATION-DATE >= current date).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

FROM = *YESTERDAY(...)
Returns information on files which were created after the specified date (i.e. CREATION-DATE >= date of preceding day).

TIME = 00:00:00 / <time>
Time on the specified date. All files created at or after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Returns information on files which were created before the specified date (i.e. CREATION-DATE <= specified date).

TO = *TODAY(...)
Returns information on files which were created before the specified date (i.e. CREATION-DATE <= current date).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

TO = *YESTERDAY(...)
Returns information on files which were created before the specified date (i.e. CREATION-DATE <= date of preceding day).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

TO = <integer -99999..991231>(...)
Returns information on files which were created before the specified date (i.e. CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

TO = <date>(...)
Returns information on files which were created before the specified date (i.e. CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All files created at or before the specified time are selected.

CREATION-DATE = *NONE
Returns information on files for which no creation data is entered in the catalog entry.

EXPIRATION-DATE = *ANY / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...) / *NONE
The EXPIRATION-DATE operand requests information on the file/FGG as a function of the “expiration date”, i. e. the date from which write accesses to the file are allowed. It is meaningful to specify a date in the future if retention periods are being queried.

EXPIRATION-DATE = *ANY
The expiration date (output field *EXPIR-DATE*) is not to be used as a selection criterion.

EXPIRATION-DATE = *TOMORROW(...)
Returns information on files which have tomorrow’s date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on files for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = *TODAY(...)
Returns information on files which have today's date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on files for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = *YESTERDAY(...)
Returns information on files which have yesterday's date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on files for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = <integer -99999..991231>(...)
Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on files for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = <date>(...)
Returns information on files for which exactly the specified date is entered as the EXPIRATION-DATE in the catalog entry. The user can specify the expiration date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on files for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects files for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the time of expiration <= the specified time.

EXPIRATION-DATE = *INTERVAL(...)
Returns information on only the files whose expiration dates lie within the period specified as the operand value, i.e. files whose retention period expires during the specified period. The upper and lower limits are both included in the range specified. See also the explanation of how dates are specified in the EXPIRATION-DATE=<integer ...> operand. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...)
Returns information on files for which the EXPIRATION-DATE >= the specified date.

FROM = <integer -99999..991231>(...)
Returns information on files for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <date>(...)
Returns information on files for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = TOMORROW(...)
Returns information on files for which the EXPIRATION-DATE >= date of the next day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *TODAY(...)
Returns information on files for which the EXPIRATION-DATE >= date of the current day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *YESTERDAY(...)
Returns information on files for which the EXPIRATION-DATE >= date of the preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *ANY / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Returns information on files for which the EXPIRATION-DATE <= the specified date.

TO = *ANY
Specifies an open interval that starts with the EXPIRATION-DATE but has no upper limit.

TO = *TODAY(...)
Returns information on files for which the EXPIRATION-DATE <= date of the current day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *TOMORROW
Returns information on files for which the EXPIRATION-DATE <= date of the next day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *YESTERDAY(...)
Returns information on files for which the EXPIRATION-DATE <= date of the preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <integer -99999..991231>(...)
Returns information on files for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <date>(...)
Returns information on files for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

EXPIRATION-DATE = *NONE
Returns information on files for which no expiration data has been entered in the catalog entry.

LAST-ACCESS-DATE = *ANY / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...) / *NONE
Returns information on files/file generations/FGGs as a function of the date of last access to the file. If the output fields *CRE-DATE* and *ACC-DATE* show the same date, the last access to the file was a write-access; if CRE-DATE < ACC-DATE, the last access to the file was to read it.

LAST-ACCESS-DATE = *ANY
The date of last access (output field *ACC-DATE*) is not to be used as a selection criterion.

LAST-ACCESS-DATE = *TODAY(...)
Returns information on files for which today's date is entered as the LAST-ACCESS-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-ACCESS-DATE.

TIME = *INTERVAL(...)
Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-ACCESS-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-ACCESS-DATE <= the specified time.

LAST-ACCESS-DATE = *YESTERDAY(...)
Returns information on files for which yesterday's date is entered as the LAST-ACCESS-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-ACCESS-DATE.

TIME = *INTERVAL(...)
Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-ACCESS-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-ACCESS-DATE <= the specified time.

LAST-ACCESS-DATE = <integer -99999..991231>(...)
Here, the user can specify the last access date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-ACCESS-DATE.

TIME = *INTERVAL(...)
Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-ACCESS-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-ACCESS-DATE <= the specified time.

LAST-ACCESS-DATE = <date>(...)
Returns information on files for which the specified date has been entered as the LAST-ACCESS-DATE in the catalog entry. The user can specify the date in the form [yy]yymm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-ACCESS-DATE.

TIME = *INTERVAL(...)
Returns information on files that were last accessed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-ACCESS-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-ACCESS-DATE <= the specified time.

LAST-ACCESS-DATE = *INTERVAL(...)
Returns information on only those files which were last accessed within the specified time period. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for the LAST-ACCESS-DATE= <integer...> operand). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TODAY(...) / *YESTERDAY(...)
Returns information on only those files which were accessed on or after the specified date (LAST-ACCESS-DATE >= specified date).

FROM = <integer -99999..991231>(...)
Returns information on files for which the LAST-ACCESS-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE after the specified time are selected.

FROM = <date>(...)
Returns information on files for which the LAST-ACCESS-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE after the specified time are selected.

FROM = *TODAY(...)
Returns information on files for which the LAST-ACCESS-DATE >= date of the current day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE after the specified time are selected.

FROM = *YESTERDAY(...)
Returns information on files for which the LAST-ACCESS-DATE >= date of the preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Returns information on only those files which were accessed on or before the specified date (LAST-ACCESS-DATE <= specified date).

TO = *TODAY(...)
Returns information on files for which the LAST-ACCESS-DATE <= date of the current day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE before the specified time are selected.

TO = *YESTERDAY(...)
Returns information on files for which the LAST-ACCESS-DATE <= date of the preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE before the specified time are selected.

TO = <integer -99999..991231>(...)
Returns information on files for which the LAST-ACCESS-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE before the specified time are selected.

TO = <date>(...)
Returns information on files for which the LAST-ACCESS-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-ACCESS-DATE before the specified time are selected.

LAST-ACCESS-DATE = *NONE
Returns information on files for which no LAST-ACCESS-DATE has been entered in the catalog entry. File generation groups are not selected.

LAST-CHANGE-DATE = *ANY / *NONE / *TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...) / *INTERVAL(...)
Returns information on files, file generations, and FGGs based on the date on which the file was last changed (accessed for writing).

LAST-CHANGE-DATE = *ANY
The date of the last write access (output field *CHANG-DATE*) is not to be used as a selection criterion.

LAST-CHANGE-DATE = *NONE
Returns information on files for which no LAST-CHANGE-DATE has been entered in the catalog entry.

LAST-CHANGE-DATE = *TODAY(...)
Returns information on files for which today's date has been entered as the LAST-CHANGE-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Returns information on files that were changed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = *YESTERDAY(...)
Returns information on files for which yesterday's date has been entered as the LAST-CHANGE-DATE in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Returns information on files that were changed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = <integer -99999..0>(...)
Here, the user can specify the date of the last write access relative to the current date (in the form -n).

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Returns information on files that were changed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = <date>(...)
Returns information on only those files which have exactly the specified date entered as the LAST-CHANGE-DATE in their catalog entry. The user can specify the date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of files to a time interval related to the specified LAST-CHANGE-DATE.

TIME = *INTERVAL(...)
Returns information on files that were changed within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects files for which the LAST-CHANGE-DATE >= the specified time.

TO = 23:59:59 / <time>
Selects files for which the LAST-CHANGE-DATE <= the specified time.

LAST-CHANGE-DATE = *INTERVAL(...)
Returns information on only those files which were last changed within the specified time period. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for the LAST-CHANGE-DATE= <integer...> operand). It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..0>(...) / <date>(...) / *TODAY(...) / *YESTERDAY(...)
Returns information on only those files which have been changed since the specified date (LAST-CHANGE-DATE >= specified date).

FROM = <integer -99999..0>(...)
Returns information on files for which the LAST-CHANGE-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

FROM = <date>(...)
Returns information on files for which the LAST-CHANGE-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

FROM = TODAY(...)
Returns information on files for which the LAST-CHANGE-DATE >= the current date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

FROM = YESTERDAY(...)
Returns information on files for which the LAST-CHANGE-DATE >= date of the preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE after the specified time are selected.

TO = TODAY(...) / *YESTERDAY(...) / <integer -99999..0>(...) / <date>(...)
Returns information on files that have been changed on or before the specified date (LAST-CHANGE-DATE <= specified date).

TO = *TODAY(...)
Returns information on files for which the LAST-CHANGE-DATE <= the current date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

TO = YESTERDAY(...)
Returns information on files for which the LAST-CHANGE-DATE <= date of the preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

TO = <integer -99999..0>(...)
Returns information on files for which the LAST-CHANGE-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

TO = <date>(...)
Returns information on files for which the LAST-CHANGE-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a LAST-CHANGE-DATE before the specified time are selected.

SUPPORT = *ANY / list-poss(3): *PUBLIC-DISK / *PRIVATE-DISK / *TAPE
Returns information on files/ file generations/FGGs as a function of the type of volume on which they are stored. If the volume types are specified in the form of a list, the system will combine them by a logical OR.

SUPPORT = *ANY
The volume type is not to be used as a selection criterion.

SUPPORT = *PUBLIC-DISK
Returns information on files stored on public volumes and on Net-Storage.

SUPPORT = *PRIVATE-DISK
Returns information on files etc. stored on private volumes.

SUPPORT = *TAPE
Returns information on files stored on tape.

STORAGE-TYPE = *ANY / *PUBLIC-SPACE / *NET-STORAGE(...)
Returns information on files assigned the specified storage type.

STORAGE-TYPE = *ANY
The storage type is not a selection criterion.

STORAGE-TYPE = *PUBLIC-SPACE
Returns information only on files stored on public volumes.

STORAGE-TYPE = *NET-STORAGE(...)
Returns information only on files stored on Net-Storage volumes.

FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
Returns information on files on Net-Storage volumes, depending on the file type with which they are created.

FILE-TYPE = *ANY
The file type is not a selection criterion.

FILE-TYPE = *BS2000
Returns information only on BS2000 files on Net-Storage volumes.

FILE-TYPE = *NODE-FILE
Returns information only on node files on Net-Storage volumes.

VOLUME = *ANY / <vsn 1..6>
Returns information on all files/FGGs which have an entry in their volume list for the volume with the specified VSN <vsn 1..6>.

SIZE = *ANY / FREESIZE / <integer 0..2147483647> / *INTERVAL(...)
Requests information on files/file generations depending on the size of storage space reserved for them.

SIZE = *ANY
The file size is not to be used as a selection criterion.

SIZE = *FREESIZE
Returns information on files for which none of the reserved PAM pages has yet been used.

SIZE = <integer 0..2147483647>
Returns information on files with the specified number of reserved PAM pages.

SIZE = *INTERVAL(...)
Returns information on files for which the number of reserved PAM pages lies within the specified range. The upper and lower limits are both included in the range specified. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit. Information will only be returned about files for which the number of PAM pages reserved is at least equal to the FROM value and at most equal to the TO value (FROM <= SIZE <= TO).

FROM = 0 / <integer 0..2147483647>
Returns information only about those files for which the number of PAM pages reserved is at least the specified number (SIZE >= specified value).

TO = STD / <integer 0..2147483647>
Returns information only about those files for which the number of PAM pages reserved is at most the specified number (SIZE <= specified value).

NUMBER-OF-EXTENTS = *ANY / *NOT-ZERO / <integer 0..65535> / *INTERVAL(...)
Returns information on disk files/FGGs depending on the number of their extents. An extent is a contiguous area on a disk, occupied by one file; the output field *EXTENTS* shows how many extents the file has.

NUMBER-OF-EXTENTS = *ANY
The number of extents is not to be used as a selection criterion.

NUMBER-OF-EXTENTS = *NOT-ZERO
Returns information only about those files whose number of extents is not zero.

NUMBER-OF-EXTENTS = <integer 0..65535>
Returns information on those files which have exactly the specified number of extents.

NUMBER-OF-EXTENTS = *INTERVAL(...)
Selects all the files whose number of extents lies within the specified range. The upper and lower limits are both included in the range specified. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit. Information will only be returned about the disk files for which the number of extents is at least equal to the FROM value and at most equal to the TO value (FROM <= NUMBER-OF-EXTENTS <= TO).

FROM = 0 / <integer 0..65535>
Returns information on only those files with at least the specified number of extents.

TO = 65535 / <integer 0..65535>
Returns information on only those files with at most the specified number of extents.

NUMBER-OF-FREE-PAGES = *ANY / *ALL-ALLOCATED / *NOT-ZERO / <integer 0..2147483647> / *INTERVAL(...)
Returns information on files/file generations depending on the size of their free (=reserved but unused) storage space.

NUMBER-OF-FREE-PAGES = *ANY
The size of the free storage space is not to be used as a selection criterion.

NUMBER-OF-FREE-PAGES = *ALL-ALLOCATED
Returns information on files whose number of free PAM pages is equal to their number of reserved PAM pages.

NUMBER-OF-FREE-PAGES = *NOT-ZERO
Returns information on files with at least one unused PAM page.

NUMBER-OF-FREE-PAGES = <integer 0..2147483647>
Returns information on files with exactly the specified number of reserved but unused PAM pages.

NUMBER-OF-FREE-PAGES = *INTERVAL(...)
Returns information on files whose number of free PAM pages lies within the specified range. The upper and lower limits are both included in the range specified.
It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range.
The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.
Information will only be returned about files for which the number of free PAM pages is at least equal to the FROM value and at most equal to the TO value (FROM <= NUMBER-OF-FREE-PAGES <= TO).

FROM = 0 / <integer 0..2147483647>
Returns information on only those files which have at least as many free PAM pages as specified (NUMBER-OF-FREE-PAGES >= specified value).

TO = 2147483647 / <integer 0..2147483647>
Returns information on only those files which have at most as many free PAM pages as specified (NUMBER-OF-FREE-PAGES <= specified value).

HIGHEST-USED-PAGE = *ANY / <integer 0..2147483647> / INTERVAL(...)
Selects all files for which the specified number of PAM pages have been written. (Last Page Pointer points to the specified page).

HIGHEST-USED-PAGE = *ANY
The number of PAM pages written (output field *HIGH-US-PA*) is not to be used as a selection criterion.

HIGHEST-USED-PAGE = <integer 0..2147483647>
Selects all files for which the specified number of PAM pages have been written. (Last Page Pointer points to the specified page).

HIGHEST-USED-PAGE = *INTERVAL(...)
Selects all files for which the number of pages written lies within the specified range.

FROM = 0 / <integer 0..2147483647>
Selects all files for which the number of pages written >= the specified number.

TO = 2147483647 / <integer 0..2147483647>
Selects all files for which the number of pages written <= the specified number.

BLOCK-COUNTER = *ANY / <integer 0..2147483647> / *INTERVAL(...)
Returns information on all tape files that occupy the specified number of tape blocks.

BLOCK-COUNTER = *ANY
The number of occupied tape blocks is not to be used as a selection criterion.

BLOCK-COUNTER = <integer 0..2147483647>
Returns information on all tape files which occupy exactly the specified number of tape blocks.

BLOCK-COUNTER = *INTERVAL(...)
Returns information on all tape files for which the occupied number of tape blocks falls within the specified interval which follows.

FROM = 0 / <integer 0..2147483647>
Returns information on all tape files for which the number of occupied tape blocks >= the specified number.

TO = 2147483647 / <integer 0..2147483647>
Returns information on all tape files for which the number of occupied tape blocks <= the specified number.

ACCESS = *ANY / *READ / *WRITE
Returns information on files/file generation depending on their access type.

ACCESS = *ANY
The ACCESS value is not to be used as a selection criterion.

ACCESS = *READ
Returns information on only those files to which writing is prohibited by ACCESS=READ, i.e. to which only read access is permitted.

ACCESS = *WRITE
Returns information on only those files to which write access is permitted.

PASSWORD = *ANY / list-poss(4): *NONE / *READ-PASSWORD / *WRITE-PASSWORD / *EXEC-PASSWORD
Returns information on files/file generation groups depending on the password protection defined. If several types of password are specified as a list, the system will link them by logical Or, and will return information on all the files which satisfy any one of the specified conditions.

PASSWORD = *ANY
Password protection is not to be used as a selection criterion.

PASSWORD = *NONE
Returns information on files which have no password protection.

PASSWORD = *READ-PASSWORD
Returns information on files which are protected by a read password; the actual passwords will not be output.

PASSWORD = *WRITE-PASSWORD
Returns information on files which are protected by a write password; the actual passwords will not be output.

PASSWORD = *EXEC-PASSWORD
Returns information on files which are protected by an execute password; the actual passwords will not be output.

USER-ACCESS = *ANY / *OWNER-ONLY / *ALL-USERS / *SPECIAL
Returns information on files/file generation groups depending on whether they are shareable. If a user ID other than the user's own is specified, then implicitly USER-ACCESS=ALL-USERS.

USER-ACCESS = *ANY
The access authorization is not to be used as a selection criterion.

USER-ACCESS = *OWNER-ONLY
Returns information on files which only the file owner may access.

USER-ACCESS = *ALL-USERS
Returns information on files which may be also be accessed under other user IDs.

USER-ACCESS = *SPECIAL
Returns information on files which may also be accessed under all user IDs and the maintenance IDs (user IDs with HARDWARE-MAINTENANCE privilege).

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
Selects all files whose BASIC-ACL entry matches the specified values.

BASIC-ACL = *NONE
Returns information on files that have no BASIC-ACL entry in the catalog.

BASIC-ACL = *YES
Returns information on files that have a BASIC-ACL entry in the catalog.

BASIC-ACL = *PARAMETERS(...)
Selects all files for which the specified access rights are defined in the BASIC-ACL entry. NO-ACCESS means that no access rights have been defined.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner's user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner's user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

EXEC = *ANY / *NO / *YES
Specifies whether execute access authorization must be present.

GUARDS = *ANY / *NO / *YES / *PARAMETERS(...)
Returns information on files for which access is controlled using GUARDS (see the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command).

GUARDS = *ANY
Access control with GUARDS is not to be used as a selection criterion.

GUARDS = *NO
Returns information on files that are not protected by GUARDS against unauthorized access.

GUARDS = *YES
Returns information on files that are protected by GUARDS against unauthorized access, i.e. files for which access is controlled via the GUARDS subsystem.

GUARDS = *PARAMETERS(...)
Returns information on files which are protected by GUARDS against unauthorized access as specified, i.e. files for which access control is implemented using GUARDS: Access to the file is controlled by a guard, i.e. a special object which contains all the conditions under which a user is granted access authorization, e.g. date, time, user ID. The GUARDS function unit of the chargeable software product SECOS (see the “SECOS” manual [35]) must be installed in order to create and maintain a guard.
Each access mode can be controlled by a separate guard. If no guard (*NONE) is defined for a given access mode, no corresponding access is permitted. If a defined guard is not accessible, the mode of access protected by it is not permitted. If the GUARDS subsystem is not available at the time of accessing the job variable, no access of any kind is allowed for the job variable.

READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Returns information on files which are protected against unauthorized read access by the specified “guard”. The default value *ANY means that the selection of files is not based on read protection with a guard. *NONE selects files for which no read guard was defined, i.e. files for which no read access is permitted.

WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Returns information on files which are protected against unauthorized write access by the specified “guard”. The default value *ANY means that the selection of files is not based on a guard. *NONE selects files for which no guard was defined, i.e. files for which no write access is permitted.

EXEC = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Returns information on files which are protected against unauthorized execution by the specified “guard”. The default value *ANY means that the selection of files is not based on execute protection with a guard. *NONE selects files for which no guard was defined, i.e. files which cannot be executed.

PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
Returns information on files for which the specified protection level is the highest activated access control. When the file is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 103: Hierarchy of access control methods

All other protection attributes of the file (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

PROTECTION-ACTIVE = *ANY
The access control method is not to be used as a selection criterion.

PROTECTION-ACTIVE = *LEVEL-0
Returns information on files for which access is controlled via standard access control.

PROTECTION-ACTIVE = *LEVEL-1
Returns information on files for which access is controlled via a basic access control list (BASIC-ACL protection).

PROTECTION-ACTIVE = *LEVEL-2
Returns information on files for which access is controlled via an access control list (ACL) or by GUARDS.

STATUS = *ANY / *PARAMETERS(...)
Returns information on files/file generations based on the current file status.

STATUS = *ANY
The file status is not to be used as a selection criterion.

STATUS = *PARAMETERS(...)
Returns information on files which have the specified status. The following selection criteria are possible:

> The selection criteria within the *PARAMETERS(...) structure are logically ORed.

CLOSED-OUTPUT = *ANY / *YES / *NO
Specifies whether the “file closed” status is to be used as a selection criterion.

CLOSED-OUTPUT = *YES
Returns information on the output files which have already been closed.

CLOSED-OUTPUT = *NO
Returns information on output files which have been opened (OPEN OUTIN, INOUT or OUTPUT) in a program, and about files which were not closed in an earlier system run or because a job was aborted. GENERATIONS=*YES applies implicitly.

CACHED = *ANY / *YES / *NO
Specifies whether file processing via a cache is to be used as a selection criterion.

CACHED = *ANY
Returns information on files regardless of whether or not they are cached.

CACHED = *YES
Returns information on the files/file generations which are currently cached.

CACHED = *NO
Returns information on the files/file generations for which no data has been cached.

REPAIR-NEEDED = *ANY / *YES
Specifies whether files which were not closed in an earlier system run and not reconstructed with REPAIR-DISK-FILES are to be selected.

REPAIR-NEEDED = *ANY
Returns information on files regardless of whether or not they need to be repaired.

REPAIR-NEEDED = *YES
Returns information on only those files which were not closed in an earlier system run and which are not yet reconstructed.

OPEN-ALLOWED = *ANY / *YES / *NO
Specifies whether files which could not be opened due to data inconsistency are to be selected.

OPEN-ALLOWED = *ANY
Returns information on files regardless of whether or not they can be opened.

OPEN-ALLOWED = *YES
Returns information on the files that can be opened.

OPEN-ALLOWED = *NO
Returns information on files which cannot be opened due to data inconsistency.

DEFECT-REPORTED = *ANY / *YES
Specifies whether files which may contain defective disk blocks are to be used as a selection criterion.

DEFECT-REPORTED = *ANY
Returns information on files regardless of whether they may contain defective disk blocks.

DEFECT-REPORTED = *YES
Returns information on files which contain defective disk blocks.

CACHE-NOT-SAVED = *ANY / *YES
Specifies whether to select files for which updates have not been written out from the cache.

CACHE-NOT-SAVED = *ANY
Returns information on files regardless of whether there are updates which have not been written out from the cache.

CACHE-NOT-SAVED = *YES
Returns information on files for which updates have not been written out from the cache.

FILE-STRUCTURE = *ANY / list-poss(5): *PAM / *SAM / *ISAM / *BTAM / *NONE
Returns information on files which were created with the specified access method.

FILE-STRUCTURE = *ANY
The access method is not to be used as a selection criterion.

FILE-STRUCTURE = *PAM
Returns information on PAM files.

FILE-STRUCTURE = *SAM
Returns information on SAM files.

FILE-STRUCTURE = *ISAM
Returns information on ISAM files.

FILE-STRUCTURE = *BTAM
Returns information on BTAM files.

FILE-STRUCTURE = *NONE
Returns information on files which have been cataloged, but which contain no data i.e. files which have not yet been opened, or files for which storage space has been released (logically deleted) by using the OPTION=*DATA operand in a DELETE-FILE command.

BLOCK-CONTROL-INFO = *ANY / list-poss(9): *NONE / *NO / *WITHIN-DATA-BLOCK / *WITHIN-DATA-2K-BLOCK / *WITHIN-DATA-4K-BLOCK / *PAMKEY / *NK / *NK2 / *NK4
Returns information on files, depending on the block format with which data was stored in the file (defined by the BLOCK-CONTROL-INFO operand in an ADD-FILE-LINK command).

BLOCK-CONTROL-INFO = *ANY
The BLOCK-CONTROL information is not to be used as a selection criterion.

BLOCK-CONTROL-INFO = *NONE
Returns information on files for which no BLOCK-CONTROL-INFORMATION value has yet been entered, i.e. which have not yet been opened.

BLOCK-CONTROL-INFO = *NO
Returns information on files which were created with BLOCK-CONTROL-INFO=*NO i.e. files created without a PAM key.

BLOCK-CONTROL-INFO = *WITHIN-DATA-BLOCK
Returns information on files which were created with BLOCK-CONTROL-INFO= *WITHIN-DATA-BLOCK, i.e. whose block control information is held in a block control field at the start of and within the data block.

BLOCK-CONTROL-INFO = *WITHIN-DATA-2K-BLOCK
Returns information on NK-ISAM files which were created with BLOCK-CONTROL-INFO=*WITHIN-DATA-2K-BLOCK, i.e. files for which block control information is located at the start of each 2K block.

BLOCK-CONTROL-INFO = *WITHIN-DATA-4K-BLOCK
Returns information on NK-ISAM files which were created with BLOCK-CONTROL-INFO=*WITHIN-DATA-4K-BLOCK, i.e. files for which block control information is located at the start of each 4K block.

BLOCK-CONTROL-INFO = *PAMKEY
Returns information on files which were created with BLOCK-CONTROL-INFO= *PAMKEY, i.e. whose block control information is contained in a separate PAM key outside the PAM block.

BLOCK-CONTROL-INFO = *NK
Returns information on NK files, i.e. files which can also be stored on volumes (NK2 and NK4).

BLOCK-CONTROL-INFO = *NK2
Returns information on files which can also be stored on NK2 volumes but not on NK4 volumes.

BLOCK-CONTROL-INFO = *NK4
Returns information on files which can also be stored on NK4 volumes.

LAST-BYTE-POINTER = *ANY / *NO / *YES / *ZERO / *NOT-ZERO
Returns information on files depending on the attribute of the last-byte pointer (LBP).

LAST-BYTE-POINTER = *ANY
The last-byte pointer is not to be used as a selection criterion.

LAST-BYTE-POINTER = *NO
Returns information on files which do not have a valid last-byte pointer.

LAST-BYTE-POINTER = *YES
Returns information on files which do have a valid last-byte pointer.

LAST-BYTE-POINTER = *ZERO
Returns information on files which have a valid last-byte pointer with the value zero.

LAST-BYTE-POINTER = *NOT-ZERO
Returns information on files which have a valid last-byte pointer with a value that is not zero.

BACKUP-CLASS = *ANY / list-poss(5): *A / *B / *C / *D / *E
Returns information on files/FGGs whose ARCHIVE or HSMS backup level is the same as the specified operand value. Several backup levels may be specified as a list. In this case, all the files/FGGs which satisfy one of the listed conditions will be selected (logical ORing).

BACKUP-CLASS = *ANY
The BACKUP-CLASS level is not to be used as a selection criterion.

BACKUP-CLASS = *A
Returns information on files/FGGs with the attribute *BACK-CLASS = A*.

BACKUP-CLASS = *B
Returns information on files/FGGs with the attribute *BACK-CLASS = B*.

BACKUP-CLASS = *C
Returns information on files/FGGs with the attribute *BACK-CLASS = C*.

BACKUP-CLASS = *D
Returns information on files/FGGs with the attribute *BACK-CLASS = D*.

BACKUP-CLASS = *E
Returns information on files/FGGs with the attribute *BACK-CLASS = E*.

MIGRATE = *ANY / list-poss(3): *ALLOWED / *INHIBITED / *FORBIDDEN
Returns information for all the files whose catalog entry contains the specified MIGRATE value. This entry is evaluated by the Hierarchical Storage Management System (HSMS) when files are being migrated (CREATE... / MODIFY... command, MIGRATE operand). If multiple attributes are specified in the form of a list, all files that satisfy one of the conditions are selected.

MIGRATE = *ANY
The entry for MIGRATE is not to be used as a selection criterion.

MIGRATE = *ALLOWED
Returns information for only those files whose catalog entry shows *MIGRATE = ALLOWED*, i.e. files which may be migrated to storage level S1 or S2.

MIGRATE = *INHIBITED
Returns information for only those files for which *MIGRATE = INHIBITED* was defined in the catalog entry, i.e. files which may only be migrated for a brief period, e.g. for reorganization purposes (normal migration lock).

MIGRATE = *FORBIDDEN
Returns information for only those files for which *MIGRATE = FORBIDDEN* was defined in the catalog entry, i. e. files which must never be migrated (intensified migration lock).

VERSION-BACKUP = *ANY / list-poss(2): *ENABLED / *DISABLED
Returns information on files according to the value of the NUM-OF-BACKUP-VERS file attribute (output field #BACK-VERS). It is evaluated by the Hierarchical Storage Management System (HSMS) during the version backup and defines the maximal possible number of file versions kept in the version backup archive (CREATE-.../ MODIFY-..., Operand NUM-OF-BACKUP-VERS).

VERSION-BACKUP = *ANY
The value of NUM-OF-BACKUP-VERS is not used as a selection criterion.

VERSION-BACKUP = *ENABLED
Returns information only on files participating in version backup, i.e. files for which NUM-OF-BACKUP-VER > 0 was defined.

VERSION-BACKUP = *DISABLED
Returns information only on files ignored by version backup, i.e. files for which NUM-OF-BACKUP-VER = 0 was defined.

STORAGE-LEVEL = *ANY / list-poss(3): *S0 / *S1 / *S2
Returns information on files which are currently held at the specified hierarchical storage level (see the “HSMS” manual [18]). HSMS supports the following hierarchical storage levels: When HSMS (**H**ierarchical **S**torage **M**anagement **S**ystem) is being used, files on public storage space may be held at any of three storage levels:

S0: This comprises all pubsets which the user is authorized to access, according to his/her user entry. These are implemented as fast access disk storage (online processing).

S1: This comprises disks on which HSMS has stored files which have been migrated from the S0 level. When DMS requires to access them, they are fetched back to the processing level, S0. Implemented as high capacity disk storage (background level, available online).

S2: This is a tape archive in which HSMS stores files which have been migrated from S0 on a longer-term basis. When DMS requires to access them they are fetched back to the processing level, S0, in accordance with the HSMS operating parameters which have been set and the availability of tape devices. Implemented as a magnetic tape and tape cartridge archive (background level, available offline).

Files which have been migrated are identified as follows when the catalog entry is output: The character “#” is interposed between the number of reserved PAM pages and the file name. The field *SUPPORT* contains PUB /S1 or PUB/S2. In addition, migrated files have a *STOR-LEVEL* field containing S1 or S2. If multiple attributes are specified in the form of a list, all files that satisfy one of the conditions are selected.

STORAGE-LEVEL = *ANY
Returns information on the specified files, irrespective of the hierarchical storage level at which they are held.

STORAGE-LEVEL = *S0
Returns information on only those files held at level S0.

STORAGE-LEVEL = *S1
Returns information on only those files held at level S1.

STORAGE-LEVEL = *S2
Returns information on only those files held at level S2.

GENERATIONS = *NO / *YES
File generation details. Specifies whether additional information is required about individual generations as well as that about the file generation group. Unless explicitly requested here, information on the individual file generations in any group will not be output.

GENERATIONS = *NO
If the FILE-NAME operand identifies a file generation group, then only the information on the group entry will be output, but none about the individual generations in the group.

GENERATIONS = *YES
Information will be output about the individual file generations in any file generation group.

GENERATIONS=*YES is ignored unless a file generation or file generation group has been specified in the FILE-NAME operand.

The interaction between the operand GENERATIONS = *NO or *YES and the operand TYPE-OF-FILES = *FILE-GROUP described below is summarized by the following table:

Operand combinations			Information provided about		
TYPE-OF-FILES = *FILE-GROUP	GENERATIONS		FGG	File generations	Files
	= *YES	= *NO			
x	x		*	*	-
x		x	*	-	-
	x		*	*	*
		x	*	-	*

x specified as a SHOW-FILE-ATTRIBUTES command operand

* taken into account by the command processing

\- not taken into account by the command processing

Table 104: Effects of the TYPE-OF-FILES operand

TYPE-OF-FILES = *ANY / list-poss(2): *FILE-GROUP / *PLAM-LIBRARY
Specifies whether information is to be listed on the basis of the file type. The returned information can be restricted to file generations or groups or to PLAM libraries.

TYPE-OF-FILES = *ANY
Returns information on files without taking their file type into account.

TYPE-OF-FILES = *FILE-GROUP
Restricts the returned information to file generation groups and file generations (see GENERATIONS=*YES). Only file generation groups will be selected from the file set identified by the specified FILE-NAME.

TYPE-OF-FILES = *PLAM-LIBRARY
Returns information on PLAM libraries only.

FROM-CATALOG = *STD / *PRIVATE(...) / *NET(...) / *LOCAL
The FROM-CATALOG operand defines the source to be used for the information output by SHOW-FILE-ATTRIBUTES.

FROM-CATALOG = *STD
If the file name (FILE-NAME operand) is specified without a catalog ID, the source of information for the SHOW-FILE-ATTRIBUTES command will be the file catalog (TSOSCAT) for the user ID’s default pubset, i.e. the catalog with the default catalog ID.
If a catalog ID is specified explicitly, the information is taken from the file catalog with that catalog ID. If wildcards are used in the catalog ID, the information is taken from the file catalogs of the selected available pubsets.

FROM-CATALOG = *PRIVATE(...)
The source of information for the SHOW-FILE-ATTRIBUTES command will be the directory of the private disk

identified by the VOLUME operand which follows. The device type for the private disk must then be specified under DEVICE. The permissible specifications for DEVICE-TYPE can also be found in the device table in section“Device type table” (device type column).
No value may be specified for the operands SUPPORT=... and VOLUME=... above.

VOLUME = <vsn 1..6>
The VSN of the private disk.

DEVICE = <device>
Device type for the private disk. If DEVICE-TYPE=? is entered in interactive mode, SDF lists the device types current known on the system.

FROM-CATALOG = *NET(...)
The SHOW-FILE-ATTRIBUTES command obtains its information from the catalog of a Net-Storage volume. Only *ANY may have been specified for the SUPPORT=,STORAGE-TYPE= and VOLUME= operands.

VOLUME = <vsn 1..6>
Volume serial number of the Net-Storage volume.

FILE-TYPE = *ANY / *BS2000 / *NODE-FILE
Returns information on files on Net-Storage volumes, depending on the file type with which they are created.

FILE-TYPE = *ANY
The file type is not a selection criterion.

FILE-TYPE = *BS2000
Returns information only on BS2000 files on the Net-Storage volume.

FILE-TYPE = *NODE-FILE
Returns information only on node files on the Net-Storage volume.

FROM-CATALOG = *LOCAL
The source of information for the SHOW-FILE-ATTRIBUTES command will be the system catalogs of all the selected local pubsets.

IO-ATTRIBUTES = *ANY / *PARAMETERS(...)
Returns information on files that have the specified performance attributes in the catalog entry (see the IO-ATTRIBUTES operand in the CREATE-FILE/ MODIFY-FILE-ATTRIBUTES command).

IO-ATTRIBUTES = *ANY
The performance attributes are not to be used as a selection criterion.

IO-ATTRIBUTES = *PARAMETERS(...)
Returns information on files for which the specified performance attributes that follow have been entered in the catalog.

PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
Returns information on files with the specified performance attribute (output field *IO(PERF)*).
If multiple attributes are specified in the form of a list, all files that satisfy one of the conditions are selected.

PERFORMANCE = *ANY
The performance attribute is not a selection criterion.

PERFORMANCE = *STD
Returns information on files which can be processed without any special performance requirements.

PERFORMANCE = *HIGH
Returns information on files which should be processed via a cache (high performance priority).

PERFORMANCE = *VERY-HIGH
Returns information on files containing data which should be processed via a cache and which should be permanently maintained in the cache if possible (highest performance priority).

USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
Returns information on the files which have a performance attribute that applies to the specified I/O operations (output field *IO(USAGE)*). If multiple attributes are specified in the form of a list, all files that satisfy one of the conditions are selected.

USAGE = *ANY
The type of I/O operations to which the performance attribute applies is not to be used as a selection criterion.

USAGE = *READ-WRITE
Returns information on files for which the performance attribute applies to read-write operations.

USAGE = *WRITE
Returns information on files for which the performance attribute applies to write operations only.

USAGE = *READ
Returns information on files for which the performance attribute applies to read operations only.

DISK-WRITE = *ANY / *IMMEDIATE / *BY-CLOSE
Returns information on files based on the time at which data consistency is required after a write operation (see the *DISK-WRITE* output field).

DISK-WRITE = *ANY
The point at which data consistency is required is not a selection criterion.

DISK-WRITE = *IMMEDIATE
Returns information on files for which data consistency is required immediately after write operations.

DISK-WRITE = *BY-CLOSE
Returns information on files for which data consistency is required only after CLOSE processing.

FREE-FOR-DELETION = *ANY / *NONE / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...) / *INTERVAL(...)
Returns information on files with the specified free-for-deletion date (date of release for deletion; *FREE-DEL-D* and *FREE-DEL-T* output fields). The selection for a specified date can be restricted to a specific period of time on the free-for-deletion date (see the TIME operands in the various structures).

FREE-FOR-DELETION = *ANY
The free-for-deletion date is not used as a selection criterion.

FREE-FOR-DELETION = *NONE
Returns information only on files for which no free-for-deletion date has yet been entered in the catalog.

FREE-FOR-DELETION = *TOMORROW(...)
Only returns information on files for which the next day is specified as the free-for-deletion date in the catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the file selection to a period relative to the date of the next day.

TIME = *INTERVAL(...)
Returns information only on files with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *TODAY(...)
Returns information only on files with today's date recorded as free-for-deletion date in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to today's date.

TIME = *INTERVAL(...)
Returns information only on files with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *YESTERDAY(...)
Returns information only on files with yesterday's date recorded as free-for-deletion date in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to yesterday's date.

TIME = *INTERVAL(...)
Returns information only on files with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = <integer -99999..99999>(...)
Returns information only on files with the specified date recorded as free-for-deletion date in their catalog entry. The free-for-deletion date is specified relative to today's date (in the form -n for the past or +n for the future).

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to the specified date.

TIME = *INTERVAL(...)
Returns information only on files with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = <date>(...)
Returns information only on files with the specified date recorded as free-for-deletion date in their catalog entry. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two-digit year specifications < 60, 19 to two-digit year specifications >= 60.

TIME = *ANY / *INTERVAL(...)
Restricts the selection to a period of time relative to the specified date.

TIME = *INTERVAL(...)
Returns information only on files with a free-for-deletion date which falls within the period specified next.

FROM = 00:00:00 / <time>
Selects files with a free-for-deletion date >= the specified time.

TO = 23:59:59 / <time>
Selects files with a free-for-deletion date <= the specified time.

FREE-FOR-DELETION = *INTERVAL(...)
Returns information only on files with a free-for-deletion date which falls within the specified period. The range of dates covered by the specification includes the two end dates (see also the explanation of how dates are specified for the FREE-FOR-DELETION= <integer...> operand). It is also possible to specify only the FROM operand (lower limit) or the TO operand (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1900-01-01 / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...)
Returns information only on files with a free-for-deletion date >= the specified date.

FROM = *TOMORROW(...)
Provides information on files whose free-for-deletion date >= the date of the next day.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = *TODAY(...)
Returns information only on files with a free-for-deletion date >= today’s date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = *YESTERDAY(...)
Returns information only on files with a free-for-deletion date >= yesterday’s date.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = <integer -99999..99999>(...)
Returns information only on files with a free-for-deletion date >= the specified date (in the form -n for the past or +n for the future).

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

FROM = <date>(...)
Returns information only on files with a free-for-deletion date >= the specified date. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two digit year specifications < 60, 19 to two digit year specifications >= 60.

TIME = 00:00:00 / <time>
Time on the specified date. All files that have a free-for-deletion date after the specified time are selected.

TO = *ANY / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) / <integer -99999..99999>(...) / <date>(...)
Returns information only on files with a free-for-deletion date <= the specified date.

TO = *ANY
There is no upper limit on the selection range based on the free-for-deletion date.

TO = *TODAY(...)
Returns information only on files with a free-for-deletion date <= today's date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = *TOMORROW(...)
Provides information on files whose free-for-deletion date <= the date of the next day.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = *YESTERDAY(...)
Returns information only on files with a free-for-deletion date <= yesterday's date.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = <integer -99999..99999>(...)
Returns information only on files with a free-for-deletion date <= the specified date (in the form -n for the past or +n for the future).

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

TO = <date>(...)
Returns information only on files with a free-for-deletion date <= the specified date. The date is specified in the form [yy]yy-mm-dd. 20 is automatically prefixed to two digit year specifications < 60, 19 to two digit year specifications >= 60.

TIME = 23:59:59 / <time>
Time on the specified date. All files that have a free-for-deletion date before the specified time are selected.

STORAGE-CLASS = *ANY / *NONE / <composed-name 1..8>
Returns information on files assigned the specified storage class.

STORAGE-CLASS = *ANY
The storage class is not a selection criterion.

STORAGE-CLASS = *NONE
Returns information only on files with no storage class assigned to them.

STORAGE-CLASS = <composed-name 1..8>
Returns information on files assigned the specified storage class.

MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
Returns information on files assigned the specified HSMS management class.

MANAGEMENT-CLASS = *ANY
The HSMS management class is not a selection criterion.

MANAGEMENT-CLASS = *NONE
Returns information only on files with no HSMS management class assigned to them.

MANAGEMENT-CLASS = <composed-name 1..8>
Returns information on files assigned the specified HSMS management class.

ADM-INFORMATION = *ANY / *NONE / <c-string 1..8 with-low>
Returns information on files with the specified systems support information in their catalog.

ADM-INFORMATION = *ANY
The systems support information is not a selection criterion.

ADM-INFORMATION = *NONE
Returns information only on files with no systems support information in their catalog.

ADM-INFORMATION = <c-string 1..8 with-low>
Returns information only on files with the specified string as the systems support information in their catalog.

USER-INFORMATION = *ANY / *NONE / <c-string 1..8 with-low>
Returns information on files with the specified user information in their catalog.

USER-INFORMATION = *ANY
The user information is not a selection criterion.

USER-INFORMATION = *NONE
Returns information only on files with no user information in their catalog.

USER-INFORMATION = <c-string 1..8 with-low>
Returns information only on files with the specified string as the user information in their catalog.

VOLUME-SET = *ANY / <cat-id 1..4>
Returns information on files stored in the specified volume set.

VOLUME-SET = *ANY
The volume set is not a selection criterion.

VOLUME-SET = <cat-id 1..4>
Returns information only on files stored in the specified volume set.

AVAILABILITY = *ANY / list-poss(2): *STD / *HIGH
Returns information on files with the specified availability requirements.

AVAILABILITY = *ANY
Availability is not a selection criterion.

AVAILABILITY = *STD
Returns information only on files with no high availability requirements.

AVAILABILITY = *HIGH
Returns information only on files with high availability requirements.

S0-MIGRATION = *ANY / list-poss(2): *ALLOWED / *FORBIDDEN
Returns information on files with the specified migration permission within the processing level (SO).

S0-MIGRATION = *ANY
Migration within the processing level is not a selection criterion.

S0-MIGRATION = *ALLOWED
Returns information only on files for which migration to other volume sets within the processing level is allowed.

S0-MIGRATION = *FORBIDDEN
Returns information only on files for which migration to other volume sets within the processing level is forbidden.

WORK-FILE = *ANY / *NO / *YES
Returns information on files with the specified work file attribute.

WORK-FILE = *ANY
The work file attribute is not a selection criterion.

WORK-FILE = *NO
Returns information only on files which are not flagged as work files.

WORK-FILE = *YES
Returns information only on files which are flagged as work files.

FILE-PREFORMAT = *ANY / list-poss(4): *NONE / *K / *NK2 / *NK4
Returns information only on files with the specified preferred file format.

FILE-PREFORMAT = *ANY
The preferred file format is not a selection criterion.

FILE-PREFORMAT = *NONE
Returns information only on files for which no preferred file format has been indicated.

FILE-PREFORMAT = *K
Returns information only on files which are intended to be K files.

FILE-PREFORMAT = *NK2
Returns information only on files which are intended to be NK files in 2K format.

FILE-PREFORMAT = *NK4
Returns information only on files which are intended to be NK files in 4K format.

ACCESS-COUNTER = *ANY / <integer 0..2147483647> / *INTERVAL(...)
Returns information on all files that were accessed the specified number of times (output field *ACC-COUNT*).

ACCESS-COUNTER = *ANY
The access counter is not to be used as a selection criterion.

ACCESS-COUNTER = <integer 0..2147483647>
Returns information on files for which the access counter exactly matches the specified value.

ACCESS-COUNTER = *INTERVAL(...)
Returns information on files for which the access counter lies in the specified value range which follows.

FROM = 0 / <integer 0..2147483647>
Returns information on files for which the access counter >= the specified value.

TO = 2147483647 / <integer 0..2147483647>
Returns information on files for which the access counter <= the specified value.

CODED-CHARACTER-SET = *ANY / *NONE / <name 1..8>
Returns information on all files for which the specified coded character set (CCS) is entered in the catalog entry (output field *COD-CH-SET* if a CCS is defined; see the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command for an explanation).

CODED-CHARACTER-SET = *ANY
The defined character set is not to be used as a selection criterion.

CODED-CHARACTER-SET = *NONE
Returns information on files for which no coded character set was explicitly defined.

CODED-CHARACTER-SET = <name 1..8>
Returns information on files for which the specified coded character set was defined.

SPACE-RELEASE-LOCK = *ANY / *NO / *YES
Returns information on files selected on the basis of the lock to prevent the release of unused memory space (see the *SP-REL-LOCK* output field).

SPACE-RELEASE-LOCK = *ANY
The permission to release unused memory space is not used as a selection criterion.

SPACE-RELEASE-LOCK = *NO
Returns information on files for which unused memory space may be released.

SPACE-RELEASE-LOCK = *YES
Returns information on files for which the release of unused memory space is not permitted.

ENCRYPTION = *ANY / list-poss(3): *NONE / *AES / *DES
Returns information on all files in accordance with the encryption method.

ENCRYPTION = *ANY
The encryption method is not a selection criterion.

ENCRYPTION = *NONE
Returns information on unencrypted files.

ENCRYPTION = *AES
Returns information on files which were encrypted using the AES method.

ENCRYPTION = *DES
Returns information on files which were encrypted using the DES method.

OUTPUT = *SYSOUT / *NONE / *SYSLST(...) / *PRINTER(...) / <filename 1..54 without-gen-vers>(...)
The OUTPUT operand defines the output medium for the current SHOW-FILE-ATTRIBUTES command. The requested information will be output in tabular format.

OUTPUT = *SYSOUT
Default value. The SHOW-FILE-ATTRIBUTES output will be routed via the SYSOUT system file, i.e. in interactive mode to the data display terminal. This is the only case where the value of the INFORMATION operand affects the type of information which is output.

OUTPUT = *NONE
Suppresses the output of information. This specification is typically useful when only the command return code is to be evaluated in a procedure.

OUTPUT = *SYSLST(...)
The outputs will be sent in tabular format to SYSLST. SYSLST is automatically output at the end of the job.
The INFORMATION operand has no effect on the type of information which is to be output to SYSLST. The output from SHOW-FILE-ATTRIBUTES is via the system file SYSLST; the format of the output will be determined by the additional specification FORM-NAME=*STD/*FILE-NAME (see below). SYSLST may be assigned (beforehand) to a temporary or a permanent file by an ASSIGN-SYSLST command.

FORM-NAME = *STD / *FILE-NAME
Output format: tabular presentation or simply file names.

FORM-NAME = *STD
The SHOW-FILE-ATTRIBUTES command outputs an edited list containing the following information:

FILENAME	File/path name
PAM PAGES	Reserved storage space
FREE PAGES	Reserved but unused storage space
SEC-ALLOC	Secondary allocation
FCBTYPE	Access method used to create the file
SHARE	Shareable: yes/no
ACCESS	Permissible access type: read/write
PASSWORDS	Passwords exist: yes/no
BKL	Backup level
#EXT	Total number of extents for the file
VOLUME	Volume serial number of the volume

FORM-NAME = *FILE-NAME
The SHOW-FILE-ATTRIBUTES command outputs an unedited list (the first byte of each output record contains X'40') of the names of the selected files, file generations and FGGs.

OUTPUT = *PRINTER(...)
Requests output on a printer in tabular format (immediate SPOOL job, output with /PRINT-DOCUMENT and operand LINE-SPACING=*BY-EBCDIC-CONTROL).
The INFORMATION operand has no effect on the type of information which is to be sent to the printer. The output from SHOW-FILE-ATTRIBUTES is routed directly to the printer; the format of the output is determined by the supplementary operand FORM-NAME=*STD/*FILE-NAME (see below).

FORM-NAME = *STD / *FILE-NAME
Output format: tabular presentation or simply file names.

FORM-NAME = *STD
The SHOW-FILE-ATTRIBUTES command outputs an edited list containing the following information:

FILENAME	File/path name
PAM PAGES	Reserved storage space
FREE PAGES	Reserved but unused storage space
SEC-ALLOC	Secondary allocation
FCBTYPE	Access method used to create the file
SHARE	Shareable: yes/no
ACCESS	Permissible access type: read/write
PASSWORDS	Passwords exist: yes/no
BKL	Backup level
#EXT	Total number of extents for the file
VOLUME	Volume serial number of the volume

FORM-NAME = *FILE-NAME
The SHOW-FILE-ATTRIBUTES command outputs an unedited list (the first byte of each output record contains X'40') of the names of the selected files, file generations and FGGs.

OUTPUT = <filename 1..54 without-gen-vers>(...)
The output is written to the specified file OUTPUT=<filename ....>, and the format of the output is specified in the following operand.
The INFORMATION operand has no effect on the type of information which is to be output to a file. If the file name specified here is identical with the file name specified at the beginning of the SHOW-FILE-ATTRIBUTES command in the FILE-NAME operand, i.e. is the same as the name of the file about which information is being requested, this file (FILE-NAME=...) will be overwritten with the information output by the SHOW-FILE-ATTRIBUTES command.

FORM-NAME = *STD / *FILE-NAME
Output format: tabular presentation or simply file names.

FORM-NAME = *STD

The SHOW-FILE-ATTRIBUTES command outputs an edited list containing the following information:

FILENAME	File/path name
PAM PAGES	Reserved storage space
FREE PAGES	Reserved but unused storage space
SEC-ALLOC	Secondary allocation
FCBTYPE	Access method used to create the file
SHARE	Shareable: yes/no
ACCESS	Permissible access type: read/write
PASSWORDS	Passwords exist: yes/no
BKL	Backup level
#EXT	Total number of extents for the file
VOLUME	Volume serial number of the volume

FORM-NAME = *FILE-NAME

The SHOW-FILE-ATTRIBUTES command outputs an unedited list (the first byte of each output record contains X’40’) of the names of the selected files, file generations and FGGs.

OUTPUT-OPTIONS = *PARAMETERS(...)

SORT-LIST = *BY-FILENAME / *NO

Determines how the catalog entries/path names are sorted in the display.

SORT-LIST = *BY-FILENAME

The catalog entries/path names are sorted alphabetically.

SORT-LIST = *NO

The catalog entries/path names are displayed in the order in which they are contained in the catalog.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
1	0	CMD0001	Interrupted by K2 key
2	0	DMS05B6	Invalid time conversion from UTC to LT
2	0	DMS0616	Volume set in SM pubset might not be available
2	0	DMS063B	RFA transfer area too small for the required informationn
	1	CMD0202	Syntax or semantic error in command
	32	CMD2009	Internal error during S variable generation
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	CMD0216	Privilege errors
	64	DMS0501	Requested catalog not available
	64	DMS0512	Requested catalog not found
	64	DMS051B	Requested user ID not in pubset Guaranteed message: DMS051B
	64	DMS051C	User not authorized to access pubset Guaranteed message: DMS051C
	64	DMS0533	Requested file not cataloged in pubset Guaranteed message: DMS0533
	64	DMS0535	Specified file not shareable
	64	DMS0585	Error detected when processing catalog or multiprocessor system
	64	DMS0586	It is not possible to access or reserve a volume at present
	64	DMS05F8	DMS error reported Guaranteed message: DMS05F8
	64	DMS05FC	Specified user ID not in HOME pubset
	64	DMS0609	No access to system file
	64	DMS0616	Volume set not accessible in SM pubset
	64	DMS06C4	File generation group not yet cataloged
	64	DMS06CC	No file corresponding to specified operands

	64	DMS06FF	BCAM connection severed
	64	OPS0001	Space problems when generating S variables
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
	130	DMS0524	System address space exhausted
	130	DMS0582	File is currently locked or being used and cannot be processed
	130	DMS0585	Error detected when processing catalog or multiprocessor system
	130	DMS0586	It is not possible to access or reserve a volume at present
	130	DMS0594	Not enough virtual memory available

Meanings of the output fields

n: numeric character

a: alphanumeric character

Header line

Output field	Format	Meaning
File size	nnnnnnnnnn[x]	10-digit number; specifies how many PAM pages were reserved for the file; leading zeros are not displayed. Optionally, an additional character (x) may be displayed as an identifier for specific files. The following values are possible: * identifier for file on private volume # identifier for migrated file n identifier for a file on Net-Storage volume w identifier for work file
	:aaaa:	Specifies the catalog identifier; i.e. the ID of the pubset in which the file is cataloged
	$userid.	User ID (max. 8 characters) of the file
	filename	Name of the permanent or temporary file, file generation or file generation group for which information is being output

Table 105: Output fields in the SHOW-FILE-ATTRIBUTES header line

File attributes

Output field	Values	Description
ACC-DATE	yyyy-mm-dd	yyyy = year; mm = month; dd = day; date on which the file was last accessed
ACC-TIME	hh:mm:ss	hh = hours; mm = minutes; ss = seconds; Time of the last file access
	NONE	The file has not yet been opened or has been deleted using OPTION=*DATA
ACC-COUNT	nnnnnnnnnn	10-digit number which specifies how often the file was accessed. Set to 0 when the file is created, and increased by 1 each time it is opened; the maximum value is 2147483647, after which the counter is no longer updated
ACCESS	WRITE	Write access to the file is permitted
	READ	Only read access to the file is permitted, not write access
ADM-INFO	aaaaaaaa	Systems support information (output only if text has been defined)
ACL	NO YES	ACL protection is provided only for reasons of compatibility: the default is NO
AUDIT	NONE	No monitoring by system exit routines or SAT is defined for the file
	ALL	All DMS actions for the file are monitored
	SUCC	All successful DMS actions are monitored
	FAIL	All unsuccessful DMS actions are monitored
AVAIL	*STD	There are no high-availability requirements for the file
	*HIGH	The file is stored on high-availability volumes
BACK-CLASS	A	The file is saved in each backup run
	T	The file is saved in backup runs for files with the attribute BACK-CLASS= B /C/D
	C	The file is saved in backup runs for files with the attribute BACK-CLASS= C /D
	D	The file is only saved in backup runs for files with the attribute BACK-CLASS= D
	E	This file is not automatically saved by ARCHIVE

Output field	Values	Description
#BACK-VERS	nn	Maximum number of file versions in the version backup archive (the 0 value means ignoring by version backup)
BASE-NUM	nnnnn	Only for file generation groups; 5-digit number indicating which absolute generation number is currently used as the base for relative generation numbers
BLK-CONTR BLK-COUNT	DATA	The block control information is in the data block
	DATA (2K)	For NK2-ISAM files only: data format without key; block control information at the start of each 2K block
	DATA (4K)	For NK4-ISAM files only: data format without key; block control information at the start of each 4K block
	NONE	The file has not yet been opened
	NO	The file was created without any block control information
	PAMKEY	Block control information is in the PAM key
	nnnnnnn	For tape files: 7-digit number indicating the number of data blocks in the file
BLK-OFFSET	nn	For tape files: buffer offset
BUF-LEN	STD(1)	Standard blocks: buffer size = 1 PAM block
	STD(n)	Specifies the blocking factor (n <= 16) which has been defined for the file.
	nnnnn	Nonstandard blocks (tape files) 6-digit number; the size of the buffer, in bytes
CHANG-DATE	yyyy-mm-dd	yyyy = year; mm = month; dd = day; date on which the file was last changed
	NONE	The file has not yet been opened or has been deleted using OPTION=*DATA
CHANG-TIME	hh:mm:ss	hh = hours; mm = minutes; ss = seconds; time at which the file was last changed
	NONE	The file has not yet been opened or has been deleted using OPTION=*DATA
COD-CH-SET	aaaaaaaa	CCS name of the code table (output only if a code table has been defined)
CODE	EBCDIC/ISO7/ OWN	For tape files: specifies the code table used in creating the file
CRE-DATE	yyyy-mm-dd	yy = year; mm = month; dd = day; creation date of the file, i.e. the date of the first write access
	NONE	The file has not yet been opened or has been deleted using OPTION=*DATA
CRE-TIME	hh:mm:ss	hh = hours; mm = minutes; ss = seconds; time at which the file was created

	NONE	The file has not yet been opened or has been deleted using OPTION=*DATA
DEF-STO-CL	storage-class	For file generation groups only; default storage class; output only for the group entry if a storage class has been defined
DESTROY	NO	No automatic data destruction (overwriting with X'00')
DEVICE-TYPE	aaaaa	Specifies the device type for the volume (see device table, device type column, in section “Devicetype table”). The volume type NETSTOR is specified for Net-Storage volumes.
DISK-WRITE	IMMEDIATE	I/O operations are written back to disk immediately
ENCRYPTION	*NONE	No file encryption
EXEC-PASS	NONE	No execute password is defined for the file
EXPIR-DATE	yyyy-mm-dd	yy = year; mm = month; dd = day; the date until which the file is locked for write access, i.e. the file cannot be updated or deleted
EXPIR-TIME	hh:mm:ss	hh = hours; mm = minutes ; ss = seconds; time relative to EXPIR-DATE, currently always 00:00:00
EXTENTS	nnn	The number of extents for the file on the volume designated by “VSN”.
F-PREFORM	*NONE	No preferred file format has been specified for the file
FILE-TYPE	BS2000	File type of a file on a Net-Storage volume: The file was created as a BS2000 file; write access is only possible from a BS2000 system
FILE-STRUC	NONE	There is only a catalog entry for the file; the file has never been opened; storage space may have been allocated for it (see CRE-DATE)
FILE-SEQ	nnnnn	For tape files; 5-digit number indicating the position of the file in an MF set.
FIRST-GEN	nnnnn	Only for file generation groups; 5-digit absolute generation number of the oldest generation cataloged for this file generation group
FREE-DEL-D	yyyy-mm-dd	yyyy = year; mm = month; dd = day; date when the file is released for deletion
FREE-DEL-T	hh:mm:ss	hh = hours; mm = minutes; ss = seconds; time when the file is released for deletion
GUARD-EXEC	guardname	Name of a GUARD that controls execute access
GUARD-READ	guardname	Name of a GUARD that controls read access
GUARD-WRIT	guardname	Name of a GUARD that controls write access
GROUP	R W X	The access authorizations specified for the “GROUP” class of users
HIGH-US-PA	nnnnnnnnnn	10-digit number indicating the number of PAM pages occupied by the file

IO(PERF)	STD	No special performance requirements
IO(USAGE)	READ-WRITE	The performance requirements given in IO(PERF) are for read and write operations
KEY-LEN	nnn	Only for ISAM files; 3-digit number indicating the length of the ISAM key in the ISAM index (in bytes).
KEY-POS	nnnnn	Only for ISAM files; 5-digit number indicating the position of the ISAM key in the record.
LABEL	(STD,n)	For tape files with standard labels; the interchange level for DIN 66029, and thus the labels with which the file was created.
LAST-GEN	nnnnn	Only for file generation groups; 5-digit absolute generation number of the youngest generation cataloged for the file generation group
LOG-FL-LEN	nnn	Only in the case of ISAM files containing a logical flag in the ISAM index. 3-digit number which specifies the length of the logical flag in the ISAM index in bytes
MAN-CLASS	hsms-class	Name of the HSMS management class (output only if a value has been defined)
MAXIMUM	nnnnn	Only for file generation groups: 5-digit number indicating the maximum number of generations which may be cataloged simultaneously for this file generation group
MIGRATE	ALLOWED	File may be migrated (HSMS)
NET-CH-SET	aaaaaaaa	CCS name of the code table for node files on Net-Storage (output only for node files)
OWNER	R W X	The access authorizations specified for the “OWNER” class of users (the file owner and system administrator).
OTHERS	R W X	The access authorizations specified for the “OTHERS” class of users (other users).
OVERFL-OPT	CYCLE-REPL	Only for file generation groups; when the MAXIMUM limit is reached, the oldest file and its catalog entry are deleted
PROPA-VAL	MIN	Only for K-ISAM files which have a value flag in the ISAM index; the lowest value flag in each data or index block is placed in the related index entry in the next higher level
READ-PASS	NONE	No read password exists for the file

Output field	Values	Description
REC-FORM		Specifies: a) the record format defined for the file, b) which printer control characters are valid
REC-SIZE	nnnnn	5-digit number which specifies the defined length in bytes of the records in this file (for REC-FORM=F) or the maximum permissible record length (for REC-FORM=V)
S-ALLOC	nnnnn	5-digit number indicating the value defined for secondary allocation
S-ALLO-NUM	nnn	3-digit number indicating how often extra storage space was requested to extend the file (number of secondary allocations)
S0-MIGR	*ALLOWED	Migration within the processing level (S0) is allowed
SAVED-PAG	COMPL-FILE	Save runs with ARCHIVE always save the entire file.
SP-REL-LOCK	NO	Storage space can be released
STOR-CLASS	storage-class	Name of the assigned storage class (output only if a storage class has been defined)
STOR-LEVEL	S1 / S2	Only for migrated files (HSMS): the file has been migrated to the specified storage level, S1 or S2
SUPPORT	PUB	The file is stored on public volumes (pubsets) or Net-Storage volumes
USER-ACC	OWNER-ONLY	The file is not shareable
USER-INFO	aaaaaaaa	User information (output only if an information text has been defined)
VAL-FL-LEN	nnn	Only for ISAM files which have a value flag in the ISAM index; 3-digit number indicating the length of the value flag in the ISAM index (in bytes).
VERSION		3-digit internal version number of the file; can only be interpreted/modifies by the utility routines ARCHIVE and HSMS (e.g. for an incremental save).
VOLUME	aaaaaa	The volume serial number (VSN) for the volume on which storage space is reserved for the file.
WORK-FILE	*YES	The file is a work file and may if necessary be deleted by systems support
WRITE-PASS	NONE	There is no write password for the file.

Table 106: Output fields of the file attributes for the SHOW-FILE-ATTRIBUTES command

Totals lines

Output field	Values	Description
:catid:	:a:	Catalog ID of the pubset on which the files are cataloged.
FRE	nnnnnnnnnn	Number of reserved but unused PAM pages on the volume.
NET	n FILES	Number of files stored on Net-Storage volumes
NO VSN	n FILES	Number of files which are cataloged in the named pubset and for which no volume has been assigned (with INFORMATION=*STATISTICS).
PRDISC	n FILES	Number of files cataloged in the specified pubset which are stored on private disks.
PRIVATE	n FILES	Number of files cataloged in the specified pubset which are stored on private disks (with INFORMATION= *STATISTICS).
PUBLIC	n FILES	Number of files cataloged in this pubset (processing level S0).
PUB/S1	n FILES	Number of files cataloged in this pubset which have been migrated to storage level S1
PUB/S2	n FILES	Number of files cataloged in this pubset which have been migrated to storage level S2
REL	nnnnnnnnnn	Number of PAM pages on the volume that could be released.
RES	nnnnnnnnnn *or*: nnnnnnnn T *or*: nnnnnnnn M	Number of PAM pages reserved on the volume. *With more than 2147483647 reserved PAM pages:* Display in thousands of PAM pages, the right-justified qualifier “T” being specified Display in millions of PAM pages, the right-justified qualifier “M” being specified
TAPE	n FILES	Number of cataloged files stored on tape (the RES, FRE and REL fields do not appear).

Table 107: Output fields of the totals line for the SHOW-FILE-ATTRIBUTES command

Output in S variable

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL-ATTRIBUTES	1
INFORMATION = *MINIMUM	2
INFORMATION = *NAME-AND-SPACE	3
INFORMATION = *PAR(ALLOCATION=YES)	4
INFORMATION = *PAR(BACKUP=YES)	5
INFORMATION = *PAR(HISTORY=YES)	6
INFORMATION = *PAR(ORGANIZATION=YES)	7
INFORMATION = *PAR(PASSWORD=YES)	8
INFORMATION = *PAR(SECURITY=YES)	9
INFORMATION = *SPACE-SUMMARY	10
INFORMATION = *STATISTICS	11

Output information	Name of the S variable	T	Contents	Condition
Access	var(*LIST).ACCESS	S	READ WR	1,9
Number of accesses to the file	var(*LIST).ACCESS-COUNT	I	<integer>	1,6
Only provided for reasons of compatibility: the default is NO	var(*LIST).ACL	S	NO YES	1,9
Administrator metadata	var(*LIST).ADM-INFO	S	'' <c-string 1..8>	1,7
Audit monitoring	var(*LIST).AUDIT	S	ALL FAIL NONE SUCC	1,9
Availability of the files	var(*LIST).AVAIL	S	'' *HIGH *STD	1,7
BASIC-ACL protection active	var(*LIST).B-ACL.ACTIVE	B	FALSE TRUE	1,9
GROUP execute permission (BASIC-ACL)	var(*LIST).B-ACL.GROUP.EXEC	S	'' NO YES	1,9
GROUP read permission (BASIC-ACL)	var(*LIST).B-ACL.GROUP.READ	S	'' NO YES	1,9
GROUP write permission (BASIC-ACL)	var(*LIST).B-ACL.GROUP.WRITE	S	'' NO YES	1,9
OTHERS execute permission (BASIC-ACL)	var(*LIST).B-ACL.OTHERS.EXEC	S	'' NO YES	1,9
OTHERS read permission (BASIC-ACL)	var(*LIST).B-ACL.OTHERS.READ	S	'' NO YES	1,9
OTHERS write permission (BASIC-ACL)	var(*LIST).B-ACL.OTHERS.WRITE	S	'' NO YES	1,9

Output information	Name of the S variable	T	Contents	Condition
OWNER execute permission (BASIC-ACL)	var(*LIST).B-ACL.OWNER.EXEC	S	'' NO YES	1,9
OWNER read permission (BASIC-ACL)	var(*LIST).B-ACL.OWNER.READ	S	'' NO YES	1,9
OWNER write permission (BASIC-ACL)	var(*LIST).B-ACL.OWNER.WRITE	S	'' NO YES	1,9
BACKUP-CLASS level (backup frequency of the file)	var(*LIST).BACK-CL	S	A B C D E	1,5
Block control information	var(*LIST).BLOCK-CONTR-INFO	S	NO NONE PAMKEY WITHIN-DATA-2K-BLOCK WITHIN-DATA-4K-BLOCK WITHIN-DATA-BLOCK	1,7
Number of data blocks (tape file)	var(*LIST).BLOCK-COUNT	I	<integer>	1,4
block offset (tape file)	var(*LIST).BLOCK-OFF	I	<integer>	1,7
Buffer size	var(*LIST).BUF-LEN	S	'' <integer> NONE STD(n)	1,7
Pubset catalog ID	var(*LIST).CAT-ID	S	<cat-id>	1-9
Code table	var(*LIST).CODE	S	'' EBCDIC ISO7 NONE OWN	1,7
Name of the code table	var(*LIST).CODED-CHAR-SET	S	'' <ccs>	1,7
File creation date	var(*LIST).CRE-DATE	S	<yyyy-mm-dd> NONE	1,6

Output information	Name of the S variable	T	Contents	Condition
File creation time	var(*LIST).CRE-TIME	S	<hh:mm:ss> NONE	1,6
File deletion date	var(*LIST).DEL-DATE	S	<yyyy-mm-dd> *NONE	1,9
File deletion time	var(*LIST).DEL-TIME	S	<hh:mm:ss> *NONE	1,9
Destroy data on deletion	var(*LIST).DESTROY	S	NO YES	1,9
Time of data consistency of cached write data	var(*LIST).DISK-WRITE	S	'' BY-CLOSE IMMED	1,7
Execute password	var(*LIST).EXEC-PASS	S	NONE YES	1,8,9
Execute password in hexadecimal	var(*LIST).EXEC-PASS-HEX	S	'' ADM:'<xstring 1..8>'	8
Expiration date	var(*LIST).EXPIR-DATE	S	<yyyy-mm-dd> NONE	1,9
Expiration time	var(*LIST).EXPIR-TIME	S	<hh:mm:ss> NONE	1,9
Name of the volume on which the extents of the file are located	var(*LIST).EXT(*LIST).DEV	S	'' <dev-name>	1,4
Number of extents	var(*LIST).EXT(*LIST).NUM-OF-EXT	I	<integer>	1,4
VSN of the volume on which the extents of the file are located	var(*LIST).EXT(*LIST).VOL	S	'' <vsn>	1,4
Type of file encryption	var(*LIST).F-ENCRYPT	S	'' *NONE *AES *DES	1,9
File path name	var(*LIST).F-NAME	S	<path-name>	1-9
File format	var(*LIST).F-PREFORM	S	'' *NONE *K *NK2 *NK4	1,7
File size	var(*LIST).F-SIZE	I	<integer>	1-9

Output information	Name of the S variable	T	Contents	Condition
File structure (access method used to create the file)	var(*LIST).F-STRUCT	S	'' BTAM ISAM NONE PAM SAM	1,7
Position of the file in an MF set (for tape files)	var(*LIST).FILE-SEQ	I	<integer>	1,7
File type of a file on a Net-Storage volume: BS2000file or node file	var(*LIST).FILE-TYPE	S	'' BS2000 NODE	1,7
Absolute generation number(for file generation groups)	var(*LIST).GEN-PAR. BASE-NUM	I	<integer>	1,7
Absolute generation number of the oldest generation in a file generation group	var(*LIST).GEN-PAR. FIRST-GEN	I	<integer>	1,7
Absolute generation number of the newest generation in a file generation group	var(*LIST).GEN-PAR. LAST-GEN	I	<integer>	1,7
Maximum number of generations in a file generation group	var(*LIST).GEN-PAR. MAX	I	<integer>	1,7
Behavior when the maximum number of generations in a file generation group is exceeded	var(*LIST).GEN-PAR. OV-OPT	S	'' CYCL-REPL DEL-ALL KEEP-GEN REUSE-VOL	1,7
GUARD protection active	var(*LIST).GUARD- ACTIVE	B	FALSE TRUE	1,9
Name of the guard controlling execute access	var(*LIST).GUARDS. EXEC	S	'' <guard-name>	1,9
Name of the guard controlling read access	var(*LIST).GUARDS. READ	S	'' <guard-name>	1,9
Name of the guard controlling write access	var(*LIST).GUARDS. WRITE	S	'' <guard-name>	1,9
Number of PAM pages occupied by the file	var(*LIST).HIGHEST- USED-PAGES	I	<integer>	1,4

Output information	Name of the S variable	T	Contents	Condition
Performance requirements for I/O operations	var(*LIST).IO-ATTR. PERF	S	'' HIGH STD VERY-HIGH	1,7
Operation(s) affected by the I/O performance requirements	var(*LIST).IO-ATTR. USAGE	S	'' READ READ-WR WR	1,7
Length of ISAM key	var(*LIST).KEY-LEN	I	<integer>	1,7
Position of the ISAM key in the record	var(*LIST).KEY-POS	I	<integer>	1,7
Type of labels used when creating tape files	var(*LIST).LABEL	S	'' NO-LAB NONE NSTD STD(0) STD(1) STD(2) STD(3)	1,7
Date of last file access	var(*LIST).LAST-ACCESS-DATE	S	<yyyy-mm-dd> NONE	1,6
Time of last file access	var(*LIST).LAST-ACCESS-TIME	S	<hh:mm:ss> NONE	1,6
Value of last-byte pointer (LBP)	var(*LIST).LAST-BYTE	I	<integer>	1,4
Validity of last-byte pointer (LBP)	var(*LIST).LAST-BYTE-VALID	B	FALSE TRUE	1,4
Date of last file modification	var(*LIST).LAST-CHA-DATE	S	<yyyy-mm-dd> NONE	1,6
Time of last file modification	var(*LIST).LAST-CHA-TIME	S	<hh:mm:ss> NONE	1,6
Length of the logical flag in the ISAM index	var(*LIST).LOGIC-FLAG	I	<integer>	1,7
File management class	var(*LIST).MANAGE-CLASS	S	'' <comp.-name 1..8>	1,5
File migration	var(*LIST).MIGRATE	S	'' ALLOW *FORBID INHIBITE	1,5
		I	<integer>	10

Migration to level S1, reserved but unused storage	var(*LIST).MIGRATE-S1.FREE			
Migration to level 1, number of files	var(*LIST).MIGRATE-S1.NUM-OF-F	I	<integer>	10
Migration to level 1, releasable storage	var(*LIST).MIGRATE-S1.REL	I	<integer>	10
Migration to level 1, reserved storage	var(*LIST).MIGRATE-S1.RESERVED	I	<integer>	10
Migration to level 1, reserved storage in units of 1000 PAM pages if MIGRATE-S1.RESERVED contains the maximum value 2147483647	var(*LIST).MIGRATE-S1.RESERVED-T	I	<integer>	10
Migration to level 2, reserved but unused storage	var(*LIST).MIGRATE-S2.FREE	I	<integer>	10
Migration to level 2, number of files	var(*LIST).MIGRATE-S2.NUM-OF-F	I	<integer>	10
Migration to level 2,releaseable storage	var(*LIST).MIGRATE-S2.REL	I	<integer>	10
Migration to level 2, reserved storage	var(*LIST).MIGRATE-S2.RESERVED	I	<integer>	10
Migration to level 2, reserved storage in units of 1000 PAM pages if MIGRATE-S2.RESERVED contains the maximum value 2147483647	var(*LIST).MIGRATE-S2.RESERVED-T	I	<integer>	10
Reserved but unused storage on Net-Storage	var(*LIST).NET.FREE	I	<integer>	10
Number of files on Net-Storage	var(*LIST).NET.NUM-OF-F	I	<integer>	10
Releasable storage on Net-Storage	var(*LIST).NET.REL	I	<integer>	10
Reserved storage on Net-Storaget	var(*LIST).NET.RESERVED	I	<integer>	10
Reserved but unused storage on Net-Storage in units of 1000 PAM pages if NET.RESERVED contains the maximum value 2147483647	var(*LIST).NET.RESERVED-T	I	<integer>	10
CCS name of the code table for node files on Net-Storage (NETCCS)	var(*LIST).NET-CODED-CHAR-SET	S	'' <netccs>	1,7
		I	<integer>	11

Number of files on the named pubset which have not yet been assigned a volume	var(*LIST).NO-VOL.NUM-OF-F			
Maximum number of file versions in the version backup archive	var(*LIST).NUM-OF-BACKUP-VERS	I	<integer>	1,5
Number of extents	var(*LIST).NUM-OF-EXT	I	<integer>	1,4
Printer control characters for the file	var(*LIST).PRINT-CONTR	S	'' *ASA *EBCDIC *NONE	1,7
Number of file generation groups on private volumes	var(*LIST).PRIV.F-GEN-GROUP	I	<integer>	11
Reserved but unused storage on private volumes	var(*LIST).PRIV.FREE	I	<integer>	10,11
Number of files on private volumes	var(*LIST).PRIV.NUM-OF-F	I	<integer>	10,11
Releasable storage on private volumes	var(*LIST).PRIV.REL	I	<integer>	10,11
Reserved storage on private volumes	var(*LIST).PRIV.RESERVED	I	<integer>	10,11
Treatment of the value flag within a data or index block (for K-ISAM files)	var(*LIST).PROPA-VAL	S	'' MAX MIN	1,7
Pubset catalog ID	var(*LIST).PUBSET-ID	S	<pvs-id>	10,11
Number of file generation groups on the specified pubset	var(*LIST).PUBSET.F-GEN-GROUP	I	<integer>	11
Reserved but unused storage on the specified pubset	var(*LIST).PUBSET.FREE	I	<integer>	10,11
Number of files on the specified pubset	var(*LIST).PUBSET.NUM-OF-F	I	<integer>	10,11
Releasable storage on the specified pubset	var(*LIST).PUBSET.REL	I	<integer>	10,11
Reserved but unused storage on the specified pubset	var(*LIST).PUBSET.RESERVED	I	<integer>	10,11
Reserved but unused storage on the specified pubset in units of 1000 PAM oages if PUBSET.RESERVED contains the maximum value 2147483647	var(*LIST).PUBSET.RESERVED-T	I	<integer>	10, 11

Read password	var(*LIST).READ-PASS	S	NONE YES	1,8,9
Read password in hexadecimal	var(*LIST).READ-PASS-HEX	S	'' ADM:'<xstring 1..8>'	8
File record format	var(*LIST).REC-FORM	S	'' FIXED NONE UNDEF VAR	1,7
File record length	var(*LIST).REC-SIZE	I	<integer>	1,7
Scope of backup in ARCHIVE run	var(*LIST).SAVED-PAGES	S	COMPL-FILE MOD-PAGE	1,5
Secondary allocation for file extensions	var(*LIST).SEC-ALLOC	I	<integer>	1,4
Number of secondary allocation requests	var(*LIST).SECONDARY-ALLOC-NUM	I	<integer>	1,6
File name (excluding catalog and user ID)	var(*LIST).SHORT-F-NAME	S	<filename>	1-9
S0 migration	var(*LIST).S0-MIGR	S	'' *ALLOW *FORBID	1,7
Release storage space	var(*LIST).SPACE-RELE-LOCK	S	'' NO YES	1,9
File storage class	var(*LIST).STOR-CLASS	S	'' <comp.-name 1..8>	1,7
Hierarchical storage level	var(*LIST).STOR-LEV	S	'' S1 S2	1,5
File storage medium	var(*LIST).SUP	S	*NONE *PRIV-DISK *PUB *PUB/S1 *PUB/S2 *TAPE	1,4
Number of files on tape	var(*LIST).TAPE.NUM-OF-F	I	<integer>	10,11
File type	var(*LIST).TYPE	S	'' PLAM	1,7

Output information	Name of the S variable	T	Contents	Condition
File shareability	var(*LIST).USER-ACCESS	S	ALL-USERS OWNER-ONLY SPECIAL	1,9
user ID	var(*LIST).USER-ID	S	<userid>	1-9
Metadata for the file owner	var(*LIST).USER-INFO	S	'' <c-string 1..8>	1,7
Length of the value flag in the ISAM index	var(*LIST).VAL-FLAG-LEN	I	<integer>	1,7
Internal version number of the file	var(*LIST).VERSION	I	<integer>	1,5
Work file	var(*LIST).WORK-F	S	'' *NO *YES	1,7
Write password	var(*LIST).WRITE-PASS	S	NONE YES	1,8,9
Write password in hexadecimal	var(*LIST).WRITE-PASS-HEX	S	'' ADM:'<xstring 1..8>'	8

Examples

/show-file-attr

```
%        30 :2OS2:$USER1.AH.LIB
%         3 :2OS2:$USER1.C.PROC1
%         3 :2OS2:$USER1.C.PROC2
%         6 :2OS2:$USER1.LST.ADDCMD
%         3 :2OS2:$USER1.LST.BSP.2
%       333 :2OS2:$USER1.LST.DOMAIN.D
%       333 :2OS2:$USER1.LST.DOMAIN.E
%        24 :2OS2:$USER1.LST.HELP
%        24 :2OS2:$USER1.LST.RFA.416
%        66 :2OS2:$USER1.LST.SDF.D.1
%        30 :2OS2:$USER1.LST.SDF.E
%         3 :2OS2:$USER1.MAX.FILE.1
%         9 :2OS2:$USER1.MAX.FILE.10
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%         3 :2OS2:$USER1.MAX.FILE.2
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.MAX.FILE.4
%         3 :2OS2:$USER1.MAX.FILE.6
%         3 :2OS2:$USER1.MAX.FILE.7
%         3 :2OS2:$USER1.MAX.FILE.9
%         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%         0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%       384 :2OS2:$USER1.SF.NEU
%        48 :2OS2:$USER1.SF.ROBAR
%       123 :2OS2:$USER1.SF.TEST.DEV.1
%        84 :2OS2:$USER1.TEST.BEISPIEL.1
%        33 :2OS2:$USER1.TEST.BEISPIEL.2
%        48 :2OS2:$USER1.TEST.BEISPIEL.3
%         3 :2OS2:$USER1.TEST.BEISPIEL.4
%:2OS2: PUBLIC:     33 FILES RES=      1665 FRE=        94 REL=        45 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
%:2OS2: TAPE  :      2 FILES
```

The SHOW-FILE-ATTRIBUTES command without other operands lists in alphabetical order all files for the user ID *USER1*. The number of reserved PAM pages and the complete path name (*:catid:$userid.file*) is output for each file. PAM pages cannot be reserved for tape files (see *MAX.TAPE-FILE.1* and *MAX.TAPE-FILE.2*). Files on private disk (see *MAX.GROUP.4*) are marked with an asterisk before the catalog ID. For all files displayed, statistics are output on the number of files and their storage space utilization per volume type.

RES shows the total of reserved PAM pages, *FRE* shows the total of unallocated PAM pages, *REL* shows the maximum number of unallocated PAM pages that can be released. The final total lines are output for each file catalog affected, i.e. per specified catalog ID (here for the default pubset of the *USER1* user ID, i.e. the catalog ID *2OS2*).

*Example 2: Operand SORT-LIST=*NO*

/show-file-attr output-opt=(sort-list=*no)

```
%        30 :2OS2:$USER1.AH.LIB
%        24 :2OS2:$USER1.LST.HELP
%         3 :2OS2:$USER1.C.PROC1
%         3 :2OS2:$USER1.C.PROC2
%        48 :2OS2:$USER1.SF.ROBAR
%       384 :2OS2:$USER1.SF.NEU
%         3 :2OS2:$USER1.MAX.FILE.1
%         6 :2OS2:$USER1.LST.ADDCMD
%        24 :2OS2:$USER1.LST.RFA.416
%       123 :2OS2:$USER1.SF.TEST.DEV.1
%        84 :2OS2:$USER1.TEST.BEISPIEL.1
%        33 :2OS2:$USER1.TEST.BEISPIEL.2
%        48 :2OS2:$USER1.TEST.BEISPIEL.3
%         3 :2OS2:$USER1.TEST.BEISPIEL.4
%        66 :2OS2:$USER1.LST.SDF.D.1
%        30 :2OS2:$USER1.LST.SDF.E
%       333 :2OS2:$USER1.LST.DOMAIN.D
%       333 :2OS2:$USER1.LST.DOMAIN.E
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%         3 :2OS2:$USER1.MAX.FILE.3
%         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%         0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%         3 :2OS2:$USER1.MAX.FILE.6
%         3 :2OS2:$USER1.MAX.FILE.2
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%         3 :2OS2:$USER1.LST.BSP.2
%         9 :2OS2:$USER1.MAX.FILE.4
%         3 :2OS2:$USER1.MAX.FILE.7
%         3 :2OS2:$USER1.MAX.FILE.9
%         9 :2OS2:$USER1.MAX.FILE.10
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:     33 FILES RES=      1665 FRE=        94 REL=        45 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
%:2OS2: TAPE  :      2 FILES
```

The files of user ID *USER1* are displayed in the sequence in which they occur in the file catalog.

Example 3: Wildcards in the file name

/show-file-attr *file.*

```
%         3 :2OS2:$USER1.MAX.FILE.1
%         9 :2OS2:$USER1.MAX.FILE.10
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%         3 :2OS2:$USER1.MAX.FILE.2
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.MAX.FILE.4
%         3 :2OS2:$USER1.MAX.FILE.6
%         3 :2OS2:$USER1.MAX.FILE.7
%         3 :2OS2:$USER1.MAX.FILE.9
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:     13 FILES RES=        87 FRE=        41 REL=        27 PAGES
%:2OS2: TAPE  :      2 FILES
```

The symbol * replaces any character string before and after the character string *FILE.*, i.e. all files are listed whose file name includes the character sequence *FILE.*'. Any character string can occur before *FILE.* (even an empty string) and there is at least one character after *FILE.* (an empty character string is not possible because the file name cannot end with a period).

Note

The wildcard * at the start of a wildcard character string must be doubled if at least one other character follows and no other wildcard is used. Example: all names ending in ABC are searched for with **ABC.

/show-file-attr max*

```
%         3 :2OS2:$USER1.MAX.FILE.1
%         9 :2OS2:$USER1.MAX.FILE.10
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%         3 :2OS2:$USER1.MAX.FILE.2
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.MAX.FILE.4
%         3 :2OS2:$USER1.MAX.FILE.6
%         3 :2OS2:$USER1.MAX.FILE.7
%         3 :2OS2:$USER1.MAX.FILE.9
%         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%         0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%:2OS2: PUBLIC:     12 FILES RES=        60 FRE=        33 REL=        24 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
%:2OS2: TAPE  :      2 FILES
```

All files whose name starts in *MAX* and ends in any character string (including an empty string) are listed.

/show-file-attr max.file.

```
%         3 :2OS2:$USER1.MAX.FILE.1
%         9 :2OS2:$USER1.MAX.FILE.10
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%         3 :2OS2:$USER1.MAX.FILE.2
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.MAX.FILE.4
%         3 :2OS2:$USER1.MAX.FILE.6
%         3 :2OS2:$USER1.MAX.FILE.7
%         3 :2OS2:$USER1.MAX.FILE.9
%:2OS2: PUBLIC:     10 FILES RES=        60 FRE=        33 REL=        24 PAGES
```

All files which can be accessed on a partially qualified basis with the first name section *MAX.FILE.*, i.e. whose name starts with *MAX.FILE.* and contains at least one character after this.

/show-file-attr file-name=//.

```
%        30 :2OS2:$USER1.AH.LIB
%       384 :2OS2:$USER1.SF.NEU
%        48 :2OS2:$USER1.SF.ROBAR
%       123 :2OS2:$USER1.SF.TEST.DEV.1
%:2OS2: PUBLIC:      4 FILES RES=       585 FRE=        30 REL=         9 PAGES
```

The character / stands for any individual character. All the user's files are listed whose name starts with a character string of any two characters and a period (partially qualified).

/show-file-attr m*1

```
%         3 :2OS2:$USER1.MAX.FILE.1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%:2OS2: PUBLIC:      2 FILES RES=        15 FRE=        10 REL=         9 PAGES
%:2OS2: TAPE  :      1 FILE
```

All the user's files are listed whose name starts in *M* and ends with *1*. Any character string (including an empty string) can occur in between.

/show-file-attr file-name=//////

```
%        30 :2OS2:$USER1.AH.LIB
%       384 :2OS2:$USER1.SF.NEU
%:2OS2: PUBLIC:      2 FILES RES=       414 FRE=        13 REL=         6 PAGES
```

All the user's files are listed whose name starts with any six particular characters.

/show-file-attr file-name=*

```
%        30 :2OS2:$USER1.AH.LIB
%         3 :2OS2:$USER1.C.PROC1
%         3 :2OS2:$USER1.C.PROC2
%         6 :2OS2:$USER1.LST.ADDCMD
%         3 :2OS2:$USER1.LST.BSP.2
%       333 :2OS2:$USER1.LST.DOMAIN.D
%       333 :2OS2:$USER1.LST.DOMAIN.E
%        24 :2OS2:$USER1.LST.HELP
%        24 :2OS2:$USER1.LST.RFA.416
%        66 :2OS2:$USER1.LST.SDF.D.1
%        30 :2OS2:$USER1.LST.SDF.E
%         3 :2OS2:$USER1.MAX.FILE.1
%         9 :2OS2:$USER1.MAX.FILE.10
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%        12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%         3 :2OS2:$USER1.MAX.FILE.2
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.MAX.FILE.4
%         3 :2OS2:$USER1.MAX.FILE.6
%         3 :2OS2:$USER1.MAX.FILE.7
%         3 :2OS2:$USER1.MAX.FILE.9
%         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%         0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%       384 :2OS2:$USER1.SF.NEU
%        48 :2OS2:$USER1.SF.ROBAR
%       123 :2OS2:$USER1.SF.TEST.DEV.1
%        84 :2OS2:$USER1.TEST.BEISPIEL.1
%        33 :2OS2:$USER1.TEST.BEISPIEL.2
%        48 :2OS2:$USER1.TEST.BEISPIEL.3
%         3 :2OS2:$USER1.TEST.BEISPIEL.4
%:2OS2: PUBLIC:     33 FILES RES=      1665 FRE=        94 REL=        45 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
%:2OS2: TAPE  :      2 FILES
```

All the user’s files are listed. The character * stands for ant character string. Output corresponds to the default output with the presetting FILE-NAME=*ALL.

Example 4: Partial qualification

/show-file-attr file-name=paul.

```
%         9 :2OS2:$USER1.PAUL.FILE.1
%         9 :2OS2:$USER1.PAUL.FILE.2
%         9 :2OS2:$USER1.PAUL.FILE.3
%:2OS2: PUBLIC:      3 FILES RES=        27 FRE=         8 REL=         3 PAGES
```

All the user’s files are listed which can be accessed with the partial qualification *PAUL.*

Example 5: Catalog entry of a temporary file

```
/show-file-attr file-name=#  ————————————————————————————————— (1)
```

```
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OS2'. COMMAND TERMINATED
```

```
/cre-file #hugo.1  ————————————————————————————————————————— (2)
/copy-file from-file=lst.addcmd,to-file=#hugo.lst.addcmd   ———————— (3)
/show-file-attr # ————————————————————————————————————————— (4)
```

```
%         6 :2OS2:$USER1.S.152.2B4Z.HUGO.LST.ADDCMD
%         3 :2OS2:$USER1.S.152.2B4Z.HUGO.1
%:2OS2: PUBLIC:      2 FILES RES=        9  FRE=         4  REL=        3 PAGES
```

```
/show-file-attr #*cmd,inf=all ————————————————————————————— (5)
```

```
%0000000006 :2OS2:$USER1.S.152.2B4Z.HUGO.LST.ADDCMD
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2014-07-02  ACC-DATE   = 2014-07-02  CHANG-DATE = 2014-07-02
%  CRE-TIME   =   17:52:52  ACC-TIME   =   17:52:59  CHANG-TIME =   17:52:52
%  ACC-COUNT  = 1           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2014-07-02
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = E           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  MIGRATE    = INHIBITED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = BY-CLOSE
%  REC-FORM   = (V,M)       REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 24          HIGH-US-PA = 5
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OS2.6       D3435
%  NUM-OF-EXT = 1
%:2OS2: PUBLIC:      1 FILE  RES=         6 FRE=         1 REL=         0 PAGES
```

(1) All temporary files will be listed (tempfile prefix is set with #). Message *DMS0533* shows that no temporary files exist for the task.

(2) CREATE-FILE creates the catalog entry for the temporary file *#HUGO.1*.

(3) COPY-FILE copies the file *LST.ADDCMD* into temporary file *#HUGO.LST.ADDCMD*, which is thereby created.

(4) SHOW-FILE-ATTRIBUTES for all temporary files of the task (FILE-NAME=#) shows the names of the temporary files created. Instead of the tempfile character, with which the user can access the files, the internal name section created by the system is output (here *S.152.2B4Z.*).

(5) Outputs the full catalog entry for all temporary files whose name ends with the character string *CMD*.

*Example 6a: Output with INFORMATION=*SPACE-SUMMARY*

/show-file-attr file-name=max.,inf=*space-summary

```
%:2OS2: PUBLIC:     22 FILES RES=       180 FRE=       153 REL=       144 PAGES
%:2OS2: PRDISC:      5 FILES RES=        12 FRE=        12 REL=         0 PAGES
%:2OS2: TAPE  :      2 FILES
```

Information is output for all the user's files whose name starts with *MAX.*

*Example 6b: Output with INFORMATION=*PAR(PASSWORDS=*YES)*

/sh-f-attr file-name=<ah,sf>.,inf=(passwords=*yes)

```
%0000000030 :2OS2:$USER1.AH.LIB
%  ------------------------------ PASSWORDS    ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%0000000384 :2OS2:$USER1.SF.NEU
%  ------------------------------ PASSWORDS    ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%0000000048 :2OS2:$USER1.SF.ROBAR
%  ------------------------------ PASSWORDS    ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%0000000123 :2OS2:$USER1.SF.TEST.DEV.1
%  ------------------------------ PASSWORDS    ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%:2OS2: PUBLIC:      4 FILES RES=       585 FRE=        30 REL=         9 PAGES
```

Output is for all the user's files whose name starts with one of the character strings AH or SF and a period.

*Example 6c: Output with INFORMATION=*MINIMUM*

/show-file-attr inf=*minimum

```
%P YNN NW               30 :2OS2:$USER1.AH.LIB
%S NNN NW                3 :2OS2:$USER1.C.PROC1
%S NNN NW                3 :2OS2:$USER1.C.PROC2
%S NNN NW                6 :2OS2:$USER1.LST.ADDCMD
%S NNN NW                3 :2OS2:$USER1.LST.BSP.2
%S NNN NW              333 :2OS2:$USER1.LST.DOMAIN.D
%S NNN NW              333 :2OS2:$USER1.LST.DOMAIN.E
%S NNN NW               24 :2OS2:$USER1.LST.HELP
%S NNN NW               24 :2OS2:$USER1.LST.RFA.416
%S NNN NW               66 :2OS2:$USER1.LST.SDF.D.1
%S NNN NW               30 :2OS2:$USER1.LST.SDF.E
%N NNN NW                3 :2OS2:$USER1.MAX.FILE.1
%S NNN NW                9 :2OS2:$USER1.MAX.FILE.10
%S NNN NW               12 :2OS2:$USER1.MAX.FILE.10.SORT-1
%S NNN NW               12 :2OS2:$USER1.MAX.FILE.10.SORT-2
%S NNN NW                3 :2OS2:$USER1.MAX.FILE.2
%N NNN GUARDS            3 :2OS2:$USER1.MAX.FILE.3
%I NNN NW                9 :2OS2:$USER1.MAX.FILE.4
%N NNN NW                3 :2OS2:$USER1.MAX.FILE.6
%I NNN NW                3 :2OS2:$USER1.MAX.FILE.7
%I NNN NW                3 :2OS2:$USER1.MAX.FILE.9
%N YNN NW                0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%N NNN NW                0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%N NNN NW                0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%S NNN YW                  :2OS2:$USER1.MAX.TAPE-FILE.1
%S NNN YW                  :2OS2:$USER1.MAX.TAPE-FILE.2
%I NNN NW                9 :2OS2:$USER1.PAUL.FILE.1
%I NNN GUARDS            9 :2OS2:$USER1.PAUL.FILE.2
%S NNN NW                9 :2OS2:$USER1.PAUL.FILE.3
%I NNN NW              384 :2OS2:$USER1.SF.NEU
%I NNN NW               48 :2OS2:$USER1.SF.ROBAR
%I NNN NW              123 :2OS2:$USER1.SF.TEST.DEV.1
%I NNN NW               84 :2OS2:$USER1.TEST.BEISPIEL.1
%I NNN NW               33 :2OS2:$USER1.TEST.BEISPIEL.2
%S NNN NW               48 :2OS2:$USER1.TEST.BEISPIEL.3
%S NNN NW                3 :2OS2:$USER1.TEST.BEISPIEL.4
```

Information is output for all the user’s files.

*Example 6d: Output with INFORMATION=*STATISTICS*

/show-file-attr inf=*statistics

```
% FILES %:2OS2: PUBLIC:     31 FILES RES=      1665 FRE=        94 REL=        45 PAGES
%:2OS2: TAPE  :      2 FILES
% FILE GENERATIONGROUPS %:2OS2: PUBLIC:      2 FILES
%:2OS2: PRIVAT:      1 FILE
```

Information is output for all the user’s files.

*Example 6e: Output with INFORMATION=*PAR(SECURITY=*YES)*

/show-file-attr max.file.<1:3>,inf=(security=*yes)

```
%0000000003 :2OS2:$USER1.MAX.FILE.1
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%0000000003 :2OS2:$USER1.MAX.FILE.2
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        DESTROY    = NO          EXPIR-DATE = 2014-02-02
%  SP-REL-LOCK= NO                                   EXPIR-TIME =   00:00:00
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2014-02-02
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%0000000003 :2OS2:$USER1.MAX.FILE.3
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  OWNER      = R W X       GROUP      = - - -       OTHERS     = - - -
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  GUARD-READ = $USER1.PROT-A01
%  GUARD-WRIT = $USER1.PROT-A01
%  GUARD-EXEC = NONE
%:2OS2: PUBLIC:      3 FILES RES=         9 FRE=         8 REL=         6 PAGES
```

Information is output for all the user's files whose name starts with the character string *MAX.FILE.* and ends with one of the subsequent characters *1*, *2* or *3*.

*Example 6f: Output with INFORMATION=*PAR(HISTORY=*YES)*

/show-file-attr sf.,inf=(history=*yes)

```
%0000000384 :2OS2:$USER1.SF.NEU
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2014-07-22  ACC-DATE   = 2014-07-30  CHANG-DATE = 2014-07-24
%  CRE-TIME   =   18:59:58  ACC-TIME   =   13:37:48  CHANG-TIME =   10:17:48
%  ACC-COUNT  = 4           S-ALLO-NUM = 0
%0000000048 :2OS2:$USER1.SF.ROBAR
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2014-05-20  ACC-DATE   = 2014-05-20  CHANG-DATE = NONE
%  CRE-TIME   =   01:00:00  ACC-TIME   =   01:00:00  CHANG-TIME = NONE
%  ACC-COUNT  = 1           S-ALLO-NUM = 0
%0000000123 :2OS2:$USER1.SF.TEST.DEV.1
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2014-06-30  ACC-DATE   = 2014-06-30  CHANG-DATE = 2014-06-30
%  CRE-TIME   =   17:42:51  ACC-TIME   =   18:06:20  CHANG-TIME =   17:42:54
%  ACC-COUNT  = 3           S-ALLO-NUM = 0
%:2OS2: PUBLIC:      3 FILES RES=       555 FRE=        24 REL=         3 PAGES
```

Information is output for all the user's files whose name begins with the character string *SF.*

*Example 6g: Output with INFORMATION=*PAR(ALLOCATION=*YES)*

/show-file-attr file-name=.4,inf=(allocation=*yes)**

```
%0000000009 :2OS2:$USER1.MAX.FILE.4
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 7
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OS2.A       D3435
%  NUM-OF-EXT = 1
%0000000000*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%0000000003 :2OS2:$USER1.TEST.BEISPIEL.4
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 18          HIGH-US-PA = 3
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OS2.H       D3435
%  NUM-OF-EXT = 1
%:2OS2: PUBLIC:      2 FILES RES=        12 FRE=         2 REL=         0 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

Information is output for all the user's files whose name starts with a particular character string (including an empty one) and ends with the character string *.4*.

*Example 6h: Output with INFORMATION=*PAR(BACKUP=*YES)*

/show-file-attr file-name=*.10.*,inf=(backup=*yes)

```
%0000000012 :2OS2:$USER1.MAX.FILE.10.SORT-1
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 2
%0000000012 :2OS2:$USER1.MAX.FILE.10.SORT-2
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 2
%0000000006 :2OS2:$USER1.SYSTEMPASS.VTSU-B.10.1A.19941119
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 2
%:2OS2: PUBLIC:      3 FILES RES=        30 FRE=        17 REL=        15 PAGES
```

Information is output for all the user's files whose name contains the character string ".*10.*". and at least one character must precede or follow this.

*Example 6i: Output with INFORMATION=*PAR(ORGANIZATION=*YES)*

/show-file-attr file-name=max.*file.2,inf=(organization=*yes)

```
%0000000003 :2OS2:$USER1.MAX.FILE.2
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = (V,N)       REC-SIZE   = 0
%  AVAIL      = *STD
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  REC-FORM   = (V,M)       REC-SIZE   = 2044
%  CODE       = EBCDIC      LABEL      = (STD,1)     FILE-SEQ   = 2
%  BLK-OFFSET = 4
%:2OS2: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
%:2OS2: TAPE  :      1 FILE
```

Information is output for all the user's files whose name starts with the character string *MAX.* and ends with *FILE.2*.

Example 7: Selection of files for which particular attributes apply

/show-file-attr select=(password=*read-pass)

```
%        30 :2OS2:$USER1.AH.LIB
%         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%:2OS2: PUBLIC:      2 FILES RES=        30 FRE=         6 REL=         6 PAGES
```

All the user's files are listed whose name is protected with a read password.

/show-file-attr select=(status=(closed-output=*no))

```
%         3 :2OS2:$USER1.LST.BSP.2
%:2OS2: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
```

All the user's files are listed which are open for writing at the time the command is issued.

/show-file-attr select=(support=(*priv,*tape))

```
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%           :2OS2:$USER1.MAX.TAPE-FILE.1
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
%:2OS2: TAPE  :      2 FILES
```

All the user's files are listed which are stored on private disks or on tapes.

/show-file-attr select=(support=*priv,generation=*yes)

```
%         3*:2OS2:$USER1.MAX.GROUP.1(*0004)
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0002)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0003)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0004)
%:2OS2: PRDISC:      5 FILES RES=        12 FRE=        12 REL=         0 PAGES
```

All the user's files are listed which are stored on private disks. For file generation groups, the generations will also be output.

/show-file-attr select=(size=*int(100,400))

```
%       333 :2OS2:$USER1.LST.DOMAIN.D
%       333 :2OS2:$USER1.LST.DOMAIN.E
%       384 :2OS2:$USER1.SF.NEU
%       123 :2OS2:$USER1.SF.TEST.DEV.1
%:2OS2: PUBLIC:      4 FILES RES=      1173 FRE=        19 REL=         3 PAGES
```

All the user's files are listed which occupy between 100 and 400 PAM pages.

/show-file-attr select=(num-of-free=10)

```
%        24 :2OS2:$USER1.LST.HELP
%       123 :2OS2:$USER1.SF.TEST.DEV.1
%:2OS2: PUBLIC:      2 FILES RES=       147 FRE=        20 REL=        12 PAGES
```

All the user's files are listed where exactly ten of the reserved PAM pages are not occupied.

/show-file-attr select=(acc-count=2)

```
%        24 :2OS2:$USER1.LST.HELP
%        66 :2OS2:$USER1.LST.SDF.D.1
%        30 :2OS2:$USER1.LST.SDF.E
%         3 :2OS2:$USER1.MAX.FILE.7
%:2OS2: PUBLIC:      4 FILES RES=       123 FRE=        12 REL=         9 PAGES
```

All the user's files are listed which have been accessed exactly twice since the catalog entry was created.

/show-file-attr select=(last-acc-date=*today(time=(8:00,10:00)))

```
%         3 :2OS2:$USER1.LST.BSP.2
%:2OS2: PUBLIC:      1 FILE  RES=         3 FRE=         2 REL=         0 PAGES
```

All the user's files are listed which were last accessed between 8 and 10 a.m. on the day the command was issued.

/show-file-attr select=(prot-active=*level-2)

```
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.PAUL.FILE.2
%:2OS2: PUBLIC:      2 FILES RES=        12 FRE=         5 REL=         3 PAGES
```

All the user's files are listed where access control is with GUARDS.

/show-file-attr select=(prot-active=*level-1)

```
% DMS06CC NO FILE CORRESPONDING TO SPECIFIED OPERANDS
```

All the user's files are listed where access control is with BASIC-ACL. The files *MAX.FILE.3* and *PAUL.FILE.2* have a BASIC-ACL entry but access control is via GUARDS (see the following output).

/show-file-attr select=(basic-acl=*yes)

```
%         3 :2OS2:$USER1.MAX.FILE.3
%         9 :2OS2:$USER1.PAUL.FILE.2
%:2OS2: PUBLIC:      2 FILES RES=        12 FRE=         5 REL=         3 PAGES
```

All the user's files which have a BASIC-ACL entry are listed.

/show-file-attr select=(type=(*plam,*file-group))

```
%        30 :2OS2:$USER1.AH.LIB
%         0 :2OS2:$USER1.MAX.GROUP.2  (FGG)
%         0 :2OS2:$USER1.MAX.GROUP.3 (FGG)
%         0*:2OS2:$USER1.MAX.GROUP.4  (FGG)
%:2OS2: PUBLIC:      3 FILES RES=        30 FRE=         6 REL=         6 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

All the user’s file generation groups and PLAM libraries are listed.

/show-file-attr select=(support=*priv,type=*file-group,generation=*yes)

```
%         3*:2OS2:$USER1.MAX.GROUP.1(*0004)
%         0*:2OS2:$USER1.MAX.GROUP.4  (FGG)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0002)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0003)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0004)
%:2OS2: PRDISC:      5 FILES RES=        12 FRE=        12 REL=         0 PAGES
```

All the user’s file generation groups with generations are listed that are stored on private disks.

Example 8: File generation groups/file generations

Example 8a: List of all cataloged file generation groups with generations

/show-file-attr select=(type=*file-group)

```
%         0 :2OS2:$USER1.MAX.GROUP.2  (FGG)
%         0 :2OS2:$USER1.MAX.GROUP.3  (FGG)
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%:2OS2: PUBLIC:      2 FILES RES=         0 FRE=         0 REL=         0 PAGES
%:2OS2: PRDISC:      1 FILE  RES=         0 FRE=         0 REL=         0 PAGES
```

All the user’s file generation groups are listed.

Example 8b: List of all cataloged file generation groups with generations

/show-file-attr select=(type=*file-group,gen=*yes)

```
%         3*:2OS2:$USER1.MAX.GROUP.1(*0004)
%         0 :2OS2:$USER1.MAX.GROUP.2 (FGG)
%         3 :2OS2:$USER1.MAX.GROUP.2(*0011)
%        93 :2OS2:$USER1.MAX.GROUP.2(*0012)
%         3 :2OS2:$USER1.MAX.GROUP.2(*0013)
%         0 :2OS2:$USER1.MAX.GROUP.3  (FGG)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0001)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0002)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0003)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0004)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0005)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0006)
%         3 :2OS2:$USER1.MAX.GROUP.3(*0007)
%         0*:2OS2:$USER1.MAX.GROUP.4 (FGG)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0002)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0003)
%         3*:2OS2:$USER1.MAX.GROUP.4(*0004)
%:2OS2: PUBLIC:     12 FILES RES=       120 FRE=       120 REL=       120 PAGES
%:2OS2: PRDISC:      5 FILES RES=        12 FRE=        12 REL=         0 PAGES
```

All the user’s file generation groups with generations are listed.

Example 8c: Complete catalog entries of a public FGG

/show-file-attr max.group.2,inf=*all,select=(gen=*yes)

```
%0000000000 :2OSG:$USERXY01.MAX.GROUP.2 (FGG)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2014-11-21  ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   =   17:31:03  ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2014-11-21
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 11          OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 11          LAST-GEN   = 13
%0000000009 :2OSG:$USERXY01.MAX.GROUP.2(*0011)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION -------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   -------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OSG.5       D3435
%  NUM-OF-EXT = 1
%0000000009 :2OSG:$USERXY01.MAX.GROUP.2(*0012)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
```

```
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OSG.5       D3435
%  NUM-OF-EXT = 1
%0000000009 :2OSG:$USERXY01.MAX.GROUP.2(*0013)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = YES         WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PUB         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       2OSG.4       D3435
%  NUM-OF-EXT = 1
%:2OSG: PUBLIC:      4 FILES RES=        27 FRE=        27 REL=        27 PAGES
```

The complete catalog entries for the file generation group *MAX.GROUP.2* (group entry) and for all associated generations are listed.

Example 8d: Complete catalog entries for a private disk FGG

/show-file-attr max.group.4,inf=*all,select=(gen=*yes)

```
%0000000000*:2OSG:$USERXY01.MAX.GROUP.4 (FGG)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = 2014-07-02  ACC-DATE   = NONE        CHANG-DATE = 2014-07-02
%  CRE-TIME   =   00:00:00  ACC-TIME   = NONE        CHANG-TIME =   00:00:00
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = 2014-07-02
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME =   00:00:00
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ GENERATION-INFO ----------------------------
%  MAXIMUM    = 3           BASE-NUM   = 0           OVERFL-OPT = CYCL-REPL
%  FIRST-GEN  = 1           LAST-GEN   = 3
%  EXTENTS     VOLUME     DEVICE-TYPE
%              WORK01       D3435
%0000000003*:2OSG:$USERXY01.MAX.GROUP.4(*0001)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION -------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   -------------------------------
%  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WORK01       D3435
%  NUM-OF-EXT = 1
%0000000003*:2OSG:$USERXY01.MAX.GROUP.4(*0002)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
```

```
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WORK01       D3435
%  NUM-OF-EXT = 1
%0000000003*:2OSG:$USERXY01.MAX.GROUP.4(*0003)
%  ------------------------------ HISTORY      ------------------------------
%  CRE-DATE   = NONE        ACC-DATE   = NONE        CHANG-DATE = NONE
%  CRE-TIME   = NONE        ACC-TIME   = NONE        CHANG-TIME = NONE
%  ACC-COUNT  = 0           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     ------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = OWNER-ONLY  ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        FREE-DEL-D = *NONE       EXPIR-DATE = NONE
%  DESTROY    = NO          FREE-DEL-T = *NONE       EXPIR-TIME = NONE
%  SP-REL-LOCK= NO          ENCRYPTION = *NONE
%  ------------------------------ BACKUP       ------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 0
%  MIGRATE    = ALLOWED
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION ------------------------------
%  FILE-STRUC = NONE        BUF-LEN    = NONE        BLK-CONTR  = NONE
%  IO(USAGE)  = READ-WRITE  IO(PERF)   = STD         DISK-WRITE = IMMEDIATE
%  REC-FORM   = NONE        REC-SIZE   = 0
%  AVAIL      = *STD
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WORK01       D3435
%  NUM-OF-EXT = 1
%:2OSG: PRDISC:      4 FILES RES=         9 FRE=         9 REL=         0 PAGES
```

The complete catalog entries for the file generation group *MAX.GROUP.4* (group entry) and for all associated generations are listed. The file generation and its generations are stored on the private disk *WORK01*.

Example 9: Complete catalog entry of a tape file

/show-file-attr max.tape-file.2,inf=*all

```
%           :2OS2:$USER1.MAX.TAPE-FILE.2
%  ------------------------------ HISTORY      --------------------------------
%  CRE-DATE   = 2014-07-01  ACC-DATE   = 2014-07-01  CHANG-DATE = 2014-07-01
%  CRE-TIME   =   13:22:17  ACC-TIME   =   13:22:27  CHANG-TIME =   13:22:27
%  ACC-COUNT  = 1           S-ALLO-NUM = 0
%  ------------------------------ SECURITY     --------------------------------
%  READ-PASS  = NONE        WRITE-PASS = NONE        EXEC-PASS  = NONE
%  USER-ACC   = ALL-USERS   ACCESS     = WRITE       ACL        = NO
%  AUDIT      = NONE        DESTROY    = NO          EXPIR-DATE = 2014-07-01
%                                                     EXPIR-TIME =   00:00:00
%  ------------------------------ BACKUP       --------------------------------
%  BACK-CLASS = A           SAVED-PAG  = COMPL-FILE  VERSION    = 1
%  #BACK-VERS = 0
%  ------------------------------ ORGANIZATION -------------------------------
%  FILE-STRUC = SAM         BUF-LEN    = STD(1)      BLK-CONTR  = PAMKEY
%  REC-FORM   = (V,M)       REC-SIZE   = 2044
%  CODE       = EBCDIC      LABEL      = (STD,1)     FILE-SEQ   = 2
%  BLK-OFFSET = 4
%  ------------------------------ ALLOCATION   -------------------------------
%  SUPPORT    = PVT                                  BLK-COUNT =  5
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%              M5658K       TAPE-C4
%:2OS2: TAPE  :      1 FILE
```

The complete catalog entry of the tape file *MAX.TAPE-FILE.2* is output. The file is the second file (*FILE-SEQ=2*) on a magnetic tape cartridge of volume type *TAPE-C4* with the volume serial number *D2326K*.

Example 10: Output to printer

/show-file-attr file-name=max.file.,output=*printer

```
%:2OS2: PUBLIC: 10 FILES RES= 60 FRE= 33 REL= 24 PAGES
```

A print-edited list of all files starting with *MAX.FILE.* is produced and printed out[1] with the spoolout name *FSTATPRT* . The user receives the following listing:

```
                                                          17:11:24  15-03-13      PAGE 1
|-------------------------------------------------------------------------------------------|
|                                |     |     |     |    |     |       |     |   |    |      |
| FILENAME                       |PAM- |FREE-|SEC- |FCB-|SHARE|ACCESS|PASS-|BKL|#EXT|VOLUME|
|                                |PAGES|PAGES|ALLOC|TYPE|     |      |WORDS|   |    |      |
|                                |     |     |     |    |     |       |     |   |    |      |
|-------------------------------------------------------------------------------------------|
|                                |     |     |     |    |     |       |     |   |    |      |
| :2OS2:$USER1.MAX.FILE.1        |   3 |   3 |   9 |NONE| NO  | WRITE|     | A |  1 |2OS2.0|
| :2OS2:$USER1.MAX.FILE.10       |   9 |   4 |   9 |SAM | NO  | WRITE|     | A |  1 |2OS2.D|
| :2OS2:$USER1.MAX.FILE.10.SORT-1|  12 |   7 |   9 |SAM | NO  | WRITE|     | A |  2 |2OS2.F|
| :2OS2:$USER1.MAX.FILE.10.SORT-2|  12 |   7 |   9 |SAM | NO  | WRITE|     | A |  3 |2OS2.5|
| :2OS2:$USER1.MAX.FILE.2        |   3 |   2 |   9 |SAM | NO  | WRITE|     | A |  1 |2OS2.0|
|                                |     |     |     |    |     |       |     |   |    |      |
| :2OS2:$USER1.MAX.FILE.3        |   3 |   3 |   9 |NONE| NO  | WRITE|     | A |  1 |2OS2.C|
| :2OS2:$USER1.MAX.FILE.4        |   9 |   2 |   9 |ISAM| NO  | WRITE|     | A |  1 |2OS2.A|
| :2OS2:$USER1.MAX.FILE.6        |   3 |   3 |   9 |NONE| NO  | WRITE|     | A |  1 |2OS2.E|
| :2OS2:$USER1.MAX.FILE.7        |   3 |   1 |   9 |ISAM| NO  | WRITE|     | A |  1 |2OS2.G|
| :2OS2:$USER1.MAX.FILE.9        |   3 |   1 |   9 |ISAM| NO  | WRITE|     | A |  1 |2OS2.H|
|                                |     |     |     |    |     |       |     |   |    |      |
|-------------------------------------------------------------------------------------------|
|    PUBLIC SPACE:      10 FILES                      60                                    |
|-------------------------------------------------------------------------------------------|
```

[1] If the print-edited list is output to a file, the first data byte in each case contains a print control character which is evaluated by the printer at the time of print output with PRINT-DOCUMENT and LINE-SPACING=*BY-EBCDIC-CONTROL.

6.3 SHOW-FILE-LINK

Output file attributes from TFT

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The SHOW-FILE-LINK command enables the user to request information from the job-specific task file table (TFT) about the files and devices currently being used. For tape files, TST information can be requested (see the VOLUME operand). TFT entries can be created using the ADD-FILE-LINK command.

If the user specifies no operands in the SHOW-FILE-LINK command, he/she will receive on SYSOUT a list of the current TFT entries showing the file link names and the associated file names, sorted by the file link names.

With the operands FILE-NAME and LINK-NAME the output can be restricted to information on specific TFT entries; otherwise, the command will process the entire TFT.

The command supports structured output in S variables (see "Output in S variables").

Note

The information as to whether the creation and/or processing of large files is permitted in the TFT entry (see the EXCEED-32GB operand in the ADD-FILE-LINK command), can only be determined from the S variable output.

Format

SHOW-FILE-LINK Alias: **SHFL**

LINK-NAME = ***ALL** / ***BLANK**(...) / <filename 1..8 without-gen with-wild(80)>

***BLANK**(...)

| **NUM**BER = **0** / <integer 0..255>

,**F**ILE-**NAME** = ***ALL** / ***DUMMY** / <filename 1..54 with-wild(80)>

,**INF**ORMATION = ***NAMES-AND-FILES** / ***ALL** / [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **STA**TUS = ***NO** / ***Y**ES / ***STA**TUS

| ,**PROT**ECTION = ***NO** / ***Y**ES / ***PROT**ECTION

| ,**F**ILE-**C**ONTROL-**B**LOCK = ***NO** / ***Y**ES / ***F**ILE-**C**ONTROL-**B**LOCK

| ,**VOL**UME = ***NO** / ***Y**ES / ***VOL**UME

Operands

LINK-NAME = *ALL / *BLANK(...) / <filename 1..8 without-gen with-wild(80)>
The file link name of the TFT entry to which the SHOW-FILE-LINK command relates. The information returned will be restricted to the TFT entry identified by LINK-NAME.

LINK-NAME = *ALL
All the entries created by the job currently running will be output.

LINK-NAME = *BLANK(...)
Outputs details of a TFT entry whose name consists of blanks (C' '). Such an entry is created if neither the link name nor the file name is defined in the FCB macro call of a program and if no appropriate ADD-FILE-LINK command is issued before the program call. The file name in this entry is the symbolic name of the FCB macro call.

See “OPEN processing” in the “DMS Macros” manual [12].

NUMBER = 0 / <integer 0..255>
Specifies the TFT entry, whose link name consists of blanks, for which information is to be shown.

LINK-NAME = <filename 1..8 without-gen with-wild(80)>
The file link name of the TFT entry to which the SHOW-FILE-LINK command relates.
A wildcard sequence (of up to 8 characters) may be specified to ensure that only valid file link names are addressed.

FILE-NAME = *ALL / *DUMMY / <filename 1..54 with-wild(80)>
Only information on the TFT entry linked to FILE-NAME will be output. The file specified by FILE-NAME identifies a permanent or temporary file, or a file generation. File generations must be fully qualified and specified with the absolute generation number. For temporary files, the internal file name is shown in the SHOW-FILE-LINK output.

FILE-NAME = *ALL
All the entries created by the job currently running will be output.

FILE-NAME = *DUMMY
Only the information on TFT entries linked with DUMMY files will be output.

FILE-NAME = <filename 1..54 with-wild(80)>
Fully or partially qualified file name, optionally containing wildcards. Only information on the TFT entry linked to FILE-NAME will be output. A wildcard sequence may be specified to ensure that only valid file names are addressed.

INFORMATION = *NAMES-AND-FILES / *ALL / *PARAMETERS(...)
The scope of the information to be output (*NAMES-AND-FILES: file name and link name; *ALL: all information; *PARAMETERS: files with the specified attributes).

INFORMATION = *NAMES-AND-FILES
Only the file link names and associated file names will be output.

Output format

The header line is only output once for all selected TFT entries.

- For files on public disks:

```
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
% linkname pfadname
```

- For files on private disks:

```
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
%D linkname pfadname
```

- For files on a Net-Storage volume:

```
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
%N linkname pfadname
```

- For files on tape:

```
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
%T linkname pfadname
```

- For files on a remote system (see the “RFA” manual [31]):

```
%-- LINK-NAME --------- FILE-NAME ----------------------------------------
%R linkname pfadname (wie im ADD-FILE-LINK angegeben)
```

INFORMATION = *ALL
In addition to the file link name and file name, all the information specified by *PARAMETERS will be output. For each selected TFT entry, a header line is output along with file link name and file name (see INFORMATION=*NAMES-AND-FILES).

INFORMATION = *PARAMETERS(...)
Outputs the file link name and file name. In addition, the following extracts can be selected from the complete information held in the entries: file status, file backup, file attributes, and device characteristics. For each selected TFT entry, a header line is output along with file link name and file name (see INFORMATION=*NAMES-AND-FILES).

STATUS = *NO / *YES
Specifies whether any information about the status of the file links is required.

STATUS = *NO
No information will be output about the status of the file links.

STATUS = *YES
Information will be output about the status of the file links (whether the file is being processed; whether the link name is locked; actions to be carried out when the lock is removed; how the file link was created; number of tape devices assigned). For information contained in the STATUS block, see "Meaning of the output fields".

PROTECTION = *NO / *YES
Specifies whether information concerning the file protection and expiration date is to be output.

PROTECTION = *NO
No information on the file protection and expiration date are to be output.

PROTECTION = *YES
Information on the file protection and retention period are to be output.
For information contained in the PROTECTION block, see "Meaning of the output fields".

FILE-CONTROL-BLOCK = *NO / *YES
Specifies whether information on file attributes defined by the ADD-FILE-LINK command is to be output.

FILE-CONTROL-BLOCK = *NO
No information on file attributes will be output.

FILE-CONTROL-BLOCK = *YES
The following information on file attributes is displayed. This information is subdivided into four information blocks:

- GENERAL ATTRIBUTES with general attributes from the FCB
- DISK FILE ATTRIBUTES with attributes for disk files
- TAPE FILE ATTRIBUTES with attributes for tape files
- ISAM FILE ATTRIBUTES with attributes for ISAM files

Each of the four information blocks begins with a header line.
The details contained in the individual information blocks of FILE-CONTROL-BLOCK are listed under "Meaning of the output fields".

VOLUME = *NO / *YES
Specifies whether information on device types and volumes required for the file is to be output.

VOLUME = *NO
No information on device types and volumes required for the file will be output.

VOLUME = *YES
Information on device types and volumes required for the file will be output.
For information contained in the VOLUME block, see “Meaning of the output fields” on "Meaning of the output fields".

Return codes

(SC2)	SC1	Maincode	Meaning
0	0	CMD0001	Command executed
1	0	CMD0001	Interrupted by K2 key
	1	CMD0202	Syntactical or semantic error in command
	32	CMD2009	Internal error during S variable generation
	32	DMS0584	A state that does not allow the function to continue was reported during processing
	32	DMS05C7	Unexpected internal error in DMS
	64	DMS05E1	TFT not available or specified file not in TFT
	64	OPS0001	SDF-P reporting space problems
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
	130	DMS0594	Not enough virtual memory available

Meaning of the output fields

n: numeric character

a: alphanumeric character

Status of the file links

The information block begins with the header line “STATUS”.

Output field	Values	Description
STATE	ACTIVE	File is being processed
	INACTIVE	File is not being processed
ORIGIN	FILE	TFT entry was created by an ADD-FILE-LINK command or a FILE macro
	OPEN	TFT entry was created with OPEN
LOCK-F-LI	YES	Only included in the output if the link name was locked with LOCK-FILE-LINK
REM-F-LINK	YES/NO	Only included in the output if a locked link name is to be released with REMOVE-FILE-LINK
RELE-DEV	YES/NO	Only included in the output if a locked link name is to be released with REMOVE-FILE-LINK ..., RELEASE-DEVICE=*YES*/NO
UNL-R-TAPE	YES/NO	Only included in the output if a locked link name is to be released with REMOVE-FILE-LINK ..., UNLOAD-RELEASED-TAPE=*YES /*NO
NUMBER OF TAPES CONTAINING DATA OF FILE	nnn	Only output for tape files. Indicates the number of tapes that contain the data of the tape file

Table 108: Output fields for status of file links, from the SHOW-FILE-LINK command

File protection and retention period

The information block begins with the header line “PROTECTION”.

Output field	Values	Description
RET-PER	*BY-PROG nnnnn	No retention period for the file exists Retention period in days.
PROT-LEV	*BY-PROG	Protection level not specified
	HIGH	For standard labels, high protection level for label checking
	LOW	For standard labels, low protection level for label checking
OVERW-PROT		Only output if PROT-LEV = *HIGH/*LOW
	YES	File protected against overwriting
	NO	No protection against overwriting
BYPASS	*BY-PROG	Label processing not specified
	NO	No label processing; tape position will not be changed
	ABS(nnnnn)	No label processing; the tape will be positioned to the specified tape mark, counting from the beginning of the tape
	FORW(nnnnn)	No label processing; the tape will be advanced by the specified number of tape marks
	BACK(nnnnn)	No label processing; the tape will be wound back by the specified number of tape marks
DESTROY	*BY-CAT	Deletion to end of tape not specified
	YES	After EOF/EOV labels are written, the remaining data to the end of the tape will be deleted
	NO	Deletion to end of tape not specified

Table 109: Output fields for file protection/retention period, from the SHOW-FILE-LINK command

File attributes

The values *BY-CAT and *BY-PROG have been omitted in the following table. *BY-PROG may be assumed for all the output fields except *F-CL-MSG*; it indicates that no value was specified for the corresponding operand. The value *BY-CAT means that the appropriate attribute is taken from the catalog entry of the file (see* the relevant operands in the ADD-FILE-LINK command with operand value *BY-CATALOG). The use of values entered in the catalog can be defined for the following attributes:

ACC-METH, REC-FORM, REC-SIZE, BUF-LEN, BLOCK-OFF, KEY-POS, KEY-LEN, LOGIC-FLAG, VAL-FLAG, PROPA-VAL, CODE, F-SEQ, BLK-CONTR, IO(PERF), IO(USAGE)

More detailed explanations will be found in the descriptions of the corresponding operands for the ADD-FILE-LINK command.

The information supplied here is divided into four information blocks:

1. GENERAL ATTRIBUTES with general attributes from the FCB
2. DISK FILE ATTRIBUTES with attributes for disk files
3. TAPE FILE ATTRIBUTES with attributes for tape files
4. ISAM FILE ATTRIBUTES with attributes for ISAM files
5. The information block begins with the header line “FILE CONTROL BLOCK - GENERAL ATTRIBUTES”

Output field	Values	Description
ACC-METH	SAM ISAM BTAM UPAM	Access methods (see the ACCESS-METHOD operand in the ADD-FILE-LINK command)
OPEN-MODE	INPUT OUTPUT EXTEND REVERSE UPDATE OUTIN INOUT SINOUT	OPEN modes (see the OPEN-MODE operand in the ADD-FILE-LINK command)
REC-FORM	FIXED	File consists of fixed-length records
	VARIABLE	File consists of variable-length records
	UNDEFINED	File consists of records of undefined length
REC-SIZE	nnnnn	Record length in bytes
BUF-LEN	(STD,n)	Standard blocking with blocking factor n
	nnnnn	Block length in bytes

Output field	Values	Description
BLK-CONTR	NO	Data format includes no key
	DATA	Data format includes no key, block control information is at the start of the block
	DATA (2K)	For NK2-ISAM files only: data format without key; block control information at the start of each 2K block
	DATA (4K)	For NK4-ISAM files only: data format without key; block control information at the start of each 4K block
	PAMKEY	Data format includes a PAM key
F-CL-MSG	STD	Default setting
	YES	Close message after CLOSE
	NO	No close message after CLOSE
CLOSE-MODE		Specification for CLOSE mode:
	INVALIDATE	Blocks still in the cache are invalidated
	REWIND	Tape rewound to start of tape after CLOSE
	REPOS	Tape repositioned to logical start of file after CLOSE
	UNLOAD	Like REWIND, but tape is also unloaded and released
	LEAVE	Tape repositioned to logical end of file after CLOSE
	KEEP	Blocks still in the cache remain valid

Table 110: Output fields for file attributes

6. The information block begins with the header line “FILE CONTROL BLOCK - DISK FILE ATTRIBUTES”

Output field	Values	Description
SHARED-UPD	YES	The file can be concurrently processed by more than one job
	NO	No concurrent processing
	WEAK	For UPAM processing only: the file can be opened for writing by one job only; other jobs can open it for reading at the same time
WR-CHECK	YES	Read-after-write checking
	NO	No read-after-write checking
IO(PERF)	STD	No special performance requirements
	HIGH	The file should be processed via a cache
	VERY-HIGH	The file should be processed via a cache, and the entire file should be retained in the cache if possible
	USER-MAX	The file is processed with the highest permitted performance attribute that is entered in the user catalog
IO(USAGE)	RDWRT	The performance requirements given in IO(PERF) are for read and write operations
	READ	The performance requirements given in IO(PERF) are for read operations only
	WRITE	The performance requirements given in IO(PERF) are for write operations only
LOCK-ENV	HOST-SYS	The file cannot be opened for writing concurrently from different systems
	XCS	The file can be opened for writing concurrently from different systems in an XCS network

Table 111: Output fields for disk file attributes

7. The information block begins with the header line “FILE CONTROL BLOCK - TAPE FILE ATTRIBUTES”

Output field	Values	Description
LABEL	NO	No label processing
	STD	Standard labels
	NON-STD	Tape file with nonstandard labels
DIN-R-NUM	n	Interchange level for DIN 66029, which regulates how the labels of the file are created
TAPE-MARK	YES	Tape marks will be written
CODE	EBCDIC	No code conversion required
	ISO7	EBCDIC ISO7 conversion with international table
	ISO7D	EBCDIC ISO7 conversion with German table
	OWN	Code conversion using tables created by the use
EBCDIC-TR	YES	ISO7 or OWN codes will be converted to EBCDIC
	NO	ISO7 code will be converted to 8 bit format with a leading zero
F-SEQ	nnnnn	Sequence number of file in file set
	UNKNOWN	Starting position of file unknown
	NEW	New file at the end of the file set
CP-AT-BLIM	YES	Checkpoint automatically written when block limit is reached
CP-AT-FEOV	YES	Checkpoint automatically written at every FEOV macro call
BLOCK-LIM	nnnnn	Maximum nnnnnn data blocks per tape
REST-USAGE	DUMMY	File will be treated as a DUMMY file when a restart is carried out
BLOCK-OFF	nnn	Length of buffer offset (see BLOCK-OFFSET operand in the ADD-FILE-LINK command)
	BY-HDR2	Buffer offset determined by the HDR2 label for the file, or the default value
TAPE-WRITE STREAM	DEV-BUFFER	Buffered output to tape cartridge
	IMMEDIATE	Immediate output to tape cartridge
	YES	Streaming mode I/O

Table 112: Output fields for tape file attributes

8. The information block begins with the header line “FILE CONTROL BLOCK - ISAM FILE ATTRIBUTES”

Output field	Values	Description
KEY-POS	nnnnn	position of ISAM key
KEY-LEN	nnn	Length of the ISAM key in bytes.
POOL-LINK	aaaaaaaa	ISAM pool link name
LOGIC-FLAG	nnn	Length of a logical flag in the ISAM index, in bytes
VAL-FLAG	nnn	Length of a value flag in the ISAM index, in bytes
PROPA-VAL	MINIMUM	The lowest value of any value flag within a data or index block will be copied into the index entry for the next higher level
	MAXIMUM	Analogous to above: the highest value is copied
DUP-KEY	YES	ISAM keys may be duplicated
	NO	ISAM keys may not be duplicated
PAD-FACT	nnnnn	Block padding factor
READ-I-ADV	YES	If a second input/output area is defined in the program, read operations can be overlapped
	NO	No overlapped processing
WR-IMMED	YES	Every updated block is written back to disk immediately
	NO	No immediate writing back
POOL-SIZE	nnnnnnn	Size of the file-specific ISAM pool

Table 113: Output fields for (ISAM file) attributes

Device types and volumes

The information block begins with the header line “VOLUME”. The output fields *T-SET-SHR, F-SET-ID*, and *T-SET-VSN* are only shown for:

- TFT entries that are linked to a tape set (see the command `ADD-FILE-LINK ...,SUPPORT=TAPE(...,VOLUME=*BY-TAPE-SET)`)
- TFT entries created with a CREATE-TAPE-SET command (TFT entry for tape files with the file name *DUMMY; the value of the *T-SET-NAME* output field is then identical with the link name)

The output fields *NUM-OF-VOL* and *NUM-OF-DEV* are only shown if the TFT entry contains private volumes or Net-Storage volumes.

Output field	Values	Description
NUM-OF-VOL	nnn	Number of volumes for the file or the tape set (for Net-Storage volumes this value is always 1)
NUM-OF-DEV	nnn	Number of reserved devices (for Net-Storage volumes this value is 1 if the Net-Storage volume is requested, otherwise it is 0)
DEV-TYPE	aaaaa	Device type; for Net-Storage volumes the volume type NETSTOR
	*NONE	Device type not specified
T-SET-NAME	aaaa	Name of the tape set
	*NONE	TFT entry not linked to a tape set
T-SET-SHR	nnnnn	The number of TFT entries linked to the tape set
F-SET-ID	aaaaaa	VSN of the first tape of the file or tape set
VSN/DEV	aaaaaa/ aaaaaaaa	VSNs and device type codes of the volumes linked to the TFT entry (possibly several pairs of values; 3 pairs per output line) (for Net-Storage volumes the volume type NETSTOR is displayed instead of the device type code)
	*NONE	None specified
T-SET-VSN	(aaaaaa)	List of VSNs of the tape set; first current VSN in parentheses

Table 114: Output fields for device types/volumes

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL	1
INFORMATION = *NAMES-AND-FILES	2
INFORMATION = *PAR(FILE-CONTROL-BLOCK=YES)	3
INFORMATION = *PAR(PROTECTION=YES)	4
INFORMATION = *PAR(STATUS=YES)	5
INFORMATION = *PAR(VOLUME=YES)	6

Output information	Name of the S variable	T	Contents	Condition
Access method for file rocessing	var(*LIST).ACCESS-METHOD	S	'' *BTAM *BY-CAT *ISAM *SAM *UPAM	1,3
Current VSN of the tape set	var(*LIST).ACTUAL-TAPE-SET-VOL	S	'' <vsn>	1,6
Block control information	var(*LIST).BLOCK-CONTR-INFO	S	'' *NO *BY-CAT *PAMKEY *WITHIN-DATA-2K-BLOCK *WITHIN-DATA-4K-BLOCK *WITHIN-DATA-BLOCK	1,3
Maximum number of data blocks	var(*LIST).BLOCK-LIM	S	'' n	1,3
buffer offset	var(*LIST).BLOCK-OFFSET	S	'' *BY-CAT *BY-HDR2 n	1,3
Block length	var(*LIST).BUF-LEN	S	'' *BY-CAT *STD(n) n	1,3
Label handling	var(*LIST).BYPASS-LABEL-CHECK	S	'' *ABS-POS(n) *BACKWARD-POS(n) *FORWARD-POS(n) *NO-POS	1,4
Checkpoint at block limit	var(*LIST).CHECKP-AT-BLIM	S	'' *YES	1,3
Checkpoint on FEOV macro call	var(*LIST).CHECKP-AT-FEOV	S	'' *YES	1,3

Output information	Name of the S variable	T	Contents	Condition
Close mode	var(*LIST).CLOSE-MODE	S	'' *INVALIDATE *KEEP-DATA-IN-CACHE *LEAVE *REPOS *REWIND *UNLOAD	1,3
Code translation	var(*LIST).CODE	S	'' *BY-CAT *EBCDIC *ISO7 *ISO7D *OWN	1,3
Erase to end of tape	var(*LIST).DESTROY-OLD	S	*BY-CAT *NO *YES	1,4
Device type	var(*LIST).DEV-TYPE	S	'' <dev-type>	1,6
DIN 66029 interchange level	var(*LIST).DIN-REVISION-NUM	S	'' n	1,3
ISAM key duplication	var(*LIST).DUP-KEY	S	'' *NO *YES	1,3
EBCDIC code translation	var(*LIST).EBCDIC-TRANSL	S	'' *NO *YES	1,3
Maximum file size	var(*LIST).EXC-32GB		'' *ALLOW *FORBID	1,3
Close message after CLOSE	var(*LIST).F-CLOSE-MSG	S	*NO *STD *YES	1,3
File name	var(*LIST).F-NAME	S	'' *DUMMY <filename>	1,2,3,4,5,6
Sequence number of file in file set	var(*LIST).F-SEQ	S	'' *BY-CAT	1,3

			*NEW 4 n	
VSN of the first tape in the tape set	var(*LIST).F-SET-ID	S	'' <string>	1,6
Chained input/output	var(*LIST).IO-CHAIN	S	'' n	1,3
Performance requirements for I/O operations	var(*LIST).IO-PERF	S	'' *BY-CAT *HIGH *STD *USER-MAX *VERY-HIGH	1,3
Operation(s) affected by the I/O performance requirements	var(*LIST).IO-USAGE	S	'' *BY-CAT *READ *READ-WRITE *WRITE	1,3
Length of ISAM key	var(*LIST).KEY-LEN	S	'' *BY-CAT n	1,3
Position of the ISAM key in the record	var(*LIST).KEY-POS	S	'' *BY-CAT n	1,3
Type of labels used when creating tape files	var(*LIST).LABEL-TYPE	S	'' *NO *NON-STD *STD	1,3
File link name	var(*LIST).LINK	S	*BLANK <link-name> <x-string 1..16>	1,2,3,4,5,6
Specification indicating whether the file can be opened for write access from two or more systems of an XCS network simultaneously	var(*LIST).LOCK-ENV	S	*HOST-SYS *XCS	1,3
Lock on link name	var(*LIST).LOCK-F-LINK	S	*NO *YES	1,5
Length of the logical flag in the ISAM index	var(*LIST).LOGIC-FLAG	S	'' *BY-CAT n	1,3
Number or reserved devices	var(*LIST).NUM-OF-DEV	S	'' n	1,6

Number of volumes	var(*LIST).NUM-OF-VOL	S	'' n	1,6
OPEN mode	var(*LIST).OPEN-MODE	S	'' *EXT *INOUT *INPUT *OUTIN *OUTPUT *REV *SINOUT *UPDATE	1,3
Creation of the TFT entry	var(*LIST).ORIG	S	*FILE *OPEN	1,5
Overwrite protection	var(*LIST).OVERWRITE-PROT	S	'' *NO *YES	1,4
Block padding factor	var(*LIST).PAD-FACT	S	'' n	1,3
Pool link name	var(*LIST).POOL-LINK	S	'' <link-name>	1,3
Size of the file-specific ISAM pool	var(*LIST).POOL-SIZE	S	'' n	1,3
Printer control characters for the file	var(*LIST).PRINT-CONTR	S	'' *ASA *EBCDIC	1,3
Treatment of the value flag within a data or index block (for K-ISAM files)	var(*LIST).PROPA-VAL	S	'' *BY-CAT *MAX *MIN	1,3
Label check protection level	var(*LIST).PROT-LEV	S	'' *HIGH *UNDEF	1,4
Overlapping reads	var(*LIST).READ-IN-ADV	S	'' *NO *YES	1,3
File record format	var(*LIST).REC-FORM	S	'' *BY-CAT *FIXED *UNDEF *VAR	1,3
File record length	var(*LIST).REC-SIZE	S		1,3

			'' *BY-CAT n	
Locked device releasing with the REMOVE-FILE-LINK command	var(*LIST).REL-DEV	S	*NO *YES	1,5
Locked link name releasing with the REMOVE-FILE-LINK command	var(*LIST).REMOVE-F-LINK	S	*NO *YES	1,5
File handling on restarts	var(*LIST).RESTART-USAGE	S	'' *DUMMY	1,3
File retention period	var(*LIST).RETENT-PERIOD	S	'' n	1,4
Shared update capability	var(*LIST).SHARE-UPDATE	S	'' *NO *WEAK *YES	1,3
Status of the file	*ACCESSIBLE	S	*NOT-ACTIVE *INACTIVE	1,5
Streaming mode I/O	var(*LIST).STREAM-MODE	S	'' *YES	1,3
File storage medium	var(*LIST).SUP	S	*PRIV-DISK *PUB *REM *TAPE	1,2,3,4,5,6
Tape mark writing	var(*LIST).TAPE-MARK-WRITE	S	'' *YES	1,3
Name of the tape set	var(*LIST).TAPE-SET-NAME	S	'' <string>	1,6
The number of TFT entries linked to the tape set	var(*LIST).TAPE-SET-SHARE	S	'' n	1,6
VSN of the tape set	var(*LIST).TAPE-SET-VOL(*LIST)	S	'' <vsn>	1,6
Type of output to tape cartridge	var(*LIST).TAPE-WRITE	S	'' *DEV-BUF *IMMED	1,3
Unload released tapes	var(*LIST).UNLOAD-REL-TAPE	S	*NO *YES	1,5
Length of a value flag in the ISAM index	var(*LIST).VAL-FLAG-LEN	S	'' *BY-CAT n	1,3

Number of tapes containing data from the file	var(*LIST).VOL-WITH-DATA	S	'' n	1,5
Device type (entry in the volume table)	var(*LIST).VT(*LIST).DEV	S	'' <device>	1,6
Volume sequence number (entry in the volume table)	var(*LIST).VT(*LIST).VOL	S	'' <vsn>	1,6
Read-after-write checking	var(*LIST).WRITE-CHECK	S	'' *NO *YES	1,3
Updated block write-back	var(*LIST).WRITE-IMMED	S	'' *NO *YES	1,3

Examples

For examples of the output of SHOW-FILE-LINK, see the ADD-FILE-LINK and CREATE-TAPE-SET commands.

6.4 SHOW-FILE-LOCKS

Show locks on files

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS

Function

The SHOW-FILE-LOCKS command provides the file owner and any users who have access authorization with information about the locks currently in force on a file. This helps the user to diagnose processing problems which are due to the presence of a file lock.
The file locks shown are those which have the following causes:

- The file is currently open.
- The file has been explicitly reserved with the SECURE-RESOURCE-ALLOCATION command.
- A lock has been imposed to enable the file to be printed. A lock on a file which is to be printed can be placed explicitly in a PRINT-DOCUMENT command (LOCK-FILE=*YES) or in a PRNT macro. A file lock can also be imposed by making YES the default value of LOCK-FILE in the SPOOL parameter file.
  Similarly, the WRITE-DISKETTE command or the PNCH macro can be used to impose a lock on a file to enable it to be written to a floppy disk.
  A file which is in the process of being output to printer or floppy disk is in any case locked until the output process has been completed.
- The file has been reserved for a file transfer (see the TRANSFER-FILE command).
- The file is a SYSLST file which is waiting to be printed following job completion.
- The file is currently being processed by a Concurrent Copy job.
- The file is the source file for a batch job which is still waiting in the queue.
- A temporary connection failure in a computer network or a system error in the local system make it impossible to reset the file lock.

File locks which are in force on the basis of the file’s catalog entry are not shown (see the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command). Locks of this type are shown by the SHOW-CE-LOCK command.

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Systems support (TSOS privilege) has the same access rights as the file owner (user group OWNER) and thus can request information about file locks on any files.

Format

SHOW-FILE-LOCKS
FILE-NAME = <filename 1..54>

Operands

FILE-NAME = <filename 1..54>
Name of the file for which lock information is required.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
2	0	DMS13EE	File is not locked
	1	CMD0221	Syntax error in command
	32	DMS13EA	Internal system error
	64	CMD2203	Error in syntax file
	64	DMS0301	Catalog not available
	64	DMS13EB	RFA connections not supported
	64	DMS13EC	Output in S variables not possible
	64	DMS13ED	Output to SYSOUT not possible
	64	DMS13EF	Metadata cannot be accessed
	64	DMS13E1	File access denied
	64	DMS13E2	No access permission for associated pubset
	64	DMS13E3	User ID does not exist
	128	DMS13E0	Resource bottleneck

Output format

A table is displayed for the specified file, showing the locks it is subject to on the system. The output starts with a line showing the command name (SHOW-FILE-LOCKS) and the date and time of output, followed by a second line showing the file's path name. Then comes a table comprising up to 20 rows of values for up to 20 locks. The total number of locks present is indicated in a totals line at the end of the table.

The locks in force on a file can all be allocated to one of the following types:

- locks held by a job

- locks held by a system component
- locks held by the FT subsystem

Layout for locks held by jobs

Jobs which have caused a lock are shown. Further information on these jobs can be found by specifying the associated TSN in a SHOW-JOB-STATUS command.

```
SHOW-FILE-LOCKS                        Date: yyyy-mm-dd, Time: hh:mm:ss
File name:  <filename 1..54>
------------------------------------------------------------------------
Locks identified by TSN:
 TSN    Job name   User ID    Job type Lock type   Host name  XCS name
 @@@@   @@@@@@@@   @@@@@@@@   @@@@@@   @@@@@@@     @@@@@@@@   @@@@@@@@
 @@@@   @@@@@@@@   @@@@@@@@   @@@@@@   @@@@@@@     @@@@@@@@   @@@@@@@@
  .       .          .          .        .           .          .
  .       .          .          .        .           .          .
  .       .          .          .        .           .          .
 @@@@   @@@@@@@@   @@@@@@@@   @@@@@@   @@@@@@@     @@@@@@@@   @@@@@@@@
------------------------------------------------------------------------
Total number of locks is:  ####
------------------------------------------------------------------------
SHOW-FILE-LOCKS                                        End of display
```

Layout for locks held by system components

The locks which are shown were caused by the EAM or Concurrent Copy system component. These locks cannot be associated with a job (TSN).

```
SHOW-FILE-LOCKS                        Date: yyyy-mm-dd, Time: hh:mm:ss
File name:  <filename 1..54>
------------------------------------------------------------------------
Locks hold by system program:
 Identifier                            Lock type   Host name  XCS name
 @@@@@@@@@@@                           @@@@@@@     @@@@@@@@   @@@@@@@@
 @@@@@@@@@@@                           @@@@@@@     @@@@@@@@   @@@@@@@@
   .                                     .          .          .
   .                                     .          .          .
   .                                     .          .          .
 @@@@@@@@@@@                           @@@@@@@     @@@@@@@@   @@@@@@@@
------------------------------------------------------------------------
Total number of locks is:  ####
------------------------------------------------------------------------
SHOW-FILE-LOCKS                                        End of display
```

Layout for locks held by the FT subsystem

The locks which are shown were imposed by the FT (File Transfer) subsystem. These locks cannot be associated with a job (TSN). Further information on the file transfer requests responsible can be found by specifying the associated file transfer ID in a SHOW-FILE-TRANSFER command.

```
SHOW-FILE-LOCKS                        Date: yyyy-mm-dd, Time: hh:mm:ss
File name:  <filename 1..54>
------------------------------------------------------------------------
Locks identified by File Transfer ID:
 Transfer ID                            Lock type   Host name  XCS name
 ############                           @@@@@@@     @@@@@@@@   @@@@@@@@
 ############                           @@@@@@@     @@@@@@@@   @@@@@@@@
   .                                      .           .          .
   .                                      .           .          .
   .                                      .           .          .
 ############                           @@@@@@@     @@@@@@@@   @@@@@@@@
------------------------------------------------------------------------
Total number of locks is:  ####
------------------------------------------------------------------------
SHOW-FILE-LOCKS                                          End of display
```

Key to the output columns

Output column	Possible values	Meaning
TSN	<alphanum-name 1..4>	Task sequence number
Job name	<name 1..8>	Job name
	*NONE	Job name not known
User ID	<name 1..8>	Job user ID
	*UNKNOWN	Job user ID not known
Job type		Job type to which the lock can be allocated:
	DIALOG	Interactive job
	BATCH	Batch job
	HOLD	Batch job suspended by /HOLD-TASK
	ENTER	Type 1 batch job waiting in queue. The lock only affects the source file.
	SPOOL	Spoolout job
	SYSTEM	System job

	UNDEF	Unidentifiable job type
Lock type		Type of file lock:
	INPUT	Lock on opening the file for reading
	OUTPUT	Lock on opening the file for writing
	INPUT-Y	Lock on opening the file for reading with SHARED-UPDATE=*YES
	INOUT-Y	Lock on opening the file for writing with SHARED-UPDATE=*YES
	INPUT-W	Lock on opening the file for reading with SHARED-UPDATE=*WEAK
	INOUT-W	Lock on opening the file for writing with SHARED-UPDATE=*WEAK
	SECURE	Lock imposed by SECURE-RESOURCE-ALLOCATION command
	RES-INPUT	Lock on file modification
	MIGRATE	Lock in force while the file is being migrated by the HSMS subsystem
	EXCLUSIVE	Lock on all access
	BACKUP	Lock while Concurrent Copy backup is in progress
	RESERVE	File reserved for specific application
Host name		System the job is running on:
	<alphanum-name 1..8>	MSCF name of the host
	*OWN	Local host
	*UNKNOWN	Host name not known
XCS name		Indicates that the host is connected to a cross-coupled system
	<alphanum-name 1..8>	Name of the cross-coupled system
	*NONE	Not connected
	*UNKNOWN	Name of cross-coupled system not known

Table 115: Output columns of the SHOW-FILE-LOCKS command

Output in S variables

The output scope varies depending on the type of lock: lock set by a job TSN (TSN lock), lock set by system component (SYS lock) or lock set for file transfer (FT lock).

Output information	Name of the S variable	T	Contents	Condition
MSCF name of the processor on which the FT job specified by the transfer ID is running	var(*LIST).LOCK-ENTRY (*LIST).FT-LOCK.HOST	S	*OWN *UNKNOWN <c-string 1..8>	FT lock
Type of file lock *BACKUP=file is saved by means of CCOPY *EXCL=file is locked against access of any kind *INOUT-WEAK=lock against opening for write access with SHARUPD=WEAK *INOUT-YES=lock against opening for write access with SHARUPD=YES *INPUT=lock against opening for read access *INPUT-WEAK=lock against opening for read access with SHARUPD=WEAK *INPUT-YES=lock against opening for read access with SHARUPD=YES *MIGR=lock during migration by means of HSMS *NONE=no lock *OUTPUT=lock against opening for write access *RESERVE=file is reserved for a particular application *RES-INPUT=lock against updating *SEC=lock by means of /SECURE-RESOURCE-ALLOCATION	var(*LIST).LOCK-ENTRY (*LIST).FT-LOCK.LOCK-TYPE	S	*BACKUP *EXCL *INOUT-WEAK *INOUT-YES *INPUT *INPUT-WEAK *INPUT-YES *MIGR *NONE *OUTPUT *RESERVE *RES-INPUT *SEC	FT lock
Type of file lock (cont.)				
Identification of the FT job	var(*LIST).LOCK-ENTRY (*LIST).FT-LOCK.TRANSFER-ID	S	<c-string 1..11>	FT lock
Name of the cross-coupled system to which the host is connected	var(*LIST).LOCK-ENTRY (*LIST).FT-LOCK.XCS-NAME	S	*NONE *UNKNOWN <c-string 1..8>	FT lock
Type or cause of the lock	var(*LIST).LOCK-ENTRY (*LIST).LOCK-CLASS	S	*FT-LOCK *SYS-LOCK *TSN-LOCK	

MSCF name of the processor on which the function unit specified by the program ID is running	var(*LIST).LOCK-ENTRY (*LIST).SYS-LOCK.HOST	S	*OWN *UNKNOWN <c-string 1..8>	SYS lock
Type of file lock *BACKUP=file is saved by means of C-COPY *EXCL=file is locked against access of any kind *INOUT-WEAK=lock against opening for write access with SHARUPD=WEAK *INOUT-YES=lock against opening for write access with SHARUPD=YES *INPUT=lock against opening for read access *INPUT-WEAK=lock against opening for read access with SHARUPD=WEAK *INPUT-YES=lock against opening for read access with SHARUPD=YES *MIGR=lock during migration by means of HSMS *NONE=no lock *OUTPUT=lock against opening for write access *RESERVE=file is reserved for a particular application *RES-INPUT=lock against updating *SEC=lock by means of /SECURE-RESOURCE-ALLOCATION	var(*LIST).LOCK-ENTRY (*LIST).SYS-LOCK.LOCK-TYPE	S	*BACKUP *EXCL *INOUT-WEAK *INOUT-YES *INPUT *INPUT-WEAK *INPUT-YES *MIGR *NONE *OUTPUT *RESERVE *RES-INPUT *SEC	SYS lock
Identification of the function unit	var(*LIST).LOCK-ENTRY (*LIST).SYS-LOCK.PROGRAM-ID	S	*C-COPY *EAM	SYS lock
Name of the cross-coupled system to which the host is connected	var(*LIST).LOCK-ENTRY (*LIST).SYS-LOCK.XCS-NAME	S	*NONE *UNKNOWN <c-string 1..8>	SYS lock
MSCF name of the processor on which the job specified by the TSN is running	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.HOST	S	*OWN *UNKNOWN <c-string 1..8>	TSN lock
Job name assigned to the TSN	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.JOB-NAME	S	*NONE *UNKNOWN <c-string 1..8>	TSN lock
Job type of the lock enforcer *BATCH=active batch job *DIALOG=dialog job *ENTER=pending batch job; only the file from which the batch job will read its commands is locked.	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.JOB-TYPE	S	*BATCH *DIALOG *ENTER *HOLD *SPOOL	TSN lock

*HOLD=batch job suspended by /HOLD-TASK *SPOOL=print job *SYS=system job *UNDEF=not defined			*SYS *UNDEF	
Type of file lock *BACKUP=file is saved by means of C-COPY *EXCL=file is locked against access of any kind *INOUT-WEAK=lock against opening for write access with SHARUPD=WEAK *INOUT-YES=lock against opening for write access with SHARUPD=YES *INPUT=lock against opening for read access *INPUT-WEAK=lock against opening for read access with SHARUPD=WEAK *INPUT-YES=lock against opening for read access with SHARUPD=YES *MIGR=lock during migration by means of HSMS *NONE=no lock *OUTPUT=lock against opening for write access *RESERVE=file is reserved for a particular application *RES-INPUT=lock ag. updating *SEC=lock by means of SECURE-RESOURCE-ALLOCATION	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.LOCK-TYPE	S	*BACKUP *EXCL *INOUT-WEAK *INOUT-YES *INPUT *INPUT-WEAK *INPUT-YES *MIGR *NONE *OUTPUT *RESERVE *RES-INPUT *SEC	TSN lock
Task sequence number to which the lock is assigned	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.TSN	S	*REM <c-string 1..4>	TSN lock
User ID of the owner of the TSN	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.USER-ID	S	*UNKNOWN <c-string 1..8>	TSN lock
Name of the cross-coupled system to which the host is connected	var(*LIST).LOCK-ENTRY (*LIST).TSN-LOCK.XCS-NAME	S	*NONE *UNKNOWN <c-string 1..8>	TSN lock
Name of the locked file	var(*LIST).PATH-NAME	S	<c-string 1..54>	

Examples

The file ABK.ISAM is locked against opening for writing because the file transfer has not yet been completed:

/show-file-transfer

```
%TRANS-ID   INI STATE PARTNER  DIR  BYTE-COUNT  FILE-NAME
%45709604   LOC HOLD  D016ZE07 TO   0           ABK.ISAM
%  FTR0004 FT-BS2000: INFORMATION COMPLETED
```

/show-file-locks abk.isam

```
%SHOW-FILE-LOCKS                                Date: 2014-03-14, Time: 13:10:00
%File name:  :2OSG:$USER1.ABK.ISAM
%-------------------------------------------------------------------------------
%Locks identified by File Transfer ID:
% Transfer ID                              Lock type   Host name   XCS name
% 45709604                                 RES_INPUT   *OWN        *NONE
%-------------------------------------------------------------------------------
%Total number of locks is: 1
%-------------------------------------------------------------------------------
%SHOW-FILE-LOCKS                                                End of display
```

The file SYSSDF.USER.1 has been opened in write mode using the SDF-A utility and so is locked against opening:

/show-file-locks syssdf.user.1

```
%SHOW-FILE-LOCKS                                Date: 2014-03-14, Time: 13:11:39
%File name:  :2OSG:$USER1.SYSSDF.USER.1
%-------------------------------------------------------------------------------
%Locks identified by TSN:
% TSN   Job name    User ID     Job type    Lock type   Host name   XCS name
% 3PBR  ALT         USER1       DIALOG      OUTPUT      *OWN        *NONE
%-------------------------------------------------------------------------------
%Total number of locks is: 1
%-------------------------------------------------------------------------------
%SHOW-FILE-LOCKS                                                End of display
```

The file SYSRME.SPOOL.049.D is currently being printed. It is locked against modification until the print job has been completed:

/print-doc sysrme.spool.049.d,line-spacing=*by-ebcdic

```
%  SCP0810 SPOOLOUT FOR FILE ':2OSG:$USER1.SYSRME.SPOOL.049.D' ACCEPTED. TSN:
'3PIU', SPOOLOUT-NAME: 'ALT', MONJV: '*NONE'
%  SCP1025 PRINT JOB ACCEPTED BY SERVER 'GH5090Y0' WITH TSN '40VG'
```

/show-file-locks sysrme.spool.049.d

```
%SHOW-FILE-LOCKS                                Date: 2014-03-14, Time: 13:14:23
%File name:  :2OSG:$USER1.SYSRME.SPOOL.049.D
%-------------------------------------------------------------------------------
%Locks identified by TSN:
% TSN   Job name    User ID     Job type    Lock type   Host name   XCS name
% 3PIU  *UNKNOWN    *NONE       SPOOL       RES_INPUT   *OWN        *NONE
%-------------------------------------------------------------------------------
%Total number of locks is: 1
%-------------------------------------------------------------------------------
%SHOW-FILE-LOCKS                                                End of display
```

6.5 SHOW-FILE-NAME-PREFIX

Show defined file name prefix

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the ACS subsystem active, the SHOW-FILE-NAME-PREFIX command shows the prefix and its scope that was defined by the user with the SET-FILE-NAME-PREFIX command. The output is written to SYSOUT.
If no prefix was defined, the value `*NONE` is shown.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-FILE-NAME-PREFIX	Alias: **SHFNP**

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed normally Guaranteed message: ACS0019
	32	CMD2009	Error during S variable generation
	64	OPS0001	Not enough memory for output to S variables
	128	ACS0018	ACS not active
	130	ACS0036	Resource bottleneck

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
File name prefix	var(*LIST).F-NAME-PREFIX	S	*NONE <part.-filename 1..53>	
Range of the prefix definition (for files and/or job variables)	var(*LIST).RANGE	S	*NONE *FILE *JV *BOTH	

Examples

For examples, see the SET-FILE-NAME-PREFIX command.

6.6 SHOW-GCF-CATALOGS

Show information on object types and GCF catalogs

Component:	GCF
Functional area:	File processing
Domain:	FILE
Privileges:	TSOS

Function

This command tells systems support which of the catalogs managed by the Generic Catalog Facility (GCF) contains the individual object types and which GCF catalogs are currently being serviced by the individual GCF server tasks.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-GCF-CATALOGS
OUTPUT = list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

OUTPUT = list-poss(2): *SYSOUT / *SYSLST
Specifies which of the system files is to be used for information output.

Return code

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	GCF1000	Operand error
	32	CMD2009	Internal error during S variable generation
	32	GCF1001	Internal error
	64	GCF1014	User not authorized to perform function
	64	OPS0002	Interrupt (e.g. K2 key) during S variable generation
	128	GCF1002	No catalog open
	128	GCF1003	No server task active
	128	GCF1010	GCF subsystem being replaced
	128	GCF1037	Resource bottleneck
	130	CMD2009	VAS subsystem not available
	130	OPS0001	Space problems when generating S variables

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Name of the GCF catalog served by the server task	var(*LIST).CATALOG(*LIST).NAME	S	<filename 1..54>	
TSN of the server task	var(*LIST).CATALOG(*LIST).SERVERTASK	S	<c-string 4..4>	
Name of the catalog containing the output object types	var(*LIST).OBJECT-TYPE(*LIST).CATALOG(*LIST)	S	<filename 1..54>	
Name of the object type	var(*LIST).OBJECT-TYPE(*LIST).NAME	S	<struc.-name 1..32>	

6.7 SHOW-GCF-OBJECT-TYPES

Show information on all GCF object types

Component:	GCF
Functional area:	File processing
Domain:	FILE
Privileges:	TSOS

Function

This command tells systems support which object types are stored in all the catalogs managed by the Generic Catalog Facility (GCF).

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-GCF-OBJECT-TYPES
OUTPUT = list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

OUTPUT = list-poss(2): *SYSOUT / *SYSLST
Specifies which of the system files is to be used for information output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	GCF1000	Operand error
	32	CMD2009	Internal error during S variable generation
	32	GCF1001	Internal error
	64	GCF1014	User not authorized to perform function
	64	OPS0002	Interrupt (e.g. K2 key) during S variable generation
	128	GCF1002	No catalog open
	128	GCF1010	GCF subsystem being replaced
	128	GCF1037	Resource bottleneck
	130	CMD2009	VAS subsystem not available
	130	OPS0001	Space problems when generating S variables

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Name of the catalog in which the output object types are to be found	var(*LIST).CATALOG(*LIST). NAME	S	<filename 1..54>	
Name of the object type	var(*LIST).CATALOG(*LIST). OBJECT-TYPE(*LIST)	S	<struc.-name 1..32>	

6.8 SHOW-GCF-SERVER-TASKS

Show information on GCF server task

Component:	GCF
Functional area:	File processing
Domain:	FILE
Privileges:	TSOS

Function

This command tells systems support which server task is currently servicing all the catalogs managed by the Generic Catalog Facility (GCF).

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-GCF-SERVER-TASKS
OUTPUT = list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

OUTPUT = list-poss(2): *SYSOUT / *SYSLST
Specifies which of the system files is to be used for information output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	GCF1000	Operand error
	32	CMD2009	Internal error during S variable generation
	32	GCF1001	Internal error
	64	GCF1014	User not authorized to perform function
	64	OPS0002	Interrupt (e.g. K2 key) during S variable generation
	128	GCF1003	No server task active
	128	GCF1010	GCF subsystem being replaced
	128	GCF1037	Resource bottleneck
	130	CMD2009	VAS subsystem not available
	130	OPS0001	Space problems when generating S variables

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Name of the catalog served by the server task	var(*LIST).SERVERTASK(*LIST). CATALOG(*LIST)	S	<filename 1..54>	
TSN of the server task	var(*LIST).SERVERTASK(*LIST).TSN	S	<c-string 4..4>	

6.9 SHOW-HARDWARE-AUDIT

Output hardware AUDIT table

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The SHOW-HARDWARE-AUDIT command outputs the entries in the hardware AUDIT table in which the audit mode addresses are recorded. Output is possible only as long as the audit mode has not been terminated by means of the STOP-HARDWARE-AUDIT command.
The output may be directed to SYSOUT or SYSLST.
In the TU and TPR states, the audit mode addresses are generally processed on the basis of the module name and the displacement. If an address cannot be assigned to a module, or if the processor status is TU, the string ABSOLUTE is inserted in place of the module name.

The TU hardware AUDIT tables of a foreign task are always issued in the form of absolute addresses because the link information is not available. A nonprivileged user can only request the entries concerning tasks running under his or her own user ID.

Privileged functions

Systems support (TSOS privilege) can request the entries for all tasks (including the TPR processor status).

The table entries of the hardware audit table and the backup table are output in reverse chronological order on the 'first in - last out' principle. If a task is active at the time the request is made, the tables may already have changed by the time they are output.

An extended hardware AUDIT table (4 KBytes in TPR) cannot be output. To request or edit an extended TPR AUDIT table, it is necessary to use CDUMP with SCOPE=*SYSTEM.

Format

SHOW-HARDWARE**-AUDIT**

STATE = ***USER** (...) / ***SYS**TEM(...)

***USER**(...)

| SCOPE = ***OWN-JOB** / ***TID**(...) / ***TSN**(...)

***TID**(...)

| TID = <alphanum-name 1..8>

***TSN**(...)

| TSN = <alphanum-name 1..4> / <c-string 1..4>

***SYS**TEM(...)

| SCOPE = ***OWN-JOB** / ***TID**(...) / ***TSN**(...)

***TID**(...)

| TID = <alphanum-name 1..8>

***TSN**(...)

| TSN = <alphanum-name 1..4> / <c-string 1..4>

,OUTPUT = ***SYSOUT** / ***SYSLST**

Operands

STATE = *USER(...) / *SYSTEM(...)
Processor state for which the hardware AUDIT table is to be output.

STATE = *USER(...)
The hardware AUDIT table is to be output for the nonprivileged processor state TU.
A nonprivileged user can only request the entries concerning tasks running under his or her own user ID.

SCOPE = *OWN-JOB / *TID(...) / *TSN(...)
Scope of the hardware AUDIT function.

SCOPE = *OWN-JOB
The hardware AUDIT table of the user's own task is to be output.

SCOPE = *TID(...)
Only the entries for a task that is identified by means of an internal task number are requested.

TID = <alphanum-name 1..8>
Task identifier that is assigned to the task whose entries are requested.

SCOPE = *TSN(...)
Only the entries for a task that is identified by means of its task sequence number (TSN) are requested.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN that is assigned to the task whose entries are requested.

STATE = *SYSTEM(...)
Only privileged users are allowed to select this operand value.
The hardware AUDIT table is to be output for the nonprivileged processor state TPR.

SCOPE = *OWN-JOB / *TID(...) / *TSN(...)
Scope of application for the hardware AUDIT function.

SCOPE = *OWN-JOB
The hardware AUDIT table of the user's own (TSOS) task is to be output.

SCOPE = *TID(...)
Only the table for a task identified by an internal task number is requested.

TID = <alphanum-name 1..8>
Task identifier assigned to the task for which the table is being requested.

SCOPE = *TSN(...)
Only the table for a task identified by its task sequence number (TSN) is requested.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN assigned to the task for which the table is requested.

OUTPUT = *SYSOUT / *SYSLST
Specifies whether the hardware AUDIT table is to be output to SYSOUT or to SYSLST.
The default value is SYSOUT, i.e. output is directed to SYSOUT.
The entries of the hardware AUDIT table appear in reverse order of their occurrence. The hardware AUDIT table is a 256-byte table, i.e. it can contain 64 logged branches. If BUFFER-SIZE=1 was specified in the START-HARDWARE-AUDIT command, the table is a 4096-byte table, i.e. it can contain 1024 logged branches.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	Hardware AUDIT table empty, so no output
	1	CMD2201	Specified task does not exist
	32	IDA0018	Internal system error. Hardware AUDIT table cannot be displayed
	32	IDA0022	No more storage space available for hardware AUDIT output SYSLST
	64	CMD0216	User does not have authorization
	64	IDA0001	Hardware AUDIT is not active
	64	IDA0011	Privilege error
	64	IDA0023	Hardware AUDIT not available user is not authorized
	64	IDA0024	Hardware AUDIT not available due to current test option settings for the active task

6.10 SHOW-HEL-CHECK

Show HEL threshold monitoring information

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE

Function

The SHOW-HEL-CHECK command writes information about HEL record threshold monitoring to SYSOUT. It shows all the control records used to set hardware error monitoring thresholds. The MODIFY-HEL-CHECK command allows extra control records to be added to those which are present when the system is started up. Up to 50 records can be displayed. For each control record SHOW-HEL-CHECK indicates the monitoring function, the selection criteria for the HEL records which are to be monitored, and the threshold value itself.

The command is rejected if HEL logging is disabled.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-HEL-CHECK

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	CMD2009	Internal error on output to S variables
	64	HEL0010	Hardware error logging is not active
	64	HEL0110	Privilege error
	130	OPS0001	Insufficient memory for structured output in S variables

Output format

The information is displayed in the form of a table. There is one line of information for each control record (up to 50 control records). The first line of the output is a header line containing the headings for the 7 columns of information. The control records appear in the order in which they were created.

Output column	Value	Meaning / Operand in MODIFY-HEL-CHECK command
MONITOR		Status of monitoring function
	SYS_STD	System setting: CHECK = *STD
	ON	Monitoring active: CHECK = *ON
	OFF	Monitoring inactive: CHECK = *OFF
CTID		Selected monitoring class (CONTROL-ID =)
	ANY	Not used as selection criterion (= *ANY)
	M	Machine check (= *MCK)
	C	Channel check (= *CCK)
	R	Channel report words (= *CRW)
	D	Disk device error (= *DISK)
	T	Tape device error (= *TAPE)
	S	Spool device error (=*SPOOL)
	B	Error detected by BCAM (= *BCAM)
	N	No interrupt (= *NINT)
	Z	Device statistics (= *STAT)
PRIO		Selected error priority (PRIORITY =)
	ANY	Not used as selection criterion (= *ANY)
	L	Low priority (= *LOW)
	M	Medium priority (= *MEDIUM)
	H	High priority (=*HIGH)
ATTR		Selected error type (ATTRIBUTE =)
	ANY	Not used as selection criterion (= *ANY)
	H	Hardware error (= *HARDWARE-ERROR)

	U	Uncorrectable error (= *UNCORRECTABLE)
	C	Correctable error (= *CORRECTABLE)
	T	Tape error (*TAPE-ERROR)
	O	Channel capacity exceeded (*OVERRUN)
DEVICE		Selected device (DEVICE =)
	ANY	Not used as selection criterion (= *ANY)
	MN = mn	Device mnemonic (= <alphanum-name 2..4>)
	PATH = ccccuu	Device path name (= *UNIT(PATH = ccccuu))
THRESHOLD	<integer 1..255>	Threshold (MAXIMUM =)
ACT-COUNT	<integer 1..255>	Current value of threshold counter

Table 116: Output columns of the SHOW-HEL-CHECK command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Current threshold counter of threshold monitoring	var(*LIST).ACTUAL	I	<integer 1..255>	
“Monitoring class” of the error reported in the HEL record	var(*LIST).CONTR-ID	S	*ANY *BCAM *CCK *CRW *DISK *MCK *NINT *SPOOL *STATIS *TAPE	
Name of the device for which the logging behavior is being defined	var(*LIST).DEV	S	*ANY <c-string 2..6>	
Type of device specification *BY-MN = specified by unit mnemonic *BY-PATH = specified by path name in cccuu form	var(*LIST).DEV-SPEC	S	*BY-MN *BY-PATH	
Type of error reported in the HEL record	var(*LIST).ERROR-ATTR	S	*ANY *CORRECTABLE *HARDWARE-ERROR *OVERRUN *TAPE-ERROR *UNCORRECTABLE	
Monitored threshold	var(*LIST).MAX	I	<integer 1..255>	
Monitoring status	var(*LIST).MONITOR-STA	S	*OFF *ON *STD	
Device path name	var(*LIST).PATH	S	<c-string 1..4>	
Priority of the error reported in the HEL record	var(*LIST).PRIO	S	*ANY *HIGH *LOW *MED	

Example

/show-hel-check ——————————————————————————————— (1)

```
% MONITOR CTID PRIO ATTR DEVICE      THRESHOLD ACT-COUNT
% SYS_STD D    H    ANY  ANY           16         0
% SYS_STD D    M    ANY  ANY           21         0
% SYS_STD T    M    ANY  ANY           21         0
% SYS_STD C    H    ANY  ANY           16         0
% SYS_STD C    M    ANY  ANY           16         0
% SYS_STD M    H    ANY  ANY            1         0
% SYS_STD M    M    ANY  ANY            3         0
% SYS_STD R    H    ANY  ANY            1         0
% SYS_STD R    M    ANY  ANY           16         0
% SYS_STD ANY  ANY  O    ANY         1000         0
% SYS_STD T    H    ANY  ANY            1         0
```

/mod-hel-check check=*std,control-id=*disk,prio=*low,max=100 ——— (2)
/mod-hel-check check=*off,control-id=*tape,device=a1 ————————— (3)
/show-hel-check ——————————————————————————————— (4)

```
% MONITOR CTID PRIO ATTR DEVICE      THRESHOLD ACT-COUNT
% SYS_STD D    H    ANY  ANY           16         0
% SYS_STD D    M    ANY  ANY           21         0
% SYS_STD T    M    ANY  ANY           21         0
% SYS_STD C    H    ANY  ANY           16         0
% SYS_STD C    M    ANY  ANY           16         0
% SYS_STD M    H    ANY  ANY            1         0
% SYS_STD M    M    ANY  ANY            3         0
% SYS_STD R    H    ANY  ANY            1         0
% SYS_STD R    M    ANY  ANY           16         0
% SYS_STD ANY  ANY  O    ANY         1000         0
% SYS_STD T    H    ANY  ANY            1         0
% SYS_STD D    L    ANY  ANY          100         0
% OFF     T    ANY  ANY  MN = A1        0         0
```

/mod-hel-check check=*std ————————————————————————— (5)
/show-hel-check ——————————————————————————————— (6)

```
% MONITOR CTID PRIO ATTR DEVICE      THRESHOLD ACT-COUNT
% SYS_STD D    H    ANY  ANY           16         0
% SYS_STD D    M    ANY  ANY           21         0
% SYS_STD T    M    ANY  ANY           21         0
% SYS_STD C    H    ANY  ANY           16         0
% SYS_STD C    M    ANY  ANY           16         0
% SYS_STD M    H    ANY  ANY            1         0
% SYS_STD M    M    ANY  ANY            3         0
% SYS_STD R    H    ANY  ANY            1         0
% SYS_STD R    M    ANY  ANY           16         0
% SYS_STD ANY  ANY  O    ANY         1000         0
% SYS_STD T    H    ANY  ANY            1         0
```

(1) The SHOW-HEL-CHECK command lists the system’s default threshold monitoring control records.

(2) The MODIFY-HEL-CHECK command adds a new control record: it sets a threshold of 100 for low-priority hardware errors in monitoring class D, and selects the system’s default CHECK setting.

(3) The MODIFY-HEL-CHECK command adds a new control record: it sets the system default threshold (10) for hardware errors in monitoring class T affecting the device with the mnemonic name A1, and explicitly disables monitoring.

(4) The command lists all the currently defined threshold monitoring control records. The control records added at Points 2 and 3 above come at the end of the list.

(5) /MODIFY-HEL-CHECK CHECK=*STD with no command-line arguments (all operands assuming their default values) resets the threshold monitoring mechanism, which means that all the additional control records defined in the session are deleted.

(6) The SHOW-HEL-CHECK command again lists the system’s default threshold monitoring control records (compare with Point 1).

6.11 SHOW-HEL-LOGGING

Show HEL record logging settings

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE

Function

The SHOW-HEL-LOGGING command writes information about HEL record logging to SYSOUT. It shows all the control records used to set the conditions for HEL record logging. The MODIFY-HEL-LOGGING command allows extra control records to be added to those which are present when the system is started up. Up to 50 records can be displayed. For each control record SHOW-HEL-LOGGING indicates the status of the logging function and the selection criteria for the HEL records which are to be logged.

The command is rejected if HEL logging is disabled.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-HEL-LOGGING

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	CMD2009	Internal error on output to S variables
	64	HEL0010	Hardware error logging is not active
	64	HEL0110	Privilege error
	130	OPS0001	Insufficient memory for structured output in S variables

Output format

The information is displayed in the form of a table. There is one line of information for each control record (up to 50 control records). The first line of the output is a header line containing the headings for the 5 columns of information. The control records appear in the order in which they were created.

Output column	Value	Meaning/Operand in MODIFY-HEL-LOGGING command
LOGGING		Status of monitoring function
	SYS_STD	System setting: CHECK = *STD
	ON	Logging active: CHECK = *ON
	OFF	Logging inactive: CHECK = *OFF
CTID		Selected monitoring class (CONTROL-ID =)
	ANY	Not used as selection criterion (= *ANY)
	M	Machine check (= *MCK)
	C	Channel check (= *CCK)
	R	Channel report words (= *CRW)
	D	Disk device error (= *DISK)
	T	Tape device error (= *TAPE)
	S	Spool device error (=*SPOOL)
	B	Error detected by BCAM (= *BCAM)
	N	No interrupt (= *NINT)
	Z	Device statistics (= *STAT)
PRIO		Selected error priority (PRIORITY =)
	ANY	Not used as selection criterion (= *ANY)
	L	Low priority (= *LOW)
	M	Medium priority (= *MEDIUM)
	H	High priority (=*HIGH)
ATTR		Selected error type (ATTRIBUTE =)
	ANY	Not used as selection criterion (= *ANY)
	H	Hardware error (= *HARDWARE-ERROR)

	U	Uncorrectable error (= *UNCORRECTABLE)
	C	Correctable error (= *CORRECTABLE)
	T	Tape error (*TAPE-ERROR)
	O	Channel capacity exceeded (*OVERRUN)
DEVICE		Selected device (DEVICE =)
	ANY	Not used as selection criterion (= *ANY)
	MN = mn	Device mnemonic (= <alphanum-name 2..4>)
	PATH = ccccuu	Device path name (= *UNIT(PATH = ccccuu))

Table 117: Output columns of the SHOW-HEL-LOGGING command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
“Monitoring class” of the error reported in the HEL record	var(*LIST).CONTR-ID	S	*ANY *BCAM *CCK *CRW *DISK *MCK *NINT *SPOOL *STATIS *TAPE	
Name of the device for which the logging behavior is being defined	var(*LIST).DEV	S	*ANY <c-string 2..6>	
Type of device specification *BY-MN = specified by unit mnemonic *BY-PATH = specified by path name in the form cccuu	var(*LIST).DEV-SPEC	S	*BY-MN *BY-PATH	
Type of error reported in the HEL record	var(*LIST).ERROR-ATTR	S	*ANY *CORRECTABLE *HARDWARE-ERROR *OVERRUN *TAPE-ERROR *UNCORRECTABLE	
Monitoring status	var(*LIST).LOG-STA	S	*OFF *ON *STD	
Device path name	var(*LIST).PATH	S	<c-string 1..4>	
Priority of the error reported in the HEL record	var(*LIST).PRIO	S	*ANY *HIGH *LOW *MED	

Example

```
/show-hel-log  ————————————————————————————————————————————— (1)
```

```
% LOGGING  CTID PRIO ATTR DEVICE
% SYS_STD  ANY  ANY  ANY  ANY
```

```
/mod-hel-log logging=*off,control-id=*tape  ———————————————————— (2)
/mod-hel-log logging=*on,control-id=*disk,attribute=*uncorrectable ——— (3)
/mod-hel-log logging=*on,device=*unit(001860) ————————————————— (4)
/show-hel-log  ————————————————————————————————————————————— (5)
```

```
% LOGGING  CTID PRIO ATTR DEVICE
% SYS_STD  ANY  ANY  ANY  ANY
% OFF      T    ANY  ANY  ANY
% ON       D    ANY  U    ANY
% ON       ANY  ANY  ANY  UNIT = 001860
```

```
/mod-hel-log  ————————————————————————————————————————————— (6)
/show-hel-log  ———————————————————————————————————————————— (7)
```

```
% LOGGING  CTID PRIO ATTR DEVICE
% SYS_STD  ANY  ANY  ANY  ANY
```

(1) The SHOW-HEL-LOGGING lists the system’s default control records for HEL record logging.

(2) The MODIFY-HEL-LOGGING adds a new control record: HEL records for hardware errors in monitoring class T are not to be logged.

(3) The MODIFY-HEL-LOGGING command adds another new control record: HEL records for hardware errors in monitoring class D and with error attribute U are to be logged.

(4) The MODIFY-HEL-LOGGING command adds yet another control record: HEL records for hardware errors affecting the hardware unit with the device address 001860 are to be logged.

(5) The command lists all the currently defined logging control records. The control records added at Points 2, 3 and 4 above come at the end of the list.

(6) MODIFY-HEL-LOGGING with no command-line arguments (all operands assuming their default values) resets the logging mechanism, which means that all the additional control records defined in the session are deleted.

(7) The SHOW-HEL-LOGGING command again lists the system’s default logging control records (compare with Point 1).

6.12 SHOW-HEL-STATUS

Show hardware error logging status

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE TSOS

Function

The SHOW-HEL-STATUS lists information relating to hardware error logging. The output indicates whether logging is active. If logging is active, the path name of the current logging file is shown as well.

Logging is started up automatically at system startup; but it can also be activated with the START-HEL-LOGGING command.

Format

SHOW-HEL-STATUS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	64	HEL0110	Privilege error

Example

/show-hel-status ——————————————————————————— (1)

```
%  HEL0003 HW ERROR LOGGING IS ACTIVE. FILE : ':DEL2:$TSOS.SYS.HEL.2016-11-26.042905'
```

/stop-hel-log ——————————————————————————— (2)

```
%  HEL0002 HW-ERROR-LOGGING FILE ':DEL2:$TSOS.SYS.HEL.2016-11-26.042905' CLOSED
```

/show-hel-status

```
%  HEL0004 HW-ERROR-LOGGING INACTIVE
```

/start-hel-log file=*same ——————————————————— (3)

```
%  HEL0001 HW-ERROR-LOGGING FILE ':DEL2:$TSOS.SYS.HEL.2016-11-26.042905' OPENED WITH
SPACE=  402
```

/show-hel-status ——————————————————————————— (4)

```
%  HEL0003 HW-ERROR-LOGGING IS ACTIVE. FILE : ':DEL2:$TSOS.SYS.HEL.2016-11-26.042905'
```

(1) The SHOW-HEL-LOGGING command indicates that logging is active and that the name of the logging file is: DEL2:$TSOS.SYS.HEL.2016-11-26.042905.

(2) The STOP-HEL-LOGGING command switches logging off, as indicated by the SHOW-HEL-LOGGING command which follows.

(3) The START-HEL-LOGGING command reactivates logging. The command-line argument FILE=*SAME causes the most recently opened logging file to be reopened (compare with Point 1).

(4) The SHOW-HEL-LOGGING command indicates that logging is active and shows the name of the logging file.

6.13 SHOW-HEL-TELESERVICE-ALARM

Show Teleservice alarm settings

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE

Function

The SHOW-HEL-TELESERVICE-ALARM command writes the settings of the Teleservice alarm to SYSOUT. It indicates whether the alarm function is on or off.
If the alarm function is active, the period in which alarm messages are issued is also shown. Within this period, alarm messages are displayed on the console whenever error thresholds are crossed (see the MODIFY-HEL-CHECK command description).

Teleservice alarm settings (on/off and period) can be altered with the MODIFY-HEL-TELESERVICE-ALARM command.

The command is rejected if HEL logging is disabled.

Format

SHOW-HEL-TELESERVICE**-ALARM**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	64	HEL0010	Hardware error logging is not active
	64	HEL0110	Privilege error

Examples

See the MODIFY-HEL-TELESERVICE-ALARM command.

6.14 SHOW-INDEX-ATTRIBUTES

Output information on secondary indices (NK-ISAM)

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING

Function

The SHOW-INDEX-ATTRIBUTES command makes a read access to the specified file and outputs information on all existing secondary keys or generated secondary indices to SYSOUT.
The output consists of the file name and a table which contains one line for each defined key, showing:

- key name
- position of the key field within the data record
- length of the key field
- whether duplicate keys are allowed
- any additional flags, with INCOMPLETE for any incomplete secondary index

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-INDEX-ATTRIBUTES
FILE**-NAME** = <filename 1..54>

Operands

FILE-NAME = <filename 1..54>
The name of the NK-ISAM file for which information on the secondary keys is required.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	CMD2009	Internal error on structured output to S variables
	32	DMS0A37	Internal system error
	32	DMS0A42	Internal error on opening the file
	32	DMS0A43	Internal error on closing the file
	32	DMS0A4F	RDTFT error
	32	DMS0A3A	Inconsistent control block found
	64	DMS0A4A	No secondary indices exist
	64	DMS0A30	Remote system not supported
	64	DMS0A31	Specified catalog ID does not exist
	64	DMS0A46	Not an NK-ISAM file
	128	DMS0A49	Command interrupted
	130	DMS0A32	Specified catalog ID not available
	130	DMS0A38	Insufficient virtual memory

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Duplicate secondary keys allowed	var(*LIST).AIX(*LIST).DUP-KEY	S	*NO *YES	
Length of the secondary key	var(*LIST).AIX(*LIST).KEY-LEN	I	<integer 1..127>	
Name of the secondary key	var(*LIST).AIX(*LIST).KEY-NAME	S	<c-string 1..8>	
Position of the secondary key in the record	var(*LIST).AIX(*LIST).KEY-POS	I	<integer 1..32496>	
Incomplete secondary key present	var(*LIST).AIX(*LIST).NOT-COMPL	S	*NO *YES	
Name of the NK-ISAM file	var(*LIST).F-NAME	S	<c-string 1..54>	
Number of secondary keys defined	var(*LIST).KEY	I	<integer 1..30>	

Example

See the CREATE-ALTERNATE-INDEX command.

6.15 SHOW-INPUT-DEFAULTS

Output task-specific default values

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-INPUT-DEFAULTS command outputs all currently defined task-specific default values. Within the task, default values can be defined for commands and statements. The user can either display all default values or restrict the display to default values of commands or statements. If only defaults of commands/statements are to be displayed, the output can be restricted to specific commands or statements.
Output can be directed to either SYSOUT or SYSLST.

Task-specific default values can be deleted using the RESET-INPUT-DEFAULTS command. To identify a specific default value in the RESET-INPUT-DEFAULTS command, the output of the SHOW-INPUT-DEFAULTS command can be requested with input serial numbers (operand INPUT-SERIAL-NUMBER=*YES).

In programs with an SDF interface, SHOW-INPUT-DEFAULTS is available as a standard statement with the same functionality.

Format

SHOW-INPUT-DEFAULTS Alias: **SHID**

```
OBJECT = *CMD (...) / *STMT(...) / *ALL

    *CMD(...)

        |       CMD = *ALL / <structured-name 1..30 with-wild(50)>

    *STMT(...)

        |       STMT = *ALL / <structured-name 1..30 with-wild(50)>

        |       ,PROGRAM = *CURRENT / *ALL / <structured-name 1..30>

,OUTPUT = *SYSOUT / *SYSLST(...)

    *SYSLST(...)

        |       SYSLST-NUMBER = *STD / <integer 1..99>

,INPUT-SERIAL-NUMBER = *NO / *YES
```

Operands

OBJECT = *CMD(...) / *STMT(...) / *ALL
Specifies the type of input for which the task-specific default values are to be output.

OBJECT = *CMD(...)
Only the task-specific default values of commands are output. The defaults of all or only of selected commands can be requested.

CMD = *ALL / <structured-name 1..30 with-wild 50>
Specifies whether the task-specific default values of all commands or only of selected commands are to be output.

CMD = *ALL
All task-specific default values of commands are output.

CMD = <structured-name 1..30 with-wild 50>
Name of the command whose task-specific default values are to be output. If wildcards are used, the default values of all commands which match the specified search pattern will be displayed.

OBJECT = *STMT(...)
Only the task-specific default values of statements are displayed. The user can request the default values of all or only of selected statements of a program to be output.

STMT = *ALL / <structured-name 1..30 with-wild (50)>
Specifies whether the task-specific default values of all statements or only of selected statements are to be output. In the PROGRAM operand the user can specify whether the output is to contain default values of statements of a specific program or of all programs.

STMT= *ALL
All task-specific default values of statements are output.

STMT = <structured-name 1..30 with-wild (50)>
Name of the statement whose task-specific default values are to be output. If wildcards are used, the default values of all statements which match the specified wildcard string will be output.

PROGRAM = *CURRENT / *ALL / <structured-name 1..30>
Specifies the program for whose statements specified in the STMT operand the task-specific default values are to be output.

PROGRAM = *CURRENT
Only default values of statements of the program currently defined in the SDF options are output. The program name can be set using the MODIFY-SDF-OPTIONS command (DEFAULT-PROGRAM-NAME operand).

PROGRAM = *ALL
The default values of all statements are output, regardless of the program name.

PROGRAM = <structured-name 1..30>
Program name, defined in a currently assigned syntax file.
Only default values of statements of the specified program are output.

OBJECT = *ALL
All task-specific default values, i.e. from both commands and statements, are output.

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The information is output to the system file SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to the system file SYSLST.

> **SYSLST-NUMBER = *STD / <integer 1..99>**
> Specifies whether the information is to be output to the system file SYSLST or to a SYSLST file from the set SYSLST01 through SYSLST99.
> The default is *STD, i.e. output is directed to the system file SYSLST.

INPUT-SERIAL-NUMBER = *NO / *YES
Specifies whether the inputs are to be shown with their input serial numbers. The default value is *NO for output without input serial numbers. The input serial number can be used in the RESET-INPUT-DEFAULTS command to delete a specific default value.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
1	0	CMD0001	There is no task-specific default value matching the specifications. Guaranteed message: CMD0561
1	32	CMD0500	Syntax description in current syntax file invalid Guaranteed message: CMD0500
1	64	CMD0561	Command execution unsuccessful Guaranteed message: CMD0561

Example

See the RESET-INPUT-DEFAULTS command.

6.16 SHOW-INPUT-HISTORY

Output buffered input to SYSOUT

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-INPUT-HISTORY command outputs the contents of the input buffer to SYSOUT. This enables information to be provided on previous inputs. The user can then request a specific input via the RESTORE-SDF-INPUT command and enter it again, either as it is or in modified form, without having to retype it. For an input to be reused, however, at least one character in the input string must be changed (e.g. you can overwrite a character with the same character).

For identification purposes in the RESTORE-SDF-INPUT command, the information can be requested with input serial numbers (operand: INPUT-SERIAL-NUMBER=*YES).

The user can restrict the scope of the output of the input buffer as follows:

- Specify the maximum number of saved inputs to be displayed (ENTRIES operand); the default value is eight.
- Specify the desired input type (SELECT operand) - either commands or statements; the default is commands.
- Specify a wildcard search pattern (PATTERN operand). Only commands or statements which match this string are displayed; the default value is no search pattern used.

The input buffer is controlled (activated/deactivated and deleted) via the MODIFY-SDF-OPTIONS command. Inputs in guided dialog are saved in ACCEPTED form, while inputs in unguided dialog are saved in INPUT form.
The SHOW-INPUT-HISTORY command or statement is not saved.

Values specified for “secret” operands which match neither the default value nor a value defined via SECRET=*NO are saved in the input buffer with “^”.
In unguided dialog when these values are displayed again with SHOW-INPUT-HISTORY, the user can do one of the following:

- send off the command/statement unchanged. In this case, SDF displays a blanked input field for each secret operand for the user to enter the desired value
- delete the “^” and insert the desired value directly before sending off the command/statement.

In programs with an SDF interface, SHOW-INPUT-HISTORY is available as a standard statement with the same functionality.

Format

SHOW-INPUT-HISTORY	Alias: **SHIH**
ENTRIES = **8** / <integer 1..100> / ***ALL**	
,**SELECT** = ***CMD** / ***ALL** / ***STMT**	
,**PATTERN** = ***NONE** / <structured-name 1..30 with-wild>	
,**INPUT-SERIAL-NUMBER** = ***NO** / ***YES**	

Operands

ENTRIES = 8 / <integer 1..100> / *ALL
Determines the maximum number of entries to be displayed. If *ALL is specified, the entire contents of the buffer are displayed.

SELECT = *CMD / *ALL / *STMT
Specifies the type of entries to be displayed.

SELECT = *CMD
Only commands are displayed.

SELECT = *ALL
Commands and statements are displayed.

SELECT = *STMT
Only statements are displayed.

PATTERN = *NONE / <structured-name 1..30 with-wild>
Specifies whether the entries to be displayed are to be selected according to a pattern string. The default value is *NONE (i.e. no pattern string). If a pattern string is specified, only entries which match it are displayed.

INPUT-SERIAL-NUMBER = *NO / *YES
Specifies whether the entries are to be displayed with their input serial numbers. The default value is *NONE (i.e. input serial numbers not shown). The input serial numbers can be used with RESTORE-SDF-INPUT to select the desired entry.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	0	CMD0001	Output not possible because input buffer empty. Guaranteed message: CMD0560
1	32	CMD0500	Syntax description in current syntax file invalid. Guaranteed message: CMD0500
1	64	CMD0560	Command execution not successful. Guaranteed message: CMD0560

Example

See RESTORE-SDF-INPUT command.

6.17 SHOW-INSTALLATION-PATH

Show installation path

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	STD-PROCESSING SUBSYSTEM-MANAGEMENT

Function

The SHOW-INSTALLATION-PATH command can be used to show the logical name mapped to the path name of an installation item or to list the path names of all the installation items in an installation unit.
The output can be directed to SYSOUT (default) or to SYSLST.

An installation item which is part of an installation unit is uniquely identified by its logical name. The installation unit is uniquely identified by its name and its version string.

All the installation items in a given installation unit can be selected in a single invocation of the command.

If a partial version specification is used and there are a number of versions of the installation unit, information is supplied for each of these versions. The output consists of the name and version of the installation unit and the logical name, path name and attributes of each of the selected installation items.
The character “*” replaces the path name if the user cannot be shown the path name (i.e. the user is not authorized).

The information shown to nonprivileged users is restricted to installation items on user level TU (task unprivileged).

The command is a component of IMON-GPN. IMON is completely described in the “IMON” manual [19].

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Privileged users are shown information on all installation items. The lock status for each installation unit is shown in the output field LOCKED.

Format

SHOW-INSTALLATION**-PATH**

INSTALLATION**-UNIT** = ***ALL** (...) / <text 1..30 without-sep>(...)

***ALL** (...)

| **VERSION** = ***ALL** / <product-version>

<text 1..30 without-sep> (...)

| **VERSION** = ***ALL** / <product-version>

,**LOGIC**AL**-ID**ENTIFIER = ***ALL** / ***NONE** / <filename 1..30 without-cat-user-gen-vers with-wild>

,**SCI-NAME** = ***STD** / <filename 1..54 without-cat-user-gen-vers>

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = ***STD** / <integer 1..99>

Operands

INSTALLATION-UNIT =
Name of the installation unit containing the installation items.

INSTALLATION-UNIT = *ALL(...)
Selects all installation units.

VERSION =
Installation units version.

VERSION = *ALL
Selects all versions of the installation units.

VERSION = <product-version>
Explicit installation unit version specification in the format mm.n[a[so]].

INSTALLATION-UNIT = <text 1..30 without-sep>(...)
Explicit installation unit specification.

VERSION =
Installation unit version.

VERSION = *ALL
Selects all versions of the installation unit.

VERSION = <product-version>
Explicit installation unit version specification in the format mm.n[a[so]].

LOGICAL-IDENTIFIER =
Specifies whether in addition to information on the selected installation unit, information on associated installation

items (with logical names) is also to be output. This information can either be requested for a specific logical name or for all logical names.

LOGICAL-IDENTIFIER = *ALL
Information on all logical names and assigned installation items in the selected installation unit is output.

LOGICAL-IDENTIFIER = <filename 1..30 without-cat-user-gen-vers with-wild>Information on the specified logical name and the assigned installation item is output.
A wildcard string can also be specified as the logical name. In this case the “*” symbol (asterisk) represents a placeholder for any string. The additional information is then output for all logical names that match this wildcard string.

LOGICAL-IDENTIFIER = *NONE
Information is output for the selected installation unit only.

SCI-NAME =
Identifies the SCI (System Configuration Inventory) from which the information is to be taken.

SCI-NAME = *STD
The information is taken from the default SCI (see MODIFY-IMON-SCI).

SCI-NAME = <filename 1..54 without-cat-user-gen-vers>
Name of a foreign SCI (catalog ID not the same as the home pubset or not a default name).

OUTPUT =
Identifies the destination for the output.

OUTPUT = *SYSOUT
The information is sent to SYSOUT.

OUTPUT = *SYSLST(...)
The information is sent to SYSLST.

SYSLST-NUMBER =
SYSLST number.

SYSLST-NUMBER = *STD
The information is sent to the standard SYSLST device.

SYSLST-NUMBER = <integer 1..99>
Explicit SYSLST number specification.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	IMO9101	Command terminated abnormally. Internal error in IMON-GPN
	64	IMO9100	Command not executed. Installation unit, version or logical identifier not found.

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Function level on which the installation unit executes	var(*LIST).IU-FU-LEVEL	S	*BOTH *TPR *TU	
Name of the installation unit	var(*LIST).IU-NAME	S	<c-string 1..30>	
Version of the installation unit	var(*LIST).IU-VERSION	S	'' <product-version 4..7>	
Lock status of the installation unit (only for privileged users)	var(*LIST).IU-LOCKED	S	*YES *NO	
Dummy installation item present	var(*LIST).IU-II-LIST (*LIST).II-DUMMY	B	FALSE TRUE	
Full or partially-qualified path name was output	var(*LIST).IU-II-LIST (*LIST).II-FILETYPE	S	*FULL *PARTIAL	
Function level on which the installation unit executes	var(*LIST).IU-II-LIST (*LIST).II-FU-LEVEL	S	*BOTH *TPR *TU	
Logical name of the installation item	var(*LIST).IU-II-LIST (*LIST).II-LOGICAL-ID	S	<filename 1..30>	
The path name associated with a logical name must be present at installation	var(*LIST).IU-II-LIST (*LIST).II-MANDATORY	B	FALSE TRUE	
Path name of the installation item	var(*LIST).IU-II-LIST (*LIST).II-PATH-NAME	S	<filename 1..54>	
Hardware variant of the installation item	var(*LIST).IU-II-LIST (*LIST).II-TARGET	S	<text 1..1>	
The file name associated with the logical name may be changed after installation	var(*LIST).IU-II-LIST (*LIST).II-UPDATE	B	FALSE TRUE	

Example

Requesting information on the syntax file of the product LMS

/show-inst-path inst-unit=lms,logic-id=syssdf

```
INSTALLATION UNIT: LMS                              VERSION : 03.4B00
                                                    FU-LEVEL: TU

  LOGICAL-ID: SYSSDF                              TARGET: A (ANY)
   PATH-NAME: :1OSH:$TSOS.SYSSDF.LMS.034
   MANDATORY: YES  UPDATE: NO   DUMMY: NO   FILENAME: FULL    FU-LEVEL: TU
%  IMO9001 Command successfully processed
```

Output information on all installation units

/show-inst-path inst-unit=*all,logic-id=*none

```
INSTALLATION UNIT: ACS                              VERSION : 20.0A00
                                                    FU-LEVEL: TU

INSTALLATION UNIT: AID                              VERSION : 03.4B23
                                                    FU-LEVEL: BOTH

   .
   .
   .
INSTALLATION UNIT: WEBTRANS-OSD                     VERSION : 07.5B00
                                                    FU-LEVEL: TU

INSTALLATION UNIT: WEBTRANS-UTM                     VERSION : 07.5B00
                                                    FU-LEVEL: TU

INSTALLATION UNIT: XCS-TIME                         VERSION : 20.0A00
                                                    FU-LEVEL: TPR

INSTALLATION UNIT: XHCS-SYS                         VERSION : 02.2A02
                                                    FU-LEVEL: BOTH
%  IMO9012 Insufficient privilege to show more information
%  IMO9001 Command successfully processed
```

6.18 SHOW-IO-OPTIONS

Show IO settings of input/output devices

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing Code:	G

Function

The SHOW-IO-OPTIONS command provides information about following IO settings of the input/output devices:

- Timeout values for IO monitoring.
- FastDPAV settings, if FastDPAV is supported in the system.

Using the command /MODIFY-IO-OPTIONS these settings can be modified.

Format

SHOW-IO-OPTIONS

UNIT = ***ALL-MODIFIED** /alphanum-name_2..2 / x-text_4..4 / ***CONTROLLER**(...) / ***DEVICE-RANGE**(...)

***CONTROLLER**(...)

| NAME = <alphanum-name 2..2> / <x-text 4..4>

***DEVICE-RANGE**(...)

| FROM = <alphanum-name 2..2> / <x-text 4..4>

| ,TO = <alphanum-name 2..2> / <x-text 4..4>

Operands

UNIT = *ALL -MODIFIED/alphanum-name_2..2 / x-text_4..4 / *CONTROLLER(...) / *DEVICE-RANGE(...)

Specifies the devices, for which the settings shall be shown.

> *If FastDPAV is supported in the system, the setting is always shown, independently of the value of the UNIT operand.*

UNIT = *ALL-MODIFIED

Shows all settings of timeout values, that differ from the system default value.

UNIT =alphanum-name_2..2 / x-text_4..4

2- or 4-character mnemonic device code of the device.

UNIT = *CONTROLLER(...)

The timeout values shall be shown for all devices of a controller.

NAME = <alphanum-name 2..2> / <x-text 4..4>

2- or 4-character mnemonic device code of the controller.

UNIT = *DEVICE-RANGE(...)

The timeout values shall be shown for a group of devices.

The mnemonic device codes specified in this range must not allover belong to generated devices. If the device does not exist, the processing continues with the following mnemonic. Based on the mnemonic of the first device (FROM operand), the mnemonics of the following devices are determined by adding 1 for 4-character (hexadecimal) mnemonics until the mnemonic of the TO operand is reached. In the case of 2-character (alphanumeric) mnemonics, the subsequent mnemonics are created in ascending lexicographical order, that means letters before digits (A, B, ...,Z, 0, 1, ..., 9). The range is limited to 256 mnemonics. The range may not exceed the highest mnemonic FFFF or 99 respectively.

FROM = <alphanum-name 2..2> / <x-text 4..4>

2- or 4-character mnemonic device code of the first device.

TO = <alphanum-name 2..2> / <x-text 4..4>

2- or 4-character mnemonic device code of the last device.

Command Return Codes

(SC2)	SC1	Maincode	Meaning
	0	CMD001	Command processed successfully
	64	NDI0711	UNIT not found
	64	NDI0715	Device Range invalid
	32	NDI0713	Internal error

Output format

The output starts with the title for the timeout values, followed by lines with the values of the requested units.

If Fast-DPAV is supported, the actual settings are shown behind.

The output columns of the timeout informations have the following meaning:

Output column	Meaning
DVC-MN	mnemonic device code of the device
CTL-MN	mnemonic device code of the controller
SYS-VAL	system default timeout value in seconds of the device(s)
MOD-VAL	the modified timeout value in seconds
MOD-VAL-MIN	the lowest modifed timeout value for the devices at the specified controller
MOD-VAL-MAX	the highest modifed timeout value for the devices at the specified controller

Examples

/SHOW-IO-OPTIONS *ALL-MODIFIED

```
------------------------------ TIMEOUT --------------------------------
NO MODIFICATIONS
------------------------------ FAST-DPAV ------------------------------
FAST-DPAV PREFERRED DEVICE:  BASE-DEVICE
```

There are no modified timeout values.

FastDPAV is supported, PREFERRED-DEVICE is „BASE-DEVICE“

/SHOW-IO-OPTIONS A500

```
------------------------------ TIMEOUT --------------------------------
DVC-MN      SYS-VAL     MOD-VAL
A500        00064       00504
------------------------------ FAST-DPAV ------------------------------
FAST-DPAV PREFERRED DEVICE:  BASE-DEVICE
```

The timeout values for device A500 are shown. Currently the value is modified with /MODIFY-IO-UNIT.

/SHO-IO-OPT

```
------------------------------ TIMEOUT --------------------------------
CTL-MN      SYS-VAL     MOD-VAL-MIN     MOD-VAL-MAX
AK          00064       00504           -
AL          00064       00504           -
```

```
------------------------------ FAST-DPAV -------------------------------
FAST-DPAV PREFERRED DEVICE: ALIAS-DEVICE
```

*If UNIT=*ALL-MODIFIED (default value) is given, all controller are shown, which have at least one device with a modified timeout value. The system default value is shown (which is identical for all devices at the controller) and the lowest and highest currently modified timeout value of the devices at this controller.*

In this example only the value of the device A500 is modified. As A500 has paths to controller AK and AL, both controller are shown.

Special output at X86 server:

*In a X86 server the BS2000 has no controller units. With the command /SHOW-IO-OPTIONS UNIT=*ALL-MODIFIED therefore all devices are shown, which timeout values have been modified..The output is limited to 256 devices.*

6.19 SHOW-IOCF

Show information on IOCF

Component:	IOCFCOPY
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	@

Function

With the SHOW-IOCF command, systems support staff can obtain information on the active IOCF (of the active session) and on all IOCFs on the hard disk of the service processor. Information output can be directed to SYSOUT or to SYSLST.

This command can also be entered on an operator terminal. Output is then always takes place asynchronously and in block mode on the operator terminal.

Format

SHOW-IOCF
LEVEL-NAME = ***ALL** / ***ACTIVE** / <integer 0..9> ,**OUTPUT** = ***SYSOUT** / ***SYSLST**

Operands

LEVEL = *ALL
Information is output for the active IOCF and for all other existing IOCFs (including the level numbers).

LEVEL = *ACTIVE
Information is output for the active IOCF.

If the level cannot be accessed because only one bus configuration is specified, `*** BUS CONFIGURATION WITHOUT IOCF ***` is displayed.

LEVEL = <integer 0..9>
The level number of the IOCF on which information is to be output. The value range covers all available levels. If the level number does not exist, the command is rejected.

The maximum number of levels is hardware-dependent.

- If there is no level number, the command is rejected.
- If the level is empty (e.g. when newly created) or if the files cannot be evaluated, `*** INVALID DATA OR EMPTY LEVEL ***` is displayed.
- If the level cannot be accessed, `*** INFORMATION NOT AVAILABLE ***` is displayed.

OUTPUT = *SYSOUT
Information output is directed to SYSOUT.

OUTPUT = *SYSLST
Information output is directed to SYSLST. In the case of entry on an operator terminal, this specification is changed to OUTPUT=*SYSOUT (command return code `IOF0127`).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
2	0	IOF0114	Specified IOCF is empty
2	0	IOF0125	Bus configuration, no IOCF available
2	0	IOF0127	Parameter OUTPUT changed to SYSOUT as SYSLST is not possible on the operator terminal
	1	CMD2201	Parameter error: At least one value from the command call is incorrect (e.g. file does not exist, incorrect format or incorrect file contents, level number does not exist, etc.). The exact cause of the error is contained in a preceding message.
	32	CMD0221	System error: A system interface which was called reports an error. The exact cause of the error is contained in a preceding message.
	64	CMD0216	User has no authorization

Format of the output

```
LEVEL xxx:  hh:mm yy.ddd zzzzz BLOCKS
<comment>
```

where

`xxx` Level number 1 to 9 or ACT (active IOCF)

`hh:mm` Generation time

`yy.ddd` Generation year and generation day (Julian date)

`zzzzz` Number of 256-byte blocks in the IOCF

`<comment>` 64-byte long comment, taken unchanged from the IOCF. Contains, among other things, the 8-byte long name of the IOCF.

Example

Information on active IOCF

/show-iocf level=*active

```
%LEVEL ACT:   21:20  14.278   189 BLOCKS
%        S1900006 / TESTSYSTEM             / 05.10.2014
```

6.20 SHOW-ISAM-CACHING

Show information on ISAM cache areas in data spaces

Component:	BS2000
Functional area:	System control and optimization
Domain:	FILE
Privileges:	TSOS SW-MONITOR-ADMINISTRATION

Function

The SHOW-ISAM-CACHING provides information on the maximum number of data spaces for ISAM cache areas and how they are used. In addition to global information, detailed information on data spaces, the ISAM pool and the ISAM files buffered there can also be requested.

The command supports structured output in S variables (see "Output in S variables").

The maximum number of data spaces for ISAM cache areas can be changed dynamically using this command.

Format

SHOW-ISAM-CACHING Alias: **SHISAMC**

SELECT = ***ALL**

,**INF**ORMATION = ***SUMM**ARY / ***ALL**

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = ***STD** / <integer 1..99>

Operands

SELECT = *ALL
Information for all data spaces which are available for ISAM cache areas is displayed.

INFORMATION = *SUMMARY / *ALL
Specifies the scope of the information which is to be displayed.

INFORMATION = *SUMMARY
General information on ISAM caching is displayed, plus, for each data space, an information block containing global information.

INFORMATION = *ALL
General information on ISAM caching is displayed, plus, for each data space, two information blocks containing global and detailed information.

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies the output medium on which the information is to be displayed. Output to SYSOUT is the default.

OUTPUT = *SYSOUT
The information is output to SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to SYSLST.

SYSLST-NUMBER = *STD / <integer 1..99>
Number of a SYSLST file from the set SYSLST01 through SYSLST99.
Specifying *STD (default value) means system file SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	32	CMD2009	VAS/OPS reports internal error
	32	DMS0A66	Internal error when command is executed
	64	CMD0216	Privileges error
	130	OPS0001	Not enough memory for output in S variables

Output format

The display begins with a general information block:

- Global information on ISAM caching

The following two information blocks are then displayed for each data space which is currently in use:

- Global information on the data space
- Detailed information on the data space (only when INFORMATION=*ALL)

Global information on ISAM caching

The heading "*ISAM CACHING INFORMATION (SUMMARY)*" is followed by the information below:

Output field	Meaning
MAXIMUM NUMBER OF DATA SPACES	Maximum number of data spaces (1..127)
NUMBER OF DATA SPACES CURRENTLY IN USE	Number of data spaces currently in use (1..127)
TOTAL DATA SPACE AMOUNT	Total amount of available memory space in MB (multiple of 2048)
TOTAL USED SPACE	Total amount of memory space in use in MB
TOTAL FREE SPACE	Total amount of free memory space in MB
TOTAL NUMBER OF ISAM POOLS	Number of ISAM pools created
TOTAL NUMBER OF ISAM FILES	Number of buffered ISAM files
TOTAL NUMBER OF FREE AREAS	Number of free memory areas

Table 118: Global information on ISAM caching

Global information on the data space

The heading "*DATA SPACE GLOBAL INFORMATION*" is followed by the information below:

Output field	Meaning
DS#	Number of the data space (1..127)
USED SPACE	Memory space used in MB
#ISAM POOLS	Number of ISAM pools
#ISAM FILES	Number of buffered files
FREE SPACE	Free memory space in MB
#FREE AREAS	Number of free memory areas

Table 119: Global information on ISAM caching in a data space

Detailed information on the data space

The heading "*DETAILED INFORMATION FOR DATA SPACE*" is followed by a table providing information on the use of the data space. For every ISAM pool created there the table includes an output line containing the following information:

Information column	Meaning
SIZE	Size of the ISAM pool in MB
FILENAME	Path name of a file buffered in the ISAM pool. If, as an exception, the pool is assigned multiple files (see FILE-ASS=SAT), each further path name is displayed in a continuation line.
FILE-ASS	Type of file assignment • DEF: assignment took place by means of standard processing by the system when the file was opened. • USER: the user specified the assignment by means of a command (/CREATE-ISAM-POOL, /ADD-ISAM-POOL-LINK). • SAT: assignment as with DEF, but no new cache area could be provided for the file. The ISAM cache area should be enlarged (/MODIFY-ISAM-CACHING).

Table 120: Detailed information on ISAM caching in a data space

Output in S variables

The command's INFORMATION operand identifies the S variables which are to be created. The following entries are possible for:

Notation used in command	Abbreviated form used in table
INFORMATION = *SUMMARY	INF=*SUM
INFORMATION = *ALL	INF=*ALL

Output information	Name of the S variable	T	Contents	Condition
Size of the ISAM pool in MB	var(*LIST).DATA-SPACE (*LIST).POOL(*LIST).SIZE	S	<integer 1..32766>	INF=*ALL only
Number of files buffered in the data space	var(*LIST).DATA-SPACE (*LIST).FILE-NUM	S	<integer 1.. 2147483647>	
Number of free memory areas in the data space	var(*LIST).DATA-SPACE (*LIST).FREE-AREA-NUM	S	<integer 1..2047>	
Free memory space in the data space in MB	var(*LIST).DATA-SPACE (*LIST).FREE-SPACE	S	<integer 1..2048>	

Output information	Name of the S variable	T	Contents	Condition
Type of file assignment	var(*LIST).DATA-SPACE(*LIST).POOL(*LIST).FILE(*LIST).FILE-ASS	S	DEF / USER / SAT	INF=*ALL only
Name of the file which is buffered in the ISAM pool	var(*LIST).DATA-SPACE(*LIST).POOL(*LIST).FILE(*LIST).FILE-NAME	S	<filename>	INF=*ALL only
Number of files which are buffered in the ISAM pool	var(*LIST).DATA-SPACE(*LIST).POOL(*LIST).NUM-FILES-IN-POOL	S	<integer 1..32766>	INF=*ALL only
Number of ISAM pools in the data space	var(*LIST).DATA-SPACE(*LIST).POOL-NUM	S	<integer 1..2048>	
Used memory space in the data space in MB	var(*LIST).DATA-SPACE(*LIST).USED-SPACE	S	<integer 1..2048>	
Maximum number of data spaces	var(*LIST).DATA-SPACE-MAX-NUM	S	<integer 1..127>	
Number of data spaces used	var(*LIST).DATA-SPACE-USED-NUM	S	<integer 1..127>	
Total number of buffered files	var(*LIST).TOTAL-FILE-NUM	S	<integer 1..2147483647>	
Total free memory areas in MB	var(*LIST).TOTAL-FREE-AREA-NUM	S	<integer 1..260095>	
Total free memory space in MB	var(*LIST).TOTAL-FREE-SPACE	S	<integer 1..260096>	
Total number of ISAM pools created	var(*LIST).TOTAL-POOL-NUM	S	<integer 1..260096>	
Total memory space available in MB	var(*LIST).TOTAL-SPACE	S	<integer 1..260096>	
Total memory space used in MB	var(*LIST).TOTAL-USED-SPACE	S	<integer 1..260096>	

Examples

/show-isam-caching inf=*all

```
------------------------------------------------------------------------------
------------------- ISAM CACHING INFORMATION  (SUMMARY) -------------------
------------------------------------------------------------------------------
 MAXIMUM NUMBER OF DATA SPACES            :      2
 NUMBER OF DATA SPACES CURRENTLY IN USE   :      1
 TOTAL DATA SPACE AMOUNT                  :   2048 MB
 TOTAL USED SPACE                         :      7 MB
 TOTAL FREE SPACE                         :   2041 MB
 TOTAL NUMBER OF ISAM POOLS               :      6
 TOTAL NUMBER OF ISAM FILES               :      8
 TOTAL NUMBER OF FREE AREAS               :      1

------------------------------------------------------------------------------
-------------------    DATA SPACE GLOBAL INFORMATION    --------------------
------------------------------------------------------------------------------
 DS# :  1     USED SPACE  :      7 MB        FREE SPACE   :   2041 MB
              #ISAM POOLS :      6           #FREE AREAS  :      1
              #ISAM FILES :      8
------------------------------------------------------------------------------
------------------  DETAILED INFORMATION FOR DATA SPACE  ------------------
------------------------------------------------------------------------------
    SIZE    FILENAME                                                FILE-ASS
------------------------------------------------------------------------------
     1 MB   :SBZ8:$TSOS.SYS.HEL.2012-06-15.183613                     DEF
------------------------------------------------------------------------------
     2 MB   :SBZ8:$SYSAUDIT.SYSLOG.ESS.SYSTEM                         USER
------------------------------------------------------------------------------
     1 MB   :SBZ8:$TSOS.SYSDAT.BCAM.APPLICATIONS.IS1                  USER
            :SBZ8:$TSOS.SYSDAT.BCAM.ETC.HOSTS.IS1                    USER
            :SBZ8:$TSOS.SYSDAT.BCAM.PROCESSORS.IS1                   USER
------------------------------------------------------------------------------
     1 MB   :SBZ8:$SYSFJAM.SYSFSA                                    DEF
------------------------------------------------------------------------------
     1 MB   :SBZ8:$SYSSPOOL.PRFILE                                   DEF
------------------------------------------------------------------------------
     1 MB   :SBZ8:$SYSMAREN.TEST.MARENCAT                            DEF
------------------------------------------------------------------------------
```

6.21 SHOW-ISAM-POOL-ATTRIBUTES

Show attributes and occupancy states of ISAM pools

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SW-MONITOR-ADMINISTRATION TSOS

Function

The SHOW-ISAM-POOL-ATTRIBUTES command returns information on ISAM pools linked to the current job, taking the links to ISAM pools on remote systems into account. The user may request information on a specific ISAM pool or on all ISAM pools and redirect the output to SYSOUT or SYSLST.
The output comprises detailed information on the pool-specific attributes of each ISAM pool (as defined in the CREATE-ISAM-POOL command). If desired, the user may also have the job numbers of all connected jobs for each ISAM pool displayed.
The user may set up a connection to an ISAM pool explicitly by using the CREATE-ISAM-POOL command, but a job may also be implicitly connected to standard pools by NK-ISAM.

The command supports structured output in S variables (see "Output in S variables").

Note on ISAM pools

As of BS2000/OSD V6.0B cross-task ISAM pools are automatically created on a file-specific basis when a file is opened in a data space. The CREATE-ISAM-POOL command with SCOPE=*USER-ID/*USER-GROUP is only supported for reasons of compatibility and has the same effect as SCOPE=*HOST-SYSTEM (for details on ISAM pools in data spaces see the “Introductory Guide to DMS” [13]).

Privileged functions

Callers who have the system privileges of TSOS or SW-MONITOR-ADMINISTRATION are not restricted to the pools to which they are connected, but can obtain information about any ISAM pools, even those to which there are no connections.

Format

SHOW-ISAM-POOL-ATTRIBUTES

POOL-NAME = ***ALL** / <name 1..8>(...)

<name 1..8>(...)

| **CAT-ID** = ***DEF**AULT-**PUB**SET / <cat-id 1..4>

| ,**SCOPE** = ***TASK** / ***HOST-SYS**TEM / ***USER-ID** / ***USER-GROUP**

,**INF**ORMATION = ***ATTR**IBUTES / ***USERS-AND-ATTR**IBUTES

,**SEL**ECT = ***OWN** / ***ALL**

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = **00** / <integer 0..99>

Operands

POOL-NAME = *ALL / <name 1..8>(...)
Specifies whether information on all ISAM pools or only one ISAM pool is desired. Users may only obtain information on ISAM pools which are currently connected to their own jobs.

POOL-NAME = *ALL
Returns information on all ISAM pools to which the job is currently connected.

Privileged callers (TSOS or SW-MONITOR-ADMINISTRATION privilege) using SELECT=*ALL are supplied with information on all the ISAM pools which currently exist.

POOL-NAME = <name 1..8>(...)
Returns information on the specified ISAM pool. The desired ISAM pool is uniquely identified by the specified name, catalog ID (see the CAT-ID operand) and scope (see the SCOPE operand). Information is output only if the ISAM pool exists and the job is connected to it.

CAT-ID = *DEFAULT-PUBSET / <alphanum-name 1..4>
Catalog ID of the pubset to which the ISAM pool is assigned.

CAT-ID = *DEFAULT-PUBSET
The ISAM pool is assigned to the catalog that was set with the `ISPLDEFC` system parameter (**`IS`**`AM-`**`P`**`OOL-`**`DEF`**`AULT-`**`C`**`ATID`):

X’00’:	default catalog ID from the user entry (see the SHOW-USER-ATTRIBUTES command, output field *DEFAULT-PUBSET*)
X’01’:	catalog ID of the home pubset

CAT-ID = <alphanum-name 1..4>
Catalog ID of the specified ISAM pool.

SCOPE = *TASK / *HOST-SYSTEM / *USER-ID / *USER-GROUP
Specifies the scope of the ISAM pool for which information is to be output.

SCOPE = *TASK
Returns information on the corresponding task-local ISAM pool.

SCOPE = *HOST-SYSTEM
Returns information on the corresponding cross-task ISAM pool.

SCOPE = *USER-ID / *USER-GROUP
These scopes are only supported for reasons of compatibility (refer to "Note on ISAM pools").

INFORMATION = *ATTRIBUTES / *USERS-AND-ATTRIBUTES
Defines the scope of the information to be output.

INFORMATION = *ATTRIBUTES
Displays the static attributes for each ISAM pool defined in the POOL-NAME operand. The table contains the following output columns:

Output column	Values	Meaning
CATID	<cat-id 1..4>	Catalog ID at the local system
	<cat-id 1..4> **	Catalog ID on the remote system
POOLNAME	<name 1..8>	Name of the ISAM pool
SCOPE	TASK	Task-specific ISAM pool
	USERID=<userid>	ISAM pool for jobs of the user ID <userid>
	USERGP=<groupid>	ISAM pool for jobs of the user group <groupid>
	HOST	System-wide ISAM pool
WROUT	YES	ISAM pool created with WRITE-IMMEDIATE=*YES
	NO	ISAM pool created with WRITE-IMMEDIATE=*NO
SIZE	<integer 32..32767>	Size in units of 2 Kbytes; applies to an extent
EXTENTS	--/--	The ISAM pool consists of one extent that has not yet been formatted, since no NK-ISAM file has been processed via the pool as yet.
	2K/--	The ISAM pool consists of one extent to process NK2 files.
	--/4K	The ISAM pool consists of one extent to process NK4 files.
	2K/4K	The ISAM pool consists of two extents: one to process NK2 files, and one to process NK4 files.
RESIDENT	YES	The ISAM pool is memory-resident.
	NO	The ISAM pool is not memory-resident.

Table 121: Output format of the SHOW-ISAM-POOL-ATTRIBUTES command

INFORMATION = *USERS-AND-ATTRIBUTES
Displays a table with static attributes for each ISAM pool specified in POOL-NAME. These tables have the same structure as the table for `INFORMATION=*ATTRIBUTES` (see above). In addition, each table is followed by a list of job numbers of all jobs connected to the corresponding ISAM pool.

SELECT = *OWN
Returns information on all ISAM pools connected to the job. The output includes ISAM pools on local and remote systems.

SELECT = *ALL
Accepted only from users with TSOS or SW-MONITOR-ADMINISTRATION privilege:
Specifies that information is to be supplied for the ISAM pool specified by the POOL-NAME operand, regardless of whether there are any existing connections to it. In conjunction with POOL-NAME = *ALL, information is supplied about all the ISAM pools which currently exist, including any which have been created on a remote system using RFA.

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies the output medium to which the information is to be sent. The output is written to SYSOUT by default.

OUTPUT = *SYSOUT
The information is output to SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to SYSLST.

SYSLST-NUMBER = 00 / <integer 0..99>
Number of a SYSLST file from the set SYSLST01 to SYSLST99. The value 00 (the default) corresponds to the system file SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	DMS0A52	Internal system error
	64	DMS0A50	Specified catalog ID does not exist
	64	DMS0A51	Specified ISAM pool does not exist
	64	CMD0216	Required privileges for call missing
	64	DMS0A22	User group does not exist
	64	DMS0A55	No ISAM pool exists
	130	DMS0A53	Insufficient virtual memory
	130	DMS0A56	Specified catalog ID not available

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Catalog ID of the pubset the ISAM pool is assigned to	var(*LIST).CAT-ID	S	<c-string 1..4>	
Extent specifications *2K-4K-FORM = ISAM pool comprises two extents *2K-FORM = ISAM pool comprises one extent *4K-FORM = ISAM pool comprises one extent *NOT-FORM = ISAM pool comprises one unformatted extent	var(*LIST).EXT	S	*2K-4K-FORM *2K-FORM *4K-FORM *NOT-FORM	
Name of the ISAM pool	var(*LIST).POOL-NAME	S	<c-string1..8>	
ISAM pool is memory-resident	var(*LIST).RESID	S	*NO *YES	
Scope of the ISAM pool	var(*LIST).SCOPE	S	*HOST *TASK *USER-GROUP *USER-ID	
Size of the ISAM pool	var(*LIST).SIZE	I	<integer 32..32767>	
Task sequence number	var(*LIST).TSN(*LIST)	S	<c-string 1..4>	
User group	var(*LIST).USER-GROUP	S	<c-string 1..8>	
User ID	var(*LIST).USER-ID	S	<c-string 1..8>	
Write back the blocks buffered in the ISAM pool	var(*LIST).WRITE	S	*NO *YES	

Examples

See the ADD-ISAM-POOL-LINK and CREATE-ISAM-POOL commands.

6.22 SHOW-ISAM-POOL-LINK

Show allocation of ISAM pools to pool link names

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING SW-MONITOR-ADMINISTRATION TSOS

Function

The SHOW-ISAM-POOL-LINK command provides the user with information on all the existing pool link names that were assigned to ISAM pools by the user with the ADD-ISAM-POOL-LINK command since the start of the job. For each pool link name, the name of the associated ISAM pool is shown along with its catalog ID and scope. The user can select the assignments to be displayed by specifying pool link names or ISAM pool names and direct the output to either SYSLST or SYSOUT.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-ISAM-POOL-LINK

```
POOL-LINK-NAME = *ALL / <name 1..8> / *ALL

,POOL-NAME = *ALL / <name 1..8>(...) / *ALL

    <name 1..8>(...)

        |       CAT-ID = *DEFAULT-PUBSET / <cat-id 1..4>

        |       ,SCOPE = *TASK / *HOST-SYSTEM / *USER-ID / *USER-GROUP

,OUTPUT = *SYSOUT / *SYSLST(...)

    *SYSLST(...)

        |       SYSLST-NUMBER = 00 / <integer 0..99>
```

Operands

POOL-LINK-NAME = *ALL / <name 1..8>
Specifies the pool link names for which the associated ISAM pools are to be shown.

POOL-LINK-NAME = *ALL
Displays all assignments of pool link names to ISAM pools.

POOL-LINK-NAME = <name 1..8>
Specifies a pool link name for which the associated ISAM pool is to be shown. A pool link name can only be assigned to one ISAM pool.
The specification of a pool link name is given precedence over any pool name that may be specified in the POOL-NAME operand.

POOL-NAME = *ALL / <name 1..8>(...)
Specifies the ISAM pools for which the assigned pool link names are to be output.

POOL-NAME = *ALL
Displays the assigned pool link names for all pool names.

POOL-NAME = <name 1..8>(...)
Shows the pool link names assigned to the specified ISAM pool. More than one pool link name may be assigned to one ISAM pool. The desired ISAM pool is uniquely identified by the specified name, the catalog ID (see the CAT-ID operand) and the scope (see the SCOPE operand).

CAT-ID = *DEFAULT-PUBSET / <alphanum-name 1..4>
Catalog ID of the pubset to which the specified ISAM pool is assigned.

CAT-ID = *DEFAULT-PUBSET
The ISAM pool is assigned to the catalog that was set with the system parameter `ISPLDEFC` (**IS**AM-**P**OOL-**DEF**AULT-**C**ATID):

X'00':	default catalog ID from the user entry (see the SHOW-USER-ATTRIBUTES command, output field *DEFAULT-PUBSET*)
X'01':	catalog ID of the home pubset

CAT-ID = <alphanum-name 1..4>
Catalog ID of the specified ISAM pool.

SCOPE = *TASK / *HOST-SYSTEM / *USER-ID / *USER-GROUP
Scope of the specified ISAM pool.

SCOPE = *TASK
Returns information on all pool link names assigned to the corresponding task-local ISAM pool.

SCOPE = *HOST-SYSTEM
Returns information on all pool link names assigned to the corresponding cross-task ISAM pool.

SCOPE = *USER-ID / *USER-GROUP
These scopes are only supported for reasons of compatibility (see the CREATE-ISAM-POOL command).

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies the output medium to which the information is to be sent. The output is written to SYSOUT by default.

OUTPUT = *SYSOUT
The information is output to SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to SYSLST.

SYSLST-NUMBER = 00 / <integer 0..99>
Number of a SYSLST file from the set SYSLST01 to SYSLST99. The value 00 (the default) corresponds to the system file SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors
	32	DMS0A62	Internal system error
	64	DMS0A22	User group does not exist
	64	DMS0A60	Pool link name does not exist
	64	DMS0A61	No pool link name exists
	130	DMS0A63	Insufficient virtual memory

Output format

The information returned by the SHOW-ISAM-POOL-LINK command is output in a table with the following output columns:

Output column	Values	Meaning
LINKNAME	<name 1..8>	Pool link name
CATID	<cat-id 1..4>	Catalog ID of the associated ISAM pool
POOLNAME	<name 1..8>	Name of the ISAM pool
SCOPE	TASK	Task-specific ISAM pool
	USERID=<userid>	ISAM pool for jobs of the user ID <userid>
	USERGP=<groupid>	ISAM pool for jobs of the user group <groupid>
	HOST	System-wide global ISAM pool

Table 122: Output format of the SHOW-ISAM-POOL-LINK command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Catalog ID of the ISAM pool	var(*LIST).CAT-ID	S	<c-string 1..4>	
Pool link name	var(*LIST).LINK-NAME	S	<c-string 1..8>	
ISAM pool name	var(*LIST).POOL-NAME	S	<c-string 1..8>	
Scope of the ISAM pool	var(*LIST).SCOPE	S	*HOST *TASK *USER-GROUP *USER-ID	
User group	var(*LIST).USER-GROUP	S	<c-string 1..8>	
User ID	var(*LIST).USER-ID	S	<c-string1..8>	

Examples

See the ADD-ISAM-POOL-LINK command.

6.23 SHOW-JOB-CLASS

Request job class information

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING SW-MONITOR-ADMINISTRATION

Function

The SHOW-JOB-CLASS command displays descriptions of all job classes to which the user has access.

As a privileged caller, systems support can use the command to request descriptions of all job classes defined with the JMU statement DEFINE-JOB-CLASS. Under the user ID
TSOS, the description of each job class includes a list of all user IDs authorized to access that job class.

The command supports structured output in S variables (see "Output in S variables").

Note

If the name of a job stream is shown for the interactive job class, this means nothing, since interactive jobs are not subject to job scheduling.

Format

SHOW-JOB-CLASS
CLASS-NAME = **<u>*ALL</u>** / ***ALL-NAMES** / list-poss(2000): <name 1..8>
,**OUTPUT** = **<u>*SYSOUT</u>** / ***SYSLST**

Operands

CLASS-NAME = <u>*ALL</u> / *ALL-NAMES / list-poss(2000): <name 1..8>
Determines the job classes and thus the scope of the information to be output.
As a privileged caller, systems support is provided with a description of the job class followed a list of all user IDs authorized to access that job class (except with *ALL-NAMES).

CLASS-NAME = <u>*ALL</u>
Displays the names of all job classes to which the user has access.

CLASS-NAME = *ALL-NAMES
All job classes to which the user has access.

OUTPUT = <u>*SYSOUT</u> / *SYSLST
Specifies where the information is to be listed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	CMD0002	Command executed with warning; e.g. not all job classes are accessible
	1	CMD0202	Syntax error
	32	CMD2009	Error during generation of presentation variables
	64	JMS0640	No job class can be displayed Privilege infringement or unknown job class, or job classes not accessible

Output in S variables

The command's CLASS-NAME operand defines which variables are to be created. Possible values for CLASS-NAME are *ALL, *ALL-NAMES and <name 1..7>.

Output information	Name of the S variable	T	Contents	Condition
Task attribute BATCH allowed in the job class	var(*LIST).BATCH-ALLOW	S	'' *NO *YES <name 1..7>	CLASS=*ALL/ <name 1..7>
Maximum number of jobs per job class (job class limit)	var(*LIST).CLASS-LIM	I	<integer 0..4095>	CLASS=*ALL/ <name 1..7>
Name of the job class	var(*LIST).CLASS-NAME	S	<name 1..8>	
Optimum number of jobs per job class	var(*LIST).CLASS-OPT	I	<integer 0..4095>	CLASS=*ALL/ <name 1..7>
Job class weighting	var(*LIST).CLASS-WEIGHT	I	<integer 1..9>	CLASS=*ALL/ <name 1..7>
Default CPU time jobs of this class are allowed to use	var(*LIST).CPU-LIM.DEF	S	*NO-LIM 1..32767	CLASS=*ALL/ <name 1..7>
Maximum CPU time for the job class	var(*LIST).CPU-LIM.MAX	S	*NO 1.. 32767	CLASS=*ALL/ <name 1..7>
Task attribute BATCH allowed in the job class	var(*LIST).DIALOG-ALLOW	S	'' *NO *YES <name 1..7>	CLASS=*ALL/ <name 1..7>

Output information	Name of the S variable	T	Contents	Condition
User IDs which have access to this job class	var(*LIST).JOB-CLASS-ACCESS(*LIST)	S	'' *ALL-USER *NO-USER <name 1..8>	CLASS=*ALL/<name 1..7>
User IDs for which this job class is the default	var(*LIST).JOB-CLASS-DEF(*LIST)	S	'' *NO-USER *SYS <name 1..8>	CLASS=*ALL/<name 1..7>
User IDs for which this job class is the POSIX default	var(*LIST).JOB-CLASS-POS(*LIST)	S	'' *NO-USER *SYS <name 1..8>	CLASS=*ALL/<name 1..7>
Additional job class attributes	var(*LIST).JOB-PAR	S	*NO *YES <c-string 0..127>	CLASS=*ALL/<name 1..7>
Default job priority	var(*LIST).JOB-PRIO.DEF	S	'' 1..9	CLASS=*ALL/<name 1..7>
Maximum job priority	var(*LIST).JOB-PRIO.MAX	S	'' *NO 1..9	CLASS=*ALL/<name 1..7>
Job class type	var(*LIST).JOB-TYPE	S	*BATCH *DIALOG	CLASS=*ALL/<name 1..7>
Jobs not subject to time limits	var(*LIST).NO-CPU-LIM	S	*NO *YES	CLASS=*ALL/<name 1..7>
Job repeat frequency (arguments allowed with ENTER-JOB and LOGON commands)	var(*LIST).REPEAT-JOB.ALLOW(*LIST)	S	'' *AT-STREAM-STARTUP *DAILY *NO *PERIOD *WEEKLY	CLASS=*ALL/<name 1..7>
Job repeat frequency (default)	var(*LIST).REPEAT-JOB.DEF	S	'' *AT-STREAM-STARTUP *DAILY *NO *PERIOD *WEEKLY	CLASS=*ALL/<name 1..7>
Time (in hours) after which the job is repeated	var(*LIST).REPEAT-JOB.HOURS	S	'' 0..23	CLASS=*ALL/<name 1..7>

Time (in minutes) after which the job is repeated	var(*LIST).REPEAT-JOB.MINUTES	S	'' 0..59	CLASS=*ALL/<name 1..7>
Default task priority	var(*LIST).RUN-PRIO.DEF	S	30..255	CLASS=*ALL/<name 1..7>
Maximum task priority	var(*LIST).RUN-PRIO.MAX	S	*NO 30..255	CLASS=*ALL/<name 1..7>
Task attribute of the job	var(*LIST).START-ATTR	S	*BATCH *DIALOG *TP	CLASS=*ALL/<name 1..7>
Initial value for the job class (for use in the ENTER-JOB command)	var(*LIST).START.ALLOW(*LIST)	S	'' *AT *AT-STREAM-STARTUP *EARLIEST *IMMED *LATEST *SOON *WITHIN	CLASS=*ALL/<name 1..7>
Initial value for the job class (default for ENTER-JOB)	var(*LIST).START.DEF	S	'' *SOON *WITHIN	CLASS=*ALL/<name 1..7>
Starting time (hour) for job	var(*LIST).START.HOURS	S	'' 0..23	CLASS=*ALL/<name 1..7>
Starting time (minute) for job	var(*LIST).START.MINUTES	S	'' 0..59	CLASS=*ALL/<name 1..7>
Name of the stream	var(*LIST).STREAM-NAME	S	'' <name 1..8>	CLASS=*ALL/<name 1..7>
Default number of lines for the job on output to SYSLST	var(*LIST).SYSLST-LIM.DEF	S	*NO-LIM 0..999999	CLASS=*ALL/<name 1..7>
Maximum number of lines for the job on output to SYSLST	var(*LIST).SYSLST-LIM.MAX	S	*NO *NO-LIM 0..999999	CLASS=*ALL/<name 1..7>
Output only supported for reasons of compatibility	var(*LIST).SYSOPT-LIM.DEF	S	*NO-LIM 0..999999	CLASS=*ALL/<name 1..7>
Output only supported for reasons of compatibility	var(*LIST).SYSOPT-LIM.MAX	S	*NO *NO-LIM 0..999999	CLASS=*ALL/<name 1..7>

Output information	Name of the S variable	T	Contents	Condition
Task attribute TP allowed in the job class	var(*LIST).TP-ALLOW	S	'' *NO *YES <name 1..7>	CLASS=*ALL/ <name 1..7>

Example

Output into S variable

```
/exec-cmd (show-job-class class-name=*all-names),
           text-output=*none,structure-output=var ———————————————————— (1)
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
VAR#1.CLASS-NAME = 'JCBDF1CP'
*END-OF-VAR
VAR#2.CLASS-NAME = 'JCBNACHT'
*END-OF-VAR
VAR#3.CLASS-NAME = 'JCBSARAH'
*END-OF-VAR
VAR#4.CLASS-NAME = 'JCBSHUT'
*END-OF-VAR
VAR#5.CLASS-NAME = 'JCB00050'
*END-OF-VAR
VAR#6.CLASS-NAME = 'JCB00200'
*END-OF-VAR
VAR#7.CLASS-NAME = 'JCB02000'
*END-OF-VAR
VAR#8.CLASS-NAME = 'JCB05000'
*END-OF-VAR
VAR#9.CLASS-NAME = 'JCB10000'
*END-OF-VAR
VAR#10.CLASS-NAME = 'JCB32000'
*END-OF-VAR
VAR#11.CLASS-NAME = 'JCDSTD'
*END-OF-VAR
```

```
/declare-variable var-name=var(type=*structure),mult-elem=*list
/exec-cmd (show-job-class class-name=jcb00050),
           text-output=*none,structure-output=var ————————————————— (2)
/show-var var,inf=*par(value=*c-lit,list-index=*yes)
```

```
VAR#1.CLASS-NAME = 'JCB00050'
VAR#1.STREAM-NAME = ''
VAR#1.CLASS-LIM = 20
VAR#1.CLASS-OPT = 0
VAR#1.CLASS-WEIGHT = 6
VAR#1.JOB-PRIO.DEF = '9'
VAR#1.JOB-PRIO.MAX = '9'
VAR#1.JOB-TYPE = '*BATCH'
VAR#1.START-ATTR = '*BATCH'
VAR#1.BATCH-ALLOW = '*YES'
VAR#1.DIALOG-ALLOW = '*NO'
VAR#1.TP-ALLOW = '*YES'
VAR#1.RUN-PRIO.DEF = '210'
VAR#1.RUN-PRIO.MAX = '209'
VAR#1.CPU-LIM.DEF = '50'
VAR#1.CPU-LIM.MAX = '50'
VAR#1.SYSLST-LIM.DEF = '*NO-LIM'
VAR#1.SYSLST-LIM.MAX = '*NO-LIM'
VAR#1.SYSOPT-LIM.DEF = '*NO-LIM'
VAR#1.SYSOPT-LIM.MAX = '*NO-LIM'
VAR#1.START.DEF = '*SOON'
VAR#1.START.HOURS = ''
VAR#1.START.MINUTES = ''
VAR#1.START.ALLOW#1 = '*SOON'
VAR#1.START.ALLOW#2 = '*EARLIEST'
VAR#1.START.ALLOW#3 = '*AT'
VAR#1.START.ALLOW#4 = '*LATEST'
VAR#1.START.ALLOW#5 = '*WITHIN'
VAR#1.START.ALLOW#6 = '*AT-STREAM-STARTUP'
VAR#1.REPEAT-JOB.DEF = '*NO'
VAR#1.REPEAT-JOB.HOURS = ''
VAR#1.REPEAT-JOB.MINUTES = ''
VAR#1.REPEAT-JOB.ALLOW#1 = '*NO'
VAR#1.REPEAT-JOB.ALLOW#2 = '*AT-STREAM-STARTUP'
VAR#1.REPEAT-JOB.ALLOW#3 = '*DAILY'
VAR#1.REPEAT-JOB.ALLOW#4 = '*WEEKLY'
VAR#1.REPEAT-JOB.ALLOW#5 = '*PERIOD'
VAR#1.JOB-PAR = '*NO'
VAR#1.JOB-CLASS-ACCESS#1 = ''
VAR#1.JOB-CLASS-DEF#1 = ''
VAR#1.JOB-CLASS-POS#1 = ''
*END-OF-VAR
```

(1) Output of all job class names.

(2) Output of the job class definition for the job class *JCB00050*.

Output to SYSOUT

/show-job-class *all-names ——————————————————————————— (1)

```
%REQUESTED JOB CLASS NAMES
%JCBDF1CP
%JCBNACHT
%JCBSARAH
%JCBSHUT
%JCB00050
%JCB00200
%JCB02000
%JCB05000
%JCB10000
%JCB32000
%JCDSTD
```

/show-job-class jcb00050 ——————————————————————————— (2)

```
%REQUESTED DETAILS OF JOB CLASS: JCB00050
%NAME..........:JCB00050
%CLASS LIMIT...:20
%CLASS OPTIMUM.:0
%WEIGHT........:6
%JOB PRIORITY..:DEFAULT=9           MAXIMUM= 9
%JOB ATTRIBUTES:JOBTYPE=BATCH        ST-ATTR= BATCH
%BATCH ALLOWED.:YES
%DIALOG ALLOWED:NO
%TP ALLOWED....:YES
%RUN PRIORITY..:DEFAULT=210          MAXIMUM= 209
%NO CPU LIMIT..:NO
%CPU LIMIT.....:DEFAULT=50           MAXIMUM= 50
%SYSLST LIMIT..:DEFAULT=NO-LIMIT     MAXIMUM= NO-LIMIT
%SYSOPT LIMIT..:DEFAULT=NO-LIMIT     MAXIMUM= NO-LIMIT
%START.........:DEFAULT=SOON        ALLOWED= SOON EARLY AT LATE IN STUP
%REPEAT JOB....:DEFAULT=NO          ALLOWED= NO STUP DAILY WEEKLY PERIOD
%JOB PARAMETER.:UNDEFINED
```

(1) Output of all job class names.

(2) Output of the job class definition for the job class *JCB00050*.

6.24 SHOW-JOB-OPTIONS

Show job logging parameter settings

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-JOB-OPTIONS command supplies information on currently valid settings for job logging. The settings for LOGGING and SYSLST-LIMIT are defined by means of the SET-LOGON-PARAMETERS, ENTER-JOB or ENTER-PROCEDURE command when the job is started. All job logging settings within the job can be updated during the current job by means of the MODIFY-JOB-OPTIONS command.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-JOB-OPTIONS	Alias: **SHJO**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	CMD0221	System error
	32	CMD2009	Error during generation of S variables

Meaning of the output fields

The output fields have the same meanings as for the corresponding operands of the SET-LOGON-PARAMETERS, ENTER-JOB, ENTER-PROCEDURE or MODIFY-JOB-OPTIONS command:

Output field	Possible values	Default at beginning of task
INFORMATION-LEVEL	MEDIUM / MINIMUM	MEDIUM
OPERATOR-INTERACTION	NO / YES	NO
SYSLST-LIMIT	<integer 0..999999>	specified when starting the job
SYSOPT-LIMIT		only supported for reasons of compatibility
LOGGING:		
• LISTING	NO / YES	specified when starting the job
• HARDCOPY	NO / YES	specified when starting the job

Table 123: Output fields for the SHOW-JOB-OPTIONS command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Job execution logged on hardcopy printer	var(*LIST).HARDCOPY	S	*NO *YES	
Amount of information included in system messages	var(*LIST).INFO-LEV	S	*MED *MIN	
Job execution logged on SYSLST	var(*LIST).LIST	S	*NO *YES	
Output of console messages and operator responses	var(*LIST).OPER-INTERACT	S	*NO *YES	
Maximum number of records output to SYSLST	var(*LIST).SYSLST-LIM	S	*NO-LIM 0..999999	
Output only for compatibility reasons	var(*LIST).SYSOPT-LIM	S	*NO-LIM 0..999999	

Example

Output into S variable

/exec-cmd (show-job-options),text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal)

```
VAR(*LIST).INFO-LEV = '*MED'
VAR(*LIST).OPER-INTERACT = '*NO'
VAR(*LIST).SYSLST-LIM = '*NO-LIM'
VAR(*LIST).SYSOPT-LIM = '*NO-LIM'
VAR(*LIST).LIST = '*NO'
VAR(*LIST).HARDCOPY = '*NO'
*END-OF-VAR
```

Output to SYSOUT

/show-job-opt

```
%
%   INFORMATION-LEVEL =   MEDIUM   OPERATOR-INTERACTION =       NO
%   SYSLST-LIMIT      =       10   SYSOPT-LIMIT         = NO-LIMIT
%   LOGGING : LISTING =       NO   HARDCOPY             =       NO
```

6.25 SHOW-JOB-STATUS

Request information on a job

Component:	STATUS
Functional area:	Job processing
Domain:	JOB
Privileges:	alle Privilegien
Routing code:	E

Function

The SHOW-JOB-STATUS command displays information on an individual job that was issued under the user's own ID. It can also supply information about a job generated by the user's own ID but running under some other user ID (extended access, not applicable to SPOOL jobs).
If the job or SPOOLOUT name is specified, the information output covers all jobs with this name.
The following information can be requested (INFORMATION operand):

- value *STD: attributes of the job, such as job name, account number, TSN, type (processing state), priority, CPU time used, time limit, etc.
- value *ENVIRONMENT: job name, TSN, names of the hardware used by the job (terminal, processor, SPOOL devices, forms, overlays), waiting time in HOLD status, catalog identification, spoolout class.
- value *PROGRAM (output only for jobs of type T2 or T3): job name, TSN, type, category, name and size of the loaded program (if present), current command.
- value *SYSTEM (output only for jobs of type T2 or T3): job name, TSN, ITN (internal task number), UNPEND-CODE, job queue number, spoolin and LOGON time.
- value *JOB (output only for jobs of types T1 to T3): job name, TSN, type, job class, residence time in the current processing state; in addition, for batch jobs: job scheduling priority, start time, repetition interval, values for RERUN-AFTER-CRASH and FLUSH-AFTER-SHUTDOWN.
- value *REPEAT (output only for repeat jobs): information on job repetition, such as job name, TSN, type, interval, number of repetitions, NTSN, start time.
- value *BY-CALENDAR (output only for jobs of type T1 to T3): information on job name, TSN, type; for calendar jobs, information on symbolic starting date, job count and the next calculated start time.
- value *ALL: all available information is output (default value), including the information mentioned above.

If the command is entered without operands, both privileged and nonprivileged users receive all the information on their own job (under which the command is given).

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

The command supplies the systems support staff (privilege TSOS and OPERATING) with all information about a single job started under any user ID. The job can also be selected on the basis of the internal task number (TID). Information may also be required for several jobs, that can be selected by specification of their job names and user IDs (with wildcard or in a list).

RSO device administrators and spool and cluster administrators can request information about any print job scheduled for printing on any device that they manage. For more information on these user groups see the manuals “RSO” [32], “Spool & Print Commands” [42] and “Distributed Print Services” [10].

Note

Newer printer types (such as LP65-, LP48-, LP-EMULATED-PRINTER) are not supported by the SHOW-JOB-STATUS command. Detailed information on print jobs (TYPE 4 to 7) can be obtained with commands designed for that purpose (such as SHOW-PRINT-JOB-STATUS or SHOW-PRINT-JOB-ATTRIBUTES).

Format

SHOW-JOB-STATUS Alias: **SHJS**

Entfernen

JOB-IDENTIFICATION = ***OWN** / ***TID**(...) / ***TSN**(...) / ***JOB-NAME**(...) / ***SP**OOLOUT**-NAME**(...) /
***NAME**(...) / ***MONJV**(...)

***TID**(...)

| **TID** = <x-string 1..8>

| , **HOST** = ***STD** / <c-string 1..8>

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

| , **HOST** = ***STD** / <c-string 1..8>

***JOB-NAME**(...)

| **JOB-NAME** = ***NONE** / <name 1..8 with-wild(24)> / list-poss(16): <name 1..8>

| , **USER-IDENT IFICATION** = ***ALL** / <name 1..8 with-wild(24)> / list-poss(16): <name 1..8>

***SP**OOLOUT**-NAME**(...)

| **SP**OOLOUT**-NAME** = ***NONE** / <c-string 1..8 with-low> / <alphanum-name 1..8>

***NAME**(...)

| **NAME** = ***NONE** / <name 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

, **INF**ORMATION = ***ALL** (...) / list-poss(6): ***STD** / ***ENVIR**ONMENT(...) / ***PROG**RAM / ***SYS**TEM / ***JOB** /
***REP**EAT / ***BY-CALENDAR**

***ALL**(...)

| **TER**MINAL = ***NONE** / ***APPLI**CATION / ***ORIG**INAL

***ENVIR**ONMENT(...)

| **TER**MINAL = ***NONE** / **APPLI**CATION / ***ORIG**INAL

, **OUT**PUT**-JOB**-ID = ***STD** / ***NAME** / ***USER-ID**ENTIFICATION / ***NONE**

Operands

JOB-IDENTIFICATION =
Specifies how the job is identified.
A job may be identified by job number, job name, spoolout name or monitoring job variable. Multiple jobs may be identified via the job or SPOOLOUT name. Nonprivileged users can only obtain information about jobs started from or running under their own user ID.
An RSO device administrator also receives information about print jobs to be output on a printer managed by him.

JOB-IDENTIFICATION = *OWN
Requests information about the user's own job. JOB-ID=*OWN may not be issued on a console.

JOB-IDENTIFICATION = *TID(...)
This specification is only permissible for systems support (TSOS or operating privilege). Identifies an individual job by means of its internal task identifier (TID).

TID = <x-string 1..8>
Internal task identifier (TID) of the job.

HOST = *STD / <c-string 1..8>
Host system on which the job is running. The default is *STD, which means that the job is running on the local host. The host name of a remote system can only be specified for systems which are on a computer network (see the "HIPLEX MSCF" manual [25]).

JOB-IDENTIFICATION = *TSN(...)
Identifies an individual job via its task sequence number (TSN).

TSN = <alphanum-name 1..4>
Task sequence number of the job.

HOST = *STD / <c-string 1..8>
Host system on which the job is running. The default is *STD, which means that the job is running on the local host. The host name of a remote system can only be specified for systems which are on a computer network (see the "HIPLEX MSCF" manual [25]).

JOB-IDENTIFICATION = *JOB-NAME(...)
Identifies one or several jobs via their job names.

JOB-NAME = <name 1..8 with-wild(24)> / list-poss(16): <name 1..8> / *NONE
Name of the desired job or jobs as defined in the SET-LOGON-PARAMETERS or ENTER-JOB command.
To select the desired jobs on which information is to be output, it is also possible to specify several job names either with wildcards or in form of a list.
*NONE designates jobs for which no job name was defined.

USER-IDENTIFICATION = <name 1..8 with-wild(24)> / list-poss(16): <name 1..8> / *ALL

This specification is only permissible for systems support (TSOS or operating privilege).

One or several user IDs may be specified as additional selection criterion to identify the desired jobs on which information is to be output.
The default value is *ALL, i.e. information is desired on jobs running under all user IDs.

JOB-IDENTIFICATION = *SPOOLOUT-NAME(...)
Identifies one or several print jobs via their SPOOLOUT names.

SPOOLOUT-NAME = <alphanum-name 1..8> / <c-string 1..8 with-low> / *NONE
Name of the appropriate spoolout task as defined in the PRINT-JOB-NAME operand of the PRINT-DOCUMENT command. *NONE designates jobs for which no job name was defined.

JOB-IDENTIFICATION = *NAME(...)
Identifies one or several jobs via their job or SPOOLOUT names.

NAME = <name 1..8> / *NONE
Name of the appropriate job or spoolout task.
*NONE designates jobs for which no job name was defined.

JOB-IDENTIFICATION = *MONJV(...)
Identifies an individual job via its monitoring job variable.

MONJV = <filename 1..54 without-gen>
Name of the JV monitoring the desired job.
A monitoring JV can be specified in the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command. For a batch job running on a remote host to be accessible via the monitoring JV, the MRSCAT of each host must contain the catalog ID of the pubset of the other host.

INFORMATION = *ALL(...) / list-poss(6): *STD / *ENVIRONMENT(...) / *PROGRAM / *SYSTEM / *JOB / *REPEAT / *BY-CALENDAR
Type of information to be displayed.
All output formats contain the information to identify the job:

Field	Meaning / Contents
NAME	• Job name (default value for nonprivileged users or with OUTPUT-JOB-ID=*NAME) • User ID (default value for nonprivileged users or with OUTPUT-JOB-ID=*USER-ID) • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number

INFORMATION = *ALL(...)
Displays all the information for the specified job which can be called with the operand values *STD, *ENVIRONMENT, *PROGRAM, *SYSTEM, *JOB, *REPEAT and *BY-CALENDAR, plus the following information:

Field	Meaning / Contents
PRINCIPAL	Only for T3: Principal name; displayed only if the authorization to access the system by a Kerberos principal has been proved.
PERS-ID	Only for T1 / T2 / T3: Personal identifier (see "Notes on the PERS-ID and PRINCIPAL output information")
CPU-LONG	Only for T2 / T3: CPU time used, in seconds; also displayed when the maximum possible display value of 999999.999 is reached for CPU-USED

TERMINAL = *NONE / *APPLICATION / *ORIGINAL
Specifies which values are to be output in the fields STATION and PROCESSOR (see INFORMATION=*ENVIRONMENT(...)). The default value *NONE is the same as if *APPLICATION was specified.

TERMINAL = *APPLICATION
The data of the direct connection partner of $DIALOG is displayed. This can be both a terminal and a utility routine for connection management (e.g. OMNIS).

TERMINAL = *ORIGINAL
The data is always displayed on the console. A utility routine which is possibly switched between the console and $DIALOG is ignored.

INFORMATION = *STD
Displays the following information for the job specified:

Field	Meaning / Contents
TYPE	Job type (T1 to T7), additional information, depending on job type
TYPE = 1	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import • HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
TYPE = 2/3	Type = 2/3: Active batch and interactive jobs; the first 7 characters of the category name are output, e.g.: • SYS: Category for system tasks • BATCH: Category for batch tasks • DIALOG: Category for dialog tasks • TP: Category for transaction tasks
TYPE = 4	Type = 4 • PR: APA printer (2050-APA, 2090-APA, 2090-TWIN) • SD: 3341, 3342, 3343 • SD7: High-speed printer with loadable (3337, 3338, 3339 / 3348, 3349 / 3365 / 9xxx) • NSD: High-speed printer with loadable VFB or laser printer • HP: HP (3351, 3353) and HP90 (2090, 2140, 2240) high-performance printers • NHS: High-performance printer or line printer

	• NHP: High-performance printer • HSD: High-performance printer or line printer • WP: SPOOLOUT jobs waiting for PRE-PROCESSING • T9P: Tape device 1600 BPI • T9G: Tape device 6250 BPI • TP: Any tape device • WFT:Jobs waiting for file transfer • FT: Jobs in the process of file transfer
TYPE = 5	Type = 5: Active spoolout task • mn: Output device, currently active • KP: Suspended; can be started in the same session • PRE: Active PRE-PROCESSING job
TYPE = 7	Type = 7: RSO spoolout tasks • WT: Waiting RSO spoolout tasks • ACT: Active RSO spoolout tasks • TP: Any tape device • WP: RSO jobs waiting for PRE-PROCESSING • PRE: Active PRE-PROCESSING for RSO jobs
PRI	Job and task priority; * indicates the job express function
CPU-USED	Only for T2 / T3: CPU time used, in seconds; if the maximum possible display value of 999999.999 has been reached, the current value is displayed in a new line
CPU-MAX	Only for T1 / T2 / T3: • Maximum CPU time allowed for the job • NTL (NO TIME LIMIT) • HOLD if the job was suspended with /HOLD-TASK
ACCOUNT#	Only for T1 / T2 / T3: Account number to which the job is being charged
SIZE	Only for T4/T5/T7; the value depends on the setting in the SPOOL parameter file (SPOOLOUT-SIZE); possible settings: • File size in PAM pages • Approximate number of lines (printer) or blocks (tape) to be output. • For files created by SYSFILE management, the estimated size is displayed in logical printer pages and marked with “P”. • Specifications from the PRINT-DOCUMENT command are not taken into account in calculation.

COPIES	Only for T4/T5/T7: Number of copies still to be printed
PRSIZE	Only for T4/T5/T7: Number of lines, records or PAM pages already output. Upon restart following forced termination, PRSIZE is not reset to zero; upon restart following termination by the operator, PRSIZE is set to zero. PRSIZE=TRD: Job scheduled for APA printer has been transferred PRSIZE=TRT: Job scheduled for APA printer is being transferred
RTSN	Only for T4/T5/T7: TSN of the job which generated the spoolout job.
OPT	Only for T4/T5: Optional indication * when a FOB, page rotation or more than four character sets are used.
DEVICE	Only for T7: Device name or pool name (identified by *)

INFORMATION = *ENVIRONMENT(...)

TERMINAL = *NONE / *APPLICATION / *ORIGINAL
Specifies which values are to be output in the fields STATION and PROCESSOR. If *APPLICATION is specified, the names used in the application (e.g. OMNIS) for the station and processor names are output. If *ORIGINAL is specified, the names used by BCAM are output. Specifying *NONE is the same as specifying *APPLICATION.

Displays the following information for the job specified:

Field	Meaning / Contents
STATION	Station name (with local printer; mnemonic device name); name from the application or BCAM name, for T1, and T2 jobs empty
PROCESSOR	Processor name; for T1 job empty, for T2 job constant “BATCH”; for T3 job name from the application or BCAM name (only displayed for T1, T2, and T3 jobs),
HOLD	Time (hhmm) at which the job was placed in the “HOLD” state or “NO” state if it is not in the HOLD state (only displayed for T1, T2, and T3 jobs)
MRSCAT	Catalog ID and QUIET if the catalog is in the QUIET state or empty (only displayed for T1, T2, and T3 jobs)
FORM	Form name of the form used when printing (only displayed for T4, T5, and T7 jobs)
CLAS	Spoolout class which is assigned to the job (only displayed for T4, T5, and T7 jobs)
DI	Name of the overlay used for the laser printer (only displayed for T4, T5, and T7 jobs)
DEV	Name of the output device as described in INFORMATION=*STD, field TYPE (only displayed for T4, T5, and T7 jobs)
PVS	Catalog ID of the pubset on which the output file is stored (only displayed for T4, T5,and T7 jobs)

OPT	Displays with the '*' character that a FOB overlay, page rotation, or more than four character sets are used for the job (only displayed for T4, T5, and T7 jobs)
ERMSG	Error code for RSO devices. The error message can be queried with the HELP-MSG-INFORMATION command (only displayed for T7 jobs)
ERCOD	Complete return code returned by DCAM or the device (only displayed for T7 jobs)

INFORMATION = *PROGRAM

Displays the following information for the specified job (only for type T1, T2 or T3):

Field	Meaning / Contents
TYPE	Job type (T2 or T3) plus category name (7 characters)
SIZE	Program size in main memory pages (4 KB)
CURR-CMD	• Command which is currently being executed • HOLD when the job is in the “HOLD” state
PROG	Name of the loaded program, if available (up to 154 characters depending on the type of program file)

INFORMATION = *SYSTEM

Displays the following information for the specified job (only for types T1, T2 or T3):

Field	Meaning / Contents
TID	Task identifier, task number of the task assigned to the job or empty (for T1)
UNP	UNPEND code of the job or empty (for T1)
Q#	Number of the job queue or empty (for T1)
SPOOLIN	SPOOLIN time
LOGON	LOGON time or empty (for T1)

INFORMATION = *JOB

Displays the following information for the specified job (only for types T1 to T3):

Field	Meaning / Contents
TYPE	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import

	• HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
	Type = 2/3: Active batch and interactive jobs; the first 7 characters of the category name are output, e. g.: • SYS: Category for system tasks • BATCH: Category for batch tasks • DIALOG: Category for dialog tasks • TP: Category for transaction tasks
JCLASS	Job class assigned to the user
INTYPE	Time span (in minutes) for which the job has already been in the processing status under consideration
P	Job scheduling priority
START	Specification of the job start time in accordance with the SET-LOGON-PARAMETERS (or LOGON), ENTER-JOB or ENTER-PROCEDURE command: “Eyyyy-mm-dd.hhmm” for START=*EARLIEST(...) “Lyyyy-mm-dd.hhmm” for START=*LATEST(...) “Ayyyy-mm-dd.hhmm” for START=*AT(...) “yyyy-mm-dd.hhmm” for SCHEDULING-TIME=*BY-CALENDAR(...) “Whhmm" for START=*WITHIN(...) “SOON" for START=*SOON "IMMED" for START=*IMMEDIATELY
REP	Specification of the job repetition in accordance with the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command: “STUP” for REPEAT-JOB=*AT-STREAM-STARTUP “DAIL” for REPEAT-JOB=*DAILY “WEEK” for REPEAT-JOB=*WEEKLY “hhmm" for REPEAT-JOB=*PERIOD(...)

Field	Meaning / Contents
RER	YES or NO, as specified in the RERUN-AFTER-CRASH operand of the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command
FLU	YES or NO, as specified in the FLUSH-AFTER-SHUTDOWN operand of the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command

INFORMATION = *REPEAT

Displays the following information for the specified job (only for types T1, T2, and T3):

Field	Meaning / Contents
TYPE	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import • HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
	Type = 2/3: Active batch and interactive jobs; the first 7 characters of the category name are output, e. g.: • SYS: Category for system tasks • BATCH: Category for batch tasks • DIALOG: Category for dialog tasks • TP: Category for transaction tasks
REP	Information on job repetition: “STUP” for REPEAT-JOB=*AT-STREAM-STARTUP “DAIL” for REPEAT-JOB=*DAILY “WEEK” for REPEAT-JOB=*WEEKLY “hhmm” for REPEAT-JOB=*PERIOD(...)
REPCNT	Counter for job repetitions
NTSN	TSN which was reserved for the job repetition
NSTART	Start time determined for the repetition of the job

INFORMATION = *BY-CALENDAR

Displays the following information for the specified job (only for types T1 to T3):

Field	Meaning / Contents
TYPE	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import • HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
	Type = 2/3: Active batch and interactive jobs; the first 7 characters of the category name are output, e. g.: • SYS: Category for system tasks • BATCH: Category for batch tasks • DIALOG: Category for dialog tasks • TP: Category for transaction tasks
SYMDAT	Symbolic date which determines the start time of the calendar job; the output field is empty if the job is not a calendar job
COUNT	Run counter for the current number of job repetitions; the output field is empty if the job is not a calendar job
START	Specification of the job start time of the calendar job which is calculated from the specified symbolic date in the format “yyyy-mm-dd.hhmm". The output field is empty if the job is not a calendar job.

OUTPUT-JOB-ID = *STD / *NAME / *USER-IDENTIFICATION / *NONE

Specifies whether the name or user ID of the job desired is to be displayed in addition to the TSN.
The default value is *STD, i.e. the nonprivileged user receives the job name in output field NAME (corresponds to OUTPUT-JOB-ID=*NAME), the privileged user receives the user ID (corresponds to OUTPUT-JOB-ID=*USER-ID).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Without errors
2	0	EXC0152	Requested information does not exist
2	0	SPS0171	Local spoolout not available
2	0	SPA0003	Bourse of the ADM task destroyed
2	0	SPS0266	SPOOL subsystem not loaded
2	0	SPS0420	RSO subsystem not loaded
	1	CMD0202	Syntax or semantic error
	1	SCP0973	Inconsistency between operands
	32	CMD0221	The specified MONJV cannot be accessed
	32	CMD2009	Error during generation of S variables
	32	SCP0974	User ID specified for spoolout does not exist
	64	EXC0154	Error on a remote system
	64	EXC0153	No authorization for command
	64	SCP0975	No authorization for command

Notes on the PERS-ID and PRINCIPAL output information

- When the SRPMOPT parameter NET-DIALOG-REJECT-FALLBACK=Y is set, an interactive user whose Kerberos principal has no access authorization for the selected user ID can log in by specifying the password instead. Such an “unauthorized” principal is not displayed as PRINCIPAL, but is included in the evaluation of the PERS-ID.
- When the user ID requires personal identification, the personal user ID specified in the SET-PERSONAL-ATTRIBUTES command is always used as PERS-ID. When there is no personal user ID but a Kerberos principal (also an “unauthorized” one), the PERS-ID contains the first 16 characters of the principal name.
- When a PRINCIPAL is displayed, the PERS-ID is not displayed. Nevertheless, it exists and is also inherited. Its value can, for example, be read from the special job variable $SYSJV.PERS-ID.
- A batch task started by the user (ENTER-JOB command, ENTER macro) inherits the PERS-ID of its calling task.

Output layout for INFORMATION=*ALL

Displays of information on *one* particular job with INFORMATION=*ALL differ, depending on the processing status of the job.

Output for TYPE 1 - waiting jobs:

```
TSN:     @@@@       TYPE:    1 @@@@@@@  NOW:     YYYY-MM-DD.HHMMSS
JOBNAME: @@@@@@@@   PRI:     # ###      SPOOLIN: YYYY-MM-DD.HHMM
USERID:  @@@@@@@@   JCLASS:  @@@@@@@@   INTYPE:  MMMMMM
ACCNB:   @@@@@@@@   CPU-MAX: ######     START:   YYYY-MM-DD.HHMM
COUNT:   #####      RERUN:   @@@        FLUSH:   @@@ ———————————————  (1)
REPEAT:  #####      RERUN:   @@@        FLUSH:   @@@ ———————————————  (2)
NTSN:    @@@@       REPCNT:  #####      NSTART:  YYYY-MM-DD.HHMM ————  (3)
SYMDAT:  @@@@@@@@@@@@@@@@@@@@           LIMIT:   @@@@@@@@@@@@@@@ ————  (1)
CAL-NAME:@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ————  (1)
ORIGFILE:@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CMD-FILE:@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ————  (4)
MONJV:   @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
PERS-ID: @@@@@@@@@@@@@@@@ ——————————————————————————————————————————  (5)
ORIGFILEL: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ———————————————————————————————————————  (6)
```

(1) This line is displayed for calendar jobs only.

(2) This line is displayed for normal jobs, scheduled jobs and repeat jobs only.

(3) This line is displayed for repeat jobs only.

(4) This line is displayed only if the job was started with the ENTER-PROCEDURE command or if a copy of the command file was created when it was started with the ENTER-JOB command, e.g. because this was cataloged under a foreign user ID.

(5) This line is displayed only if a personal identifier exists (see also "Notes on the PERS-ID and PRINCIPAL output information").

(6) This line is displayed only if the name of the original file (ENTER or procedure file) displayed in ORIGFILE is output in abbreviated form.

TSN	Task sequence number
TYPE	Job type, plus category information
NOW	Date and time
JOBNAME	Job name
PRI	Job and task scheduling priority
SPOOLIN	Spoolin time (date and time)
USERID	User ID under which the job is executing
JCLASS	Job class assigned to the job
INTYPE	Time span for which the job is in the processing status under consideration
ACCNB	Account number

CPU-MAX	Maximum available CPU time for this job or the value HOLD if the job is suspended with /HOLD-TASK
START	Job start time
COUNT	Current number of repetitions of a calendar job
REPEAT	Job repetition
RERUN	Specification whether the job is to be rerun if the job is interrupted by a serious system error or system shutdown
FLUSH	Specification whether the job is to be kept in the queue if it has not been processed by the end of the session
NTSN	Task sequence number that was reserved for the repetition of the job
REPCNT	Counter for job repetitions
NSTART	Start time determined for the repetition of the job
SYMDAT	Symbolic date on which the calendar job is to run
LIMIT	Duration of the calendar job (maximum number of repetitions or limited by date)
CAL-NAME	Name of the calendar file in which the SYMDAT is defined
ORIGFILE	Name of the original file (ENTER or procedure file). If the file is a PLAM element then the library and element names may be displayed in abbreviated form. The presence of “*” in the name indicates truncated characters.
CMD-FILE	Copy of the ENTER file S.IN.<tsn>.<date>.<time> where <date> is specified in the form yymmtt and <time> in the form hhmm or, if processing was initiated with the ENTER-PROCEDURE command, the generated S.E file.
MONJV	The name of the job variable monitoring the job or, if no job variable was specified, *NONE.
PERS-ID	Personal identifier (see also "Notes on the PERS-ID and PRINCIPAL output information").
ORIGFILEL	Complete name of the original file (ENTER or procedure file). Output format for library members: `*LIB(:catid:$userid.libname,elementname(version),typ)`

Output for TYPE 2 - active batch jobs:

```
TSN:     @@@@       TYPE:    2 @@@@@@@  NOW:     YYYY-MM-DD.HHMMSS
JOBNAME: @@@@@@@@   PRI:     # ###      SPOOLIN: YYYY-MM-DD.HHMM
USERID:  @@@@@@@@   JCLASS:  @@@@@@@@   LOGON:   YYYY-MM-DD.HHMM
ACCNB:   @@@@@@@@   CPU-MAX: ######     CPU-USED:######.####
                                        CPU-LONG:##########.#### ————————  (1)
COUNT:   #####      RERUN:   @@@        FLUSH:   @@@ ————————————————————  (2)
REPEAT:  @@@@       RERUN:   @@@        FLUSH:   @@@ ————————————————————  (3)
MRSCAT:  @@@@:QUIET HOLD:    HHMM       START:   YYYY-MM-DD.HHMM
TID:     @@@@@@@@   UNP/Q#:  ####/###
SYMDAT:  @@@@@@@@@@@@@@@@@@@@           LIMIT:   @@@@@@@@@@@@@@@@ ————————  (2)
CAL-NAME:@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ————————  (2)
CMD:     @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@  SIZE:    ######
PROG:    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
         @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
         @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
ORIGFILE:@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CMD-FILE:@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ————————  (4)
MONJV:   @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
PERS-ID: @@@@@@@@@@@@@@@@ ——————————————————————————————————————————————  (5)
ORIGFILEL: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ——————————————————————————————————————————  (6)
```

(1) This line is displayed only if the CPU time used by the task is greater than 999999.999 seconds.

(2) This line is displayed for calendar jobs only.

(3) This line is displayed for normal jobs, scheduled jobs and repeat jobs only.

(4) This line is displayed only if the job was started with the ENTER-PROCEDURE command or if a copy of the command file was created when it was started with the ENTER-JOB command, e.g. because this was cataloged under a foreign user ID.

(5) This line is displayed only if a personal identifier exists (see also "Notes on the PERS-ID and PRINCIPAL output information").

(6) This line is displayed only if the name of the original file (ENTER or procedure file) displayed in ORIGFILE is output in abbreviated form.

LOGON	LOGON time
CPU-USED	CPU time already consumed by the task (when 999999.999 is reached, the current value is displayed in the CPU-LONG field)
CPU-LONG	CPU time already consumed by the task (longer display if CPU-USED is not sufficient)
MRSCAT	Identification and status of the MRSCAT catalog; otherwise empty
HOLD	Time at which the task was suspended with the HOLD-TASK command
TID	Task identifier

UNP/Q#	Pend/unpend code for the task/task queue
CMD	Last command processed by the task
LIMIT	Maximum duration of a calendar job: unrestricted (*STD), maximum permissible number of repetitions (<integer 1..32766>) or date (YYYY-MM-DD.HHMM) for termination

The following information is displayed only if a program is loaded within the batch task:

SIZE	Program size
PROG	Name of the file from which the program was loaded or of the relevant library member (1 - 3 lines). Output format for library members in single-line display: `:catid:$userid.libname(membername,version,type)`

The meaning of the other fields is identical to that described for the TYPE1 output format.

Output for TYPE 3 - interactive jobs:

```
TSN:      @@@@       TYPE:    3 @@@@@@@  NOW:      YYYY-MM-DD.HHMMSS
JOBNAME:  @@@@@@@@   PRI:     0 ###
USERID:   @@@@@@@@   JCLASS:  @@@@@@@@   LOGON:    YYYY-MM-DD.HHMM
ACCNB:    @@@@@@@@   CPU-MAX: ######     CPU-USED: ######.####
STATION:  @@@@@@@@   PROC:    @@@@@@@@
O_STAT:   @@@@@@@@   O_PROC:  @@@@@@@@ ————————————————————————————————  (1)
TID:      @@@@@@@@   UNP/Q#:  ####/###
CMD:      @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ SIZE:    ######
PROG:     @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
          @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
          @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
MONJV:    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
PERS-ID:  @@@@@@@@@@@@@@@@@ ————————————————————————————————————————————  (2)
PRINCIPAL: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ ———  (3)
```

(1) This line is displayed only if TERMINAL=ORIGINAL is specified: The original names are also displayed in addition to the names from the application.

(2) This line is displayed only if a personal identifier exists (see also "Notes on the PERS-ID and PRINCIPAL output information").

(3) This line is displayed only if the authorization to access the system by a Kerberos principal has been proved.

STATION	Terminal name from the application, or original name if no application is active
PROC	Processor name application, or original name if no application is active
O-STAT	Original name of the terminal
O-PROC	Original name of the processor via which the terminal is addressed
PRINCIPAL	The first 128 characters of the Kerberos principal which was accepted as access authorization to the system

The meaning of the other fields is identical to that described for the TYPE1/TYPE2 output formats.

Output for TYPE 4 - waiting spoolout jobs:

```
TSN:      @@@@          TYPE:    4 @@@        NOW:      YYYY-MM-DD.HHMMSS
PNAME:    @@@@@@@@      PRI:     ###          FAMILY:   ####
USERID:   @@@@@@@@      FORM:    @@@@@@@@     SIZE:     ######@
DEVICE:   @@@@@@@@      CLASS:   @@@@         COPIES:   ###/###
RTSN:     @@@@          PVS:     @@@@         DIA:      @@
DEST:     @@@@@@@@      CONTROL: @@@@
FILENAME:<filename 1..54> or PLAM library name (element name,
         version and element type)
MONJV:    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CHARS:    @@@@@@@@      FOB:     @@@@@@@@     ROT:      ###/###
CHARS#:   ###           FOBSIZE: ###
```

TSN	Task sequence number
TYPE	Job type, plus type of output device
NOW	Date and time (year-month-day.hour-minute-second)
PNAME	Job name from the PRINT-DOCUMENT command
FAMILY	Number of spoolout jobs if a partially qualified file name or more than one file name was specified in the PRINT-DOCUMENT or WRITE-DISKETTE command.
FORM	Form name of the paper used for printing
SIZE	Size of the spoolout file
DEVICE	Output device
CLASS	Spoolout class
COPIES	Copies still to be printed / total number of copies required
RTSN	TSN of the job which generated the spoolout
DIA	Name of the film overlay to be used for spoolout to a laser printer
DEST	Name of the device pool or “*CENTRAL”
CHARS	Name of the character set or character set pool
FOB	Name of the specified FORM-OVERLAY-BUFFER
ROT	Page rotation to be used
CHARS#	Number of specified character sets
FOBSIZE	Size of the specified FORM-OVERLAY-BUFFER
CONTROL	Entry in the CONTROL-MODE operand (the only values shown are PHYSICAL and NO)

FILENAME File name of the file to be printed or of the PLAM element (PLAM library name, element name, version and type; if necessary, the output may extend over a number of lines)

MONJV Name of the job variable if specified

PVS Pubset containing the file to be printed.

Local spoolout jobs waiting for PRE-PROCESSING:

```
TSN:      @@@@          TYPE:     4 WP          NOW:      YYYY-MM-DD.HHMMSS
PNAME:    @@@@@@@@      PRI:      ###           FAMILY:   ####
USERID:   @@@@@@@@      FORM:     @@@@@@@@      SIZE:     ######@
DEVICE:   @@@@@@@@      CLASS:    @@@@          COPIES:   ###/###
RTSN:     @@@@          PVS:      @@@@          DIA:      @@
DEST:     @@@@@@@@      CONTROL:  @@@@
FILENAME:<filename 1..54> or PLAM library name (element name,
         version and element type)
MONJV:    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CHARS:    @@@@@@@       FOB:      @@@@@@@@      ROT:      ###/###
CHARS#:   ###           FOBSIZE:  ###
```

The meanings of the fields are the same as for the description of the TYPE 4 output format.

Output for TYPE 5 - active spoolout jobs:

```
TSN:      @@@@          TYPE:     5 @@@         NOW:      YYYY-MM-DD.HHMMSS
PNAME:    @@@@@@@@      PRI:      ###           FAMILIY:  ####
USERID:   @@@@@@@@      FORM:     @@@@@@@@      SIZE/PR:  ######/######@
DEVICE:   @@@@@@@@      CLASS:    @@@@          COPIES:   ###/###
RTSN:     @@@@          PVS:      @@@@          DIA:      @@
DEST:     @@@@@@@@      CONTROL:  @@@@
FILENAME:<filename 1..54> or PLAM library name (element name,
         version and element type)
MONJV:    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CHARS:    @@@@@@@       FOB:      @@@@@@@@      ROT:      ###/###
CHARS#:   ###           FOBSIZE:  ###
```

SIZE/PR Size of the file or number of lines, records or pages (APA printers) already output. On APA printers also the job processing status (see the description of the TYPE 4 output format and the “SPOOL” manual [42]).

For the meanings of the other fields, see the TYPE 4 output format.

Active local spoolout jobs during PRE-PROCESSING:

```
TSN:     @@@@         TYPE:    5 PRE        NOW:     YYYY-MM-DD.HHMMSS
PNAME:   @@@@@@@@     PRI:     ###          FAMILY:  ####
USERID:  @@@@@@@@     FORM:    @@@@@@@@     SIZE/PR  ######/######@
DEVICE:  @@@@@@@@     CLASS:   @@@@         COPIES:  ###/###
RTSN:    @@@@         PVS:     @@@@         DIA:     @@
DEST:    @@@@@@@@     CONTROL: @@@@
FILENAME:<filename 1..54> or PLAM library name (element name,
         version and element type)
MONJV:   @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
CHARS:   @@@          FOB:     @@@@         ROT:     ###/###
CHARS#:  ###          FOBSIZE: ###
```

The meanings of the fields are the same as for the description of the TYPE 4 output format.

Output for TYPE 7 - RSO spoolout jobs

```
TSN:     @@@@       TYPE:    7 @@@      NOW:     YYYY-MM-DD.HHMMSS
PNAME:   @@@@@@@@   PRI:     ###        FAMILY:  ####
USERID:  @@@@@@@@   FORM:    @@@@@@@@   SIZE/PR: ######@/######@
DEVICE:  @@@@@@@@   CLASS:   ####       COPIES:  ###
RTSN:    @@@@       PVS:     @@@@       DIA:     @@
DEST:    @@@@@@@@   CONTROL: @@@@
FILE:    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
MONJV:   @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
ERMSG:   @@@@       ERCOD:   @@@@@@@@
```

DEST	RSO device name or RSO device pool name
ERMSG	Error message number (display with HELP-MSG-INFORMATION)
ERCOD	(BCAM) error code

For the meanings of the other fields, see the TYPE 4/TYPE 5 output formats.

Output in S variable

For compatibility reasons, the command always creates all S variables. The INFORMATION operand of the command determines which of these S-variables are supplied with a value. If there is no current value to pass to an S variable, a null string (type S) or the number 0 (type I) is assigned instead. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL (see also below)	*
INFORMATION = *STD	1
INFORMATION = *ENVIRONMENT	2
INFORMATION = *PROGRAM	3
INFORMATION = *SYSTEM	4
INFORMATION = *JOB	5
INFORMATION = *REPEAT	6
INFORMATION = *BY-CALENDAR	7

In earlier versions the S variables were supplied with values for all job types when INFORMATION=*ALL. For reasons of compatibility these outputs are retained and marked with *: T... in the table. There are the following job types for T...:

T1	Waiting jobs
T2	Active batch jobs
T3	Active interactive jobs
T4	Waiting spoolout jobs
T5	Active spoolout jobs
T7	RSO spoolout jobs

With all other values for INFORMATION the variables are only output for jobs of the types T1 to T3 which run on the local system. INF=*ALL must be used for jobs on remote systems. The corresponding SPOOL commands must be used for print jobs.

Output information	Name of the S variable	T	Contents	Condition
Account number the job is charged to	var(*LIST).ACCOUNT	S	'' <alphan.-name 1..8>	*: T1/T2/T3, 1
Name of the calendar file in which the symbolic date is defined (see SYMBOLIC-DATE)	var(*LIST).CALENDAR-NAME	S	'' <filename 1..54>	*: T1/T2
Name of the last command processing by the task	var(*LIST).CMD	S	'' <struc.-name 1..30>	*: T2/T3, 3
Copy of the input file; begins with S.IN (ENTER file) or with S.E (procedure file)	var(*LIST).CMD-FILE	S	'' <filename 1..54>	*: T1/T2
Maximum permitted CPU time for the job HOLD=job was placed on hold by /HOLD-TASK NTL=no time limit	var(*LIST).CPU-LIM	S	'' HOLD NTL <integer>	*: T1/T2/T3 1
Maximum amount of CPU time available for this job	var(*LIST).CPU-LIMIT	I	0 <integer>	*: T1/T2/T3
CPU time the job has used so far	var(*LIST).CPU-USED	S	'' <nnnnnn.nnnn>	*: T2/T3 1
CPU time already used by the task in long form	var(*LIST).CPU-USED-LONG	S	'' <nnnnnnnnnn.nnnn>	*: T2/T3 1
Name of the output device: PR identifies central printer	var(*LIST).DEVICE-NAME	S	'' PR <alphan.-name 1..8>	*: T4/T5/T7
Member name if the program was loaded from a library	var(*LIST).ELEM-NAME	S	'' <comp.-name 1..64>	*: T2/T3 3
Member type if the program was loaded from a library	var(*LIST).ELEM-TYPE	S	'' <alphan.-name 1..8>	*: T2/T3 3
Member version if the program was loaded from a library	var(*LIST).ELEM-VERSION	S	'' <comp.-name 1..24>	*: T2/T3 3
Name of the original ENTER file	var(*LIST).ENT-FILE	S	'' <filename 1..54> <library(element)>	*: T1/T2
Complete name of the original ENTER file	var(*LIST).ENT-FILE-LONG	S	'' <filename 1..54> *LIB(<library,element (version),typ>)	*: T1/T2

Name of the file to be printed	var(*LIST).F-NAME	S	'' <filename 1..54> <library(element, version,typ)>	*: T4/T5/T7
Number of files specified in the same PRINT-DOCUMENT command (with “normal” printout = 1)	var(*LIST).FAMILY	I	0 <integer>	*: T4/T5/T7
Name of the file containing the load module	var(*LIST).FILE-NAME	S	'' <filename 1..54>	*: T2/T3 3
Flush the batch job from the job queue if it has not been processed by the end of the session	var(*LIST).FLUSH-AF-SHUTD	S	'' NO YES	*: T1/T2, 5
Name of the form used for printing	var(*LIST).FORM-NAME	S	'' <alphan.-name 1..8>	*: T4/T5/T7
Time (hhmm) at which the job is set to the “HOLD”state	var(*LIST).HOLD-TIME	S	'' NO <hhmm>	*: T2, 2
Name of the job class the job belongs to	var(*LIST).JOB-CLASS	S	'' <name 1..8>	*: T1/T2/T3, 5
Number of job repetitions	var(*LIST).JOB-COUNT	I	0 <integer>	 6, 7
Job priority	var(*LIST).JOB-PRIO	I	0 <integer 1..9>	*: T1/T2, 1, 5
Job type (1,2 3,4,5,7)	var(*LIST).JOB-TYPE	I	0 <integer 1..7>	*: all types 1, 3, 5, 6, 7
Maximum life of a calendar job	var(*LIST).LIMIT	S	0 *BY-DATE *STD <integer 1..32766>	*: T1/T2
Date for termination of a calendar job	var(*LIST).LIMIT-DATE	S	'' <yyyy-mm-dd>	*: T1/T2
Time for termination of a calendar job	var(*LIST).LIMIT-TIME	S	'' <hh:mm:00>	*: T1/T2
Logon date	var(*LIST).LOGON-DATE	S	'' <yyyy-mm-dd>	*: T2/T3, 4
Time of logon	var(*LIST).LOGON-TIME	S	'' <yyyy-mm-dd.hhmm>	*: T2/T3, 4
Length of time logged on	var(*LIST).LOGON-TIME-NORM	S	'' <hh:mm:00>	*: T2/T3, 4

Name of a monitoring job variable	var(*LIST).MONJV-NAME	S	'' *NONE <filename 1..54>	*: T1/T2/T3
Job name	var(*LIST).NAME	S	'' <name 1..8>	
Original name of the processor via which the station is addressed	var(*LIST).ORIG-PROC-NAME	S	'' <name 1..8>	2
Original name of the station	var(*LIST).ORIG-STATION	S	'' <alphan.-name 1..8>	2
User ID for personal logon (see "Notes on the PERS-ID and PRINCIPAL output information")	var(*LIST).PERSONAL-ID	S	'' <name 1..8> <c-string 1..16>	*: T1/T2/T3
Principal name of the Kerberos identification in the case of interactive logon	var(*LIST).PRINCIPAL	S	'' <c-string 1..128>	*: T3
Size of the SPOOLOUT job	var(*LIST).PRINT-SIZE	I	0 <integer>	*: T5/T7
For dialog jobs (T3) contains the BCAM name of the dialog terminal at which the job was started	var(*LIST).PROC-NAME	S	'' <name 1..8>	*: T3, 2
Name of the program file	var(*LIST).PROG-FILE	S	'' <filename 1..54>	*: T2/T3, 3
Name of the loaded program	var(*LIST).PROG-NAME	S	'' <filename 1..54>	*: T2/T3, 3
Size of the program (in 4K blocks)	var(*LIST).PROG-SIZE	I	0 <integer>	*: T2/T3, 3
Only for PUBSET-STATE=QUIET: pubset concerned	var(*LIST).PUBSET	S	'' <cat-id 1..4>	*: T2, 2
Shows whether the task is waiting for access to a pubset in QUIET status to be possible again	var(*LIST).PUBSET-STATE	S	'' QUIET	*: T2, 2
Number of the job queue	var(*LIST).QUEUE	S	'' <alphan.-name 3..3>	*: T2/T3, 4
Job repeat information	var(*LIST).REP	I	0 <integer>	*: T4/T5/T7
Indicates when job repetition is to start	var(*LIST).REP-JOB	S	'' <hhmm> DAIL	*: T1/T2, 5, 6

			NO STUP WEEK	

Output information	Name of the S variable	T	Contents	Condition
Job repeat counter	var(*LIST).REP-JOB-COUNT	I	0 <integer>	*: T1/T2, 6
Starting date of job repetition	var(*LIST).REP-JOB-DATE	S	'' <yyyy-mm-dd>	*: T1/T2, 6
Starting time for job repetition	var(*LIST).REP-JOB-START	S	'' <yyyy-mm-dd.hhmm>	*: T1/T2
Starting time of job repetition	var(*LIST).REP-JOB-TIME	S	'' <hh:mm:00>	*: T1/T2, 6
TSN of the repeat job	var(*LIST).REP-JOB-TSN	S	'' <alphan.-name 1..4>	*: T1/T2, 6
Rerun the batch job in the next session	var(*LIST).RERUN-AF-CRASH	S	'' NO YES	*: T1/T2, 5
Run priority of the job	var(*LIST).RUN-PRIO	I	0 <integer 30..255>	*: all types 1
Scheduling time of the calendar job	var(*LIST). SCHEDULING-TIME	S	'' *BY-CALENDAR	*: T1/T2
Name of the spoolout class	var(*LIST).SP-CL	S	'' *ANY <alphan.-name 1..4>	*: T4/T5/T7
Number of lines, records or PAM pages already output	var(*LIST).SP-SIZE	I	0 <integer>	*: T4/T5/T7
Starting time of the Spoolin job	var(*LIST).SP-TIME	S	'' <yyyy-mm-dd.hhmm>	*: T1/T2 4
TSN of the job which creates the spoolout job (corresponds to the output field RTSN)	var(*LIST).SP-TSN	S	'' <alphan.-name 4..4>	*: T4/T5/T7
Spoolin date	var(*LIST).SPOOLIN-DATE	S	'' <yyyy-mm-dd>	*: T1/T2, 4
Spoolin time	var(*LIST).SPOOLIN-TIME	S	'' <hh:mm:00>	*: T1/T2, 4
Time when the job is to be started: The values AT, EARLIEST, LATEST and WITHIN include time specifications (with day specification, except for WITHIN). These time specifications are then contained in	var(*LIST).START	S	'' AT EARLIEST LATEST WITHIN IMMED	*: T1/T2, 5

the START-DATE and START-TIME variables. Whether the value AT was specified by the user or set by the system for a calendar job is shown by the SCHEDULING-TIME variable.			SOON STUP	
Starting date of the job (see START variable)	var(*LIST).START-DATE	S	'' <yyyy-mm-dd>	*: T1/T2, 5, 7
Start job immediately	var(*LIST).START-IMMED	S	TRUE FALSE	*: T1/T2, 1
Starting time of the job	var(*LIST).START-TIME	S	'' <hh:mm:00>	*: T1/T2, 5, 7
Name of the station (for local printer: device mnemonic); name from the application or BCAM name	var(*LIST).STATION	S	'' <alphan.-name 1..8>	*: T3, 2
Additional information on job type	var(*LIST).SUB-TYPE	S	'' ACT BATCH DIALOG DO FT HO HOC HOP HOT HP HSD KP NHP NHS NSD PR PRE SD SD7 SYS TP T9G T9P WFT WP WT <mn> <category>	*: all types 1, 3, 5, 6, 7
		S		

Symbolic date which determines the starting time of the calendar job	var(*LIST).SYMBOLIC-DATE		'' <name 1..20>	*: T1/T2, 7
Task ID of the task associated with the job	var(*LIST).TID	S	'' <alphan.-name 8..8>	*: T2/T3, 4
Current date and time (for command input)	var(*LIST).TIME	S	'' <yyyy-mm-dd.hhmmss>	*: all types
Job number	var(*LIST).TSN	S	<alphan.-name 4..4>	
Pend or unpend code of the task/task queue	var(*LIST).UNPEND-CODE	S	'' <alphan.-name 1..4>	*: T2/T3, 4
User ID under which the job was started	var(*LIST).USER-ID	S	<name 1..8>	

6.26 SHOW-JOB-STREAM

Request job stream information

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS
	SW-MONITOR-ADMINISTRATION

Function

Systems support can use the SHOW-JOB-STREAM command to request either a description of all job streams in the system or a detailed overview of declarations made with the JMU statement DEFINE-JOB-STREAM for a job stream.
Output is alternatively to SYSOUT or SYSLST.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-JOB-STREAM

STREAM-NAME = ***ALL** / ***ALL-NAMES** / list-poss(2000): <name 1..8>

,**OUTPUT** = ***SYSOUT** / ***SYSLST**

Operands

STREAM-NAME = *ALL / *ALL-NAMES / list-poss(2000): <name 1..8>
Defines the scope of information to be displayed.

STREAM-NAME = *ALL
Displays the descriptions of all job streams.

STREAM-NAME = *ALL-NAMES
Displays the names of all job streams.

STREAM-NAME = list-poss: <name 1..8>
Defines the names of the job streams on which information is desired.

OUTPUT = *SYSOUT / *SYSLST
Specifies whether the information is to be output to SYSOUT or SYSLST.

OUTPUT = *SYSOUT
The information is output to SYSOUT.

OUTPUT = *SYSLST
The information is output to SYSLST. This operand should be specified if the amount of information to be output is extensive.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	CMD0002	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD2009	Error during generation of presentation variables
	64	JMS0640	Command not executed: Privilege infringement or unknown job class, or no job stream defined

Output in S variables

The STREAM-NAME operand identifies the S variables which are to be created. The values *ALL-NAMES and <name 1..8> can be specified for STREAM-NAME.

Output information	Name of the S variable	T	Contents	Condition
Default stream	var(*LIST).DEF	S	*NO *YES	STREAM = *ALL/ <name 1..8>
Name of the ENTER file	var(*LIST).F-NAME	S	<filename 1..54>	STREAM = *ALL/ <name 1..8>
Initial priority of the stream task	var(*LIST).RUN-PRIO	S	30..255	STREAM = *ALL/ <name 1..8>
Stream starting point (default)	var(*LIST).START-DEF	S	*AT *AT-LOAD *BY-OPER	STREAM = *ALL/ <name 1..8>
Stream starting time (hour)	var(*LIST).START.HOURS	S	'' 0..23	STREAM = *ALL/ <name 1..8>
Stream starting time (minute)	var(*LIST).START.MINUTES	S	'' 0..59	STREAM = *ALL/ <name 1..8>
Stream stopping point (default)	var(*LIST).STOP-DEF	S	*AFTER *AT *AT-SHUTDOWN *BY-OPER	STREAM = *ALL/ <name 1..8>
Stream stopping time (hour)	var(*LIST).STOP.HOURS	S		

			'' 0..23	STREAM = *ALL/ <name 1..8>
Stream stopping time (minute)	var(*LIST).STOP.MINUTES	S	'' 0..59	STREAM = *ALL/ <name 1..8>
Name of the stream definition	var(*LIST).STREAM-NAME	S	<name 1..8>	
Special parameters for the job scheduler	var(*LIST).STREAM-PAR	S	*NO <c-string 1..127>	STREAM = *ALL/ <name 1..8>

6.27 SHOW-JOB-SWITCHES

Show job switches set to ON

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-JOB-SWITCHES command displays the numbers of the job switches that are set to ON. 32 job switches (numbered 0 to 31) are available for each job. They are cleared (set to OFF) at the beginning of the job and can be modified during the job as follows:

- explicitly, by means of the MODIFY-JOB-SWITCHES command
- implicitly, by means of the SET-JOB-STEP command (resets switches 16 to 31) or with utility routines (see section "Job switches").

At the end of the job, all job switches are reset.

Format

SHOW-JOB-SWITCHES	Alias: **SHJSW**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	32	EXC0041	System error

Example

/show-job-sw

```
   ALL TASK SWITCHES SET OFF
```

/mod-job-sw on=(4,5)
/show-job-sw

```
   TASK SWITCHES ON EQUAL-
    4, 5
```

6.28 SHOW-JV

Show contents of job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	J

Function

The SHOW-JV command displays the contents of a user or special job variable. Special job variables are special JVs managed by the system. They can be queried under the dummy user ID SYSJV. The command SHOW-JV-ATTRIBUTES JV-ID=JV-NAME=$SYSJV. can be used to output the names of the available special job variables

Format

SHOW-JV Alias: **SHJV**

JV-CONTENTS = <filename 1..54 without-gen-vers> / [***SUBSTR**ING](...) / ***LINK**(...)

[***SUBSTR**ING](...)

| **JV-NAME** = <filename 1..54 without-gen-vers>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

| ,**POS**ITION = **1** / <integer 1..256>

| ,**LEN**GTH = ***REST** / <integer 1..256>

,**OUT**PUT-FORMAT = ***CHAR**ACTER / ***HEX**ADECIMAL

,**PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> /

***SECRET**

Operands

JV-CONTENTS = <filename 1..54 without-gen-vers> / *SUBSTRING(...) / *LINK(...)
Specifies the job variable contents that to be output.
A JV can be identified by its name or by its link name, and optionally a particular part of the contents can be specified.

JV-CONTENTS = <filename 1..54 without-gen-vers>
Name of the JV. The contents of the entire JV are displayed.

JV-CONTENTS = *SUBSTRING(...)
The contents of the area identified by POSITION and LENGTH are displayed. If POSITION and LENGTH are not specified, the contents of the entire JV are displayed.

> **JV-NAME = <filename 1..54 without-gen>**
> Name of the JV.
>
> **POSITION = 1 / <integer 1..256>**
> Position within the JV at which output is to begin. The command is rejected if the character at the specified position is undefined.
>
> **LENGTH = *REST / <integer 1..256>**
> Number of characters to be displayed. The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257. A warning is output if the substring designated by POSITION and LENGTH is not fully defined.
>
> **LENGTH = *REST**
> The length of the value starting from the position specified in the POSITION operand applies.

JV-CONTENTS = *LINK(...)
The JV is identified by a link name. If POSITION and LENGTH are not specified, the contents of the entire JV are displayed, otherwise the contents of the specified area.

> **LINK-NAME = <alphanum-name 1..7>**
> Link name of the JV.
>
> **POSITION = 1 / <integer 1..256>**
> Position within the JV at which output is to begin. The command is rejected if the character at the specified position is undefined.
>
> **LENGTH = *REST / <integer 1..256>**
> Number of characters to be displayed.
> The sum of the numeric values specified in the POSITION and LENGTH operands must not exceed 257. A warning is output if the substring designated by POSITION and LENGTH is not fully defined.
>
> **LENGTH = *REST**
> The length of the value starting from the position specified in the POSITION operand applies.

OUTPUT-FORMAT =
Determines the output format.

OUTPUT-FORMAT = *CHARACTER
Output in character format.

OUTPUT-FORMAT = *HEXADECIMAL
Output in hexadecimal format.

PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / <integer -2147483648..2147483647> / *SECRET
Read password of the JV. The PASSWORD operand has the following special characteristics:

- The input field is automatically blanked out in the guided dialog.
- In unguided dialog and foreground procedures, the entry *SECRET or ^, SDF provides a blanked out input field for inputting the password.
- The password entered is not logged.

PASSWORD = *NONE
The JV has no password or the password was already specified in the ADD-PASSWORD command.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Output in S variable

Output information	Name of the S variable	T	Content
Content of the job variable	var(*LIST).JV-VALUE	S	<c-string 0..511>

Example

/show-jv jv-contents=$sysjv.datum ——————————————————————— (1)

```
%27.01.2012
```

/show-jv jv=test1,output-format=*char

```
%Heute ist Dienstag der 27.01.2012 ——————————————————————— (2)
```

/show-jv jv=test1,output-format=*hex

```
%C885A4A3854089A2A340C4898595A2A381874084859940F2F74BF0F14BF2F0F1F2 ——  (3)
```

/show-jv jv-contents=(jv-name=test1,position=24) ——————————————— (4)

```
%27.01.2012
```

(1) Display current date (special JV for date in German $SYSJV.DATUM).

(2) Display contents of job variable TEST1 in character format (= Today is Tuesday, 24.01.2009).

(3) Display contents of job variable TEST1 in hexadecimal format.

(4) Display contents of job variable TEST1 in character form, starting at byte 24.

6.29 SHOW-JV-ATTRIBUTES

Show attributes of job variable

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The SHOW-JV-ATTRIBUTES command displays the following attributes of a JV:

Standard information (INFORMATION=*NAME-AND-SIZE):

- name
- length of the JV value

Standard information, all protection attributes and the creation date are displayed (INFORMATION=*ALL) for each job variable specified:

- display “JV-TYPE IS MONJV”, for the duration of the job monitoring
- permitted access mode (standard access control)
- access rights of foreign users (standard access control)
- access rights of the authorized users OWNER, GROUP and OTHERS (if basic ACL was activated)
- names of the guards for read and/or write access (if defined)
- name of the HSMS storage management class (if defined)
- creation date
- creation time (time of day)
- date on which the set retention period elapses
- time relative to the retention period (currently always 00:00:00 hours)
- protection with read password
- protection with write password

Summary line (INFORMATION=*SPACE-SUMMARY) for all specified job variables:

- number of job variables specified
- total length of JV values

Temporary job variables are addressed using the prefixed TEMPFILE character.

Information on special job variables

Special job variables are specified in the form “JV-NAME=$SYSJV.<jvname>”, where the job variable name can contain wildcards. The names of all available special job variables are displayed with JV-NAME=$SYSJV.

With INFORMATION=*ALL-ATTRIBUTES, the format and content of the special job variables are described in an additional output line. The description appears in the currently set job language: English or German (this can be set job-specifically with the /MODIFY-MSG-ATTRIBUTES command).

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-JV-ATTRIBUTES Alias: **SHJVA**

JV-NAME = ***ALL** / <filename 1..54 without-gen-vers with-wild(80)> / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

,**INF**ORMATION = ***NAME-AND-SIZE** / ***ALL-ATTR**IBUTES / ***SPACE-SUMMARY**

,**SEL**ECT = ***ALL** / [***BY-ATTR**IBUTES](...)

[***BY-ATTR**IBUTES](...)

| **ACCESS** = ***ANY** / ***READ** / ***WR**ITE

| ,**USER-ACCESS** = ***ANY** / list-poss(2): ***OWNER-ONLY** / ***ALL-USERS**

| ,**PASS**WORD = ***ANY** / list-poss(3): ***NONE** / ***READ-PASS**WORD / ***WR**ITE**-PASS**WORD

| ,**CRE**ATION**-DATE** = ***ANY** / ***TODAY**(...) / ***YESTERDAY**(...) / <integer -99999..991231>(...) /

| <date>(...) / ***INTERVAL**(...)

| ***TODAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| ***YESTERDAY**(...)

| | **TIME** = ***ANY** / [***INTERVAL**](...)

| | [***INTERVAL**](...)

| | | **FROM** = **00:00:00** / <time>

| | | ,**TO** = **23:59:59** / <time>

| <integer -99999..991231>(...)

| | **TIME = *ANY / [*INTERVAL](...)**

| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| <date>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| ***INTERVAL**(...)
| | FROM = **1950-01-01** / <integer -99999..991231>(...) / <date>(...) / ***TODAY**(...) /
| | ***YESTERDAY**(...)
| | <integer -99999..991231>(...)
| | | TIME = **00:00:00** / <time>
| | <date>(...)
| | | TIME = **00:00:00** / <time>
| | ***TODAY**(...)
| | | TIME = **00:00:00** / <time>
| | ***YESTERDAY**(...)
| | | TIME = **00:00:00** / <time>
| | ,TO = ***TODAY** (...) / ***YESTERDAY**(...) / <integer -99999..991231>(...) / <date>(...)
| | ***TODAY**(...)
| | | TIME = **23:59:59** / <time>
| | ***YESTERDAY**(...)
| | | TIME = **23:59:59** / <time>
| | <integer -99999..991231>(...)
| | | TIME = **23:59:59** / <time>
| | <date>(...)
| | | TIME = **23:59:59** / <time>
| ,EXPIRATION-**DATE** = ***ANY** / ***TOMORROW**(...) / ***TODAY**(...) / ***YESTERDAY**(...) /
| <integer -99999..991231>(...) / <date>(...) / ***INTERVAL**(...)
| ***TOMORROW**(...)

| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| ***TODAY**(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| ***YESTERDAY**(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| <integer -99999..991231>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| <date>(...)
| | TIME = ***ANY** / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | FROM = **00:00:00** / <time>
| | | ,TO = **23:59:59** / <time>
| ***INTERVAL**(...)
| | FROM = **1950-01-01** / <integer -99999..991231>(...) / ***TOMORROW**(...) / ***TODAY**(...) /
| | ***YESTERDAY**(...) / <date>(...)
| | <integer -99999..991231>(...)
| | | TIME = **00:00:00** / <time>
| | ***TOMORROW**(...)
| | | TIME = **00:00:00** / <time>

```
|           |           *TODAY(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           *YESTERDAY(...)
|           |               |       TIME = 00:00:00 / <time>
|           |           <date>(...)
|           |               |       TIME = 00:00:00 / <time>
|           |       ,TO = *ANY / TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) /
|           |           <integer -99999..991231>(...) / <date>(...) / *ANY
|           |           *TODAY(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           *TOMORROW(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           *YESTERDAY(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           <integer -99999..991231>(...)
|           |               |       TIME = 23:59:59 / <time>
|           |           <date>(...)
|           |               |       TIME = 23:59:59 / <time>
|       ,BASIC-ACL = *ANY / *NONE / *YES / [*PARAMETERS](...)
|           [*PARAMETERS](...)
|           |       OWNER = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|           |           [*PARAMETERS](...)
|           |               |       READ = *ANY / *NO / *YES
|           |               |       ,WRITE = *ANY / *NO / *YES
|           |       ,GROUP = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|           |           [*PARAMETERS](...)
|           |               |       READ = *ANY / *NO / *YES
|           |               |       ,WRITE = *ANY / *NO / *YES
|           |       ,OTHERS = *ANY / *NO-ACCESS / [*PARAMETERS](...)
|           |           [*PARAMETERS](...)
|           |               |       READ = *ANY / *NO / *YES
```

```
        |               |                   |       ,WRITE = *ANY / *NO / *YES
        |       ,GUARDS = *ANY / *YES / *NONE / [*PARAMETERS](...)
        |           [*PARAMETERS](...)
        |               |       READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
        |               |       ,WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
        |       ,MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
        |       ,MONJV-PROTECTION = *ANY / *NO / *YES
        |       ,CJC-PROTECTION = *ANY / *NO / *YES
        |       ,PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
        |       ,SIZE = *ANY / <integer 0..256> / [*INTERVAL](...)
        |           [*INTERVAL](...)
        |               |       FROM = 0 / <integer 0..256>
        |               |       ,TO = 256 / <integer 0..256>
,OUTPUT-OPTIONS = [*PARAMETERS] (...)
    [*PARAMETERS](...)
        |       SORT-LIST = *BY-JVNAME / *NO
```

Operands

JV-NAME = *ALL / <filename 1..54 without-gen-vers with-wild(80)> / *LINK(...)
Specifies the job variable whose attributes are to be displayed.
A job variable may be identified by its name or its link name. Information about job variables of other user IDs is only given if the job variables are shareable or if in the event of activated BASIC-ACL there is at least one access right for the user (GROUP).

JV-NAME = *ALL
The attributes of all the user's permanent job variables are to be displayed.

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>
Name of the job variable. The attributes of this job variable are to be displayed. The wildcard character * (asterisk) at the beginning of a name must be entered twice. Nonprivileged users are not allowed to use wildcards within their user ID. If no catalog ID is specified, the default catalog ID of the user ID concerned is selected.

Special JVs can only be referenced in the form "JV-NAME=$SYSJV.<jvname>" where the name can be specified using wildcards. Entry of a catalog ID is not possible. Specifying "$SYSJV." will cause the names of all available special JVs to be displayed.

JV-NAME = *LINK(...)
The job variable whose attributes are to be displayed is identified by a link name.

LINK-NAME = <alphanum-name 1..7>
Link name of the JV.

INFORMATION = *NAME-AND-SIZE / *ALL-ATTRIBUTES / *SPACE-SUMMARY
Attributes to be displayed.

INFORMATION = *NAME-AND-SIZE
Only name and length of the JV value are to be displayed.

INFORMATION = *ALL-ATTRIBUTES
All attributes are to be displayed. In the case of a special JV, however, an output line containing the format and meaning of the variable is output in addition to the name.

INFORMATION = *SPACE-SUMMARY
Only a summary line is required. The summary line contains the number of job variables specified and the total length of their values.

SELECT = *ALL / *BY-ATTRIBUTES(...)
The job variable selection criteria. The following selection criteria are not relevant for displaying special job variables.

SELECT = *ALL
Returns information on all the job variables which the user is authorized to access.

SELECT = *BY-ATTRIBUTES(...)
Restricts the job variables selected from the set specified by JV-NAME to those which satisfy the following specifications. The default value *ANY for an attribute means that the job variable set is not to be restricted to particular values of that attribute.

ACCESS = *ANY / *READ / *WRITE
Returns information on job variables depending on their access type.

ACCESS = *ANY
The ACCESS value is not to be used as a selection criterion.

ACCESS = *READ
Returns information on only those job variables to which writing is prohibited by ACCESS=READ, i.e. to which only read access is permitted.

ACCESS = *WRITE
Returns information on only those job variables to which write access is permitted.

USER-ACCESS = *ANY / list-poss(2): *OWNER-ONLY / *ALL-USERS
Returns information on job variables depending on whether they are shareable. If a user ID other than the user' s own is specified, then implicitly USER-ACCESS=ALL-USERS.

USER-ACCESS = *ANY
The access authorization is not to be used as a selection criterion.

USER-ACCESS = *OWNER-ONLY
Returns information on job variables which only the job variable owner or co-owner may access.

USER-ACCESS = *ALL-USERS
Returns information on job variables which may be also be accessed under other user IDs.

PASSWORD = *ANY / list-poss(3): *NONE / *READ-PASSWORD / *WRITE-PASSWORD
Returns information on job variables depending on the password protection defined. If several types of password are specified as a list, the system will link them by logical Or, and will return information on all the job variables which satisfy any one of the specified conditions.

PASSWORD = *ANY
Password protection is not to be used as a selection criterion.

PASSWORD = *NONE
Returns information on job variables which have no password protection.

PASSWORD = *READ-PASSWORD
Returns information on job variables which are protected by a read password; the actual passwords will not be output.

PASSWORD = *WRITE-PASSWORD
Returns information on job variables which are protected by a write password; the actual passwords will not be output.

CREATION-DATE = *ANY / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)
Returns information on job variables on the basis of their creation date (CREATION-DATE); range specifications are inclusive of the limit values.

CREATION-DATE = *ANY
The creation date is not to be used as a selection criterion.

CREATION-DATE = *TODAY(...)
Returns information for job variables which have today's date entered as the CREATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of creation <= the specified time.

CREATION-DATE = *YESTERDAY(...)
Returns information for job variables which have yesterday's date entered as the CREATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of creation <= the specified time.

CREATION-DATE = <integer -99999..991231>(...)
Returns information on job variables which were created on the specified date. Here, the user can specify the creation date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits, with preceding sign) the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0)

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of creation <= the specified time.

CREATION-DATE = <date>(...)
Returns information on job variables which were created on the specified date. The user can specify the creation date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified creation date.

TIME = *INTERVAL(...)
Returns information on job variables that were created on the specified day within the specified time interval which follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of creation >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of creation <= the specified time.

CREATION-DATE = *INTERVAL(...)
Returns information on job variables which were created within the specified time period. The upper and lower limits are both included in the range specified. See also the explanation of how dates are specified in the EXPIRATION-DATE=<integer ...> operand. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default value for use as the limit of the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / *TODAY(...) / *YESTERDAY(...) / <date>(...)
Returns information on job variables which were created after the specified date (i.e. CREATION-DATE >= specified date).

FROM = <integer -99999..991231>(...)
Returns information on job variables which were created after the specified date (i.e. CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

FROM = *TODAY(...)
Returns information on job variables which were created after the specified date (i.e. CREATION-DATE >= current date).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

FROM = *YESTERDAY(...)
Returns information on job variables which were created after the specified date (i.e. CREATION-DATE >= date of the preceding day).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

FROM = <date>(...)
Returns information on job variables which were created after the specified date (i.e. CREATION-DATE >= specified date).

TIME = 00:00:00 / <time>
Time on the specified date. All job variables created at or after the specified time are selected.

TO = *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Returns information on job variables which were created before the specified date (i.e. CREATION-DATE <= specified date).

TO = *TODAY(...)
Returns information on job variables which were created before the specified date (i.e. CREATION-DATE <= current date).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

TO = *YESTERDAY(...)
Returns information on job variables which were created before the specified date (i.e. CREATION-DATE <= date of preceding day).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

TO = <integer -99999..991231>(...)
Returns information on job variables which were created before the specified date (i.e. CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

TO = <date>(...)
Returns information on job variables which were created before the specified date (i.e. CREATION-DATE <= specified date).

TIME = 23:59:59 / <time>
Time on the specified date. All job variables created at or before the specified time are selected.

EXPIRATION-DATE = *ANY / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...) / *INTERVAL(...)

The EXPIRATION-DATE operand requests information on the job variable as a function of the “expiration date”, i.e. the date from which write accesses to the job variable are allowed. It is meaningful to specify a date in the future if retention periods are being queried.

EXPIRATION-DATE = *ANY

The expiration date (output field *EXPIR-DATE*) is not to be used as a selection criterion.

EXPIRATION-DATE = *TOMORROW(...)

Returns information on job variables which have tomorrow’s date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)

Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)

Returns information on job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>

Selects job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>

Selects job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = *TODAY(...)

Returns information on job variables which have today’s date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)

Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)

Returns information on job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>

Selects job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>

Selects job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = *YESTERDAY(...)

Returns information on job variables which have yesterday’s date entered as the EXPIRATION-DATE in their catalog entry.

TIME = *ANY / *INTERVAL(...)

Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)

Returns information on job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = <integer -99999..991231>(...)
Here, the user can specify the expiration date in either of two ways:

1. as an *absolute date value:* (6 digits), a specific date in the form yymmdd (yy = year, mm = month, dd = day)
2. as a *relative date value:* (6 digits with preceding sign), the number of days from today's date, in the form -n for dates in the past, and +n for dates in the future; (YESTERDAY corresponds to -1, TODAY corresponds to ±0, TOMORROW corresponds to +1)

TIME = *ANY / *INTERVAL(...)

Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = <date>(...)
Returns information on job variables for which exactly the specified date is entered as the EXPIRATION-DATE in the catalog entry. The user can specify the expiration date in the form [yy]yy-mm-dd.

TIME = *ANY / *INTERVAL(...)
Restricts the selection of job variables to a time interval related to the specified expiration date. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TIME = *INTERVAL(...)
Returns information on job variables for which the expiration date lies within the specified interval that follows.

FROM = 00:00:00 / <time>
Selects job variables for which the time of expiration >= the specified time.

TO = 23:59:59 / <time>
Selects job variables for which the time of expiration <= the specified time.

EXPIRATION-DATE = *INTERVAL(...)
Returns information on only the job variables whose expiration dates lie within the period specified as the operand value, i.e. job variables whose retention period expires during the specified period. The upper and lower limits are both included in the range specified. See also the explanation of how dates are specified in the EXPIRATION-DATE=<integer ...> operand. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). Whichever of the operands is not specified will be replaced by the default

value for use as the limit of the range. The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit.

FROM = 1950-01-01 / <integer -99999..991231>(...) / <date>(...) / *TOMORROW(...) / *TODAY(...) / *YESTERDAY(...)
Returns information on job variables for which the EXPIRATION-DATE >= the specified date.

FROM = <integer -99999..991231>(...)
Returns information on job variables for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = <date>(...)
Returns information on job variables for which the EXPIRATION-DATE >= the specified date.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = TOMORROW(...)
Returns information on job variables for which the EXPIRATION-DATE >= date of the next day.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *TODAY(...)
Returns information on job variables for which the EXPIRATION-DATE >= date of the current day.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

FROM = *YESTERDAY(...)
Returns information on job variables for which the EXPIRATION-DATE >= date of the preceding day.

TIME = 00:00:00 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE after the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *ANY / *TODAY(...) / *TOMORROW(...) / *YESTERDAY(...) / <integer -99999..991231>(...) / <date>(...)
Returns information on job variables for which the EXPIRATION-DATE <= the specified date.

TO = *ANY
Specifies an open interval that starts with the EXPIRATION-DATE but has no upper limit.

TO = *TODAY(...)
Returns information on job variables for which the EXPIRATION-DATE <= date of the current day.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *TOMORROW(...)
Returns information on job variables for which the EXPIRATION-DATE <= date of the next day.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = *YESTERDAY(...)
Returns information on job variables for which the EXPIRATION-DATE <= date of the preceding day.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <integer -99999..991231>(...)
Returns information on job variables for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

TO = <date>(...)
Returns information on job variables for which the EXPIRATION-DATE <= the specified date.

TIME = 23:59:59 / <time>
Time on the specified date. All job variables that have an EXPIRATION-DATE before the specified time are selected. Note that the time stamp for the EXPIRATION-DATE is always set to 00:00:00 at present!

BASIC-ACL = *ANY / *NONE / *YES / *PARAMETERS(...)
Selects all job variables whose BASIC-ACL entry matches the specified values.

BASIC-ACL = *NONE
Returns information on job variables that have no BASIC-ACL entry in the catalog.

BASIC-ACL = *YES
Returns information on job variables that have a BASIC-ACL entry in the catalog.

BASIC-ACL = *PARAMETERS(...)
Selects all job variables for which the specified access rights are defined in the BASIC-ACL entry. NO-ACCESS means that no access rights have been defined.

OWNER = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights must already be defined for the owner.

OWNER = *PARAMETERS(...)
Access rights that must be present for the owner (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

GROUP = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for the owner's user group.

GROUP = *PARAMETERS(...)
Access rights that must be present for the owner's user group (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

OTHERS = *ANY / *NO-ACCESS / *PARAMETERS(...)
Specifies which access rights should already be defined for all other users.

OTHERS = *PARAMETERS(...)
Access rights that must be present for all other users (logically ORed together):

READ = *ANY / *NO / *YES
Specifies whether read access authorization must be present.

WRITE = *ANY / *NO / *YES
Specifies whether write access authorization must be present.

GUARDS = *ANY / *NONE / *YES / *PARAMETERS(...)
Returns information on job variables for which access is controlled using GUARDS (see the CREATE-FILE or MODIFY-FILE-ATTRIBUTES command).

GUARDS = *ANY
Access control with GUARDS is not to be used as a selection criterion.

GUARDS = *NONE
Returns information on job variables that are not protected by GUARDS against unauthorized access.

GUARDS = *YES
Returns information on job variables that are protected by GUARDS against unauthorized access, i.e. job variables for which access is controlled via the GUARDS subsystem.

GUARDS = *PARAMETERS(...)
Returns information on job variables which are protected by GUARDS against unauthorized access as specified, i.e. job variables for which access control is implemented using GUARDS: Access to the job variable is controlled by a guard, i.e. a special object which contains all the conditions under which a user is granted access authorization (e.g. date, time, user ID). The GUARDS function unit of the chargeable software product SECOS (see the "SECOS" manual [35]) must be installed in order to create and maintain a guard.
Each access mode can be controlled by a separate guard. If no guard (*NONE) is defined for a given access mode, no corresponding access is permitted. If a defined guard is not accessible, the mode of access protected by it is not permitted. If the GUARDS subsystem is not available at the time of accessing the job variable, no access of any kind is allowed for the job variable.

READ = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Returns information on job variables which are protected against unauthorized read access by the specified “guard”. The default value *ANY means that the selection of job variables is not based on read protection with a guard. *NONE selects job variables for which no read guard was defined, i.e. job variables for which no read access is permitted.

WRITE = *ANY / *NONE / <filename 1..18 without-cat-gen-vers>
Returns information on job variables which are protected against unauthorized write access by the specified “guard”. The default value *ANY means that the selection of job variables is not based on a guard. *NONE selects job variables for which no guard was defined, i.e. job variables for which no write access is permitted.

MANAGEMENT-CLASS = *ANY / *NONE / <composed-name 1..8>
Returns information on job variables assigned the specified HSMS management class.

MANAGEMENT-CLASS = *ANY
The HSMS management class is not a selection criterion.

MANAGEMENT-CLASS = *NONE
Returns information only on job variables with no HSMS management class assigned to them.

MANAGEMENT-CLASS = <composed-name 1..8>
Returns information on job variables assigned the specified HSMS management class.

MONJV-PROTECTION = *ANY / *NO / *YES
Returns information about job variables regarding their use as job monitoring job variables.

MONJV-PROTECTION = *ANY
Use as job monitoring job variables is not a selection criteria.

MONJV-PROTECTION = *NO
Returns information about job variables that are not monitoring jobs.

MONJV-PROTECTION = *YES
Returns information about job variables that are monitoring jobs (see also output field "JV-TYPE IS MONJV").

CJC-PROTECTION = *ANY / *NO / *YES
Returns information about job variables regarding their use in CJC functions.

CJC-PROTECTION = *ANY
Use in CJC functions is not a selection criteria.

CJC-PROTECTION = *NO
Returns information about job variables that are not used in CJC functions.

CJC-PROTECTION = *YES
Returns information about job variables that are used in CJC functions

PROTECTION-ACTIVE = *ANY / list-poss(3): *LEVEL-0 / *LEVEL-1 / *LEVEL-2
Returns information on job variables for which the specified protection level is the highest activated access control.
When the job variable is accessed, the highest activated protection level applies. The following table shows the method used for access control, the protection attributes, and the job variable protection hierarchy (protection levels):

Access control method	Protection attribute	Prot. level
Standard access control	ACCESS and USER-ACCESS	0
Basic access control list	BASIC-ACL	1
Access control via guards	PASSWORD	2

Table 124: Hierarchy of access control methods

All other protection attributes of the job variable (e.g. passwords) are evaluated independently, without regard to the implemented protection level.

PROTECTION-ACTIVE = *ANY
The access control method is not to be used as a selection criterion.

PROTECTION-ACTIVE = *LEVEL-0
Returns information on job variables for which access is controlled via standard access control.

PROTECTION-ACTIVE = *LEVEL-1
Returns information on job variables for which access is controlled via a basic access control list (BASIC-ACL protection)

PROTECTION-ACTIVE = *LEVEL-2
Returns information on job variables for which access is controlled via an access control list (ACL) or by GUARDS.

SIZE =* ANY / <integer 0..256> / *INTERVAL(...)
Requests information on job variables depending on the length of their value.

SIZE = *ANY
The length of the value of job variable is not to be used as a selection criterion.

SIZE = <integer 0..256>
Returns information on job variables with the specified length of the value.

SIZE = *INTERVAL(...)
Returns information on job variables for which the length of the value lies within the specified range. The upper and lower limits are both included in the range specified. It is also possible to specify limits using only the operand FROM (lower limit) or TO (upper limit). For whichever operand is not specified, the default value will be used as the limit for the range.
The use of range limits for information output can only be meaningful if the chosen lower limit <= the upper limit. Information will only be returned about job variables for which the length of the value is at least equal to the FROM value and at most equal to the TO value (FROM <= SIZE <= TO).

FROM = 0 / <integer 0..256>
Returns information only about those job variables for which the length of the value is at least the specified number (SIZE >= specified value).

TO = 256 / <integer 0..256>
Returns information only about those job variables for which the length of the value is at most the specified number (SIZE <= specified value).

OUTPUT-OPTIONS = *PARAMETERS(...)
Controls the information output.

SORT-LIST = *BY-JVNAME / *NO
Determines how the catalog entries/path names are sorted in the display.

SORT-LIST = *BY-JVNAME
The catalog entries/path names are sorted alphabetically.

SORT-LIST = *NO
The catalog entries/path names are displayed in the order in which they are contained in the catalog.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD2009	Error during S variable generation
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Meaning of the output fields

With INFORMATION=*NAME-AND-SIZE set (default value), only the header line containing the length of the JV value and the JV's path name is output. If INFORMATION =*ALL is specified, the JV's attributes are output in addition to the header line. At the end of the output there is a summary line indicating the number of JVs included in the output and the total length of their JV values.

Header line

<jv-length> <pathname>

n - numeric character

a - alphanumeric character

Output field	Format	Meaning
<jv-length>	nnnnnnn	7-digit number; indicates how many bytes the JV value occupies (length)
<pathname>	:aaaa:	indicates the catalog ID of the file catalog in which the JV is stored
	$userid.	max. 8-character user ID for the JV
	jvname	name of the permanent or temporary JV about which information is to be output

Table 125: Output fields in the SHOW-JV-ATTRIBUTES header line

Summary line

Output field	Format	Meaning
SUM	nnnnn	6-digit number; indicates the number of JVs included in the output
JV-VALUE	nnnnnnnn	8-digit number; total length (in bytes) of all JV values included in the output

Table 126: Output fields in the SHOW-JV-ATTRIBUTES summary line

Output field	Values	Description
ACCESS	WRITE	Read and write access to the JV is allowed
	READ	Only read access is allowed to the JV, write access is not allowed
CRE-DATE	yyyy-mm-dd	yyyy = year; mm = month; dd = day; date JV created or date of last modification
CRE-TIME	hh:mm:ss	hh = hours; mm = minutes; ss = seconds; time JV created or time of last modification of the JV
EXPIR-DATE	yyyy-mm-dd	yyyy = year; mm = month; dd = day; date until which the JV is locked against write accesses; i.e., the JV cannot be modified or deleted

Output field	Values	Description
EXPIR-TIME	hh:mm:ss	hh = hours; mm = minutes ; ss = seconds; time relative to EXPIR-DATE, currently always 00:00:00
GROUP		*Only if BASIC-ACL protection is defined* Access rights assigned for the user class “GROUP”
	R W	Read and write access
	- -	No access rights
	a a	Combination of the characters RW- permitted
GUARD-READ	guardname	*Only if GUARDS protection is defined* Name of a GUARD that controls read access
	NONE	No read access is allowed
GUARD-WRIT	guardname	*Only if GUARDS protection is defined* Name of a GUARD that controls write access
	NONE	No write access is allowed
JV-TYPE IS MONJV		Displayed as the first line of the JV attributes if the JV is monitoring a job (write protection during job monitoring)
MAN-CLASS	hsms-class	Name of the HSMS storage management class (only if defined)
OWNER		*Only if BASIC-ACL protection is defined* The access authorizations specified for the “OWNER” class of users (owner of the JV)
	R W	Read and write access
	- -	No access rights
	a a	Combination of the characters RW- permitted
OTHERS		*Only if BASIC-ACL protection is defined* The access authorizations specified for the “OTHERS” class of users.
	R W	Read and write access
	- -	No access rights
	a a	Combination of the characters RW- permitted
READ-PASS	NONE	No read password has been defined for the JV
	YES	A read password has been defined for the JV, i.e. read access is possible only by entering the password
USER-ACC	OWNER-ONLY	The JV cannot be accessed by other user IDs

	ALL-USERS	The JV can be accessed by other user IDs
WRITE-PASS	NONE	No write password has been defined for the JV
	YES	A write password has been defined for the JV, i.e. write access is possible only by entering the password

Table 127: JV attributes output fields of the SHOW-JV-ATTRIBUTES command

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The possible values for INFORMATION are *NAME-AND-SIZE and *ALL-ATTRIBUTES (in table: INF=ALL). No variables are output for special job variables.

Output information	Name of the S variable	T	Contents	Condition
JV access method *READ = read access *WRITE = write access (with implicit read access)	var(*LIST).ACCESS	S	*READ *WRITE	INF=ALL
BASIC-ACL protection active	var(*LIST).B-ACL. ACTIVE	B	FALSE TRUE	INF=ALL
GROUP read permission (BASIC-ACL)	var(*LIST).B-ACL. GROUP.READ	S	'' *NO *YES	INF=ALL
GROUP write permission (BASIC-ACL)	var(*LIST).B-ACL. GROUP.WRITE	S	'' *NO *YES	INF=ALL
OTHERS read permission (BASIC-ACL)	var(*LIST).B-ACL. OTHERS.READ	S	'' *NO *YES	INF=ALL
OTHERS write permission (BASIC-ACL)	var(*LIST).B-ACL. OTHERS.WRITE	S	'' *NO *YES	INF=ALL
OWNER read permission (BASIC-ACL)	var(*LIST).B-ACL. OWNER.READ	S	'' *NO *YES	INF=ALL
OWNER write permission (BASIC-ACL)	var(*LIST).B-ACL. OWNER.WRITE	S	'' *NO *YES	INF=ALL
Catalog ID of the job variable	var(*LIST).CAT-ID	S	<cat-id 1...4>	
Job variable creation date	var(*LIST).CRE-DATE	S	<yyyy-mm-dd>	INF=ALL
Job variable creation time	var(*LIST).CRE-TIME	S	<hh:mm:ss>	INF=ALL

Job variable expiration date	var(*LIST).EXPIR-DATE	S	<yyyy-mm-dd>	INF=ALL
Job variable expiration time	var(*LIST).EXPIR-TIME	S	00:00:00	INF=ALL
Access control by means of guards	var(*LIST).GUARD-ACTIVE	B	FALSE TRUE	INF=ALL
Name of the guard for read protection	var(*LIST).GUARD.READ	S	'' <filename 1...18>	INF=ALL
Name of the guard for write protection	var(*LIST).GUARD.WRITE	S	'' <filename 1...18>	INF=ALL
Job variable path name	var(*LIST).JV-NAME	S	<filename 1...54>	
Length of the job variable value	var(*LIST).JV-SIZE	I	<integer>	
Data type of the job variables; if necessary, displays a particular use *MONJV=job monitoring job variable *BOOLEAN/*INTEGER=reserved for use by the system and do not appear for user job variables	var(*LIST).JV-TYPE	S	'' *BOOLEAN *INTEGER *MONJV	INF=ALL
Name of the HSMS storage management class	var(*LIST).MANAGE-CLASS	S	'' <name 1...8>	INF=ALL
Job variable read password	var(*LIST).READ-PASS	S	*NONE *YES	INF=ALL
Name of the job variable.	var(*LIST).SHORT-JV-NAME	S	<filename 1...41>	
Users with access permission	var(*LIST).USER-ACCESS	S	*ALL-USER *OWNER-ONLY	INF=ALL
User ID of the job variable	var(*LIST).USER-ID	S	<name 1...8>	
Job variable write password	var(*LIST).WRITE-PASS	S	*NONE *YES	INF=ALL

Examples

Output to SYSOUT

/show-jv-attr ——————————————————————————————————————— (1)

```
%0000035 :4V05:$USER1.DAT
%0000009 :4V05:$USER1.MONA
%0000128 :4V05:$USER1.MONB
%0000128 :4V05:$USER1.MONC
%0000000 :4V05:$USER1.PROBE
%SUM   000005 JV'S; JV-VALUE = 00000300 BYTES
```

/sh-jv-attr jv=mon*,inf=all-attr ——————————————————————————— (2)

```
%0000009 :4V05:$USER1.MONA
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% CRE-DATE   = 2014-02-04  EXPIR-DATE = 2014-02-04
% CRE-TIME   =   15:55:41  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%0000128 :4V05:$USER1.MONB
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% CRE-DATE   = 2014-02-04  EXPIR-DATE = 2014-02-04
% CRE-TIME   =   15:55:04  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%0000128 :4V05:$USER1.MONC
% JV-TYPE IS MONJV
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% CRE-DATE   = 2014-02-04  EXPIR-DATE = 2014-02-04
% CRE-TIME   =   15:55:42  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%SUM   000003 JV'S; JV-VALUE = 00000265 BYTES
```

/show-jv-attr jv=mon*,select=*by-attr(monjv=*yes),inf=*all-attr ———————— (3)

```
%0000128 :4V05:$USER1.MONC
% JV-TYPE IS MONJV
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% CRE-DATE   = 2014-02-04  EXPIR-DATE = 2014-02-04
% CRE-TIME   =   15:55:42  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%SUM   000003 JV'S; JV-VALUE = 00000265 BYTES
```

/show-jv-attr select=*by-attr(basic-acl=*yes),inf=*all-attr———————— (4)

```
%0000035 :4V05:$USER1.DAT
% USER-ACC   = OWNER-ONLY  ACCESS     = WRITE
% OWNER      = R W         GROUP      = - -         OTHERS     = - -
% CRE-DATE   = 2014-02-06  EXPIR-DATE = 2014-02-06
% CRE-TIME   =   15:58:18  EXPIR-TIME =   00:00:00
% READ-PASS  = NONE
% WRITE-PASS = NONE
%SUM   000001 JV'S; JV-VALUE = 00000035 BYTES
```

(1) Display all job variables of the user ID.

(2) Display catalog entries of job variables with names beginning with “MON*”. The job variable MONJV.JOB1 is currently monitoring a job.

(3) Display the catalog entry of the job variables which have names beginning with “MON” and which are currently monitoring a job. This is the job variable MONC.

(4) Display the job variables of the user ID which is protected with a BASIC-ACL. In this case, this is only the job variable with the name DAT.

Output in S variables

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd (show-jv-attr jv=hugo,inf=*all-attr),text-output=*none,
          structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
OUT1#1.JV-NAME = ':2OSG:$USER1.HUGO'
OUT1#1.CAT-ID = '2OSG'
OUT1#1.USER-ID = 'USER1'
OUT1#1.SHORT-JV-NAME = 'HUGO'
OUT1#1.JV-SIZE = 27
OUT1#1.JV-TYPE = ''
OUT1#1.USER-ACCESS = '*OWNER-ONLY'
OUT1#1.ACCESS = '*WRITE'
OUT1#1.READ-PASS = '*NONE'
OUT1#1.WRITE-PASS = '*NONE'
OUT1#1.B-ACL.ACTIVE = FALSE
OUT1#1.B-ACL.OWNER.READ = ''
OUT1#1.B-ACL.OWNER.WRITE = ''
OUT1#1.B-ACL.GROUP.READ = ''
OUT1#1.B-ACL.GROUP.WRITE = ''
OUT1#1.B-ACL.OTHERS.READ = ''
OUT1#1.B-ACL.OTHERS.WRITE = ''
OUT1#1.EXPIR-DATE = '2014-01-07'
OUT1#1.EXPIR-TIME = '00:00:00'
OUT1#1.CRE-DATE = '2014-01-07'
OUT1#1.CRE-TIME = '16:46:33'
OUT1#1.GUARD-ACTIVE = FALSE
OUT1#1.GUARD.READ = ''
OUT1#1.GUARD.WRITE = ''
OUT1#1.MANAGE-CLASS = ''
*END-OF-VAR
*END-OF-CMD
```

```
/exec-cmd (show-jv-attr jv=mona,inf=*name-and-size),text-output=*none,
          structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
VAR1#1.JV-NAME = ':2OSG:$USER1.MONA'
VAR1#1.CAT-ID = '2OSG'
VAR1#1.USER-ID = 'USER1'
VAR1#1.SHORT-JV-NAME = 'MONA'
VAR1#1.JV-SIZE = 9
*END-OF-VAR
*END-OF-CMD
```

6.30 SHOW-JV-LINK

Display job variable names and associated link names

Component:	JV
Functional area:	Job variables
Domain:	JOB-VARIABLES
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$ (with NBCONOPI=N) or J (with NBCONOPI=Y)

Function

The SHOW-JV-LINK command is used to output job variable names and their associated link names to SYSOUT. The SET-JV-LINK command is used to assign a link name to a job variable. This assignment is entered into the JV-LINK table of the job.

Notes

- “Structure Implicit” notation is guaranteed for the LINK-NAME operand, i.e. SHOW-JV-LINK LINK-NAME=jvlink.
- A JV link name is always linked uniquely with one job variable name, whereas a JV name may be connected to more than one link name. A JV-LINK entry may also exist for a job variable which has been deleted after creation of the JV-LINK entry.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-JV-LINK Alias: **SHJVL**

JV-NAME = ***ALL** / <filename 1..54 without-gen-vers with-wild(80)> / ***LINK**(...)

***LINK**(...)

| **LINK**-NAME = <alphanum-name 1..7>

Operands

JV-NAME = *ALL / <filename 1..54 without-gen-vers with-wild(80)> / *LINK(...)
Specifies the job variable for which the JV-LINK tables entries are to be displayed. A job variable may be identified by its name or its link name.

JV-NAME = *ALL
The entire JV-LINK table is to be displayed.

JV-NAME = <filename 1..54 without-gen-vers with-wild(80)>
Name of the JV whose JV-LINK entries are to be output. The wildcard character * (asterisk) at the beginning of a name must be entered twice.

JV-NAME = *LINK(...)
The JV for which the JV-LINK entries are to be displayed is identified by its link name.

LINK-NAME = <alphanum-name 1..7>
Link name of the JV.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	No action necessary
2	0	CMD0001	Command executed with a warning
	1	CMD0202	Syntax error
	32	CMD2009	Error during S variable generation
	32	CMD0221	System error
	64	JVS04E0	Command not executable in the call environment; if possible, remove cause of error (see SYSOUT message JVS04xx)
	130	JVS04E1	Command cannot be executed at this time; for cause see SYSOUT message JVS04xx
	130	CMD2282	Subsystem JV not available for indefinite time

Meaning of the output columns

The JV-LINK entry information is output in table form, sorted alphabetically in order of link name.

Output column	Meaning
LINK-NAME	Link name of the JV, preceded by an asterisk
JV-NAME	Path name of the associated JV

Table 128: Output columns of the SHOW-JV-LINK command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Name of the job variable	var(*LIST).JV-NAME	S	<filename 1...54>	
Link name of the job variable	var(*LIST).LINK-NAME	S	*<alphan.-name 1...7>	

Example

```
/set-jv-link link-name=hilfe,jv-name=mon.abc
/set-jv-link link-name=prog1,jv-name=edi.1
/set-jv-link link-name=prog2,jv-name=edi.2 ———————————————————— (1)
/show-jv-link link-name=hilfe ————————————————————————————— (2)
```

```
% LINK-NAME  JV-NAME
% *HILFE     :1OSN:$USER1.MON.ABC
```

```
/show-jv-link jv-name=edi. ———————————————————————————————— (3)
```

```
% LINK-NAME  JV-NAME
% *PROG1     :1OSN:$USER1.EDI.1
% *PROG2     :1OSN:$USER1.EDI.2
```

(1) Allocating various link names to job variables

(2) Outputting the JV-LINK entry for the link name HELP

(3) Outputting the JV-LINK entries of job variables with names beginning with “EDI.”.

6.31 SHOW-LINKAGE-AUDIT

Output linkage AUDIT table

Component:	BS2000
Functional area:	AUDIT-Modus control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The SHOW-LINKAGE-AUDIT command allows the user to have output the entries in the linkage AUDIT table, which contain the branch destination addresses in the event of subroutine calls.
Output can be directed to SYSOUT or SYSLST.

The branch destination addresses are generally presented in a module-related form, with module name and displacement. If an address cannot be assigned to any module, the string AVS0LUTE is output in place of the module name.

The TU linkage AUDIT tables of a foreign task are always issued in the form of absolute addresses because the link information is not available. A nonprivileged user can only request the entries concerning tasks running under his or her own user ID.

A processor-local linkage AUDIT table can only be output via a dump generator (CDUMP, SLED) and not in interactive mode.

Privileged functions

Systems support (TSOS privilege) can request the entries for all tasks (including the TPR processor state).

The table entries are output in reverse chronological order on a first in, last out basis. If a task is active at the time the request is made, the tables may already have changed by the time they are output.

Format

SHOW-LINKAGE-AUDIT

STATE = ***USER** (...) / ***SYS**TEM(...)

***USER**(...)

| SCOPE = ***OWN-JOB** / ***TID**(...) / ***TSN**(...)

***TID**(...)

| TID = <alphanum-name 1..8>

***TSN**(...)

| TSN = <alphanum-name 1..4> / <c-string 1..4>

***SYS**TEM(...)

| SCOPE = ***OWN-JOB** / ***TID**(...) / ***TSN**(...)

***TID**(...)

| TID = <alphanum-name 1..8>

***TSN**(...)

| TSN = <alphanum-name 1..4> / <c-string 1..4>

,OUTPUT = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| SYSLST-NUMBER = **0** / <integer 0..99>

Operands

STATE = *USER(...) / *SYSTEM(...)
Processor state, for which the linkage AUDIT table is to be output.

STATE = *USER(...)
The linkage AUDIT table is to be output for the nonprivileged processor state TU.
A nonprivileged user can only request the entries concerning tasks running under his or her own user ID.

SCOPE = *OWN-JOB / *TID(...) / *TSN(...)
Scope of the linkage AUDIT function.

SCOPE = *OWN-JOB
The linkage AUDIT table of the user's own job is to be output.

SCOPE = *TID(...)
Only the entries for a task that is identified by means of an internal task number are requested.

TID = <alphanum-name 1..8>
Task identifier that is assigned to the job whose entries are requested.

SCOPE = *TSN(...)
Only the entries for a task that is identified by means of its task sequence number (TSN) are requested.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN that is assigned to the job whose entries are requested.

STATE = *SYSTEM(...)
Only privileged users are allowed to select this operand.
The linkage AUDIT table is to be output for the TPR privileged processor state.

SCOPE = *OWN-JOB / *TID(...) / *TSN(...)
Scope of validity of the linkage AUDIT function.

SCOPE = *OWN-JOB
The linkage AUDIT table for the user's own (TSOS) task is to be output.

SCOPE = *TID(...)
The only entries requested are those for the task which is identified by this internal task number.

TID = <alphanum-name 1..8>
Task identifier which has been assigned to the task for which the entries are being requested.

SCOPE = *TSN(...)
The only entries requested are those for the task which is identified by this task sequence number (TSN).

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN which has been assigned to the task for which the entries are being requested.

OUTPUT = *SYSOUT / *SYSLST
Specifies where the AUDIT table is to be output to.

OUTPUT = *SYSOUT
The linkage AUDIT table is output to the system file SYSOUT. The entries are output in reverse chronological order, i.e. the most recent entry appears first.

OUTPUT = *SYSLST(...)
The linkage AUDIT table is to be output to SYSLST. The entries are output in reverse chronological order, i.e. the most recent entry appears first.

SYSLST-NUMBER = 0 / <integer 0..99>
When SYSLST-NUMBER = 0 is specified, output is to SYSLST or to a SYSLST file whose name consists of "SYSLST" and a number between 1 and 99 (SYSLST01 through SYSLST99).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	Linkage AUDIT table empty, so no output
	64	CMD0216	User does not have authorization
	64	IDA0038	Specified task does not exist
	64	IDA0052	Linkage AUDIT not available because user is not authorized
	64	IDA0053	Linkage AUDIT not available due to current test option settings for the active task
	64	IDA0060	The AUDIT functions are unavailable throughout the entire system in this session

6.32 SHOW-LIVE-MIGRATION-HISTORY

Show information on past live migrations

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	STD-PROCESSING OPERATING TSOS
Routing code:	@

Function

The SHOW-LIVE-MIGRATION-HISTORY command provides information on previous live migrations and on associated live migration variable data.

The information supplied is live migration-atomic, i.e. if command processing takes place in parallel to a live migration, this live migration is either contained in full or not at all in the information supplied.

Format

SHOW-LIVE-MIGRATION**-HIST**ORY

SERVER-UNIT = ***ALL** / ***CURR**ENT / ***PREV**IOUS **/ *INIT**IAL **/ *INTER**VAL(...) **/** list-poss(10): <x-text 1..7>

***INTERVAL**(...)

| FROM = ***INIT**IAL / ***PREV**IOUS / <x-text 1..7>

| ,TO = ***CURR**ENT / ***PREV**IOUS / ***SAME** / <x-text 1..7>

,INFORMATION= ***SUMM**ARY / ***ALL** / list-poss(4): ***CONF**IGURATION / ***CPU-ID-LIST** /

***VM2000-ID**ENTIFICATION / ***IOCONF-ID**ENTIFICATION

Operands

SERVER-UNIT = *ALL / *CURRENT / *PREVIOUS / *INITIAL / *INTERVAL(...) / list-poss(10): <x-text 1..7>
Defines the set of systems which are run through during live migrations and on which the information is to be provided.

SERVER-UNIT = *ALL
Information for all live migrations is requested.
Within the system, only live migrations up to a maximum number are logged in the live migration history. If this number is exceeded, the data of the oldest live migration is lost and is no longer displayed.

SERVER-UNIT = *CURRENT
Information for the current system is requested.

SERVER-UNIT = *PREVIOUS
Information for the previous system is requested.

SERVER-UNIT = *INITIAL
Information for the initial system is requested, the system in which system initialization was performed (IPL host system).

SERVER-UNIT = *INTERVAL(...)
Information for a range of live migrations is requested.

FROM = *INITIAL / *PREVIOUS / <x-text 1..7>
Defines the range limit.

FROM = *INITIAL
Information starting with the initial system is requested.

FROM = *PREVIOUS
Information starting with the previous system is requested.

FROM = <x-text 1..7>
Information starting with the specified count value is requested.
The value 0 (output for `LM-COUNT`) corresponds to the initial system.

TO = *CURRENT / *PREVIOUS / *SAME / <x-text 1..7>
Defines the upper limit of the range.

TO = *CURRENT
Information up to and including the current system is requested.

TO = *PREVIOUS
Information up to and including the previous system is requested.

TO = *SAME
Information solely on the lower limit of the range is requested.

TO = <x-text 1..7>
Information up to the specified count value is requested.
The value 0 (output for `LM-COUNT`) corresponds to the initial system.

SERVER-UNIT = <x-text 1..7>
Information for the live migration with this count value is requested.
The value 0 corresponds to the initial system, the system in which system initialization was performed (IPL host system).

INFORMATION = *SUMMARY / *ALL / list-poss(4): *CONFIGURATION / *CPU-ID-LIST / *VM2000-IDENTIFICATION / *IOCONF-IDENTIFICATION
Defines the output volume.

INFORMATION = *SUMMARY
Only summary information is displayed.

INFORMATION = *ALL
All available information is displayed.

INFORMATION =* CONFIGURATION
The system configuration name is displayed.

INFORMATION =*CPU-ID-LIST
A list of all CPUs is displayed.

INFORMATION = *VM2000-IDENTIFICATION
If available, VM2000 information is displayed.

INFORMATION = *IOCONF-IDENTIFICATION
If available, IORSF information is displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	1	IDA0300	Syntax error
	32	CMD0221	system error
	64	IDA0301	Semantic error

Output formats

Display of the summary

`/show-live-mig-hist serv-unit=*all,inf=*summ`

```
LM-COUNT     DATE       TIME     CONFIGURATION    VM
00000000  yyyy-mm-dd  hh:mm:ss  ccccccccccccccc  dd
00000001  yyyy-mm-dd  hh:mm:ss  ccccccccccccccc  dd
00000002  yyyy-mm-dd  hh:mm:ss  ccccccccccccccc  dd
:
```

One line is displayed in the summary for each logged live migration.

Display of all available information

/show-live-mig-hist serv-unit=*all,inf=*all

```
LM-COUNT     DATE       TIME
00000000  yyyy-mm-dd  hh:mm:ss
--------------------- CONFIGURATION -------
CONFIGURATION       = ccccccccccccccc
--------------------- CPU-ID-LIST ---------
CPU xx              = xxxxxxxx xxxxxxxx
:
CPU xx              = xxxxxxxx xxxxxxxx
--------------------- VM2000-IDENTIFICATION
VM-INDEX            = dd
VM2000-VERSION      = cccccc
VM2000-MONITOR-NAME = cccccccc
VM2000-MONITOR-VERS = ccccccccc
VM2000-MONITOR-SP   = SP yy.#
--------------------- IOCONF-IDENTIFICATION
NAME                = cccccccc
VERSION             = ccccccccc
CREATED             = yyyy-mm-dd,hh:mm:ss
FORMAT              = ccccccc
=========================================
LM-COUNT     DATE       TIME
00000001  yyyy-mm-dd  hh:mm:ss
--------------------- CONFIGURATION -------
:
=====================================
```

There is a separate section for each system selected with the SERVER-UNIT operand. The section begins with an abbreviated summary format entry. This is followed by the display of further information as specified in the INFORMATION operand. The section ends with a line of double bars. This is followed by the section for the next system, if available.

Info column	Meaning
Summary output	
LM-COUNT	Live migration counter (hexadecimal); The value 0 means the initial system.
DATE	Date of live migration (or system initialization)
TIME	Time of live migration (or system initialization)
CONFIGURATION	System configuration name (16 characters); The last 5 bytes of the system configuration name are cut
VM	VM index; The value 0 means native operation (without VM2000).
Short Summary output	
LM-COUNT DATE TIME	see “summary output”
CONFIGURATION output	
CONFIGURATION	System configuration name (16 characters); The last 5 bytes (model properties) of the complete name are cut
CPU-ID-LIST output	
CPU xx : CPU xx	Internal presentation (8 bytes) as provided by the hardware, in printable format (16 characters). The identifications are output as they exist in the system.
VM2000-IDENTIFICATION output	
VM-INDEX	VM index; The value 0 means native operation (without VM2000).
VM2000-VERSION	VM2000 version in DOD format, e.g. 'V12.0B'
VM2000-MONITOR-NAME	BCAM name of the monitor system, e.g. 'D027ZE01'
VM2000-MONITOR-VERS	BS2000 version of the monitor system in DOD format, e.g. 'V21.0C0000'
VM2000-MONITOR-SP	Service pack name of the monitor system, e.g. 'SP 24.2' ('*NONE' if unknown).
IOCONF-IDENTIFICATION output	
NAME	Program name of the current IOCF (8 bytes, left-aligned), e.g. 'BS2V190'
VERSION	Version from the current IOCF, e.g. 'V20.0A00 '
CREATED	Generation date and time of IO configuration in ISO4 format

FORMAT	IOCF format (7 bytes)

Table 129: Output information of the SHOW-LIVE-MIGRATION-HISTORY command

6.33 SHOW-MASTER-CATALOG-ENTRY

Request information on MRSCAT entries

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	STD-PROCESSING TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	E

Function

The SHOW-MASTER-CATALOG-ENTRY command lists the MRSCAT entries for SF and SM pubsets and volume sets. Thus, it provides the user with information about the status of a pubset and hence about the accessibility of its catalog.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Privileged users can also request information on volume sets.

Format

SHOW-MASTER-CATALOG-ENTRY Alias: **SHMCE**

ENTRY-NAME = **<u>*ALL</u>** / ***HOME** / <alphanum-name 1..4 with-wild(255)>

,**INF**ORMATION = **<u>*STD</u>** / ***USER**

,**SEL**ECT = **<u>*ALL</u>** / ***ACCESS**IBLE / ***DEFINED-XCS-CONFIG**URATED / ***EXCL**USIVE /

***HSMS-SUP**PORTED / ***INACCESS**IBLE / ***LOC**AL / ***LOCAL-ACCESS**IBLE /

***MAST**ER-**CHA**NGE-**ERROR** / ***PAGING** / ***QUIET** / ***REMOTE** / ***REMOTE-ACCESS**IBLE /

***SHARE**D / ***SINGLE-FEATURE** / ***SPEEDCAT** / ***SYSTEM-MANAGED** /

***UNUSED-VOL**UME-**SET**S / ***VOL**UME-**SET**S(...) / ***XCS-CONFIG**URATED

***VOL**UME-**SET**S(...)

| **PUBSET** = **<u>*ALL</u>** / <alphanum-name 1..4>

Operands

ENTRY-NAME =
Catalog ID on which information is required. If there is an entry in the MRS catalog for this catalog ID, it is output. If not, the command is rejected. If an unknown catalog ID is specified, the following message is issued: `CMS0312 MRSCAT ENTRY NOT FOUND.`

If you specify more than one catalog ID (using wildcards or *ALL), you can use the SELECT operand to restrict the set of entries to be shown.

ENTRY-NAME = *ALL
All entries in the local MRS catalog are output.

ENTRY-NAME = *HOME
Information is output for the home pubset.

ENTRY-NAME = <alphanum-name 1..4 with-wild(255)>
Information is output for the specified pubset. The catalog can be specified using wildcards (maximum of four characters). In this case, information is output for all pubsets whose catalog ID matches the pattern (see also to the information on data types and suffixes in "SDFsyntax representation").

INFORMATION =
Determines the scope of the information output for the specified pubset.

INFORMATION = *STD
Only default information about SF and SM pubsets and about volume sets is output.

INFORMATION = *USER
All information accessible to nonprivileged users is output for locally accessible SF and SM pubsets. Only default information is output for all other pubsets.

SELECT = *ALL / *ACCESSIBLE / *DEFINED-XCS-CONFIGURATED / *EXCLUSIVE / *HSMS-SUPPORTED / *INACCESSIBLE / *LOCAL / *LOCAL-ACCESSIBLE / *MASTER-CHANGE-ERROR / *PAGING / *QUIET / *REMOTE / *REMOTE-ACCESSIBLE / *SHARED / *SINGLE-FEATURE / *SPEEDCAT/ *SYSTEM-MANAGED / *UNUSED-VOLUME-SETS / *VOLUME-SETS(...) / *XCS-CONFIGURATED
Specifies a selection criterion for the MRS catalog entries to be output. It makes sense to specify a selection criterion if the value *ALL (default value) or a pattern was specified in the CATALOG-ID operand.

A selection criterion can be used to restrict the scope of the output information:

Value	Meaning
*ALL	Default: The output takes place without restriction for SF pubsets, SM pubsets and volume sets.
*ACCESSIBLE	Display only for pubsets whose catalog can be accessed
*DEFINED-XCS-CONFIGURATED	Display only for pubsets which are defined as XCS pubsets in the MRS catalog
*EXCLUSIVE	Display only for pubsets which are not used or may not be used as shared pubsets
*HSMS-SUPPORTED	Display only for SM pubsets which can be operated from HSMS
*INACCESSIBLE	Display only for unavailable pubsets
*LOCAL	Display only for locally imported pubsets
*LOCAL-ACCESSIBLE	Display only for pubsets which are imported and accessible locally
*MASTER-CHANGE-ERROR	Display only for pubsets in which an error occurred when a master change took place
PAGING	Display only for pubsets with paging areas which are used locally
*QUIET	Display only for pubsets which have been imported in slave mode if the MSCF connection between the master and slave is interrupted
*REMOTE	Display only for pubsets for which the criterion LOCAL does not apply
*REMOTE-ACCESSIBLE	Display only for pubsets which have not been imported locally but whose file catalog can be accessed over an existing MSCF connection
*SHARED	Display only for pubsets which are used as shared pubsets
*SINGLE-FEATURE	Display only for SF pubsets:
*SPEEDCAT	Display only for SF pubsets whose file catalog accesses are handled by the local system using SPEEDCAT
*SYSTEM-MANAGED	Display only for SM pubsets:
*UNUSED-VOLUME-SETS	Display only for defined volume sets which have not been used
*VOLUME-SETS(...) PUBSET=	Display only for volume sets which belong to the specified SM pubset

Value	Meaning
*XCS-CONFIGURATED	Display only for pubsets of an XCS configuration

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMS0011	Syntax error
	1	CMS0314	Syntax error for <cat-id>
	32	CMD0221	Internal system error
	32	CMS0310	Error during privilege checking
	32	CMS0311	Operand invalid
	32	CMS0313	Error during release of memory space
	32	CMS0316	Internal memory space error
	32	CMS0318	Synchronization error
	32	CMS031F	MRS parameter error
	64	CMS0013	Specified pubset not in the selected state
	64	CMS0312	MRSCAT entry not found
	64	CMS0317	Lock conflict in MRSCAT
	64	CMS031C	Invalid host name
	130	CMS0313	Error in memory space request
	130	CMS031A	MRSCAT not initialized
	130	CMS031B	Transfer error

Output format with INFORMATION = *STD:

Output line for pubsets

```
PUBSET catid : type, state [(PAGING)], [NOWAIT]
                         [ NK4-FORMAT / NK2-FORMAT / K-FORMAT] [...]
catid ::= catalog ID
type  ::= { SINGLE-FEATURE / SYSTEM-MANAGED }
state ::= { [PUBRES-UNIT=mn, ]LOCAL-HOME /
            [PUBRES-UNIT=mn, ]LOCAL-IMPORTED [,QUIET] /
            REMOTE-HOME [,QUIET] [,HOST= bcamname] /
            REMOTE-IMPORTED [,QUIET] [,HOST= bcamname] /
            INACC [,QUIET][,HOST=bcamname]
                  [,DEVICE={ (UNUSED) /  dtype }] [ PUBRES-UNIT=mn] }
```

The individual parts of the text have the following meaning:

Value	Meaning
SINGLE-FEATURE	The pubset is an SF pubset.
SYSTEM-MANAGED	The pubset is an SM pubset.
(PAGING)	Displayed if a paging area has been created on the pubset which is used by the local processor
LOCAL	Pubset is locally accessible.
REMOTE	No MSCF connection exists to the owner processor of the pubset (i.e. access to the file catalog is possible, but access to files is not).
INACC	A pubset is not accessible, but can, for instance, be accessible via RFA.
HOME DAB	The catalog belongs to a local or nonlocal processor.
IMPORTED	The pubset has been imported on a local or nonlocal processor.
QUIET	The connection to the pubset's master is temporarily interrupted.
NOWAIT	No particular meaning (displayed only for reasons of compatibility)
HOST= bcamname	BCAM name of the processor • on which the catalog is manged or • on which the catalog was last managed or • which was specified in the PARTNER-NAME operand.
NK4-FORMAT, NK2-FORMAT, K-FORMAT	Only for SF pubsets: Specifies whether a K or NK pubset is involved and how large the minimum transfer unit (TU) is.
[...]	Further values such as EXTRA-LARGE-CATALOG can be displayed.
DEVICE	Display type of the Pubres or “(UNUSED)”
PUBRES-UNIT	MN of the Pubres

Note

The status “INACC, QUIET” indicates that a master change could not be initiated or that it terminated abnormally. The pubset can be exported, or IMPORT-PUBSET ... SHARER-TYPE=*MASTER(MASTER-CHANGE=*YES) can be used to attempt a master change again.

Output line for volume sets:

```
VOLSET catid1 : state , CORRESPONDING PUBSET=catid2 [CONTROL VOLUME SET]

catid1 ::= volume set ID
catid2 ::= catalog ID of SM pubset
state  ::= { CONNECTED / IN_HOLD / DEFECTIVE / DEFINED_ONLY }
```

The individual parts of the text have the following meaning:

Value	Meaning
CORRESPONDING PUBSET	Catalog ID of the associated SM pubset
CONTROL_VOLUME_SET	Output for a control volume set only
CONNECTED	The volume set is in operation and accessible
IN_HOLD	The volume set is temporarily not in operation
DEFECTIVE	The volume set is defective
DEFINED_ONLY	The volume set is only defined

In some cases the second line of information is output:

- For SF pubsets only:

  If the user is authorized to request individual volumes of an SF pubset, the second line is output:

  ```
  PHYSICAL ALLOCATION BY USER ALLOWED
  ```

  For inaccessible high-availability pubsets, the following additional line is output:

  ```
  DRV PUBSET
  ```

- For SM pubsets only:

  If the SM pubset is in the process of being generated, the following additional line is output:

  ```
  GENERATION-IN-PROCESS
  ```

- For SF and SM pubsets only:

  For inaccessible pubsets for which an import job is in progress, the second line is output:

  ```
  IMPORT-IN-PROCESS
  ```

  For inaccessible pubsets for which an export job is in progress, the second line is output:

  ```
  EXPORT-IN-PROCESS
  ```

  For local shared pubsets for which a master change is in progress, an additional line is output:

  ```
  SHARED, MASTER-CHANGE-IN-PROCESS
  ```

  For local and accessible shared pubsets, an additional line is output:

  ```
  SHARED, MASTER-HOST= OWN-HOST / bcamname
  ```

In the case of an exclusive pubset, the nonprivileged user receives the following additional line:

```
ACCESS CONTROLLED, RESERVED TO OWN USERID
```

or

```
ACCESS CONTROLLED, RESERVED TO OTHER USERID
```

The *privileged* user receives the following additional line:

```
ACCESS CONTROLLED, RESERVED TO <userid>
```

If wildcards are used or *ALL is specified, the output ends with the number of entries found:

```
1 ENTRY FOUND
```

or

```
<integer> ENTRIES FOUND
```

Additional output for INFORMATION=*USER

Extra information is output relating to current pubset operating parameters and, in the case of SF pubsets, to the cache configuration. It is shown only for locally accessible pubsets.

Information on current pubset operating parameters

The information block begins with the following header line:

```
-- CURRENT PUBSET PARAMETERS---------------------------------------
```

Then the following lines of values are displayed:

- Information on the maximum I/O transfer length (2 KB):

```
MAXIMAL I/O LENGTH            | <n> HP
```

- For SF pubsets this is followed by information on the allocation values of the pubset:

```
ALLOCATION UNIT SIZE          | <n> HP
```

- For SF pubsets this is followed by information as to whether absolute space allocation is allowed for nonprivileged users or only for systems support staff:

```
PHYSICAL ALLOCATION           | BY ADMINISTRATOR
                              | USER ALLOWED
```

- Information on the Speedcat mode (for SF pubsets only):

```
SPEEDCAT MODE                 | NO SCA RUNNING
                              | SCA RUNNING
```

Information on the current PFA cache configuration (for SF pubsets only)

The information block begins with the following header line:

```
--- CURRENT CACHE-CONFIGURATION---------------------------------
```

Then the following lines of values are displayed:

- Information on the cache medium:

```
CACHE MEDIUM                | NO CACHE IN USE
                            | NONVOLATILE
                            | VOLATILE
```

The name sections have the following meanings:

`NO CACHE IN USE`	There is currently no cache area active for the pubset.
`NONVOLATILE`	There is a cache area active for the pubset in a nonvolatile cache medium. Full data consistency is guaranteed in the event of both power failure and system error.
`VOLATILE`	There is a cache area active for the pubset in a volatile cache medium. This may be main memory (MM). Data storage is volatile. If used as a write cache, data inconsistency may result in the event of a power failure or a system error.

If the cache is currently active, additional information is output relating to cache size and buffering mode:

- Information on cache size (in MB or KB):

```
CACHE SIZE                  | <n> MB
                            | <n> KB
```

- Displayed only for reasons of compatibility. :

```
DOUBLE BUFFERING             | YES
```

Output in S variable

The generation of S variables is dependent on the type of object (value of the S variable ENTRY-TYPE), the specification in the INFORMATION operand and, in some cases, on the accessibility of the pubset (value of the S variable STA):

Additional condition for generating the S variable	Abbreviated form used in table
MRSCAT entry for SM or SF pubset	1
MRSCAT entry for SM or SF pubset and INFORMATION=*USER	2
MRSCAT entry for SM pubset	3
MRSCAT entry for SF pubset	4
MRSCAT entry for SF pubset and INFORMATION=*USER	5
MRSCAT entry for volume set	6
Pubset is accessible	7

Output information	Name of the S variable	T	Contents	Condition
Access to pubset is checked	var(*LIST).ACCESS-CONTR	B	FALSE TRUE	1
Min. size of a memory space assignment for SF pubset (integers are specified right-justified in an eleven-character string)	var(*LIST).ALLOC-UNIT-SIZE	S	<integer> *UNDEF	5
Cache medium in use *NONE=No cache activated *NOT-VOLATILE=Nonvolatile cache activated *VOLATILE=Volatile cache activated	var(*LIST).CACHE-MED	S	*NONE *NOT-VOLATILE *VOLATILE	5
Cache size (integers are specified right-justified in an eleven-character string)	var(*LIST).CACHE-SIZE	S	*GLOBAL-CACHE 1..32767 *UNDEF	5
Unit of measurement for the cache size	var(*LIST).CACHE-SIZE-DIM	S	*KB *MB *UNDEF	5
Configuration status *DEFECTIVE=Volume set defective, not accessible *DEFI-ONLY=Volume set only defined, not accessible *IN-HOLD=Volume set partially not accessible *NORMAL-USE=Normal volume set status	var(*LIST).CONF-STA	S	*DEFECTIVE *DEFI-ONLY *IN-HOLD *NORMAL-USE	6

Volume set is control volume set	var(*LIST).CONTROL-VOLSET	B	FALSE TRUE	6
Pubset of the volume sets	var(*LIST).CORRESP-PUBSET	S	<cat-id>	6
Device type of the Pubres (pubset residence)	var(*LIST).DEV	S	*UNUSED STDDISK <dev-type>	1
Dual data recording in the cache	var(*LIST).DOUBLE-BUF	B	FALSE TRUE	5
High availability through DRV	var(*LIST).DRV-PUBSET	B	FALSE TRUE	4
Name of the MRSCAT entry	var(*LIST).ENTRY-NAME	S	<cat-id>	
Type of pubset/volume set entered in MRSCAT	var(*LIST).ENTRY-TYPE	S	*SINGLE-FEATURE *SYSTEM-MANAGED *VOLUME-SET	
Pubset in process of being exported	var(*LIST).EXP-IN-PROCESS	B	FALSE TRUE	1
Catalog format “extra large”	var(*LIST).EXTRA-LARGE-CATALOG	B	FALSE TRUE	7
Pubset format	var(*LIST).FORM	S	*K *NK2 *NK4 *UNDEF	4
Host name	var(*LIST).HOST	S	*UNDEF <host-name>	1
Pubset in process of being imported	var(*LIST).IMP-IN-PROCESS	B	FALSE TRUE	1
Pubset in process of being generated (SM pubset only)	var(*LIST).IN-GENERATION	B	FALSE TRUE	3
Large files (>= 32 GB) may be created	var(*LIST).LARGE-FILES-ALLOWED	B	FALSE TRUE	7
Large volumes (> 32 GB) are allowed	var(*LIST).LARGE-OBJECTS	B	FALSE TRUE	7
Change of the master system in the case of local shared pubset	var(*LIST).MASTER-CHA-PROCESS	B	FALSE TRUE	1

Max. size of a transfer unit (integers are specified right-justified in an eleven-character string)	var(*LIST).MAX-IO-LEN	S	<integer> *UNDEF	2
No meaning (displayed only for reasons of compatibility)	var(*LIST).NOWAIT	B	FALSE TRUE	1
Paging area exists on pubset	var(*LIST).PAGING	B	FALSE TRUE	1
Memory space assignment on disk of pubset by nonprivileged user	var(*LIST).PHYS-ALLOC	B	FALSE TRUE	5
Mnemonic device name of the Pubres (pubset residence)	var(*LIST).PUBRES-MN	S	*UNUSED <x-text 4..4> <alphanum 2..2>	1
Master system of the pubset	var(*LIST).PUBSET-MASTER	S	*OWN-HOST *UNDEF <host-name>	1
Temporary interruption of the MSCF connection	var(*LIST).QUIET	B	FALSE TRUE	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).RAID-PUBSET	B	FALSE TRUE	4
Shared pubset	var(*LIST).SHARE-PUBSET	B	FALSE TRUE	1
Optimizing catalog accesses by means of SPEEDCAT	var(*LIST).SPEEDCAT-MODE	B	FALSE TRUE	5
Status of the entered pubset/volume set *CONN=Volume set is connected to a system-managed pubset *LOC-HOME=Pubset local-home *LOC-IMP=Pubset imported locally *NOT-ACCESS=Pubset cannot be accessed *NOT-CONN=Volume set not connected to SM pubset *REM-HOME=Pubset remote home *REM-IMP=Pubset imported remotely	var(*LIST).STA	S	*CONN *LOC-HOME *LOC-IMP *NOT-ACCESS *NOT-CONN *REM-HOME *REM-IMP	
User ID which may access the pubset	var(*LIST).USER-ID	S	*OTHER *OWN *UNDEF <user-id>	1

Examples

Output in S variables

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-master-catalog-entry 2os*,inf=*user),text-output=*none,
              structure-output=var
/show-var var,inf=*par(val=*c-literal)
```

```
VAR#1.ENTRY-NAME = '2OSC'
VAR#1.ENTRY-TYPE = '*SYSTEM-MANAGED'
VAR#1.STA = '*LOC-IMP'
VAR#1.PAGING = FALSE
VAR#1.QUIET = FALSE
VAR#1.HOST = 'D016ZE07'
VAR#1.DEV = 'STDDISK'
VAR#1.PUBRES-MN = 'B0F4'
VAR#1.NOWAIT = FALSE
VAR#1.LARGE-OBJECTS = FALSE
VAR#1.LARGE-FILES-ALLOWED = FALSE
VAR#1.SHARE-PUBSET = TRUE
VAR#1.MASTER-CHA-PROCESS = FALSE
VAR#1.PUBSET-MASTER = 'D016ZE07'
VAR#1.IMP-IN-PROCESS = FALSE
VAR#1.EXP-IN-PROCESS = FALSE
VAR#1.ACCESS-CONTR = FALSE
VAR#1.USER-ID = '*UNDEF'
VAR#1.IN-GENERATION = FALSE
VAR#1.MAX-IO-LEN = '         36'
*END-OF-VAR
VAR#2.ENTRY-NAME = '2OSD'
.....
.....
.....
VAR#10.ENTRY-NAME = '2OS7'
VAR#10.ENTRY-TYPE = '*SINGLE-FEATURE'
VAR#10.STA = '*LOC-IMP'
VAR#10.PAGING = FALSE
VAR#10.QUIET = FALSE
VAR#10.HOST = 'D016ZE07'
VAR#10.DEV = 'STDDISK'
VAR#10.PUBRES-MN = 'B070'
VAR#10.NOWAIT = FALSE
VAR#10.FORM = '*K'
VAR#10.LARGE-OBJECTS = FALSE
VAR#10.LARGE-FILES-ALLOWED = FALSE
VAR#10.SHARE-PUBSET = TRUE
VAR#10.MASTER-CHA-PROCESS = FALSE
VAR#10.PUBSET-MASTER = 'D016ZE07'
VAR#10.IMP-IN-PROCESS = FALSE
VAR#10.EXP-IN-PROCESS = FALSE
VAR#10.ACCESS-CONTR = FALSE
VAR#10.USER-ID = '*UNDEF'
VAR#10.DRV-PUBSET = FALSE
VAR#10.RAID-PUBSET = FALSE
VAR#10.MAX-IO-LEN = '         36'
```

```
VAR#10.ALLOC-UNIT-SIZE = '          3'
VAR#10.PHYS-ALLOC = FALSE
VAR#10.SPEEDCAT-MODE = FALSE
VAR#10.CACHE-MED = '*NONE'
VAR#10.DOUBLE-BUF = FALSE
VAR#10.CACHE-SIZE = '*UNDEF'
VAR#10.CACHE-SIZE-DIM = '*UNDEF'
*END-OF-VAR
```

Output to SYSOUT

1. Information on the Home pubset:

   /show-master-cat *home

   ```
   PUBSET CAM1: SINGLE-FEATURE, PUBRES-UNIT=D000, LOCAL-HOME, NK2-FORMAT
   ```

2. Information on all SM pubsets:

   /show-master-cat *all,sel=*sys-managed

   ```
   PUBSET LISA: SYSTEM-MANAGED, INACC, DEVICE=STDDISK
   PUBSET SMPG: SYSTEM-MANAGED, INACC, DEVICE=STDDISK
   PUBSET S055: SYSTEM-MANAGED, INACC, DEVICE=STDDISK
   3 ENTRIES FOUND
   ```

3. Information on all paging pubsets:

   /show-master-cat *all,sel=*paging

   ```
   PUBSET 1OPP: SINGLE-FEATURE, PUBRES-UNIT=D147, LOCAL-IMPORTED (PAGING)
                K-FORMAT
   PUBSET 1OP1: SINGLE-FEATURE, PUBRES-UNIT=D149, LOCAL-IMPORTED (PAGING)
                K-FORMAT
   2 ENTRIES FOUND
   ```

4. Information on all volume sets:

   /show-master-cat *all,sel=*vol-set

   ```
   VOLSET CN55: NOT CONNECTED, CORRESPONDING PUBSET=S055
              CONTROL VOLUME SET
   VOLSET CN56: NOT CONNECTED, CORRESPONDING PUBSET=S055
   VOLSET ELSA: NOT CONNECTED, CORRESPONDING PUBSET=LISA
              CONTROL VOLUME SET
   VOLSET ELSB: NOT CONNECTED, CORRESPONDING PUBSET=LISA
   VOLSET ELSC: NOT CONNECTED, CORRESPONDING PUBSET=LISA
   VOLSET ELSD: NOT CONNECTED, CORRESPONDING PUBSET=LISA
   VOLSET ELSE: NOT CONNECTED, CORRESPONDING PUBSET=LISA
   VOLSET ELSF: NOT CONNECTED, CORRESPONDING PUBSET=LISA
   VOLSET 0   : NOT CONNECTED, CORRESPONDING PUBSET=SMPG
              CONTROL VOLUME SET
   9 ENTRIES FOUND
   ```

6.34 SHOW-MEMORY-CONFIGURATION

Show current main memory configuration

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	STD-PROCESSING TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	R

Function

The SHOW-MEMORY-CONFIGURATION command provides information on the current configuration of the main memory. The information output is to SYSOUT and includes the sizes of the real main memory management such as total size, minimum size, size of the pageable part, size of the resident main memory currently available and the degree of main memory saturation. On SU x86 an additional block is output with the sizes for the big page memory management.

The command supports structured output in S variables (see "Output in S variable").

Format

SHOW-MEMORY-**CON**FIGURATION

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed
	1	CMD2201	Interface error between SDF and command server
	3	CMD2203	SDF version not supported
	32	EMM2800	Internal error; guaranteed message: EMM2828
	64	CMD0216	Privilege error
	130	EMM2807	Operation cannot be executed due to lack of resources Guaranteed message: EMM2829

Output information

The output consists of the following two sections:

1. The sizes for the real memory management are output under the heading *REAL MEMORY MANAGEMENT REPORT*.
2. *This section is only output on SU x86:* The sizes for the big page management are output under the heading *BIG PAGE MANAGEMENT REPORT*.

Sample output

`/show-memory-configuration`

```
REAL MEMORY MANAGEMENT REPORT :
                 MEM-SIZE        MIN-MEM-SIZE          CSL
                  3948 MB             3948 MB            0
    FREE-CORE-SIZE    FREE-MEM-SIZE    PAGE-MEM-SIZE    SEMI-MEM-SIZE
        1113.84 MB       2229.19 MB       2229.19 MB         20.79 MB
BIG PAGE MANAGEMENT REPORT :
 QUOTA     PLANNED   #LM      ACTUAL        FREE         SHR    FREE-SHR
  40 %     1588 MB     4     1584 MB     1324 MB       64 MB        0 MB
                     REDUCE                  EXTEND
                         CORE                    BIGP
```

Key

Info column	Meaning
REAL MEMORY MANAGEMENT REPORT (sizes for the real memory management)	
`MEM-SIZE`	Size of the real main memory in Mbytes
`MIN-MEM-SIZE`	Minimum size of the real main memory in Mbytes (in a VM2000 guest system MIN-MEM-SIZE can be less than MEM-SIZE; in native mode the values are identical)
`CSL`	Current main memory saturation level; possible values: 0 (no saturation), 1, 2 or 3 (highest alarm level)
`FREE-CORE-SIZE`	Proportion of free main memory which is still available for resident class 3 memory requests of the system (is decisive for the main memory saturation level)
`FREE-MEM-SIZE`	Proportion of free main memory which is available for the remaining resident memory requests such as resident memory pools or data spaces (with a main memory <= 2 GB, FREE-CORE- and FREE-MEM-SIZE are identical)
`PAGE-MEM-SIZE`	Size of the main memory which is available for nonresident, pageable pages (in systems in which MEM-SIZE and MIN-MEM-SIZE are identical, FREE-MEM-SIZE and PAGE-MEM-SIZE are also identical)
`SEMI-MEM-SIZE`	Size of the main memory which is available for semi-resident pages. Is part of the main memory used on a nonresident basis, which corresponds to PAGE-MEM-SIZE. Semi-resident pages are used mainly by DAB caches with MEMORY=*ABOVE/*ANY.

BIG PAGE MANAGEMENT REPORT (sizes for the BIG PAGE memory management)	
QUOTA	Percentage of the main memory which is to be used as big page memory (and which can be set using the BIG-PAGE-QUOTA parameter or MODIFY-MEMORY-PARAMETERS command)
PLANNED	Planned size of the big page memory in Mbytes which is calculated from the main memory size (MEM-SIZE) and the percentage (QUOTA)
#LM	Maximum possible number of logical machines (CPUs) in the system (the larger this value, the smaller the size of the big page memory)
ACTUAL	Current size of the big page memory (actual size) in MB The value can deviate from the planned size (PLANNED) if, for example, the big page memory was reduced owing to a threat of main memory saturation
FREE	Size of the free (unused) big page memory in Mbytes
SHR	Size of the envisaged shared big page memory for CISCFW compiled codes in class-3 memory in Mbytes
FREE-SHR	Size of the free shared big page memory in Mbytes
REDUCE	Determines when the big page memory may be cleared; possible values: • CORE when there is a threat of main memory saturation (ON-CORE-SATURATION) • QUOTA when the BIG-PAGE-QUOTA is exceeded • CORE/QUOTA combination of the two settings
EXTEND	Determines when the big page memory may be extended; possible values: • BIGP in case of a lack of free big pages (ON-BIG-PAGE-SATURATION) • QUOTA when the BIG-PAGE-QUOTA is not reached • BIGP/QUOTA combination of the two settings

Table 130: Output information of the SHOW-MEMORY-CONFIGURATION command

Notes

- The following applies for the sizes of the real memory management:
  1. *MEM-SIZE* >= *MIN-MEM-SIZE* > *FREE-MEM-SIZE* >= *FREE-CORE-SIZE*
  2. *MEM-SIZE* > *PAGE-MEM-SIZE* >= *FREE-MEM-SIZE* >= *FREE-CORE-SIZE*
- DAB buffer and CISCFW memory are created in the memory designated with FREE-MEM-SIZE. Nevertheless, main memory saturation can be eradicated by reducing DAB buffers or terminating programs if FREE-MEM-SIZE minus CORE-SIZE is less than the size of the DAB buffers. If this is not the case, measures for reducing the class 3 memory or address spaces (tasks, data spaces) are required.
- The sizes QUOTA and REDUCE displayed in big page management can be modified using the MODIFY-MEMORY-PARAMETERS command.

For further details, please see “Main memory management” in the manual “Introduction to System Administration” [14].

Output in S variable

The S variables for the sizes of the big page memory management are only output on one SUx86 (see “SU x86” in the “Condition” column).

Output information	Name of the S variable	T	Contents	Condition
Size of the real memory in Mbytes	var(*LIST).MEM-SIZE	I	<integer 1..4194304>	
Minimum size of the real memory in Mbytes	var(*LIST).MIN-MEM-SIZE	I	<integer 1..4194304>	
current main memory saturation level	var(*LIST).CORE-SATUR-LEV	I	<integer 0..3>	
Free main memory available for the resident class 3 memory requests	var(*LIST).FREE-CORE-SIZE	I	<integer 0..2048>	
Free main memory available for the remaining resident memory requests	var(*LIST).FREE-MEM-SIZE	I	<integer 1..4194304>	
Size of the main memory for nonresident, pageable pages	var(*LIST).PAGE-MEM-SIZE	I	<integer 1..4194304>	
Size of the main memory for semi-resident pages	var(*LIST).SEMI-MEM-SIZE	I	<integer 1..4194304>	
Percentage of main memory which is to be used as big page memory	var(*LIST).BIG-PAGE-QUOTA	I	<integer 0..99>	SU x86
Planned size of the big page memory in Mbytes	var(*LIST).PLAN-BPSIZE	I	<integer 1..4194304>	SU x86
Number of the possible logical machines of the system (CPUs)	var(*LIST).NUM-OF-LM	I	<integer 1..32>	SU x86
Actual size of the big page memory in Mbytes	var(*LIST).ACTUAL-BPSIZE	I	<integer 1..4194304>	SU x86
Size of the free (unused) big page memory	var(*LIST).FREE-BPSIZE	I	<integer 1..4194304>	SU x86
Size of the shared big page memory in Mbytes	var(*LIST).SHARED-BPSIZE	I	<integer 0..256>	SU x86
Size of the free shared big page memory in Mbytes	var(*LIST).FREE-SHARED-BPSIZE	I	<integer 0..256>	SU x86

Output information	Name of the S variable	T	Contents	Condition
Specification whether, and if yes, when a reduction of the big page memory is allowed, except in case of memory reduction	var(*LIST).REDUCE-BIG-PAGES	S	QUOTA CORE CORE/QUOTA NO	SU x86
Specification whether, and if yes, when an extension of the big page memory is allowed, except in case of memory extension	var(*LIST).EXTEND-BIG-PAGES	S	QUOTA BIGP BIGP/QUOTA NO	SU x86

6.35 SHOW-MEMORY-POOL-STATUS

Show current connection to memory pools

Component:	BS2000
Functional area:	System control and optimization
Domain:	PROGRAM
Privileges:	STD-PROCESSING SW-MONITOR-ADMINISTRATION TSOS

Function

The SHOW-MEMORY-POOL-STATUS provides information on common memory pools which currently exist in the system. Local memory pools are not displayed. The output is directed to SYSOUT. The name, scope and number of connected tasks are displayed. The TSNs of the connected tasks can also be requested.

Nonprivileged users are only ever shown the nonprivileged memory pools to which a task of their user ID is connected. Only tasks of the home user ID are listed in the list of sharer tasks.

The following options are provided to restrict the volume of information:

- Display for a particular name or name space
- Display for a particular scope
- Display for memory pools with particular attributes

The maximum number of TSNs to be included in the display of the connected tasks can also be defined (the default value is 45).

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Privileged users (TSOS or SW-MONITOR-ADMINISTRATION privilege) can also obtain information on memory pools to which their own task has no connection. All sharer tasks are displayed, irrespective of the user ID. The PRIVILEGED-POOL operand is available to select privileged memory pools.

Callers with the STD-PROCESSING privilege can only obtain information on all the memory pools to which they are connected.

Format

SHOW-MEMORY-POOL-STATUS

POOL-NAME = ***ALL** / <name 1..54 with-wild>

,**SCOPE** = ***ANY** / ***GROUP**(...) / ***USER-GROUP**(...) / ***GLOBAL**

***GROUP**(...)

| **USER-ID**ENTIFICATION = ***ANY** / ***OWN** / <name 1..8>

***USER-GROUP**(...)

| **GROUP-ID**ENTIFICATION = ***ANY** / ***OWN** / <name 1..8>

,**SEL**ECT = ***ALL** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **CONN**ECTION = ***ANY** / ***BY-USER**(...) / ***BY-TASK**(...)

| ***BY-USER**(...)

| | **USER-ID**ENTIFICATION = ***OWN** / <name 1..8>

| ***BY-TASK**(...)

| | **TSN** = ***OWN** / <alphanum-name 1..4>

| ,**PRIV**ILEGED-**POOL** = ***ANY** / ***Y**ES / ***NO**

,**INF**ORMATION = ***STD** / ***ALL**(...)

***ALL**(...)

| **NUM**BER-**OF-SHARERS** = **45** / <integer 1..4096>

Operands

POOL-NAME = *ALL / <name 1..54 with-wild>
Specifies the name of the memory pool which is to be displayed.

POOL-NAME = *ALL
All memory pools are displayed.

POOL-NAME = <name 1..54 with-wild>
Only the specified memory pool is displayed. When wildcards are specified, all memory pools are displayed whose name matches the wildcard string.

SCOPE = *ANY / *GROUP(...) / *USER-GROUP(...) / *GLOBAL
Specifies whether only memory pools with a particular scope are to be displayed.

SCOPE = *ANY
The memory pools are displayed irrespective of their scope.

SCOPE = *GROUP(...)
Only memory pools with SCOPE=GROUP are displayed.

USER-IDENTIFICATION = *ANY / *OWN / <name 1..8>
Only memory pools which were created by the specified user ID are displayed. Here *OWN identifies the user ID of the calling task. *ANY specifies that memory pools are displayed irrespective of the user ID.

SCOPE = *USER-GROUP(...)
Only memory pools with SCOPE=USER-GROUP are displayed.

GROUP-IDENTIFICATION = *ANY / *OWN / <name 1..8>
Only memory pools which were created by the specified user ID are displayed. Here *OWN identifies the user ID to which the calling task belongs.*ANY specifies that memory pools are displayed irrespective of the user ID.

SCOPE = *GLOBAL
Only memory pools with SCOPE=GLOBAL are displayed.

SELECT = *ALL / *PARAMETERS(...)
Specifies whether the set of memory pools defined by the POOL-NAME and SCOPE operands are to be restricted by selection criteria.

SELECT = *ALL
The display takes place irrespective of other selection criteria.

SELECT = *PARAMETERS(...)
Restricts the set of memory pools specified by the POOL-NAME and SCOPE operands by means of selection criteria. Only memory pools which satisfy all the subsequent criteria are to be output.

The default value *ANY means that the corresponding attribute is not a selection criterion.

CONNECTION = *ANY / *BY-USER(...) / *BY-TASK(...)
Specifies whether the memory pools are to be displayed in accordance with the connected tasks.

CONNECTION = *BY-USER(...)
Only memory pools to which a task of the subsequently specified user ID is connected are displayed.

USER-IDENTIFICATION = *OWN / <name 1..8>
User ID of the connected task. The default *OWN specifies the caller’s user ID. Only privileged users can have memory pools displayed to which the tasks of a different user ID are connected.

CONNECTION = *BY-TASK(...)
Only memory pools to which the specified task is connected are displayed.

TSN = *OWN / <alphanum-name 1..4>
TSN of the connected task. The default *OWN specifies the caller’s tasks.

PRIVILEGED-POOL = *ANY / *YES / *NO
This operand is available only to privileged users.
Specifies if privileged memory pools also are to be displayed.

INFORMATION = *STD / *ALL(...)
Specifies the scope of the information which is to be displayed. The default *STD displays the attributes of the memory pool and the number of connected tasks.

INFORMATION = *ALL(...)
The attributes of the memory pool and the number of connected tasks are displayed. In addition, all connected tasks are listed with their TSNs.

NUMBER-OF-SHARERS = 45 / <integer 1..4096>
Specifies the maximum number of tasks which may be listed.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
1	0	EMM3310	No suitable memory pool exists in the system
2	0	EMM3311	Specified memory pool exists, but not connected
	32	EMM3312	Internal system error
	64	CMD0216	Required privileges for call missing
	64	EMM3313	Specified task does not exist in the system
	64	EMM3314	Specified user ID/group ID does not exist in the system
	130	EMM3318	Insufficient virtual memory

Output format

The following attributes are displayed in one output line (if necessary with a continuation line) for each selected memory pool:

Output field	Meaning
POOL-NAME	Name of the memory pool
SCOPE	Scope of the memory pool, displayed with GLOBAL, GROUP or USER-GROUP
USER-ID	*Only when SCOPE=*GROUP:* User ID under which the memory pool was created
GROUP-ID	*Only when SCOPE=*USER-GROUP:* Group name under which the memory pool was created
NUMBER-OF-SHARERS	Number of connected tasks
LIST-OF-SHARERS	*Output only when INFORMATION=*ALL:* List of the TSNs of the connected tasks. One line can contain up to 9 TSNs. Continuation lines may be output. A nonprivileged user is only shown the tasks under his/her user ID.

Table 131: Information on memory pools

Output in S variable

The SCOPE and INFORMATION operands of the command identify the S variables which are to be created.

Output information	Name of the S variable	T	Contents	Condition
Group name under which the memory pool was created	var(*LIST).GROUP-ID	S	<c-string 1..8>	SCOPE=*USER-GROUP
Number of connected tasks	var(*LIST).NUM-OF-SHARER	I	<integer 1..4096>	
Name of the memory pool	var(*LIST).POOL-NAME	S	<c-string 1..54>	
Scope of the memory pool	var(*LIST).SCOPE	S	*GLOBAL *GROUP *USER-GROUP	
TSN of the connected task	var(*LIST).TASK(*LIST)	S	<c-string 4..4>	INF=*ALL
User ID under which the memory pool was created	var(*LIST).USER-ID	S	<c-string 1..8>	SCOPE=*GROUP

Example

/sh-mem-pool inf=*all

```
POOL-NAME          DISK10#SIMVOL#MP
SCOPE              GROUP
USER-ID            K60
NUMBER-OF-SHARERS  3
LIST-OF-SHARERS    4WCZ  4WCY  4WCX
POOL-NAME          PASCALXT#MEMORYPOOL#V21A00
SCOPE              GLOBAL
NUMBER-OF-SHARERS  15
LIST-OF-SHARERS    0S4N  0S39  0S38  0S37  0S4F  0S4H  0S5I  0S5M  0S5N
                   0S4C  0S4K  0S4L  0S5H  0S6I  0S7K
POOL-NAME          DBSWNMBACOMMONPL0003
SCOPE              USER-GROUP
GROUP-ID           MBASE
NUMBER-OF-SHARERS  2
LIST-OF-SHARERS    20L2  20KT
```

6.36 SHOW-MIP-PARAMETERS

Show entries in MIP parameter file

Component:	MIP
Functional area:	Message processing
Domain:	MESSAGE-PROCESSING
Privileges:	TSOS

Function

The SHOW-MIP-PARAMETERS command provides information about the system's currently applicable message file allocation table or about the entries in a specified MIP parameter file.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-MIP-PARAMETERS

SCOPE = ***TEMP**ORARY / ***NEXT-SESSION**(...)

***NEXT-SESSION**(...)

| **PAR**AMETER**-FILE** = ***CURR**ENT / <filename 1..54 without-gen>

Operands

SCOPE = *TEMPORARY / *NEXT-SESSION(...)
Determines whether the information that is required is the system's currently applicable message file allocation table or the entries in an MIP parameter file.

SCOPE = *TEMPORARY
Indicates which message file allocation table is applicable to the current system session. The information covers all the message files which are active on system level.

SCOPE = *NEXT-SESSION(...)
Specifies the MIP parameter file from which information is to be displayed.
The message file names contained in the file are shown in the order in which they appear in the MIP parameter file.

PARAMETER-FILE = *CURRENT / <filename 1..54 without-gen>
Specifies the MIP parameter file from which information is to be displayed.

PARAMETER-FILE = *CURRENT
The entries for the default MIP parameter file SYSSSI.MIP.vvv (vvv = current BS2000 version, e.g. SYSPAR.MIP.190 in BS2000 OSD/BC V10.0) are displayed.

PARAMETER-FILE = <filename 1..54 without-gen>
Name of the MIP parameter file from which information is to be taken.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
32	0	NMH1122	Warning
32	0	NMH1129	Warning
	32	CMD2009	Internal error
	32	NMH1121	Internal error
	64	CMD0216	Semantic error
	64	OPS0001	Correct retry error

Output in S variables

The SCOPE operand identifies the file on which information is to be output. The values *TEMPORARY/*NEXT-SESSION (given in the table in abbreviated form as *TEMP/*NEXT) are possible for SCOPE.

Output information	Name of the S variable	T	Contents	Condition
DLAM access to message file	var(*LIST).F(*LIST).DLAM	B	FALSE TRUE	SCOPE=*TEMP
		B	FALSE	SCOPE=*NEXT
Name of the message file	var(*LIST).F(*LIST).F-NAME	S	<filename>	
ISAM access to the message file	var(*LIST).F(*LIST).ISAM	B	FALSE TRUE	SCOPE=*TEMP
		B	FALSE	SCOPE=*NEXT
Scope of the message file	var(*LIST).F(*LIST).SCOPE	S	*SYS	
Language to be used throughout the system for message output	var(*LIST).SYS-LANG(*LIST)	S	<name 1..1>	

Example

/show-mip-par

```
          NUMBER OF
     SYSTEM MESSAGES-FILES    : 165

    SYSTEM
   LANGUAGES   : ED

          MESSAGES-FILES NAMES                          OPEN
:SQGB:$TSOS.SYSMES.TASKDATE.200                        S I
:SQGB:$TSOS.SYSMES.OPENFT-AC.121                       S I
:SQGB:$TSOS.SYSMES.ONETSTOR.030                        S I
:SQGB:$TSOS.SYSMES.OPENFT.121                          S I
:SQGB:$TSOS.SYSMES.ASE.010                             S I+L
:SQGB:$TSOS.SYSMES.TCP-IP-AP.053                       S I
:SQGB:$TSOS.SYSMES.PRNGD.011                           S I
:SQGB:$TSOS.SYSMES.OSS.041                             S I
:SQGB:$TSOS.SYSMES.MAIL.034.MAILCLNT                   S I
:SQGB:$TSOS.SYSMES.REWAS.020                           S I
:SQGB:$TSOS.SYSMES.CAPRI.020                           S I
:SQGB:$TSOS.SYSMES.JITSYS.070                          S I
:SQGB:$TSOS.SYSMES.IOCFCOPY.190                        S I
:SQGB:$TSOS.SYSMES.DCAM.133                            S I
:SQGB:$TSOS.SYSMES.DAB.095                             S D+I+L
:SQGB:$TSOS.SYSMES.CRYPT.020                           S I

   .
   .
   .
:SQGB:$TSOS.SYSMES.GCF.020                             S I
:SQGB:$TSOS.SYSMES.SRPMOPT.054                         S I
:SQGB:$TSOS.SYSMES.SECOS-KRB.054                       S I
:SQGB:$TSOS.SYSMES.BCAM.240                            S I
:SQGB:$TSOS.SYSMES.BS2CP.200                           S D+I+L
:SQGB:$TSOS.SYSMES.EKP.01                              S I
```

6.37 SHOW-MOUNT-PARAMETER

Request mount presettings for disks and tapes

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE OPERATING
Routing code:	E

Function

The following specifications may be made in regard to the mounting and dismounting of private volumes.

- Handling of mount requests for private disks (DISK-MOUNT)
  The following values can be specified for DISK-MOUNT:

  YES: Default value; mount requests are displayed on the console

  NO: Mount requests are rejected by the system. REMOUNT and INOP messages are displayed as before.

- Handling of mount requests for tapes (TAPE-MOUNT)
  The following values can be specified for TAPE-MOUNT:

  YES: Default value; mount requests are displayed on the console

  NO: Mount requests are rejected by the system. REMOUNT and INOP messages are displayed as before.

- Automatic allocation of tapes already mounted (ALLOCATE-TAPE)The following values can be specified for ALLOCATE-TAPE:

  YES: Default value; tapes already mounted are allocated by the system (without MOUNT, PREMOUNT or REMOUNT request).

  NO: Tapes already mounted are allocated by the operator (MOUNT, PREMOUNT or REMOUNT message on console).

- Handling of released tapes (UNLOAD-RELEASED-TAPE)
  The following values can be specified for UNLOAD-RELEASED-TAPE:

  ACCORDING-TO-USER-REQ:

  Default value; tape and MTC devices are only unloaded on being released if this is requested by the user.

  REGARDLESS-OF-USER-REQ(ALL):

  Tape and MTC devices are unloaded automatically on being released, regardless of any user requests.

  REGARDLESS-OF-USER-REQ(MBK):

  MTC devices are unloaded automatically on being released, regardless of any user requests. Tape devices are only unloaded if this is requested by the user.

IGNORE-USER-REQ:

The user request for unloading is ignored for tape devices. For MTC devices, the request for unloading is ignored if the device is being operated in *MANUAL* mode, otherwise the device is unloaded on request by the user.

- Selection of suitable free tape devices or MTCs (TAPE-SELECT)
  The following values can be specified for TAPE-SELECT:

  BEST-GENERATED:

  Default value; selects the first suitable free device from the list of generated devices.

  LEAST-RECENTLY:

  Selection from the set of all suitable free devices, where the device with the least period of use is selected (balanced device loading).

  BY-CONTROLLER:

  Selection from the set of all suitable free devices, where the device connected to the controller which has the lowest utilization is selected.
- Control of PREMOUNT message output (PREMOUNT-MSG)
  The following values can be specified for PREMOUNT-MSG:

  ACCORDING-TO-USER-REQ

  Default value; output compatible with BS2000/OSD-BC V2.0.

  IGNORE-USER-REQ

  No PREMOUNT messages are output.

  PROCESS-USER-REQ-ASYNCH

  Output of PREMOUNT messages which do not require a response.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-MOUNT-PARAMETER

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
	32	CMD2009	Error during S variable output (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Internal error during initialization of the command server
	130	NKD0010	Disk or tape monitor is temporarily not available; the command was not executed
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Output format

The following two header lines are displayed, each accompanied by a values line.

Header line 1:

```
% DISK-MOUNT TAPE-MOUNT ALLOCATE-TAPE UNLOAD-RELEASED-TAPE
```

Header line 2:

```
% TAPE-SELECT           PREMOUNT-MSG
```

If settings which differ from the global settings exist for a location, 2 header lines, each accompanied by a values line, are also displayed for this location:

Header line 1:

```
% LOCATION   TAPE-MOUNT ALLOCATE-TAPE UNLOAD-RELEASED-TAPE
```

Header line 2:

```
% TAPE-SELECT           PREMOUNT-MSG
```

See also section "Information services of device management: Meanings of the output values of SHOW commands"
.

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Allocation of tapes which are already mounted	var(*LIST).ALLOC-TAPE	S	*NO *YES	
Show mount requests for private disks	var(*LIST).DISK-MOUNT	S	*NO *YES	
Name of the location for which the settings apply	var(*LIST).LOCATION	S	<location>	
Output PREMOUNT messages for tapes	var(*LIST).PREMOUNT	S	*ACCORDING-TO-USER-REQ *IGNORE-USER-REQ *PROCESS-USER-REQ-ASYNCH	
Show mount requests for tapes	var(*LIST).TAPE-MOUNT	S	*NO *YES	
Free tape selection	var(*LIST).TAPE-SEL	S	*BEST-GENERATED *LEAST-RECENTLY-USED *BY-CONTROLLER	
Handling of released tapes	var(*LIST).UNLOAD	S	*ACCORDING-TO-USER-REQ *IGNORE-USER-REQ *REGARDLESS-OF-USER-REQ(MBK) *REGARDLESS-OF-USER-REQ	

Example

/show-mount-par

```
%  DISK-MOUNT TAPE-MOUNT ALLOCATE-TAPE UNLOAD-RELEASED-TAPE
%     YES        YES          YES      ACCORDING-TO-USER-REQ
%  TAPE-SELECT         PREMOUNT-MSG
%  BEST-GENERATED      ACCORDING-TO-USER-REQ
%
%  LOCATION   TAPE-MOUNT ALLOCATE-TAPE UNLOAD-RELEASED-TAPE
%  ROBOT1        YES          YES      ACCORDING-TO-USER-REQ
%  TAPE-SELECT         PREMOUNT-MSG
%  BY-CONTROLLER       ACCORDING-TO-USER-REQ
```

6.38 SHOW-MSG-FILE-ASSIGNMENT

Display message files currently in use

Component:	MIP
Functional area:	Message processing
Domain:	MESSAGE-PROCESSING
Privileges:	STD-PROCESSING TSOS SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-MSG-FILE-ASSIGNMENT command outputs the following information to SYSOUT:

- number of active message files
- language used for message output
- names of the active message files with scope and access method.

The information output can also be limited according to the scope of the active message files (system-wide, or for one task only).

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-MSG-FILE-ASSIGNMENT
INFORMATION = **<u>*ALL</u>** / ***SYS**TEM / ***TASK**

Operands

INFORMATION =
Specifies the scope of information output.

INFORMATION = <u>*ALL</u>
Provides information on all message files activated in the system and on those activated for the task.
The system message files are followed by the message files activated for the task.

INFORMATION = *SYSTEM
Provides information on all the message files activated at the system level.

INFORMATION = *TASK
Provides information on all the message files activated for the task.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
	1	NMH1174	Syntax error
	32	NMH1121	Internal error Guaranteed message: NMH1154
	32	CMD2009	Internal error during S variable generation
	64	CMD0216	Semantic error
	64	OPS0001	SDF-P reporting space problems

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The possible values for INFORMATION are *ALL/*SYSTEM/*TASK.

Output information	Name of the S variable	T	Contents	Condition
DLAM access to the message file	var(*LIST).F(*LIST).DLAM	B	FALSE TRUE	INF=*ALL/ *SYSTEM/ *TASK
Name of the message file	var(*LIST).F(*LIST).F-NAME	S	<filename>	INF=*ALL/ *SYSTEM/ *TASK
ISAM access to the message file	var(*LIST).F(*LIST).ISAM	B	FALSE TRUE	INF=*ALL/ *SYSTEM/ *TASK
Scope of the message file	var(*LIST).F(*LIST).SCOPE	S	*SYS	INF=*ALL/ *SYSTEM
		S	*TASK	INF=*ALL/ *TASK
System-wide language used for message output	var(*LIST).SYS-LANG (*LIST)	S	<name 1..1>	INF=*ALL/ *SYSTEM
Task-specific language used for message output	var(*LIST).TASK-LANG	S	'' <name 1..1>	INF=*ALL/ *TASK

Examples

Output in S variable

/declare-variable var-name=var(type=*structure),multiple-elem=*list
/exec-cmd (show-msg-file-assign inf=*task),text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal)

```
VAR(*LIST).TASK-LANG = ' '
VAR(*LIST).F(*LIST).F-NAME = ':2OSG:$USER1.USER.MELDUNGSDATEI.1 '
VAR(*LIST).F(*LIST).ISAM = TRUE
VAR(*LIST).F(*LIST).DLAM = FALSE
VAR(*LIST).F(*LIST).LOCAL-DLAM = FALSE
VAR(*LIST).F(*LIST).SCOPE = '*TASK'
*END-OF-VAR
```

/exec-cmd (show-msg-file-assign inf=*sys),text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)

```
VAR#1.SYS-LANG#1 = 'E'
VAR#1.SYS-LANG#2 = 'D'
VAR#1.F#2.F-NAME = ':SQGB:$TSOS.SYSMES.TASKDATE.200 '
VAR#1.F#2.ISAM = TRUE
VAR#1.F#2.DLAM = FALSE
VAR#1.F#2.LOCAL-DLAM = FALSE
VAR#1.F#2.SCOPE = '*SYS'
*END-OF-VAR
........
........
........
*END-OF-VAR
VAR#1.F#154.F-NAME = ':SQGB:$TSOS.SYSMES.SDF-P-BASYS.025 '
VAR#1.F#154.ISAM = TRUE
VAR#1.F#154.DLAM = FALSE
VAR#1.F#154.LOCAL-DLAM = FALSE
VAR#1.F#154.SCOPE = '*SYS'
*END-OF-VAR
VAR#1.F#155.F-NAME = ':1OSH:$TSOS.SYSMES.BS2CP.200 '
VAR#1.F#155.ISAM = TRUE
VAR#1.F#155.DLAM = TRUE
VAR#1.F#155.LOCAL-DLAM = TRUE
VAR#1.F#155.SCOPE = '*SYS'
*END-OF-VAR
VAR#1.F#156.F-NAME = ':SQGB:$TSOS.SYSMES.EKP.01 '
VAR#1.F#156.ISAM = TRUE
VAR#1.F#156.DLAM = FALSE
VAR#1.F#156.LOCAL-DLAM = FALSE
VAR#1.F#156.SCOPE = '*SYS'
*END-OF-VAR
*END-OF-VAR
```

Output to SYSOUT

/mod-msg-file-assign add-file=user.meldungsdatei.1 ——— (1)

```
%  NMH1102 MESSAGE OUTPUT FILE ':2OSG:$USER1.USER.MELDUNGSDATEI.1', ACCESS=ISAM
 ACTION=ADD
%  NMH1180 FILE ':2OSG:$USER1.USER.MELDUNGSDATEI.1' HAS BEEN ADDED
```

/show-msg-file-assign ——————————————————————— (2)

```
NUMBER OF SYSTEM MESSAGES-FILES : 165
NUMBER OF TASK MESSAGES-FILES :   1

SYSTEM LANGUAGES : ED
TASK LANGUAGE  :     TASK SEARCH : *ALL

          MESSAGES-FILES NAMES                          OPEN
:SQGB:$TSOS.SYSMES.TASKDATE.200                        S I
:SQGB:$TSOS.SYSMES.OPENFT-AC.121                       S I
:SQGB:$TSOS.SYSMES.ONETSTOR.030                        S I
:SQGB:$TSOS.SYSMES.OPENFT.121                          S I
:SQGB:$TSOS.SYSMES.ASE.010                             S I+L
:SQGB:$TSOS.SYSMES.TCP-IP-AP.053                       S I
:SQGB:$TSOS.SYSMES.PRNGD.011                           S I
:SQGB:$TSOS.SYSMES.OSS.041                             S I
:SQGB:$TSOS.SYSMES.MAIL.034.MAILCLNT                   S I
:SQGB:$TSOS.SYSMES.REWAS.020                           S I
:SQGB:$TSOS.SYSMES.CAPRI.020                           S I
:SQGB:$TSOS.SYSMES.JITSYS.070                          S I
:SQGB:$TSOS.SYSMES.IOCFCOPY.190                        S I
:SQGB:$TSOS.SYSMES.DCAM.133                            S I
:SQGB:$TSOS.SYSMES.DAB.095                             S D+I+L
  .
  .
  .
:SQGB:$TSOS.SYSMES.SDF.048                             S I
:SQGB:$TSOS.SYSMES.SDF-A.041                           S I
:SQGB:$TSOS.SYSMES.SDF-CONV.030                        S I
:SQGB:$TSOS.SYSMES.SDF-I.041                           S I
:SQGB:$TSOS.SYSMES.SDF-P-BASYS.025                     S I
:SQGB:$TSOS.SYSMES.BS2CP.200                           S D+I+L
:SQGB:$TSOS.SYSMES.EKP.01                              S I
:2OSG:$USER1.USER.MELDUNGSDATEI.1                      T I
```

(1) Adds the task message file *USER.MESSAGEFILE.1*.

(2) Displays all system and task message files assigned to the task (only part of the system message file output is shown here).

Note

The meanings of the codes in the output column headed “OPEN” are as follows:

- The first code refers to the scope of the message file (S for system, T for task)
- The second code refers to the file access method (I for ISAM, D for DLAM)

6.39 SHOW-MSG-OPTIONS

Show unsolicited message logging options

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-MSG-OPTIONS command lists the parameter settings defined with the MODIFY-MSG-OPTIONS options command which govern the output of unsolicited messages. The values shown apply only to the task issuing the command.

The user can configure message reception requirements separately for three types of message:

- job-related messages sent to that user by systems support using the INFORM-JOB command
- messages sent to all users by systems support using the INFORM-ALL-JOBS command (broadcasts)
- messages from system tasks (e.g. on completion of a file transfer)

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-MSG-OPTIONS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	NBR0034	Error during command execution
	32	CMD2009	Error on structured output in S variables
	64	CMD0216	User does not have required privilege

Output information

In an interactive task, the information begins with the following header line:

```
% OP-BROADCAST I OP-MSG I SYSTEM-MSG I INFO-OUTPUT
```

The values shown in the output line which follows correspond to the operand values set in the MODIFY-MSG-OPTIONS command.

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Operator broadcast is output	var(*LIST).OPER-BROAD	S	*NO *YES	
Operator message output is desired	var(*LIST).OPER-MSG	S	*NO *YES	
Standard output desired	var(*LIST).STD-OUT	S	*NO *YES	
Output in system line desired	var(*LIST).SYS-LINE-OUT	S	*NO *YES	
Output of asynchronous system messages desired	var(*LIST).SYSTEM-MSG	S	*NO *YES	

Example

/show-msg-opt ——————————————————————————————————————— (1)

```
%  I OP-BROADCAST I OP-MSG I SYSTEM-MSG I INFO-OUTPUT
%        YES     I  YES   I    YES     I      STD
```

/mod-msg-opt operator-broadcast=*no,info-output=(*std,*systemline) ——— (2)
/show-msg-opt ——————————————————————————————————————— (3)

```
%  I OP-BROADCAST I OP-MSG I SYSTEM-MSG I INFO-OUTPUT
%         NO     I  YES   I    YES     I STD + SYS.LINE
```

(1) Listing the current settings.

(2) Modifying the settings: Messages that are not job-related are to be suppressed. The other messages are to appear both on the current screen line and on the interactive terminal’s display line.

(3) Listing the new settings.

6.40 SHOW-MSG-SUBSCRIPTION

Show message subscriptions and suppression of nonsubscription messages

Component:	BS2000
Functional area:	Operator terminal control Message processing
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

This command supplies information on all the message subscriptions set up for the operator terminal (console) using the MODIFY-MSG-SUBSCRIPTION command. It also indicates whether suppression of nonsubscription messages has been activated for the operator terminal.
The operator terminal may be either a physical or logical operator terminal or an interactive task with the OPERATING privilege.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-MSG-SUBSCRIPTION

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	NBR0094	There are no subscribed messages for this operator terminal
	1	CMD0202	Syntax error
	32	CMD2009	Error on output in S variables (e.g. subsystem not available)
	32	NBR0034	Error in command execution
	64	CMD0216	Required authorization not available

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Message codes of the relevant messages (padded with blanks to 7 characters)	var(*LIST).MSG-ID (*LIST)	S	<name 7..7>	If messages have been requested
Delivery of not requested messages	var(*LIST).DELIVER-OTHER-MSG	B	TRUE FALSE	

Example

The device management messages in message class NKD are added to the message subscription for the operator terminal; the RSO and SPOOL messages in message classes SRO, SPC and SPM are removed from the subscription:

`/mod-msg-subscript add=nkd,rem=(sro,spc,spm)`

```
%  NBR0091 SOME MESSAGES SUBSCRIPTIONS IGNORED
```

`/show-msg-subscript`

```
%  NBR0093 THE FOLLOWING MESSAGE KEYS ARE SUBSCRIBED BY THIS CONSOLE:
%              NKD
%  NBR0096 UNSUBSCRIBED MESSAGES WILL ALSO BE DELIVERED TO THIS CONSOLE
```

6.41 SHOW-MSG-SUPPRESSION

Request information on message suppression

Component:	BS2000
Functional area:	Operator terminal control Message processing
Domain:	CONSOLE-MANAGEMENT
Privileges:	OPERATING
Routing code:	@

Function

This command gives the operator an overview of the provisions made with the SET and RESET-MSG-SUPPRESSION commands for suppressing certain messages on operator terminals (consoles).

The command is also permitted in user tasks with the OPERATING privilege. It then applies only when reading from the event stream of user tasks. If the command is issued from a user task, only the message numbers suppressed by that task can be displayed.

In a user task the command also supports structured output in S variables (see "Output in S variables").

Format

SHOW-MSG-SUPPRESSION

INFORMATION = ***STD** / ***SUMMARY** / ***DEST**INATION(...) / ***MSG-ID**(...)

***DEST**INATION(...)

| **DEST** = ***OWN** / <alphanum-name 4..4> / <alphanum-name 2..2>

***MSG-ID**(...)

| **MSG-ID** = list-poss(20): <alphanum-name 7..7>

Operands

INFORMATION =
Specifies the scope of the information to be output.

INFORMATION = *STD
If the command is issued at an operator terminal, the output information is the same as for INFORMATION=*SUMMARY.
When issued from a user task, the output information is the same as for INFORMATION= *DESTINATION (DEST=*OWN).

INFORMATION = *SUMMARY
All the messages which are suppressed for operator terminals and authorized user programs are listed.

INFORMATION = *DESTINATION(...)
Specifies the operator terminal or the authorized user program for which information about message suppression is required.

DEST= *OWN
Lists all the messages which are suppressed for the console or authorized user program from which the command was issued.

DEST= <alphanum-name 4..4>
Name of the authorized user program for which suppressed messages are listed (4 alphanumeric characters).

DEST= <alphanum-name 2..2>
Device mnemonic of the console for which suppressed messages are listed (2 alphanumeric characters).

INFORMATION = *MSG=ID(...)
Specifies the numbers of the messages whose specifications are to be displayed with reference to the message suppression.

MSG-ID = list-poss(20): <alphanum-name 7..7>
Seven-digit message number or list of seven-digit message numbers.
The output lists all output units at which these messages are suppressed.

Notes on the output format on operator terminals

The message numbers are prefixed by a character which indicates the scope of message suppression:

'*': The message is suppressed for the console or authorized user program from which the command was issued.

'+': The message is suppressed for other consoles or authorized user programs.

'*+': The message is suppressed both at the input device and for other consoles or authorized user programs.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	0	NBR0870	Message not suppressed
	1	CMD0202	Syntax error
	32	CMD2009	Error on structured output in S variables
	64	NBR0200	Command not available
	64	NBR0865	Authorized application not found
	64	NBR0866	Console not found
	130	NBR0876	Memory shortage
	130	NBR0877	Message table locked

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Message codes of the suppressed messages	var(*LIST).MSG-ID(*LIST)	S	<name 7..7>	

Example

Messages CMD0001 and OPS0001 are to be suppressed. Then RESET-MSG-SUPPRESSION is issued to reinstate message OPS0001:

```
/set-msg-suppress msg-id=(cmd0001,ops0001)
/
/show-msg-suppress
```

```
%  NBR0872 MESSAGE 'CMD0001' SUPPRESSED
%  NBR0872 MESSAGE 'OPS0001' SUPPRESSED
```

```
/reset-msg-suppress msg-id=ops0001
/show-msg-suppress
```

```
%  NBR0872 MESSAGE 'CMD0001' SUPPRESSED
```

6.42 SHOW-NET-CLIENT-ALTERNATE

Show net clients for high availability

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	DEVICE STORAGE-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	G

Function

The SHOW-NET-CLIENT-ALTERNATE provides information on the high availability of net clients on redundant HNCs. A net client is highly available when a second net client is assigned to it which takes over the existing Net-Storage connections if a failure occurs.

The assignment of net clients is set and canceled again with the SET-NET-CLIENT-ALTERNATE command.

Information is displayed only if an assignment exists. If no assignment exists, the message `NKAN006` is issued.

The command supports structured output in S variables (see "Output in S variable").

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the "Introductory Guide to DMS" [13].

Format

SHOW-NET-CLIENT-ALTERNATE

,**CLIENT** = ***ALL** / <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) / ***IP-ADDR**ESS(...)

***DNS**(...)

| **DNS-NAME** = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

Operands

CLIENT =
Specifies the net client about which information on high availability is to be displayed.

CLIENT = *ALL
Information on all net clients is displayed.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	1	NKAN003	Syntax error in the input
	32	NKAN004	Error in command execution
	32	NKAN008	Error in S variable format
	64	NKAN006	No assignment exists

CLIENT =
Specifies the net client to which an alternative net client is to be assigned.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

Output format

/show-net-client-alternate

```
************************************************************************
   NET-CLIENT:  CLIENT_1
   ALTERNATE :  CLIENT_2
************************************************************************
```

Meanings of the output fields

Output field	Possible values	Meaning
NET-CLIENT	See CLIENT operand	Name of the net client
ALTERNATE	See CLIENT operand	Name of the assigned net client

Table 132: Output fields of the SHOW-NET-CLIENT-ALTERNATE command

Output in S variable

The output to S variable takes place only if an assignment exists. If no assignment exists, the message `NKAN006` is issued. Only the S variables for the known names of the net client or of the assigned net client are supplied with values. In the case of an unknown name, the S variable contains an empty string

Output information	Name of the S variable	T	Contents	Condition
Name of the net client	var(*LIST).ACL(*LIST).CLIENT.NAME	S	'' <name 1..8>	
DNS name of the net client	var(*LIST).ACL(*LIST).CLIENT.DNS	S	'' <name 1..256>	
IPv4 address of the net client.	var(*LIST).ACL(*LIST).CLIENT.IPV4	S	'' <name 7..15>	
IPv6 address of the net client.	var(*LIST).ACL(*LIST).CLIENT.IPV6	S	'' <name 15..39>	
Name of the assigned net client	var(*LIST).ACL(*LIST).ALTCLI.NAME	S	'' <name 1..8>	
DNS name of the assigned net client	var(*LIST).ACL(*LIST).ALTCLI.DNS	S	'' <name 1..256>	
IPv4 address of the assigned net client	var(*LIST).ACL(*LIST).ALTCLI.IPV4	S	'' <name 7..15>	
IPv6 address of the assigned net client	var(*LIST).ACL(*LIST).ALTCLI.IPV6	S	'' <name 15..39>	

6.43 SHOW-NET-STORAGE

Show Net-Storage of BS2000

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	DEVICE STORAGE-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	G

Function

The SHOW-NET-STORAGE command provides information on Net-Storage systems which are connected with BS2000. The net server and net client and the associated Net-Storage volumes are displayed for each connected directory. The status from the NDM viewpoint and the pubset allocation are displayed for each Net-Storage volume.

The command supports structured output in S variables (see "Output in S variable").

Information on the Net-Storage available in a pubset can be requested with the SHOW-PUBSET-NET-STORAGE command.

Information on the tasks occupying the Net-Storage can be requested using the SHOW-NET-STORAGE-OCCUPATION command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the “Introductory Guide to DMS” [13].

Format

SHOW-NET-STORAGE

DIRECTORY = ***ALL** / <c-string 1..64 with-low>

,**SERVER** = ***ALL** / <composed-name 1..256 with-under> / <c-string 1..256 with-low> / ***IP-ADDR**ESS(...)

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

,**CLIENT** = ***ALL** / <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) / ***IP-ADDR**ESS(...)

***DNS**(...)

| **DNS-NAME** = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

,**UPDATE-VOLUMES** = ***NO** / ***Y**ES

Operands

DIRECTORY =
Specifies the directory name of the Net-Storage released on the net server.

DIRECTORY = *ALL
Information on all the directories available in BS2000 (mounted directories) is displayed.

DIRECTORY = <c-string 1..64 with-low>
Only information on the specified directory is displayed.

SERVER =
Specifies the net server which makes the Net-Storage available.

SERVER = *ALL
Information on all net servers is displayed.

SERVER = <composed-name 1..256 with-under> / <c-string 1..256 with-low>
Host name or fully qualified domain name of a net server.

SERVER = *IP-ADDRESS(...)
IP address of the net server.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net server in IPv4 or IPv6 format.

CLIENT =
Specifies the net client on which the Net-Storage (more precisely: the released directory) is mounted. For SUs /390 and S servers this is an HNC. For SUs x86 X2000 performs this role.

CLIENT = *ALL
Information on all net clients is displayed.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

UPDATE-VOLUMES = *NO / *YES
Specifies whether the Net-Storage volumes of the specified directories should be determined again and the NDM tables should be updated before the display takes place.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	1	NKAN003	Syntax error in the input
	32	CMD0221	system error
	32	NKAN004	Error in command execution
	32	NKAN008	Error in S variable format
	64	NKAN006	No information available
	64	NKAN009	Leading slash in directory name missing

Meanings of the output fields

Output field	Possible values	Meaning
NET-DIRECTORY	<name 1..64>	Directory name of the directory released on the net server
• (<status>)	MOUNT-ID: <integer>	Mount ID of the connected Net-Storage
NET-SERVER	See SERVER operand	Name of the net server
NET-CLIENT	See CLIENT operand	Name of the net client
NET-VOLUMES	<vsn 6..6>	VSN of the Net-Storage volume (corresponds to the directory name in the Net-Storage)
• (<status> [PUBSET=catid])		Status of the Net-Storage volume:
	IN USE	Files accessible (pubset has been imported)
	ONLINE	Net-Storage is connected, but the volume cannot be accessed (e.g. pubset not imported). The volume can be switched to the `IN USE` status using /IMPORT-PUBSET or, in the case of a pubset which has already been imported, using /ADD-NET-STORAGE-VOLUME.
	MULT DEF	The VSN of the Net-Storage volume already exists in another net directory.
	CANCELLED	Access to the volume is locked (e.g. after /UMOUNT-NET-STORAGE with FORCE=*YES). /ADD-NET-STORAGE-VOLUME can be used to switch the status back to `IN USE`.
	<catid 1..4>	Pubset to which the Net-Storage volume is allocated

Table 133: Output fields for the SHOW-NET-STORAGE command

Output in S variable

Only the S variables for the known names of the net server and net client are supplied with values. In the case of an unknown name, the S variable contains an empty string.

Output information	Name of the S variable	T	Contents	Condition
Directory name of the directory released on the net server	var(*LIST).DIR(*LIST).NAME	S	<name 1..64>	
Mount ID of the Net-Storage volume (0: volume not connected)	var(*LIST).DIR(*LIST).MOUNT-ID	I	<integer>	
Host or DNS name of the net server	var(*LIST).DIR(*LIST).SERVER.NAME	S	'' <name 1..256>	
IPv4 address of the net server	var(*LIST).DIR(*LIST).SERVER.IPV4	S	'' <name 7..15>	
IPv6 address of the net server	var(*LIST).DIR(*LIST).SERVER.IPV6	S	'' <name 15..39>	
BCAM name of the net client	var(*LIST).DIR(*LIST).CLIENT.NAME	S	'' <name 1..8>	
DNS name of the net client	var(*LIST).DIR(*LIST).CLIENT.DNS	S	'' <name 1..256>	
IPv4 address of the net client	var(*LIST).DIR(*LIST).CLIENT.IPV4	S	'' <name 7..15>	
IPv6 address of the net client	var(*LIST).DIR(*LIST).CLIENT.IPV6	S	'' <name 15..39>	
Name of a Net-Storage volume	var(*LIST).DIR(*LIST).NET-VOL(*LIST).VSN	S	<vsn 6..6>	
Status of the Net-Storage volume	var(*LIST).DIR(*LIST).NET-VOL(*LIST).STA	S	*IN-USE *ONLINE *MULT-DEF *CANCELLED	
Catalog ID of the pubset to which the Net-Storage volume is assigned.	var(*LIST).DIR(*LIST).NET-VOL(*LIST).CAT-ID	S	'' <catid 1..4>	

Example

/show-net-storage

```
************************************************************************
- NET-DIRECTORY: /TEST    (MOUNT-ID = 2)
------------------------------------------------------------------------
   NET-SERVER:  IPV4: 1.2.3.4

   NET-CLIENT:  CLIENT_C


------------------------------------------------------------------------
   NET-VOLUMES: TEST00    (ONLINE)


************************************************************************
- NET-DIRECTORY: /BS2000-1    (MOUNT-ID = 1)
------------------------------------------------------------------------
   NET-SERVER:  IPV4: 1.2.3.4

   NET-CLIENT:  CLIENT_C


------------------------------------------------------------------------
   NET-VOLUMES: P@BX00    (IN USE, PUBSET = X   )

                MONI01    (IN USE, PUBSET = MONI)


************************************************************************
- NET-DIRECTORY: /BS2000-1    (MOUNT-ID = 3)
------------------------------------------------------------------------
   NET-SERVER:  IPV4: 1.2.3.5

   NET-CLIENT:  CLIENT_C


------------------------------------------------------------------------
   NO NET-VOLUMES


************************************************************************
```

6.44 SHOW-NET-STORAGE-OCCUPATION

Display occupancy of the BS2000 Net-Storage

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	STORAGE-MANAGEMENT
Privileges:	TSOS

Function

The SHOW-NET-STORAGE-OCCUPATION command provides information on the BS2000 tasks of the local system which occupy a Net-Storage. For shared pubsets, too, only the occupying tasks of the local system are displayed. The connection to the Net-Storage is specified unambiguously by entering the mount ID. The mount ID is displayed by the SHOW-NET-STORAGE command.

The command supports structured output in S variables (see "Output in S variable").

Information on the Net-Storage available in a pubset can be requested with the SHOW-PUBSET-NET-STORAGE command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the “Introductory Guide to DMS” [13].

Format

SHOW-NET-STORAGE**-OCCUPATION**

DIRECTORY = ***BY-MOUNT-ID**(...)

***BY-MOUNT-ID**(...)

| **MOUNT-ID** = <integer 1..16777215>

Operands

DIRECTORY = *BY-MOUNT-ID(...)
Specifies the directory name of the Net-Storage released on the net server. The mount ID which unambiguously specifies the connection to the Net-Storage can be determined using the SHOW-NET-STORAGE command.

MOUNT-ID = <integer 1..16777215>
Mount ID of the connection to the Net-Storage.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0221	system error
	32	CMD2009	Error on output in S variables (e.g. subsystem not available)
	32	DMS1CFF	System error (see SERSLOG entry)
	64	DMS1C04	Error when calling ONETSTOR
	64	DMS1C30	The specified mount ID is not assigned
	64	DMS1C31	Invalid mount ID

Meanings of the output fields

Output field	Possible values	Meaning
MOUNT-ID	<integer>	Mount ID which was specified in the command; displayed in the format nnnnnnnn with leading zeros
NUMBER OF OCCUPYING TASKS	<integer>	Number of tasks which are occupying the Net-Storage
OCCUPATIONS BY LOCAL TASKS	<tsn> <userid>	Lists each occupying task with the TSN and the user ID

Table 134: Output fields for the SHOW-NET-STORAGE-OCCUPATION command

Output in S variable

Output information	Name of the S variable	T	Contents	Condition
Mount ID of the connection to the Net-Storage	var(*LIST).MOUNT-ID	I	<integer>	
Name of the net server	var(*LIST).NUM-OF-TASK	I	<integer>	
TSN of the occupying task	var(*LIST).TASK(*LIST).TSN	S	<name 1..4>	
User ID of the occupying task	var(*LIST).TASK(*LIST).USER-ID	S	<name 1..8>	

Example

/show-net-storage-occupation mount-id=1

```
------------------------------------------------------------------------------
COMMAND: SHOW-NET-STORAGE-OCCUPATION
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 MOUNT-ID: 00000001
---- REFERENCE              ------------------------------------------------
 NUMBER OF OCCUPYING TASKS            | 14
---- DETAILS OF OCCUPATION  ------------------------------------------------
 OCCUPATIONS BY LOCAL TASKS
  FTCP TSOS         0FDX TSOS         0FDY TSOS         0FDZ TSOS
  0FD1 TSOS         0FD2 TSOS         0FD5 TSOS         0FD6 TSOS
  0FEA TSOS         0FFR TSOS         0FFS TSOS         0FFT TSOS
  0FFU TSOS         0FFV TSOS
------------------------------------------------------------------------------
```

6.45 SHOW-OPERATOR-ATTRIBUTES

Display assignment of operator roles to user IDs

Component:	SRPMNUC
Functional area:	Operator function control
Domain:	CONSOLE-MANAGEMENT SECURITY-ADMINISTRATION USER-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING SECURITY-ADMINISTRATION
Routing code:	@

Function

The SHOW-OPERATOR-ATTRIBUTES command allows the user to obtain information about which operator roles are assigned to his user ID.
SECURITY-ADMINISTRATOR can assign one or more operator roles to a user ID. Through the assignment of an operator role, an operator terminal (console) or a user task with OPERATING privilege which uses this user ID can take on the assigned role with the REQUEST-OPERATOR-ROLE command and perform the operator functions associated with the role. The scope of permitted functions, i.e. the sphere of operating responsibility granted, is defined by SECURITY-ADMINISTRATOR through the allocation of routing codes.
The granting and assumption of operator roles is described in the “Introduction to System Administration” [14].

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

A Privileg SECURITY-ADMINISTRATIOR is given information about all the user IDs on all the pubsets, but other callers can only obtain information about the assignment of operator roles to their own user IDs.

Format

SHOW-OPERATOR**-ATTR**IBUTES

USER-IDENTIFICATION = ***OWN** / **ALL** / list-poss(20): ***OWN** / <name 1..8>

,**PUBSET** = ***HOME** / ***ALL** / list-poss(20): ***HOME** / <cat-id 1..4>

,**OUTPUT** = ***SYSOUT** / list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

USER-IDENTIFICATION = *OWN / *ALL / list-poss(20): *OWN / <name 1..8>
Selects the user IDs whose assignment to operator roles is to be displayed. Up to 20 user IDs (including *OWN) can be specified in a list. The nonprivileged user only receives information about his own user ID, however.

USER-IDENTIFICATION = *OWN
Default value: Information about the user's own user IDs is to be output.

USER-IDENTIFICATION = *ALL
Information about all user IDs is to be output. The nonprivileged user only receives information about his own user ID (*ALL then has the effect of *OWN).

PUBSET = *HOME / *ALL / list-poss(20): *HOME / <cat-id 1..4>
Specifies the pubset to which the operator roles and the user IDs belong. Up to 20 catalog IDs (including *HOME) can be specified in a list.

PUBSET = *HOME
Default value: Information about the assignments for the home pubset are to be output.

PUBSET = *ALL
Information about the assignments for all the connected pubsets is to be output.

OUTPUT = *SYSOUT / list-poss(2): *SYSOUT / *SYSLST
Specifies where the information is to be output to. The information can be output to SYSOUT (default), to SYSLST or to SYSOUT and SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with warning
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command temporarily cannot be executed

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Operator role associated with the user ID	var(*LIST).OPER-ROLE(*LIST)	S	<name 1..8>	
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id 1..4>	
User ID	var(*LIST).USER-ID	S	<name 1..8>	

6.46 SHOW-OPERATOR-ROLE

Request information on operator roles

Component:	SRPMNUC
Functional area:	Operator function control
Domain:	CONSOLE-MANAGEMENT SECURITY-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING SECURITY-ADMINISTRATION
Routing code:	@

Function

The SHOW-OPERATOR-ROLE command enables users to find out which operator roles have been defined and which routing (authorization) codes are associated with the assumption of these roles. Nonprivileged users are only shown information about operator roles which are assigned to their own user ID.

Output can be directed to SYSOUT (default) or to SYSLST.
User tasks are sent the information as formatted output; operator terminals (consoles) and $CONSOLE applications are sent it in the form of messages (SRM3522, SRM3523, etc.).

In compatible mode (NBCONOPI=N), the command is rejected if issued at operator terminals or in $CONSOLE applications with generated authorization names. From $CONSOLE applications with dynamic authorization names the command is accepted only with INFORMATION=*STD or *ASSIGNMENT.

In user tasks the command supports structured output in S variables (see "Output in S variables").

Privileged functions

As the operator role administrator, a caller with the SECURITY-ADMINISTRATION privilege is shown information on the following subjects:

- all operator roles for the specified pubsets
- the routing codes assigned to the operator roles
- the user IDs which can assume the operator roles

Callers with OPERATING privilege are shown information about:

- the routing codes assigned to an operator role
- the routing codes currently assigned to their own task as a result of assuming operator roles

Format

SHOW-OPERATOR**-ROLE**
OPERATOR**-ROLE** = ***STD** / ***OWN** / ***ALL** / list-poss(20): <name 1..8> ,**PUBSET** = ***HOME** / ***ALL** / list-poss(20): ***HOME** / <cat-id 1..4> ,**INF**ORMATION = ***STD** / list-poss(2): ***ROUT**ING**-CODES** / ***USER-LIST** / ***ASSIGN**MENT ,**OUTPUT** = ***SYSOUT** / list-poss(2): ***SYSOUT** / ***SYSLST**

Operands

OPERATOR-ROLE =
Specifies the set of operator roles that are to be shown.

OPERATOR-ROLE = *STD
The set of operator roles that will be shown depends on the caller's privileges:

- Users with STD-PROCESSING privilege are shown information about all the operator roles authorized for their own user ID in the user catalog of the specified pubset.
- Users with OPERATING privilege are shown information about the operator roles currently assigned to the task (INFORMATION=*ASSIGNMENT) or about all operator roles authorized for their own user ID in the user catalog of the specified pubset (INFORMATION=*ROUTING-CODES).
- Users with SECURITY-ADMINISTRATION privilege are shown information about all the operator roles from the user catalog of the specified pubset (equivalent to *ALL).

OPERATOR-ROLE = *OWN
Only users with SECURITY-ADMINISTRATION privilege are allowed to select this value. Provides information about all operator roles authorized for the user's own ID in the user catalog of the specified pubset.

OPERATOR-ROLE = *ALL
The maximum possible amount of information is shown as appropriate to the caller's privileges:

- Users with STD-PROCESSING or OPERATING privilege are shown information about all the operator roles authorized for their own user ID in the user catalog of the specified pubset
- Users with SECURITY-ADMINISTRATION privilege are shown information about all the operator roles from the user catalog of the specified pubset.

OPERATOR-ROLE = list-poss(20): <name 1..8>
A list of up to 20 operator roles, about which information is to be supplied.

PUBSET =
Specifies the pubset in respect of whose operator roles information is to be output.

PUBSET = *HOME
Default value: information is to be output about the operator roles of the home pubset.

PUBSET = *ALL
Information is to be output about the operator roles of all the connected pubsets.

PUBSET = list-poss(20): *HOME / <cat-id 1..4>
Specifies a list of pubsets in respect of whose operator roles information is being requested. *HOME identifies the home pubset for the current session.

INFORMATION =
Defines the nature and scope of the information that is to be shown.

INFORMATION = *STD
The information that will be shown depends on the caller's privileges:

- Users with STD-PROCESSING privilege are shown a list of the routing codes which are assigned to the specified operator role (equivalent to specifying INFORMATION= *ROUTING-CODES).
- Users with OPERATING privilege are shown information about the operator roles currently assigned to the task (equivalent to specifying INFORMATION= *ASSIGNMENT).
- Users with SECURITY-ADMINISTRATION privilege are shown a list of the routing codes which are assigned to the specified operator role and a list of the user IDs to which the specified operator role is assigned (equivalent to specifying INFORMATION= (*ROUTING-CODES,*USER-LIST)).

INFORMATION = *ROUTING-CODES
Outputs a list of the routing codes which are currently assigned to the specified operator role.

INFORMATION = *USER-LIST
Only users with SECURITY-ADMINISTRATION privilege are allowed to select this value Outputs a list of the user IDs to which the specified operator role is assigned.

INFORMATION = *ASSIGNMENT
Only users with OPERATING privilege are allowed to select this value.
Outputs a list of the operator roles which are assigned to the calling task.

OUTPUT = *SYSOUT / list-poss(2): *SYSOUT / *SYSLST
Specifies where the information is to be output. Output may be routed optionally to the system file SYSOUT (default) or to the system file SYSLST. Output can also be sent to both system files.
If *SYSLST is selected at logical or physical operator terminals, it is ignored and the output is sent to SYSOUT.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	NBR0986	Operator role not assigned
1	0	NBR0987	No operator role assigned
1	0	NBR0990	Not all specified operator roles found
2	0	SRM6001	Command executed with a warning
	32	NBR0983	Internal error on command server
	32	SRM6020	System error during command processing
	64	NBR0979	Command functionality not supported in user task
	64	NBR0981	Command not allowed at console
	64	NBR0982	Command caller does not have an operator ID
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

Output in S variables

The scope of the output depends on the value of the INFORMATION operand and, if INF=*ALL is specified, on whether the user ID has SECURITY-ADMINISTRATION privilege. The following combinations are of relevance:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL, SECURITY-ADMINISTRATION not assigned	1
INFORMATION = *ALL, SECURITY-ADMINISTRATION assigned	2
INFORMATION = *PAR(RCODE-LIST=*YES)	3
INFORMATION = *PAR(USER-LIST=*YES) - can be specified only if the SECURITY-ADMINISTRATION privilege has been assigned	4

Output information	Name of the S variable	T	Contents	Condition
Operator role associated with the user ID	var(*LIST).OPER-ROLE	S	<name 1..8>	1, 2, 3, 4
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id 1..4>	1, 2, 3, 4
Assigned routing codes	var(*LIST).ROUT-ASS(*LIST)	S	<routing-code>	1, 2, 3
Routing codes which are not assigned	var(*LIST).ROUT-NOT-ASS (*LIST)	S	<routing-code>	1, 2, 3
User ID	var(*LIST).USER-ID(*LIST)	S	<name 1..8>	2, 4

Example

The routing codes and the operator roles currently assigned to the task (here the TSOS user ID) are to be output for the operator roles defined in pubset T051:

/show-oper-role pubset=t051

```
SHOW-OPERATOR-ROLE   INFORMATION = RCODE-LIST              2012-03-14 12:25:34
------------------------------------------------------------------------------
OPERATOR-ROLE    SYSADM                  PUBSET    T051
ROUTING-CODES
  ASSIGNED:      *ALL
------------------------------------------------------------------------------
OPERATOR-ROLE    XAFOPR                  PUBSET    T051
ROUTING-CODES
  ASSIGNED:      *ALL
------------------------------------------------------------------------------
SHOW-OPERATOR-ROLE   INFORMATION = RCODE-LIST                   END OF DISPLAY
```

/show-oper-role oper=*all,pubset=t051,inf=*assignment

```
%  NBR0986 OPERATOR ROLE 'SYSADM' NOT ASSIGNED TO OPERATOR ID 'TSOS'
%  NBR0986 OPERATOR ROLE 'XAFOPR' NOT ASSIGNED TO OPERATOR ID 'TSOS'
```

6.47 SHOW-PAGING-CONFIGURATION

Show paging files

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT SYSTEM-TUNING
Privileges:	STD-PROCESSING TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	R

Function

The SHOW-PAGING-CONFIGURATION command supplies information about paging files. The information is output to SYSOUT. An unused paging file cannot be displayed unless the pubset it belongs to has been imported.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Only users with the TSOS, OPERATING or SW-MONITOR-ADMINISTRATION privilege can request to display all available information (INFORMATION =*ALL/*SUMMARY).

When command processing is complete, privileged users are sent message EMM2850, indicating how much virtual address space is available and the minimum amount required.

Format

SHOW-PAGING-**CONF**IGURATION

VOLUME = ***USED** / ***ALL** / ***NONE** / ***UNUSED** / ***PUBSET**(...) / list-poss(256): <vsn 1..6>

***PUBSET**(...)

| **PUBSET =** list-poss(256): <cat-id 1..4>

, **INF**ORMATION = ***STD** / ***ALL** / ***SUMM**ARY

Operands

VOLUME = *USED / *ALL / *NONE / *UNUSED / *PUBSET(...) / list-poss(256): <vsn 1..6>
Specifies the paging files about which information is to be output.

VOLUME = *USED
Supplies information for paging files which are currently being used.

VOLUME = *ALL
Supplies information for both used and unused paging files.

VOLUME = *NONE
Supplies no information about any paging files, neither used not unused.

> If INFORMATION=*SUMMARY is specified, the privileged user receives the message EMM2850 which outputs the size of the virtual address space and the minimum required virtual address space.

VOLUME = *UNUSED
Supplies information for paging files which are currently not being used.

> Unused paging files cannot be displayed unless the associated pubset has been imported. When VOLUME=*ALL or *UNUSED is used to obtain information, message EMM2314 therefore informs the user that unused paging files cannot always be displayed.

VOLUME = *PUBSET(...)
Supplies information for paging files on the volumes of the specified SF pubsets.

PUBSET = list-poss(256): <cat-id 1..4>
Specifies the SF pubsets via their catalog number. A maximum of 256 catalog IDs can be specified.

VOLUME = list-poss(256): <vsn 1..6>
Identifies the disk to search for paging files by its volume serial number (VSN). Up to 256 disks can be listed.

INFORMATION = *STD / *ALL / *SUMMARY
Selects the range of information to write to SYSOUT.

INFORMATION = *STD
For paging files, the volume, pubset and size values are displayed.

INFORMATION = *ALL
This operand value is reserved for privileged users. Outputs all available information.

INFORMATION = *SUMMARY
This operand value is reserved for privileged users. Outputs a general overview of the specified objects (SUMMARY data). When VOLUME=*NONE is specified, the information output is restricted to message EMM2850 being output which contains the size of the virtual address space or the minimum required address space.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command without error
	32	EMM2800	Internal error Guaranteed messages: EMM2818, EMM2828
	64	EMM2801	Pubset or volume have been specified repeatedly Guaranteed message: EM2860
	64	EMM2802	The specified pubset is unknown and cannot be identified in the given configuration Guaranteed message: EM2841
	64	EMM2804	No used or unused paging files exist Guaranteed messages: EMM2863, EMM2865, EM2869
	64	EMM2805	It cannot be determined whether a paging file exists on the specified volume or pubset Guaranteed messages: EM2824, MM2867, EM2868
	128	EMM2807	Operation cannot be performed due to lack of resources Guaranteed message: EMM2829

When lists are specified, command processing is aborted in the event of an error with a return code of EMM2800 or EMM2807. In all other cases, processing continues.

Note

If disks of type D3435 are being used for pubsets with PAMKEY usage (Format=K in the DECLARE-PUBSET statement), the actual usable disk area is 25% greater than the value specified in the SIZE operand of the CREATE-PAGING-FILE command. For an unused paging file, the size specified in the CREATE-PAGING-FILE command is displayed; for a used paging file on disks of this type, the actually used extended size is displayed. In the output the paging files used which have this extended size are marked with a “*” after the VSN. The message EMM2317 is output to provide further information.

Key to output data

The output data is in four parts:

1. List of used paging files (VOLUME=*USED) under the following header:

   ```
   LIST OF THE USED PAGING-FILES:
   ```

2. List of unused paging files (VOLUME=*UNUSED) under the following header:

   ```
   LIST OF THE FOUND AND UNUSED PAGING-FILES
   ```

Parts which are not requested are not displayed.

If a part for which no data is available is requested, an appropriate return code and a message are supplied in response to the request.

If disks are specified explicitly and there are no paging files or partitions on them or the paging files on them cannot be read, appropriate return code and message are supplied in response to the request.

Example of a list of found and used paging files

/show-paging-conf inf=*all

```
LIST OF THE USED PAGING-FILES :
  VOLUME  CAT-ID        SIZE       FREESIZE     UTILIZATION  REDUCTION  R
  PAG7.0   PAG7      3000.00 MB     3000.00 MB    *MEDIUM    *NOT-REQ   N
  SQGB.0 * SQGB       500.00 MB      499.99 MB    *LOW       *NOT-REQ   N
  SQGB.1 * SQGB       500.00 MB      500.00 MB    *LOW       *NOT-REQ   N
  ------------------------------------------------------------------------
  SUMMARY            4000.00 MB     3999.99 MB
%  EMM2317 THE SIZE OF VOLUME(S) - MARKED WITH * - IS INCREASED BY 25%,
BECAUSE THE PAM-KEYS ARE USED AS PAGING-AREA
%  EMM2850 THE SIZE OF THE PAGING AREA IS: 0004000.00 MB; THE RESERVED SIZE
OF THE PAGING AREA IS: 0000798.64 MB
```

Key

Field name	Meaning
VOLUME	Volume serial number (VSN) of the disk on which the paging file is located.
CAT-ID	User ID of the pubset on which the paging file is located.
SIZE	Size of the paging file in MBytes.
FREESIZE	Size of the unused area of the paging file in MB. This size provides an indication of how long it will take to reduce the paging file on the volume (the greater the unused space, the quicker the reduction). The information is only output when the INFORMATION=*ALL operand is specified.
UTILIZATION	Provides information on the specifications defined with the UTILIZATION operand in the EXTEND-PAGING-AREA or MODIFY-PAGING-AREA-ATTRIBUTES command. UTILIZATION=*LOW is set for the paging files which were added to the paging area at system initialization. The information is only output when the INFORMATION=*ALL operand is specified.
REDUCTION	Provides information on the specifications defined with the LATER-REDUCTION operand in the EXTEND-PAGING-AREA command. REDUCTION=*NOT-REQ is set for the paging files which were added to the paging area at system initialization. The information is only output when the INFORMATION=*ALL operand is specified.
R	Provides information on whether the used paging file is reduced at the time of the call (Y: file is reduced; N: file is not reduced). The information is only output when the INFORMATION=*ALL operand is specified.

Field name	Meaning
SUMMARY	The line contains the size of the paging area available and of the paging area not used. If the command is issued with the *SUMMARY operand, only this line, complemented by a header line, is output.

Table 135: Output of found, unused paging files

With INFORMATION=*ALL, this list is followed by information about any asynchronous reduction jobs currently in progress for paging files.

Example of a list of found and unused paging files

/show-paging-conf vol=*unused,inf=*all

```
 LIST OF THE FOUND AND UNUSED PAGING-FILES :
  VOLUME  CAT-ID        SIZE                  RESTRICTION
  A1N.00   A1N        180.00 MB                 NONE
  A1N.01   A1N        180.00 MB                 NONE
  A1K.01   A1K        350.00 MB                 NONE
  A1K.03   A1K        350.00 MB                 NONE
  A2N.00   A2N        180.00 MB                 NONE
  A2N.01   A2N        180.00 MB                 NONE
  CK36.0   CK36       100.00 MB                 NONE
  ------------------------------------------------------------------------
  SUMMARY            1520.00 MB
%  EMM2314 UNUSED PAGING-FILES CANNOT BE FOUND AT ANY TIME
%  EMM2850 THE SIZE OF THE PAGING AREA IS: 0001800.00 MB; THE RESERVED SIZE
OF THE PAGING AREA IS: 0000608.67 MB
```

Key

Field name	Meaning
VOLUME	Volume serial number (VSN) of the disk on which the paging file is located.
CAT-ID	User ID of the pubset on which the paging file is located.
RESTRICTION	*Only with the INFORMATION=*ALL operand.* Usage restrictions of the corresponding paging file: • NONE: no restriction • UNUSEABLE: This paging file cannot be used in the paging area. The possible cause of this restriction is that the paging file was not created with the CREATE-PAGING-FILE command. It is basically possible to create a paging file (name: SYS.PAGING.<vsn>) with the CREATE-FILE command. However, one or more of the following causes can make this file unusable as a paging area: ○ The file is located on an impermissible medium, e.g. a shared pubset. ○ The file does not have all the attributes required for a paging file. It should therefore certainly be created using the CREATE-PAGING-FILE command.

SUMMARY	The line contains the total size of the unused paging files found. If the command is issued with the *SUMMARY operand, only this line, complemented by a header line, is output.

Table 136: Output of found, unused paging files

With INFORMATION=*ALL, this list is followed by information about any asynchronous deletion jobs currently in progress for paging files on disk.

Output in S variable

The INFORMATION operand identifies the S variables which are to be created. The values *STD, *ALL and *SUMMARY are possible for INFORMATION.

Notation used in command	Abbreviated form used in table
INFORMATION=*STD (with the privilege STD-PROCESSING)	1
INFORMATION=*STD (privileged user)	2
INFORMATION=*ALL	3
INFORMATION=*SUMMARY	4

Output information	Name of the S variable	T	Contents	Condition
total number of the unused paging files found	varname(*LIST).NUM-UNUSED-VOL	I	<integer 1..4096>	1, 2, 3, 4
total number of the used paging files found	varname(*LIST).NUM-USED-VOL	I	<integer 1..4096>	1, 2, 3, 4
total size of the unused paging files in MBytes	varname(*LIST).SUM-UNUSED-SIZE	I	<integer 1..2097152>	1, 2, 3, 4
total size of the free areas of the paging files in MBytes	varname(*LIST).SUM-USED-FREE-SIZE	I	<integer 1..2097152>	3, 4
total size of the paging files in MBytes	varname(*LIST).SUM-USED-SIZE	I	<integer 1..2097152>	1, 2, 3, 4
Pubset catalog ID	varname(*LIST).UNUSED(*LIST).CAT-ID	S	<cat-id 1..4>	1, 2, 3
Usage restriction of the paging file	varname(*LIST).UNUSED(*LIST).RESTRICT	S	*NONE *UNUSABLE	3
Size of the unused paging file in MBytes	varname(*LIST).UNUSED(*LIST).SIZE	I	<integer 1..2097152>	1, 2, 3
VSN of the volume with the paging file	varname(*LIST).UNUSED(*LIST).VOL	S	<vsn 1..6>	1, 2, 3
Pubset catalog ID	varname(*LIST).USED(*LIST).CAT-ID	S	<cat-id 1..4>	1, 2, 3

Size of the free areas of the paging file in MBytes	varname(*LIST).USED (*LIST).FREE-SIZE	I	<integer 1..2097152>	3
Indicates whether there is currently a reduction of the paging file in progress	varname(*LIST).USED (*LIST).REDUCE	S	*NO *YES	3
Probability for the reduction of the paging file (setting LATER-REDUCTION)	varname(*LIST).USED (*LIST).REDUCT	S	*REQUESTED *NOT-REQUESTED	3
Size of the paging file in MBytes	varname(*LIST).USED (*LIST).SIZE	I	<integer 1..2097152>	1, 2, 3
I/O load of the paging file	varname(*LIST).USED (*LIST).UTIL	S	*HIGH *LOW *MEDIUM	3
VSN of the volume with the paging file	varname(*LIST).USED (*LIST).VOLUME	S	<vsn 1..6>	1, 2, 3

6.48 SHOW-PENDING-MSG

Request information on unanswered messages

Component: BS2000

Functional area: Operator terminal control

Domain: CONSOLE-MANAGEMENT

Privileges: OPERATING
TSOS

Routing code: @

Function

The SHOW-PENDING-MSG command allows operators to list unanswered console messages (response messages). The command can be issued both at consoles and at terminals on which a user task with the OPERATING privilege is active.

The command lets messages be selected on the basis of the following criteria:

Criterion	Meaning
Destination	Only display messages addressed to specific consoles or applications or with a specific routing code
Sender	Only display messages sent for specific consoles, applications or tasks
Message reference name	Only display messages assigned a specific message reference name by the sender
Message type	Only display messages of a specific type (ordinary question, command-related questions, etc.)
Message identifier	Only display messages containing a specific 7-character message ID; only applies to messages created with the MSG7 / MSG7X macro
Time	Only display messages created within a specific period

Emergency response messages are always displayed, regardless of the message selection operand used.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-PENDING-MSG Alias: **SHMSG**

DESTINATION = ***STD** / ***OWN** / ***ANY** / ***ROUTING-CODE**(...) / ***CONSOLE**(...) / ***TSN**(...)

***ROUTING-CODE**(...)

| **ROUTING-CODE** = list-poss(40): <alphanum-name 1..1> / *

***CONSOLE**(...)

| **CONSOLE** = list-poss(10): <alphanum-name 2..2> / <name 4..4>

***TSN**(...)

| **TSN** = list-poss(10): <alphanum-name 1..4>

,**SENDER** = ***ANY** / ***CONSOLE**(...) / ***TSN**(...)

***CONSOLE**(...)

| **CONSOLE** = list-poss(10): <alphanum-name 2..2> / <name 4..4>

***TSN**(...)

| **TSN** = list-poss(10): <alphanum-name 1..4>

,**MSG-REFERENCE-NAME** = ***ANY** / list-poss(10): <alphanum-name 3..3>

,**MSG-TYPE** = ***ANY** / ***QUESTION** / ***ADDITIONAL-INFORMATION-REQUEST** / ***ACTION-MSG**

,**MSG-IDENTIFICATION** = ***ANY** / list-poss(10): <name 7..7>

,**TIME** = ***ANY** / ***INTERVAL**(...)

***INTERVAL**(...)

| **FROM** = ***EARLIEST** / <time>

| ,**TO** = ***LATEST** / <time>

Operands

DESTINATION = *STD / *OWN / *ANY / *ROUTING-CODE(...) / *CONSOLE(...) / *TSN(...)
Selects unanswered response messages by destination.

DESTINATION = *STD
If the command is entered at a physical or logical operator console, *STD has the same effect as DESTINATION=*OWN.
If it is entered at a data display terminal, *STD has the same effect as DESTINATION=*ANY (*OWN would display an empty set; see "Notes").

DESTINATION = *OWN
Displays unanswered messages directly addressed to the command caller or directed to the command caller by

means of a routing code or the standby console mechanism (i.e., questions that the command caller is authorized to answer).

If this operand is used when the command is entered at an ordinary terminal, open response messages are not displayed (see Notes).

DESTINATION = *ANY
Displays all unanswered response messages; the message destination is irrelevant.

DESTINATION = *ROUTING-CODE(...)
Displays all unanswered response messages which are allocated to a specific routing code.

ROUTING-CODE = list-poss(40): <alphanum-name 1..1> / *
Up to 40 routing codes can be specified.
Operand values: *, A..Z, 0..9, $, #, @
The functions of the various routing codes are described in the “Introduction to System Administration” [14].

DESTINATION = *CONSOLE(...)
Displays all response messages sent to a specific console (physical or logical).

CONSOLE = list-poss(10): <alphanum-name 2..2> / <name 4..4>
Up to 10 console mnemonics (2-character) or names of authorized applications (4-character) can be specified.

DESTINATION = *TSN
Displays all response messages sent to a user task. The user task is identified by its TSN (task sequence number).

TSN = list-poss(10): <alphanum-name 1..4>
Up to 10 user tasks can be identified by their TSNs.
TSN can be between 1 and 4 characters long (leading zeros can be omitted).

SENDER = *ANY / *CONSOLE(...) / *TSN(...)
Selects unanswered response messages by sender.

SENDER = *ANY
Displays all unanswered response messages; the identity of the message sender is irrelevant.

SENDER = *CONSOLE(...)
Displays all response messages sent from a specific console (physical or logical).

CONSOLE = list-poss(10): <alphanum-name 2..2> / <name 4..4>
Up to 10 console mnemonics (2-character) or names of authorized applications (4-character) can be specified.

SENDER = *TSN(...)
Displays all response messages sent by a specific user or system task. The task is identified by its TSN (task sequence number).

TSN = list-poss(10): <alphanum-name 1..4>
Up to 10 user tasks can be identified by their TSNs.
TSN can be between 1 and 4 characters long (leading zeros can be omitted).

MSG-REFERENCE-NAME = *ANY / list-poss(10): <alphanum-name 3..3>
Selects unanswered response messages by message reference name.

MSG-REFERENCE-NAME = *ANY
Displays all unanswered response messages; the message reference name assigned by the sender is irrelevant.

MSG-REFERENCE-NAME = list-poss(10): <alphanum-name 3..3>
Displays all unanswered response messages to which the sender has assigned one of the specified message reference names.
Up to 10 names can be specified.

Note

The message reference name uniquely identifies messages with the same sender or recipient. In the case of command-related messages, it is formed from the job name prefixed to the command (default: '000').

MSG-TYPE = *ANY / *QUESTION / *ADDITIONAL-INFORMATION-REQUEST / *ACTION-MSG
Selects unanswered response messages by message type.

MSG-TYPE = *ANY
Displays all unanswered response messages; the message type is irrelevant.

MSG-TYPE = *QUESTION
Displays all unanswered response messages which are assigned a message type of 'Question'. Messages of this type have '?' as their message flag.

MSG-TYPE = *ADDITIONAL-INFORMATION-REQUEST
Displays all unanswered response messages which are assigned a message type of 'Additional information request'. Messages of this type have '&' as their message flag.

MSG-TYPE = *ACTION-MSG
Displays all unanswered response messages which can only be answered by a task, not by an operator. However, the response is usually initiated indirectly by an operator action. Messages of this type have ';' as their message flag.

MSG-IDENTIFICATION = *ANY / list-poss(10): <name 7..7>
Selects unanswered response messages by message identifier.

MSG-IDENTIFICATION = *ANY
Displays all unanswered response messages, regardless of message type or of whether or not they were created with an MSG7/MSG7X macro.

MSG-IDENTIFICATION = list-poss(10): <name 7..7>
Displays all unanswered response messages which are assigned one of the specified message identifiers and were created with an MSG7 / MSG7X macro.
Up to 10 message identifiers can be specified.

Note

Messages created using TYPIO / $TYPIO are disregarded, even if their output format matches that of the MSG7 / $MSG7X macro.

TIME = *ANY / *INTERVAL(...)
Selects unanswered response messages by time of creation.

TIME = *ANY
Displays all unanswered response messages; the time when they were created is irrelevant.

TIME = *INTERVAL(...)
Displays all unanswered response messages created within the specified period.

Note

A period specification only makes sense if the FROM value is earlier than the TO value. If the system session extends over a number of days, a period specification may result in messages being displayed which were created within the specified period but on different days. The messages contain no information as to the date when they were created.
Messages are displayed in reverse order of creation (most recent message first).

FROM = *EARLIEST / <time>
Time of creation of the earliest response messages to display.

FROM = *EARLIEST
Earliest specifiable time (00:00:00).

FROM = <time>
The creation time of the earliest unanswered response messages to display must be specified in hh:mm:ss form (hour:minute:second).

TO = *LATEST / <time>
Time of creation of the most recent response messages to display.

TO = *LATEST
Latest specifiable time (23:59:59).

TO = <time>
The creation time of the most recent unanswered response messages to display must be specified in hh:mm:ss form (hour:minute:second).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	CMD0001	There were no unanswered response messages to display
	1	CMD0202	Syntax error in command
	32	NBR0034	Error executing command (&00); Reason: (&01)
	32	CMD2009	Error during generation of presentation variables
	64	CMD0216	User does not have required privilege

The “internal error” return code NBR0034 is supplied in the event of bourse, DMS, memory or other system problems.

Notes

Messages are displayed in reverse order of appearance (most recent message first).

If the command is issued at a console before SYSTEM READY or during SHUTDOWN processing, unanswered messages for all consoles are listed.

If the operand DESTINATION=*OWN is used when the command is issued from an ordinary terminal, open response messages cannot be displayed. The reason for this is that terminals will not accept command input while there are response messages outstanding.

The main console is authorized to answer all response messages.

The SHOW-PENDING-MSG is one of the INSTANT commands and as such cannot be used in RUN files, or can only be used subject to certain restrictions, because it may be processed ahead of other commands which precede it in the file.

Results

A vertical bar separates the message header from the message text proper. The bar is followed by the message destination (4 characters, see the DESTINATION operand) and then the original response message.

The command is issued at a terminal. Result:

```
% |(K3) &XAAA-000.130820 % EXC0432 PROCESSING...
```

The command is issued at a console. Result:

```
+XAAB |(K3) &XAAA-000.130820 % EXC0432 PROCESSING...
```

The command is issued by an authorized application. Result:

```
+XAAB-000.131350 |(K3) &XAAA-000.130820 % EXC0432 PROCESSING...
```

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Response message destination; <destination> always consists of 4 characters and may take the following forms: '(mn)': mn is a two-character mnemonic '<r ': r is a routing code (padded to the right with two blanks) 'name': 4-character name of the user program 'tsn': 4-character TSN of the user task	var(*LIST).DEST	S	<destination>	
Destination type	var(*LIST).DEST-TYPE	S	*APP *CON *ROUT-CODE *TSN	
Number of inserts	var(*LIST).HIGH-INS-NUM	I	<integer 0..15>	
Insert	var(*LIST).INS(*LIST)	S	<insert-name>	HIGH-INS-NUM > 0
Message identifier	var(*LIST).MSG-ID	S	'' <msg-id>	
Message reference name	var(*LIST).MSG-REF-NAME	S	<alphan.-name 3..3>	
Text of the response message	var(*LIST).MSG-TEXT	S	<c-string 1..255>	
Message type	var(*LIST).MSG-TYPE	S	*ACTION-MSG *ADD-INFO-REQ *EMERG *QUEST	
Sender of the response message; <sender-name> always consists of 4 characters and may take the following forms: '(mn)': mn is a two-character mnemonic 'name': 4-character name of the user program 'tsn': 4-character TSN of the sender task	var(*LIST).SENDER	S	<sender-name>	
Type of sender	var(*LIST).SENDER-TYPE	S	*APPL *CONS *TSN	

Time of message generation	var(*LIST).TIME	S	<hh:mm:ss>	

6.49 SHOW-POSIX-STATUS

Show POSIX status

Component:	POSIX-BC
Functional area:	POSIX administration and application
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

For the command to be executed successfully the chargeable subsystem “SDF-P” must be loaded.

Function

The SHOW-POSIX-STATUS command displays the status of the POSIX subsystem.

Format

SHOW-POSIX-STATUS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	65	CMD2241	the chargeable subsystem SDF-P is not available.

Return codes supplied in the event of errors (nonzero subcode 1) cannot be guaranteed, but automatic error handling is possible on the basis of the spin-off mechanism (equivalent to the SET-PROCEDURE-OPTIONS command with its default setting ERROR-MECHANISM=*SPIN-OFF-COMPATIBLE).

Output values

One of the following states will be displayed:

POSIX status	Meaning
*AVAILABLE	POSIX has been released for applications.
*IN-CREATE	The POSIX subsystem is starting up.
*IN-DELETE	The POSIX subsystem is shutting down.
*NOT-ACCESSIBLE	The POSIX subsystem has been started up but has not yet been released for applications.
*NOT-AVAILABLE	The POSIX subsystem has not been loaded.
*UNKNOWN	The status cannot be identified.

Table 137: Output of the SHOW-POSIX-STATUS command

Example

`/show-posix-status`

```
% POSSTAT POSIX-STATUS = *AVAILABLE
```

6.50 SHOW-POSIX-USER-ATTRIBUTES

Show POSIX user attributes

Component:	SRPMNUC
Functional area:	User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING POSIX-ADMINISTRATION USER-ADMINISTRATION

Function

The SHOW-POSIX-USER-ATTRIBUTES command shows the POSIX user attributes of a BS2000 user ID, as recorded in the user catalog of the specified pubset. It is available to the following users:

- holders of the POSIX-ADMINISTRATION or USER-ADMINISTRATION privilege, for all BS2000 user IDs on all pubsets.
- group administrators, for all the group and subgroup members they are in charge of on the pubset they manage.
- each user for his or her own BS2000 user ID.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-POSIX-USER-ATTRIBUTES

USER-IDENTIFICATION = **<u>*OWN</u>** / ***ALL** / list-poss(20): <name 1..8>

,**PUBSET** = **<u>*HOME</u>** / ***ALL** / list-poss(20): <cat-id 1..4>

,**SEL**ECT = **<u>*ALL</u>** / ***BY-ATTR**IBUTES(...)

***BY-ATTR**IBUTES(...)

| **USER-NUM**BER = **<u>*ANY</u>** / ***BY-POSIX-USER-DEF**AULTS / ***OWN** / <integer 0..60002>

| ,**GR**OUP-NUMBER = **<u>*ANY</u>** / ***BY-POSIX-USER-DEF**AULTS / ***OWN** / <integer 0..60002>

| ,**COMMENT** = **<u>*ANY</u>** / ***BY-POSIX-USER-DEF**AULTS / ***NONE** / <c-string 1..255 with-low>

| ,**DIR**ECTORY = **<u>*ANY</u>** / ***BY-POSIX-USER-DEF**AULTS / ***ROOT** /

| <posix-pathname 1..1023 without-wild>

| ,**PROG**RAM = **<u>*ANY</u>** / ***BY-POSIX-USER-DEF**AULTS / ***SHELL** /

| <posix-pathname 1..1023 without-wild>

,**INF**ORMATION = **<u>*ALL</u>** / ***USER-LIST**

,**OUTPUT** = list-poss(2): **<u>*SYSOUT</u>** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = **<u>*STD</u>** / <integer 1..99>

| ,**LINE**S-**P**ER-**PAGE** = <u>64</u> / <integer 20..255>

Operands

USER-IDENTIFICATION =
Identifies the BS2000 user IDs for which the POSIX user attributes are to be shown.

USER-IDENTIFICATION = <u>*OWN</u>
Shows the POSIX user attributes of the user's own BS2000 user ID, as recorded in the user catalog of the specified pubset.

USER-IDENTIFICATION = *ALL
Shows the POSIX user attributes of all the BS2000 user IDs that the caller is authorized to examine.

USER-IDENTIFICATION = list-poss(20): <name 1..8>
Shows the POSIX user attributes of the specified user ID.

PUBSET =
Identifies the pubset for which the POSIX user attributes in the user catalog are to be shown.

PUBSET = *HOME
Shows the POSIX user attributes of the home pubset.

PUBSET = *ALL
Shows the POSIX user attributes of all the pubsets available at command runtime.

PUBSET = list-poss(20): <cat-id 1..4>
Shows the POSIX user attributes of the specified pubset.

SELECT =
Selects BS2000 user IDs on the basis of the specified selection criteria.

SELECT = *ALL
POSIX user attributes are not used as selection criteria.

SELECT = *BY-ATTRIBUTES(...)
Selects BS2000 user IDs on the basis of their POSIX user attributes. If more than one POSIX user attribute is specified, the criteria are logically ANDed.

USER-NUMBER =
The user number is used as a selection criterion.

USER-NUMBER = *ANY
The user number is not used as a selection criterion.

USER-NUMBER = *BY-POSIX-USER-DEFAULTS
Restricts the selection to BS2000 user IDs with a user number matching the value of the corresponding POSIX default attribute.

USER-NUMBER = *OWN
Restricts the selection to BS2000 user IDs which have the same user number as the caller in the user catalog of the specified pubset.

USER-NUMBER = <integer 0..60002>
Restricts the selection to BS2000 user IDs which have the specified user number in the user catalog of the specified pubset.

GROUP-NUMBER =
The group number is used as a selection criterion.

GROUP-NUMBER = *ANY
The group number is not used as a selection criterion.

GROUP-NUMBER = *BY-POSIX-USER-DEFAULTS
Restricts the selection to BS2000 user IDs with a group number matching the value of the corresponding POSIX default attribute.

GROUP-NUMBER = *OWN
Restricts the selection to BS2000 user IDs which have the same group number as the caller in the user catalog of the specified pubset.

GROUP-NUMBER = <integer 0..60002>
Restricts the selection to BS2000 user IDs which have the specified group number in the user catalog of the specified pubset.

COMMENT =
The comment associated with an BS2000 user ID is used as a selection criterion.

COMMENT = *ANY
The comment associated with an BS2000 user ID is not used as a selection criterion.

COMMENT = *BY-POSIX-USER-DEFAULTS
Restricts the selection to BS2000 user IDs with a comment matching the value of the corresponding POSIX default attribute.

COMMENT = *NONE
Restricts the selection to BS2000 user IDs with no comment.

COMMENT = <c-string 1..255 with-low>
Restricts the selection to BS2000 user IDs with the specified comment.

DIRECTORY =
The login directory is used as a selection criterion.

DIRECTORY = *ANY
The login directory is not used as a selection criterion.

DIRECTORY= *BY-POSIX-USER-DEFAULTS
Restricts the selection to BS2000 user IDs with a login directory matching the value of the corresponding POSIX default attribute.

DIRECTORY = *ROOT
Restricts the selection to BS2000 user IDs with the root directory “/” as their login directory.

DIRECTORY = <posix-pathname 1..1023 without-wild>
Restricts the selection to BS2000 user IDs with the specified login directory.

PROGRAM =
The program started up after login is used as a selection criterion.

PROGRAM = *ANY
The startup program is not used as a selection criterion.

PROGRAM = *BY-POSIX-USER-DEFAULTS
Restricts the selection to BS2000 user IDs with a startup program matching the value of the corresponding POSIX default attribute.

PROGRAM = *SHELL
Restricts the selection to BS2000 user IDs with *SHELL as their startup program.

PROGRAM = <posix-pathname 1..1023 without-wild>
Restricts the selection to BS2000 user IDs with the specified startup program.

INFORMATION =
Specifies the scope of the information to be output.

INFORMATION = *ALL
Shows all the POSIX user attributes of a BS2000 user ID.

INFORMATION = *USER-LIST
Shows a list of BS2000 user IDs but no POSIX user attributes.

OUTPUT = list-poss(2): *SYSOUT / *SYSLST(...)
Specifies the system file to which the output is to be sent.

OUTPUT = *SYSOUT
The information is sent to the SYSOUT system file.

OUTPUT = *SYSLST(...)
The information is sent to the SYSLST system file.

SYSLST-NUMBER =
Selects a SYSLST number.

SYSLST-NUMBER = *STD
Selects the default SYSLST output.

SYSLST-NUMBER = <integer 1..99>
Selects the specified SYSLST number.

LINES-PER-PAGE =
Specifies the number of lines per page.

LINES-PER-PAGE = 64
By default, 64 lines are printed per page.

LINES-PER-PAGE = <integer 20..255>
The specified number of lines are printed per page.

Notes

As a rule, users with no administration duties are supplied with information about their own BS2000 user IDs only. The exceptions to this rule are:

- `INFORMATION=*USER-LIST,SELECT=*BY-ATTRIBUTES(USER-NUMBER=*OWN)` In this case you will also be shown the identity of users who have the same user number as you, unless your user number is the default user number.
- `INFORMATION=*USER-LIST,SELECT=*BY-ATTRIBUTES(GROUP-NUMBER=*OWN)` In this case you will also be shown the identity of members of your POSIX group, unless your POSIX group is the default group.

If *INFORMATION=*ALL* is selected, the user number and the group number will be marked if assigned the corresponding value of the POSIX default attributes (SHOW output will include “(DEFAULT)”; S variables will include the suffix “-DEF”).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	SRM6001	Command executed with warning
	32	CMD2009	Error during generation of output variables
	32	SRM6020	Command rejected owing to system error
	64	OPS0002	K2 interrupt on output to S variables
	64	SRM6040	Command rejected with error message
	130	OPS0001	Insufficient resources for output to S variables
	130	SRM6030	Command rejected owing to insufficient resources

Output in S variables

The INFORMATION identifies the S variables which are to be created. The possible values for INFORMATION are *ALL and *USER-LIST.

Note that S variables are generated only if the related conditions (see “Condition” column) apply.

Output information	Name of the S variable	T	Contents	Condition
Comment	var(*LIST).COMMENT	S	*NONE <c-string 1..255>	INF=*ALL
Login directory	var(*LIST).DIR	S	<posix-pathname 1..1023>	INF=*ALL
POSIX group ID	var(*LIST).GROUP-NUM	I	<integer 0..60002>	INF=*ALL
Default POSIX group ID	var(*LIST).GROUP-NUM-DEF	B	FALSE TRUE	INF=*ALL
Name of the program	var(*LIST).PROG	S	*SHELL <posix-pathname 1..1023>	INF=*ALL
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id 1..4>	INF=*ALL/ *USER-LIST
BS2000 user ID with the displayed POSIX user attributes	var(*LIST).USER-ID	S	<name 1..8>	INF=*ALL
	var(*LIST).USER-ID (*LIST)	S	<name 1..8>	INF= *USER-LIST
POSIX user ID	var(*LIST).USER-NUM	I	<integer 0..60002>	INF=*ALL

Default POSIX user ID	var(*LIST).USER-NUM-DEF	B	FALSE TRUE	INF=*ALL

Examples

Output in S variable

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd (show-posix-user-attr inf=*all),text-output=*none,struct-output=var
/show-var var,inf=*par(value=*c-literal)
```

```
VAR(*LIST).PUBSET = '2OSH'
VAR(*LIST).USER-ID = 'USER1'
VAR(*LIST).USER-NUM = 100
VAR(*LIST).USER-NUM-DEF = TRUE
VAR(*LIST).GROUP-NUM = 100
VAR(*LIST).GROUP-NUM-DEF = TRUE
VAR(*LIST).COMMENT = 'POSIX Gastzugang'
VAR(*LIST).DIR = '/home/gast'
VAR(*LIST).PROG = '*SHELL'
*END-OF-VAR
```

```
/exec-cmd (show-posix-user-attr inf=*user-list),text-output=*none,
          struct-output=var
/show-var var,inf=*par(value=*c-literal)
```

```
VAR(*LIST).PUBSET = '2OSH'
VAR(*LIST).USER-ID(*LIST) = 'USER1'
*END-OF-VAR
```

Output to SYSOUT

```
/show-posix-user-attr user1
```

```
%POSIX-USER-ATTRIBUTES --- PUBSET 2OSH                    2012-03-14 17:18:06
%-------------------------------------------------------------------------------
%USER-ID             USER1                  PUBSET    2OSH
%USER-NUMBER           100 (DEFAULT)
%GROUP-NUMBER          100 (DEFAULT)
%COMMENT      POSIX Gastzugang
%DIRECTORY    /home/gast
%PROGRAM      *SHELL
%-------------------------------------------------------------------------------
```

6.51 SHOW-POSIX-USER-DEFAULTS

Show POSIX default attributes

Component:	SRPMNUC
Functional area:	User management POSIX administration and application
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING POSIX-ADMINISTRATION USER-ADMINISTRATION

Function

This command shows the POSIX default attributes as recorded in the user catalog of the specified pubset. It is available to the following users:

- holders of the POSIX-ADMINISTRATION or USER-ADMINISTRATION privilege, for all pubsets.
- group administrators of the *UNIVERSAL group on the pubset they manage.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-POSIX-USER-DEFAULTS

PUBSET = ***HOME** / ***ALL** / list-poss(20): <cat-id 1..4>

,**OUTPUT** = list-poss(2): ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = ***STD** / <integer 1..99>

| ,**LINE**S-**P**ER-**PAGE** = 64 / <integer 20..255>

Operands

PUBSET =
Pubset for which the POSIX default attributes in the user catalog are to be shown.

PUBSET = *HOME
Shows the POSIX default attributes in the user catalog of the home pubset.

PUBSET = *ALL
Shows the POSIX default attributes in the user catalogs of all the pubsets available at command runtime.

PUBSET = list-poss(20): <cat-id 1..4>
Shows the POSIX default attributes in the user catalog of the specified pubset.

OUTPUT = list-poss(2): *SYSOUT / *SYSLST(...)
Specifies the system file to which the output is to be sent.

OUTPUT = *SYSOUT
The information is sent to the SYSOUT system file.

OUTPUT = *SYSLST(...)
The information is sent to the SYSLST system file.

SYSLST-NUMBER =
Selects a SYSLST number.

SYSLST-NUMBER = *STD
Selects the default SYSLST output.

SYSLST-NUMBER = <integer 1..99>Selects the specified SYSLST number.

LINES-PER-PAGE =
Specifies the number of lines per page.

LINES-PER-PAGE = 64
By default, 64 lines are printed per page.

LINES-PER-PAGE = <integer 20..255>
The specified number of lines are printed per page.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
2	0	SRM6001	Command executed with warning
	32	CMD2009	Error during generation of output variables
	32	SRM6020	Command rejected owing to system error
	64	OPS0002	K2 interrupt on output to S variables
	64	SRM6040	Command rejected with error message
	130	OPS0001	Insufficient resources for output to S variables
	130	SRM6030	Command rejected owing to insufficient resources

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Comment	var(*LIST).COMMENT	S	*NONE <c-string 1..255>	
Login directory	var(*LIST).DIR	S	<posix-pathname 1..1023>	
POSIX group ID	var(*LIST).GROUP-NUM	I	<integer 0..60002>	
Name of the program	var(*LIST).PROG	S	*SHELL <posix-pathname 1..1023>	
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id 1..4>	
POSIX user ID	var(*LIST).USER-NUM	I	<integer 0..60002>	

Example

/show-posix-user-defaults

```
%POSIX-USER-DEFAULTS   --- PUBSET 2OSH                    2014-03-14 17:18:06
------------------------------------------------------------------------------
USER-NUMBER           100
GROUP-NUMBER           25
COMMENT      *NONE
DIRECTORY    /
PROGRAM      *SHELL
------------------------------------------------------------------------------
POSIX-USER-DEFAULTS                                          END OF DISPLAY
```

6.52 SHOW-PRINT-JOB-ATTRIBUTES

Request information on print job operands

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-PRINT-JOB-ATTRIBUTES command requests information on the print job operands specified in the PRINT-DOCUMENT command. The command should be used in conjunction with the MODIFY-PRINT-JOB-ATTRIBUTES command since SHOW-PRINT-JOB-ATTRIBUTES only displays the attributes of those operands that can be modified using MODIFY (except for entries such as the file name or MONJV, which cannot be changed).

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

RSO device administrators and spool and cluster administrators can request information about any print job scheduled for printing on any device that they manage.
For more information on these user groups see the manuals “RSO” [32], “Spool & Print Commands” [42] and “Distributed Print Services” [10].

Format

SHOW-PRINT-JOB-ATTRIBUTES

JOB-IDENTIFICATION = ***TSN** (...) / ***SERVER-TSN**(...) / ***MONJV**(...) / ***FOR**EIGN(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

| ,**CLUSTER-NAME** = ***LOCAL-CLUSTER** / <alphanum-name 1..8>

***SERVER-TSN**(...)

| **TSN** = <alphanum-name 1..4>

| **,SERVER-NAME** = <alphanum-name 1..8>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

***FOR**EIGN(...)

| **ID**ENTIFICATION = <integer 1..2147483647>

| ,**CLUSTER-NAME** = <alphanum-name 1..8>

,**INF**ORMATION = ***ALL** / list-poss(5): ***DOCUMENT-PART** / ***DOCUMENT-FORMAT** /
***PRINT-JOB-CONTROL** / ***LAYOUT-CONTR**OL / ***RESOURCES-DESCRIPTION** /
***TO-PRINTER**

Operands

JOB-IDENTIFICATION = *TSN(...) / *SERVER-TSN(...) / *MONJV(...) / *FOREIGN(...)
Specifies how the job is identified.

JOB-IDENTIFICATION = *TSN(...)
The print job is identified by its local TSN.

TSN = <alphanum-name 1..4>
TSN of the job to be displayed.

CLUSTER-NAME = *LOCAL-CLUSTER / <name 1..8>
Specifies the cluster in which the print job is processed. Only BS2000 clusters can be specified. The TSN is the local TSN at the gateway of the addressed BS2000 cluster.

JOB-IDENTIFICATION = *SERVER-TSN(...)
The print job is identified by its TSN on the server.

TSN = <alphanum-name 1..4>
TSN of the job to be displayed on the server.

SERVER-NAME = <name 1..8>
Name of the server on which the print job can be addressed by its TSN.

JOB-IDENTIFICATION = *MONJV(...)
The print job is identified by its monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>
This operand allows a print job to be addressed by its monitoring job variable, provided the specified MONJV is accessible on the host at which the command is issued.

JOB-IDENTIFICATION = *FOREIGN(...)
This operand allows a print job in an Xprint domain to be addressed.

IDENTIFICATION = <integer 1..2147483647>
The print job is specified by means of a foreign identifier.

CLUSTER-NAME = <name 1..8>
Specifies the Xprint domain in which the print job is processed. You will find information on the operands permitted when addressing an Xprint domain in the “Distributed Print Services” manual [10].

INFORMATION = *ALL / list-poss(5): *DOCUMENT-PART / *DOCUMENT-FORMAT/*PRINT-JOB-CONTROL / *LAYOUT-CONTROL / *RESOURCES-DESCRIPTION / *TO-PRINTER
This operand allows you to select which information is to be output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SCP0892	TSN not found or command processing not permitted
2	0	SCP1005	Output canceled
	32	SCP0974	System error. Command rejected
4	64	SCP0976	Invalid operand value
6	128	CMD2241	DPRINTCL subsystem not loaded
1	128	SPS0266	SPOOL subsystem/SPOOL administrator task not vailable
8	128	CMD2241	DPRINTSV subsystem not loaded

Notes

- If a field does not contain any relevant information, it is filled with blanks.
- In the case of print requests with FAMILY=*YES, only the file name or MONJV of the first member of the family is output.
- A special type of output is supported for print jobs processed in an Xprint domain. You will find more information in the “Distributed Print Services” manual [10].
- POSIX path names are restricted to 54 characters.
- The server name is shortened to 8 positions (for print jobs on UNIX-based systems).

Output

Within BS2000

The output format of the SHOW-PRINT-JOB-ATTRIBUTES command is represented below. However, only the lines or output fields that refer to the operand specified with the PRINT-DOCUMENT command are output, not the complete format. See the explanation below for details. The output fields correspond to the operands of the PRINT-DOCUMENT command. See the relevant section for a description.

```
    TSN         : @@@@ (@@@@) SERVER-NAME : @@@@@@@@    STATE          : @@@
(1) FILE-NAME   : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1) FILE-NAME   : ( LIB  : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                 ELEM : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                              ( VERS : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ )
(1)                 TYP  : @@@@@@@@
    ADD-COPIES  : ###         LOCK-FILE  : @@@@
(1) DEL-AFTER-PR: @@@@
(1) DEL-AFTER-PR: @@@@@@@@    (LINE-TRUNC : @@@@@@@)
    ------------------------------ DOCUMENT-PART -------------------------------
(1) INPUT-SECT  : *WHOLE-FILE
(1) INPUT-SEC   : (SECTION-ID : (@)@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                             @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                             @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                SECTION-POS: ####)
(1) INPUT-PART  : *ALL
(1) INPUT-PART  : FIRST-RECORD : *BEGIN-OF-FILE
(1) INPUT-PART  : FIRST-RECORD : @@@@@@@@@@@@@@
(1)                   (STRING : (@)@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                             @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                             @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                    POSITION: ####  OCCURRENCE : #####)
(1)               LAST-RECORD  : *END-OF-FILE
(1)               LAST-RECORD  : @@@@@@@@@@@@@@
(1)                  (STRING  : (@)@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

(1)                             @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                             @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1)                   POSITION  ####  OCCURRENCE : #####)
(1) RECORD-PART : *ALL
(1) RECORD-PART : (FIRST-CHAR : @@@@@  LAST-CHAR : @@@@@ )
(1) OUTPUT-PART : *ALL
(1) OUTPUT-PART : (FROM : @@@@@@@@@@@@@  TO  : @@@@@@@@@@@  DIMENSION  : @@@@@ )
(1) OUTPUT-PART : LAST (LAST : @@@@@@@@@@@@@                 DIMENSION  : @@@@@ )
    --------------------------- DOCUMENT-FORMAT -----------------------------
(2) DOC-FORMAT  : *TEXT
(2) LINE-P-PAGE : ####        HEADER-LINE   : @@@@,@@@@,@@@@
(1) LINE-SPACING: #
(1) LINE-SPACING: @@@@@@@@@@@@@@@@@@@ (CONTROL-CHAR-POS : ####)
(2) OUTPUT-FORM : @@@@@@@@@@@@
(2) DOC-FORMAT  : *PAGE-FORMAT
(2) CONTROL-MODE: *PAGE-MODE (PAGE-CONT-CHAR : @@@@ CONTROL-TYPE : @@@@@@@@@@@@@@
(2) CONTROL-MODE: @@@@@@@@@@@@
(2) LINE-P-PAGE : ####
(1) LINE-SPACING: @@@@@@@@@@@@@@@@@@
(1) LINE-SPACING: @@@@@@@@@@@@@@@@@@ (CONTROL-CHAR-POS : ####)
(2) DOC-FORMAT  : *SPECIAL-FORMAT
(1) LINE-SPACING: @@@@@@@@@@@@@@@@@@
```

```
(2) FORMAT-NAME : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
    --------------------------PRINT-JOB-CONTROL--------------------------------
    PR-JOB-NAME : @@@@@@@@    PR-JOB-PRIO   : @@@@@@@@   CHECKPOINT : @@@@@@@@@@@
(2) MONJV       : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(2) FAILURE-PROC: (MSG-PAGE : @@@@)
    PR-JOB-CLASS: ###
(4) SCHEDULING-TIME: (DATE: ####-##-## TIME ##-##@)
    ----------------------------- LAYOUT-CONTROL---------------------------------
    PAGE-COPIES : ###         LEFT-MARGIN   : ##        ROTATION : @@@@@@@@
(2) TWO-SIDED   : @@@@@@@
(2) INPUT-TRAY  : @@@@@@@
(2) OUTPUT-TRAY : @@@@@@@
(2) COVER-PAGES : (HEADER-PAGE-TEXT: @@@@@@@@@@@@@@@@@@@@
```

Access to print jobs on a UNIX-based system

```
IDENTIFICATION : ##########
(1) FILE-NAME   : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
(1) FILE-NAME   : ( LIB  : @@@@@@@@@@@@@@@@@@@@
```

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL	1
INFORMATION = *DOCUMENT-PART	2
INFORMATION = *LAYOUT-CONTROL	3
INFORMATION = *PRINT-JOB-CONTROL	4
INFORMATION = *TO-PRINTER	5
INFORMATION = *RESOURCE-DESCRIPTION	6
INFORMATION = *DOCUMENT-FORMAT	7

Note

S variables marked S/X in the “Name of the S variable” column are generated both for SPOOL and for Xprint jobs. S variables marked X are generated for Xprint jobs only. All other (unmarked) S variables are generated for SPOOL jobs only.

Output information	Name of the S variable	T	Contents	Condition
Number of additional copies	var(*LIST).ADD-COP S/X	S	0..255	1,2,3,4,5,6,7
Scope of character set attributes	var(*LIST).CHAR-SET-ATTR	S	*ALL *RESTRICT	1,6
Name of the character set	var(*LIST).CHAR-SET.NAME (*LIST) S/X	S	<char-set-name>	1,6
Number of the character set in the character set pool	var(*LIST).CHAR-SET.POOL-INDEX	S	0..64	1,6
Name of the character set pool	var(*LIST).CHAR-SET.POOL-NAME	S	' ' <pool-name>	1,6
Checkpoint processing based on pages (*ON-PAGES) or sections (*ON-SECT-REC)	var(*LIST).CHECK	S	*ON-PAGES *ON-SECT-REC	1,4
Number of the data byte containing the character SPOOL interprets as EBCDIC, ASA or IBM formfeed character	var(*LIST).CONTR-CHAR-POS	S	0..2040	1,7
Control characters for HP and HP90 printers *COMPATIBLE: control characters must be converted for HP and HP90 printers *HP: appropriate control characters available	var(*LIST).CONTR-MODE. CONTR-TYPE	S	' ' *COMPATIBLE *HP	1,7
Control character bar must appear at the head of each page	var(*LIST).CONTR-MODE.PAGE-CONTR-CHAR	S	' ' *NO *YES	1,7
Control character interpretation	var(*LIST).CONTR-MODE.TYPE	S	' ' *APA *LINE-MODE *LOGIC *NO *PAGE-MODE *PHYS *TRANSPARENT	1,7
Number of the required cover page (parameter for the system exit routine)	var(*LIST).COV-PAGE.HEAD-EXIT	S	0..2147483639	1,3

Output information	Name of the S variable	T	Contents	Condition
Text which first 8 characters appear in large print under the mailing box on the cover page	var(*LIST).COV-PAGE.HEAD-PAGE	S	' ' <c-string 1..32>	1,3
Number of the required trailer page (parameter for the system exit routine)	var(*LIST).COV-PAGE.TRAIL-EXIT	S	0..2147483639	1,3
Delete file after printing *DESTROY: the data are overwritten	var(*LIST).DEL-F	S	*DESTROY *NO *YES	1,2,3,4,5,6,7
Document format	var(*LIST).DOC-FORM S/X	S	*PAGE-FORMAT *SPECIAL-FORMAT *TEXT	1,2
Encryption of the generated print file (as of RSO V3.5B)	var(*LIST).ENCRYPTION	S	*YES *NO	1,4
Name of the file to be printed	var(*LIST).F-NAME S/X	S	' ' <file-name>	1,2,3,4,5,6,7
Print an APA message page in the event of failure	var(*LIST).FAIL-PROCESS.MSG	S	' ' *YES *NO	1,4
Fully-qualified name of a network domain (with output to IPP printer)	var(*LIST).FQDN	S	' ' <ipp-printer-domain>	1,5
Format definition	var(*LIST).FORM-DEF	S	' ' <form-def>	1,6
Name of the form	var(*LIST).FORM-NAME S/X	S	' ' <form-name>	1,6
Document content type (Dprint)	var(*LIST).FORMAT-NAME S/X	S	' ' <format-name>	1,7
Header line format	var(*LIST).HEAD-LINE(*LIST)	S	' ' *DATE *FIRST *NO *PAGE	1,7
Xprint job identification	var(*LIST).IDENTIFICATION X	S	<identification>	1,2,3,4,5,6,7
Number of the record containing the FIRST-RECORD string	var(*LIST).INPUT-PART.FIRST-REC.OCCUR	S	0..32767	1,2

Output information	Name of the S variable	T	Contents	Condition
Position of the specified string within the first record	var(*LIST).INPUT-PART.FIRST-REC.POS	S	0..2047	1,2
String; printing begins at the record containing this string	var(*LIST).INPUT-PART.FIRST-REC.STRING	S	' ' <string-id>	1,2
Specified string comprises printable characters (C) or hexadecimal characters (X); printing begins at the record containing this string	var(*LIST).INPUT-PART.FIRST-REC.STRING.TYPE	S	C X	1,2
How printing begins within the first record	var(*LIST).INPUT-PART.FIRST-REC.TYPE	S	*BEGIN-OF-FILE *BY-STRING-ID 0..2147483647	1,2
Number of the record containing the LAST-RECORD string	var(*LIST).INPUT-PART.LAST-REC.OCCUR	S	0..32767	1,2
Position of the specified string within the last record	var(*LIST).INPUT-PART.LAST-REC.POS	S	0..2047	1,2
String; printing ends at the record containing this string	var(*LIST).INPUT-PART.LAST-REC.STRING	S	' ' <string-id>	1,2
Specified string comprises printable characters (C) or hexadecimal characters (X); printing ends at the record containing this string	var(*LIST).INPUT-PART.LAST-REC.STRING. TYPE	S	C X	
How printing ends within the last record	var(*LIST).INPUT-PART.LAST-REC.TYPE	S	*BY-STRING-ID *END-OF-FILE 0..21474893647	1,2
Selection of records from the input file which is to be processed	var(*LIST).INPUT-PART.SEL	S	' ' *ALL	1,2
Section ID used to structure the input file	var(*LIST).INPUT-SECT.SECT-ID	S	' ' <section id>	1,2
Specified section ID comprises printable characters (C) or hexadecimal characters (X); this section ID is used to structure the input file	var(*LIST).INPUT-SECT.SECT-ID. TYPE	S	C X	
Position of the section ID	var(*LIST).INPUT-SECT.SECT-POS	S	0..2047	1,2
	var(*LIST).INPUT-SECT.SEL	S		1,2

The input file is unstructured (the whole file is selected)			' ' *WHOLE-FILE	
Format of the input paper tray	var(*LIST).INPUT-TRAY-FORM	S	' ' *A3 *A4 *A5 *B4 *B5 *C5 *COM-10 *DL *DOUBLE-LETTER *EXEC *FOLIO *INVOICE *LEGAL *LETTER *MANUAL *MONARCH* *A3-UNCUT *A4-UNCUT *LEDGER	1,3
Input paper tray number	var(*LIST).INPUT-TRAY-NUM	S	' ' *BY-FORMAT *IGNORE 1..9	1,3
Direction in which characters are printed in Arabic and Farsi	var(*LIST).LANGUAGE-MODE	S	' ' *LEFT-TO-RIGHT *RIGHT-TO-LEFT	1,3
The document contains language extensions for Arabic (*ARABIC) or Farsi (*FARSI)	var(*LIST).LANGUAGE-NAME	S	' ' *ARABIC *FARSI	1,3
Number of columns by which output is indented	var(*LIST).LEFT-MARGIN S/X	S	0..31	1,3
Setting for the left-hand margin	var(*LIST).LEFT-OFFSET	S	' ' *IGNORE <left-offset>	1,3
Name of the PLAM library member	var(*LIST).LIB.ELEM S/X	S	' ' <element-name>	1,2,3,4,5,6,7
Name of the PLAM library	var(*LIST).LIB.LIB S/X	S	' ' <lib-name>	1,2,3,4,5,6,7
Type of PLAM library member	var(*LIST).LIB.TYPE S/X	S	' ' <element-type>	1,2,3,4,5,6,7

Version of the PLAM library member	var(*LIST).LIB.VERSION S/X	S	' ' <element-version>	1,2,3,4,5,6,7
Number of lines per printed page	var(*LIST).LPP	S	*STD 0..32767	1,7
Printer control character type	var(*LIST).LINE-SPACING	S	' ' 1 2 3 *BY-ASA-CONTR *BY-EBCDIC-CONTR *BY-IBM-CONTR	1,7
Behavior in the event of line truncation *IGNORE: the spoolout job continues, the file is deleted *KEEP-FILE: the spoolout job continues, the file is not deleted	var(*LIST).LINE-TRUNC	S	' ' *IGNORE *KEEP-FILE	1,2,3,4,5,6,7
Protection on the file while the spoolout job is on hold	var(*LIST).LOCK-F	S	*NO *YES	1,2,3,4,5,6,7
Name of the loop controlling form feed	var(*LIST).LOOP	S	*STD <loop-name>	1,6
Name of the job variable in which job processing information is stored	var(*LIST).MONJV	S	' ' <monjv>	1,4
Record output format *CHAR: in character format *HEX: in character format and hexadecimal	var(*LIST).OUT-FORM	S	' ' *CHARACTER *HEXADECIMAL' '	1,7
Output paper tray number	var(*LIST).OUT-TRAY-NUM	S	' ' 1..99 *IGNORE *SORTER	1,3
Select the part of the file to print by logical lines or pages	var(*LIST).OUTPUT-PART.DIM S/X	S	' ' *LINES *PAGES	1,2
Number of the logical line or page at which printing is to start	var(*LIST).OUTPUT-PART.FROM S/X	S	*BEGIN-OF-FILE 0..2147483647	1,2
Number of the last logical line or page	var(*LIST).OUTPUT-PART.LAST	S	0..2147483647	1,2
		S		1,2

Amount to print on the basis of logical lines or pages	var(*LIST).OUTPUT-PART.SEL S/X		*ALL *LAST *RANGE	
Number of the logical line or page at which printing ends	var(*LIST).OUTPUT-PART.TO S/X	S	*END-OF-FILE 0..2147483647	1,2
Name of the EFO overlay resource used for output	var(*LIST).OVERLAY-RESOURCE.ELECT-O	S	*NONE <overlay-name>	1,6
Name of the FOB overlay resource used for output	var(*LIST).OVERLAY-RESOURCE.FOB	S	' ' <fob-name>	1,6
Identification number of the overlay or the name of the APA overlay used on the face page	var(*LIST).OVERLAY-RESOURCE.OVERLAY.FACE	S	*NONE 0..127 <apa-overlay-name>	1,6
Identification number of the overlay or the name of the APA overlay used on the reverse page	var(*LIST).OVERLAY-RESOURCE.OVERLAY.REV	S	*NONE 0..127 <apa-overlay-name>	1,6
Number of page copies, i.e. how often each page is repeated in succession	var(*LIST).PAGE-COP S/X	S	0..255	1,3
Print page definition	var(*LIST).PAGE-DEF	S	' ' <page-def>	1,6
TSN of the spoolout job	var(*LIST).PARTNER--TSN	S	<tsn>	1,2,3,4,5,6,7
Spoolout job name	var(*LIST).PRINT-JOB-NAME S/X	S	' ' <spool-name>	1,4
Spoolout job priority	var(*LIST).PRINT-JOB-PRIO S /X	S	30..255	1,4
Printer type	var(*LIST).PRINT-TYPE	S	' ' *ANY <printer-type>	1,5
Printer name	var(*LIST).PRINTER-NAME S /X	S	*CENTRAL <printer-name>	1,5
Uniform Resource Identifier (web address) of the IPP printer	var(*LIST).PRINTER-URI	S	' ' <ipp-printer-url>	1,5
Byte number (record column) at which printing of each file record starts	var(*LIST).REC-PART.FIRST-CHAR	S	0..32767	1,2
	var(*LIST).REC-PART.LAST-CHAR	S	0..32767	1,2

Byte number (record column) at which printing of each file record ends				

Output information	Name of the S variable	T	Contents	Condition
Method of limiting the output records to part of the input records *ALL: each input record is printed from column 1 to the end of the record or print line	var(*LIST).REC-PART.SEL	S	' ' *ALL	1,2
Redirection of the spoolout job to another printer allowed	var(*LIST).REDIRECT	S	*YES *NO	1,5
Origin of the print resources for the spoolout job	var(*LIST).RESOURCE-LOC	S	*HOME *SERVER	1,6
Rotation of the printed pages *BY-CONTR-CODE: page rotation control characters are interpreted *NO: no page rotation 0 through 270: the print page is rotated clockwise by the specified number of degrees	var(*LIST).ROT S/X	S	' ' *BY-CONTR-CODE *NO 0 90 180 270	1,3
Name of the loop controlling form feed for rotated pages; only for HP and HP90 printers with a page rotation module	var(*LIST).ROT-LOOP	S	*STD <rot-loop-name>	1,6
Date when the print job will be started	var(*LIST).SCHEDULING.DATE	S	*NONE <yyyy-mm-dd>	1,4
Time when the print job will be started	var(*LIST).SCHEDULING.TIME	S	*NONE <hh:mm>	1,4
Season information relating to the time of printing	var(*LIST).SCHEDULING. SEASON	S	*NONE *SUMMER *WINTER	1,4
Name of the server	var(*LIST).SERVER-NAME S /X	S	' ' <server-name>	1,2,3,4,5,6,7
Sort mode	var(*LIST).SORT-MODE	S	' ' *AUTOMATIC *COLLATE *GROUP *NO *STACKER	1,3
Printer status	var(*LIST).STA S/X	S	*ACTIVE *DIR *FT	1,2,3,4,5,6,7

			*KEEP *PRE *TRD *TRT *WAIT *WFT *WP *WT	
Printer page layout fonts selected by control characters in the text	var(*LIST).TAB-REF-CHAR	S	' ' *NO *YES	1,3
Name of the target printer	var(*LIST).TARGET-PRINTER-NAME	S	<printer-name> *NONE *YES	1,5
Setting for the top margin	var(*LIST).TOP-OFFSET	S	' ' *IGNORE <top-offset>	1,3
Name of the file containing the code translation table	var(*LIST).TRANSL-TAB.F	S	' ' <filename>	1,6
Name of the code translation table	var(*LIST).TRANSL-TAB.NAME	S	' ' <transl-tab-name>	1,6
TSN of the SPOOLOUT job	var(*LIST).TSN	S	<tsn>	1,2,3,4,5,6,7
Also, print the reverse of the printed page *NO: single-sided *YES: double-sided *TUMBLE: double-sided, with the page being flipped from top to bottom	var(*LIST).TWO-SIDED	S	' ' *NO *TUMBLE *YES	1,3
Name of the user file containing the user-generated loops, character sets, overlays etc.	var(*LIST).USER-RESOURCE-F	S	' ' <filename>	1,6
Assignment of this job to a virtual printer	var(*LIST).VIRTUAL-PRINTER	S	*ALLOWED *NOT-ALLOWED *MUST	1,5
Unique name of the virtual printer	var(*LIST).VIRTUAL-PRINTER-NAME	S	' ' <name>	1,5
Content of the string which is also to be passed to the virtual printer	var(*LIST).VIRTUAL-PRINTER-STRING	S	' ' *NONE <string>	1,5

Example

/print-doc sysrme.spool.048.d, line-spacing=*by-ebcdic-contr,
scheduling=*earliest(time=23:00)

```
%  SCP0810 SPOOLOUT FOR FILE ':2OSG:$USER1.SYSRME.JV.151.D' ACCEPTED. TSN
: '3PIU', SPOOLOUT-NAME: 'ALT', MONJV: '*NONE'
%  SCP1025 PRINT JOB ACCEPTED BY SERVER 'GH5090Y0' WITH TSN '40VG'
```

/show-print-job-attr job-id=*tsn(3piu)

```
TSN         : 3PIU (40VG)  SERVER-NAME : GH5090Y0    STATE : WT
FILE-NAME   : :2OSG:$USER1.SYSRME.JV.151.D
ADD-COPIES  :   0          LOCK-FILE : *YES
DEL-AFTER-PR: *NO
 ------------------------------ DOCUMENT-PART ------------------------------
INPUT-SECT  : *WHOLE-FILE
INPUT-PART  : *ALL
RECORD-PART : *ALL
OUTPUT-PART : *ALL
 ---------------------------- DOCUMENT-FORMAT ----------------------------
DOC-FORMAT  : *TEXT
LINE-P-PAGE : *STD       HEADER-LINE : *NO
LINE-SPACING: *BY-EBCDIC
OUTPUT-FORM : *CHARACTER
 --------------------------- PRINT-JOB-CONTROL ---------------------------
PR-JOB-NAME : ALT PR-JOB-PRIO :  240          CHECKPOINT : *ON-PAGES
FAILURE-PROC: (MSG-PAGE : *YES)
PR-JOB-CLASS:   1
SCHEDULING-TIME: (DATE: 2017-03-14 TIME: 23:00W)
 ------------------------------ LAYOUT-CONTROL ------------------------------
PAGE-COPIES :   0      LEFT-MARGIN :  0           ROTATION : *NO
TAB-REF-CHAR: *NO
TOP-OFFSET  : *IGNORE  LEFT-OFFSET : *IGNORE
 -------------------------- RESOURCES-DESCRIPTION --------------------------
FORM-NAME   : STD
RES-LOC     : *HOME
 ---------------------------- TO-PRINTER ----------------------------------
PRINTER-NAME: *CENTRAL
PRINTER-TYPE: *ANY
VIRTUAL-PRINTER : *NOT-ALLOWED
```

6.53 SHOW-PRINT-JOB-STATUS

Request information on print jobs

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	S

Function

The SHOW-PRINT-JOB-STATUS command requests information on print jobs. The print jobs can be selected by specifying the server involved and the cluster in which they are processed. The operand INFORMATION=*DISTRIBUTED allows you to request client and server information for the specified print job.

The command supports structured output in S variables (see "Output in S variables").

Note

The SHOW-PRINT-JOB-STATUS command corresponds to the SHOW-SPOOL-JOB-STATUS command; the command name SHOW-SPOOL-JOB-STATUS is still accepted as an alias.

Privileged functions

RSO device administrators and spool and cluster administrators can request information about any print job scheduled for printing on any device that they manage.
For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “Distributed Print Services” [10].

Format

SHOW-PRINT-JOB-STATUS

INFORMATION = ***ORIG**IN / ***DEST**INATION / ***TRAITS** / ***DEV**ICE**-TYPE** / ***SUMM**ARY / ***DISTRIBUTED /**

*__SPO__OL-**FILT**ER **/ *RSO-FILT**ER

,CLUSTER-NAME = ***LOCAL-CLUSTER** / <alphanum-name 1..8>

,**OUTPUT** = ***SYSOUT** / ***SYSLST**

,**SEL**ECT = ***PAR**AMETERS (...) / ***STD**

***PAR**AMETERS(...)

| **SP**OOLOUT**-NAME** = ***ALL** / <alphanum-name 1..8 with-wild(24)> / list-poss(16):

| <alphanum-name 1..8> / <c-string 1..8 with-low> / ***NONE**

| ,**USER-ID**ENTIFICATION = ***STD** / ***ALL** / ***OWN** / <alphanum-name 1..8 with-wild(24)> /

| list-poss(16): <name 1..8> / <c-string 1..8 with-low>

| ,**HOST-NAME** = ***HOME** / ***ALL** / <alphanum-name 1..8 with-wild(24)> /

| list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

| **,SERVER-NAME** = ***HOME** / ***ALL** / <alphanum-name 1..8 with-wild(24)> /

| list-poss(16): <alphanum-name 1..8>

| ,**FORM-NAME** = ***ALL** / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6>

| ,**TSN** = ***ALL** / list-poss(16): <alphanum-name 1..4>

| ,**ID**ENTIFICATION = ***ALL** / <c-string 1..255 with-low>

| **,SERVER-TSN** = ***ALL** / list-poss(16): <alphanum-name 1..4>

| ,**FORMS-OVERLAY** = ***ALL** / list-poss(16): <alphanum-name 2..2>

| ,**SP**OOLOUT**-CL**ASS = ***ALL** / list-poss(16): <integer 1..255>

| ,**ACCOUNT** = ***ALL** / list-poss(16): <alphanum-name 1..8>

| ,**VIRTUAL-PRINTER-NAME** = ***ALL** / list-poss(16): <alphanum-name 1..8>

| ,**DEST**INATION = ***ALL** / ***LOC**AL(...) / ***REMOTE**(...) / ***CENTR**AL(...) / ***MANAG**ED**-DEV**ICES(...) /

| ***DEV**ICE(...) / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>

| ***LOC**AL(...)

| | **SEL**ECTION**-TYPE** = ***MAY** / ***MUST**

| | ,**DEV**ICE**-TYPE** = ***ALL** / list-poss(16): ***HP-PRINT**ER / ***HP90-PRINT**ER /

| | ***LP-PRINTER** / ***TAPE** / ***LP-EMU**LATED**-PRINT**ER / ***LP48-PRINT**ER /

| | | ***LP65-PRINT**ER / ***2050-APA**-PRINTER / ***2090-APA**-PRINTER /
| | | ***2090-TWIN-**PRINTER / ***VIRTUAL-PRINTER / *PCL-PRINT**ER
| ***REMOTE**(...)
| | **SEL**ECTION**-TYPE** = ***MAY** / ***MUST**
| | ,**DEV**ICE**-TYPE** = ***ALL** / list-poss(16): ***DJET-REM**OTE**-PRINT**ER /
| | ***2030-**PCL-REMOTE-PRINTER / ***4011**-PCL-REMOTE-PRINTER /
| | ***4812**-REMOTE-PRINTER /***4013**-REMOTE-PRINTER /
| | ***4814**-REMOTE-PRINTER / ***4818**-PCL-REMOTE-PRINTER /
| | ***4821**-PCL-REMOTE-PRINTER / ***4822**-PCL-REMOTE-PRINTER /
| | ***4824**-PCL-REMOTE-PRINTER / ***4825**-PCL-REMOTE-PRINTER /
| | ***8121**-REMOTE-PRINTER / ***9000-REMOTE**-PRINTER /
| | ***9000-EPFX**-REMOTE-PRINTER / ***9000-EPLQ**-REMOTE-PRINTER /
| | ***9000-EPSQ**-REMOTE-PRINTER / ***9000-PCL**-REMOTE-PRINTER /
| | ***9000-PRO**-REMOTE-PRINTER / ***9000-PS**-REMOTE-PRINTER /
| | ***9001**-REMOTE-PRINTER / ***9001-31**-REMOTE-PRINTER /
| | ***9002**-REMOTE-PRINTER / ***9003**-REMOTE-PRINTER /
| | ***9004**-REMOTE-PRINTER / ***9011**-REMOTE-PRINTER /
| | ***9012**-REMOTE-PRINTER / ***9013**-REMOTE-PRINTER /
| | ***9014**-REMOTE-PRINTER / ***9015**-REMOTE-PRINTER /
| | ***9021**-REMOTE-PRINTER /***9022**-REMOTE-PRINTER /
| | ***9022-200**-REMOTE-PRINTER / ***9025**-REMOTE-PRINTER /
| | ***9026-PCL**-REMOTE-PRINTER / ***9026-RENO**-REMOTE-PRINTER /
| | ***9045**-ANSI-REMOTE-PRINTER / ***9046**-REMOTE-PRINTER /
| | ***9097**-REMOTE-PRINTER / ***9645**-REMOTE-PRINTER
| ***CENTR**AL(...)
| | **SEL**ECTION**-TYPE** = ***MAY** / ***MUST**
| | ,**DEV**ICE**-TYPE** = ***ALL** / list-poss(16): ***HP-PRINT**ER / ***HP90-PRINT**ER /
| | ***LP-PRINTER** / ***TAPE** / ***LP-EMU**LATED**-PRINT**ER / ***LP48-PRINT**ER /
| | ***LP65-PRINT**ER / ***2050-APA**-PRINTER / ***2090-APA**-PRINTER /
| | ***2090-TWIN-**PRINTER / ***VIRTUAL-PRINTER / *PCL-PRINT**ER
| ***MANAG**ED**-DEV**ICES(...)

| | | **SEL**ECTION-**TYPE** = ***MAY** / ***MUST**

| | | ,**DEV**ICE-**TYPE** = ***ALL** / list-poss(16): ***DJET-REM**OTE-**PRINT**ER /

| | | ***2030**-PCL-REMOTE-PRINTER / ***4011**-PCL-REMOTE-PRINTER /

| | | ***4812**-REMOTE-PRINTER /***4013**-REMOTE-PRINTER /

| | | ***4814**-REMOTE-PRINTER / ***4818**-PCL-REMOTE-PRINTER /

| | | ***4821**-PCL-REMOTE-PRINTER / ***4822**-PCL-REMOTE-PRINTER /

| | | ***4824**-PCL-REMOTE-PRINTER / ***4825**-PCL-REMOTE-PRINTER /

| | | ***8121**-REMOTE-PRINTER / ***9000-REMOTE**-PRINTER /

| | | ***9000-EPFX**-REMOTE-PRINTER / ***9000-EPLQ**-REMOTE-PRINTER /

| | | ***9000-EPSQ**-REMOTE-PRINTER / ***9000-PCL**-REMOTE-PRINTER /

| | | ***9000-PRO**-REMOTE-PRINTER / ***9000-PS**-REMOTE-PRINTER /

| | | ***9001**-REMOTE-PRINTER / ***9001-31**-REMOTE-PRINTER /

| | | ***9002**-REMOTE-PRINTER / ***9003**-REMOTE-PRINTER /

| | | ***9004**-REMOTE-PRINTER / ***9011**-REMOTE-PRINTER /

| | | ***9012**-REMOTE-PRINTER / ***9013**-REMOTE-PRINTER /

| | | ***9014**-REMOTE-PRINTER / ***9015**-REMOTE-PRINTER /

| | | ***9021**-REMOTE-PRINTER /***9022**-REMOTE-PRINTER /

| | | ***9022-200**-REMOTE-PRINTER / ***9025**-REMOTE-PRINTER /

| | | ***9026**-PCL-REMOTE-PRINTER / ***9026-RENO**-REMOTE-PRINTER /

| | | ***9045**-ANSI-REMOTE-PRINTER / ***9046**-REMOTE-PRINTER /

| | | ***9097**-REMOTE-PRINTER / ***9645**-REMOTE-PRINTER

| ***DEV**ICE(...)

| | **NAME** = ***OWN** / ***ALL** / <alphanum-name 1..8 with-wild(24)> /

| | list-poss(16): <alphanum-name 1..8>

| ,**FORMS-O**VERLAY-**BUFFER** = ***ANY** / ***ONLY** / ***NO** / ***RANGE**(...)

| ***RANGE**(...)

| | **LOW** = 0 / <integer 0..32767>

| | ,**HIGH** = 32767 / <integer 0..32767>

| ,**CHAR**ACTER-**SET-NUM**BER = ***ALL** / ***ONE** / ***RANGE**(...)

| ***RANGE**(...)

| | **LOW** = 1 / <integer 1..32767>

```
|              |       ,HIGH = 32767 / <integer 1..32767>
|       ,PRIORITY = *ALL / *RANGE(...)
|          *RANGE(...)
|              |       LOW = 30 / <integer 30..255>
|              |       ,HIGH = 255 / <integer 30..255>
|       ,ROTATION = *ANY / *YES / *NO
|       ,JOB-TYPE = *ALL / list-poss(10): *WAIT / *ACTIVE / *KEEP / *REPLAY /
|                   *WAIT-PREPROCESSING / *PREPROCESSING / *BEFORE-APA-PRINT /
|                   *AFTER-APA-PRINT / *WAIT-FILE-TRANSFER / *FILE-TRANSFER
|       ,FORMAT-NAME = *ALL / list-poss(16): *HP / *SPDS / *TEXT / *PCL / *PLAIN-TEXT /
|                   <c-string 1..63 with-low>
,EXCEPT = *NONE / *PARAMETERS(...)
  *PARAMETERS(...)
|       SPOOLOUT-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> /
|                   list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
|       ,USER-IDENTIFICATION = *NONE / <alphanum-name 1..8 with-wild(24)> /
|                   list-poss(16): <name 1..8> / <c-string 1..8 with-low>
|       ,HOST-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> /
|                   list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
|       ,SERVER-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> /
|                   list-poss(16): <alphanum-name 1..8>
|       ,FORM-NAME = *NONE / <alphanum-name 1..6 with-wild(24)> /
|                   list-poss(16): <alphanum-name 1..6>
|       ,TSN = *NONE / list-poss(16): <alphanum-name 1..4>
|       ,SERVER-TSN = *NONE / list-poss(16): <alphanum-name 1..4>
|       ,FORMS-OVERLAY = *NONE / list-poss(16): <alphanum-name 2..2>
|       ,SPOOLOUT-CLASS = *NONE / list-poss(16): <integer 1..255>
|       ,ACCOUNT = *NONE / list-poss(16): <alphanum-name 1..8>
|       ,VIRTUAL-PRINTER-NAME = *NONE / list-poss(16): <alphanum-name 1..8>
|       ,DESTINATION = *NONE / *DEVICE(...) / *CENTRAL / <alphanum-name 1..8 with-wild(24)> /
|                   list-poss(16): <alphanum-name 1..8>
```

```
|          *DEVICE(...)
|              |       NAME = *NONE / <alphanum-name 1..8 with-wild(24)> /
|              |                    list-poss(16): <alphanum-name1..8>
|       ,FORMAT-NAME = *ALL / list-poss(16): *HP / *SPDS / *TEXT / *PCL / *PLAIN-TEXT /
|                                <c-string 1..63 with-low>
```

Operands

INFORMATION =
Types of information on spoolout jobs to be output to SYSOUT or SYSLST (OUTPUT operand). Although all available information on all spoolout jobs can be requested simultaneously, you should use this operand (INFORMATION) to select a subset of the available information to avoid cluttering up the screen.

INFORMATION = *ORIGIN
Outputs the following information on the origin of the spoolout jobs:

- TSN
- name of the server on which the job is processed
- user ID
- account number of the user who generated the spoolout job
- number of specified page copies
- number of specified file copies
- spoolout name of the job
- type and size of the file
- name of the client host
- TSN of the job issuing the job

This information is primarily of interest to the nonprivileged user.

INFORMATION = *DESTINATION
Outputs information on the output medium of the spoolout job:

- TSN
- name of the server on which the job is processed
- job type (RSO or local SPOOL)
- name of the device
- name of the device pool
- device types
- status and type of job (WAIT,ACTIVE,KEEP, etc.)
- Error code and error message (RSO, Dprint)

This information is primarily of interest to the device administrator.

INFORMATION = *TRAITS
Outputs information on the following attributes of the spoolout jobs:

- priority
- form name
- spoolout class
- number of character sets required
- size of the FOB data overlay required
- name of the film overlay required
- use of the page rotation module
- output control (CONTROL)
- name of the server on which the job is processed
- location of the resources

This information is primarily of interest to system administration since it relates to the attributes (traits) of the local SPOOL devices.

INFORMATION = *SUMMARY
Outputs the number of spoolout jobs selected and the number of PAM pages provided for these jobs.

INFORMATION = *DISTRIBUTED
Global information on print jobs is output:

- TSN on the local and remote host (client and server TSN)
- Name of the client host
- Name of the server on which the job is processed
- Job type (local, distributed, between clusters)
- Information on the requesting user ID

INFORMATION = *SPOOL-FILTER / *RSO-FILTER
These values can be used to display selective information on the destination and status of a print job. The list of device types corresponds to those on which the print job can be executed after applying the filter.
Depending on the filter, the print jobs can be executed by SPOOL (if INFORMATION = *SPOOL-FILTER is specified) or by RSO (if INFORMATION = *RSO-FILTER is specified). Both values can be specified in coordination with INFORMATION=*DESTINATION if the field ERMSG (error message) contains 'FILTER' or 'DEL/FLT'.

Output information:

- TSN
- name of the server on which the job is processed
- job type (RSO or local SPOOL)
- name of the device
- name of the device pool
- device types
- status and type of job (WAIT,ACTIVE,KEEP,...)
- error code

- error message

Note

These details are primarily only of interest to the device manager and to systems support (PRINT-SERVICE-ADMINISTRATION).

CLUSTER-NAME = *LOCAL-CLUSTER / <name 1..8>
Name of the cluster in which the command is executed. If a cluster of UNIX-based systems is specified, only a subset of operands and values is permitted for selecting the print job. You will find detailed information on this in the “Distributed Print Services” manual [10].

OUTPUT = *SYSOUT / *SYSLST
Specifies whether the information is to be output to SYSOUT (screen) or SYSLST.

SELECT = *PARAMETERS(...) / *STD
Specifies the print jobs on which the information is to be issued. With SELECT=*STD, the information is output for all print jobs that fulfill the criteria specified with SELECT = *PARAMETERS(...).

SELECT = *PARAMETERS(...)
Selection criteria for spoolout jobs on which information is to be output.

SPOOLOUT-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low> / *NONE
Spoolout names of the spoolout jobs on which information is to be output.

USER-IDENTIFICATION = *STD / *OWN / <alphanum-name 1..8 with-wild(24)> /*ALL / list-poss(16): <name 1..8> / <c-string 1..8 with-low>
User IDs of the print jobs on which information is to be output. *STD means *ALL for operator tasks and *OWN for all other tasks.

HOST-NAME = *HOME / *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Information is output on print jobs started from the specified hosts.

HOST-NAME = *HOME
Only print jobs started from the local host are selected.

HOST-NAME = *ALL
Information is output on all print jobs of all hosts. Nonprivileged users who specify this value only receive information on their own print jobs.

HOST-NAME = <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
Information is output on print jobs started from the specified hosts. Nonprivileged users do not receive any information if they specify a remote host; they can only obtain information on their own print jobs.

SERVER-NAME = *HOME / *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
Information is output on print jobs processed on the specified server.

SERVER-NAME = *HOME
Only print jobs on the local server are selected.

SERVER-NAME = *ALL
All print jobs on all available servers are selected.

SERVER-NAME = <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
Only the specified servers are selected, provided they belong to the local cluster.

FORM-NAME = *ALL / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6>
Form names of the spoolout jobs on which information is to be output.

TSN = *ALL / list-poss(16): <alphanum-name 1..4>
Task sequence numbers of the spoolout jobs on which information is to be output.

IDENTIFICATION = *ALL / <c-string 1..255 with-low>
Print jobs on a UNIX-based system can be addressed by means of their identification. A cluster of UNIX-based systems must be selected in this case. To find out which operands and values are permitted, see the “Distributed Print Services” manual [10].

SERVER-TSN = *ALL / list-poss(16): <alphanum-name 1..4>
Server TSN of the print jobs on which information is to be output.

FORMS-OVERLAY = *ALL / list-poss(16): <alphanum-name 2..2>
Information is to be output on spoolout jobs for which the named physical forms overlays have been specified.

SPOOLOUT-CLASS = *ALL / list-poss(16): <integer 1..255>
Spoolout classes of the spoolout jobs on which information is to be output.

ACCOUNT = *ALL / list-poss(16): <alphanum-name 1..8>
Account numbers of the spoolout jobs on which information is to be output.

VIRTUAL-PRINTER-NAME = *ALL / list-poss(16): <alphanum-name 1..8>
If the name of a virtual printer is specified, information will be output for all print jobs that were allocated to that virtual printer.

DESTINATION = *ALL / *LOCAL(...) / *REMOTE(...) / *CENTRAL / *MANAGED-DEVICES(...) / *DEVICE(...) / <alphanum-name 1..8 with-wild(24)> /list-poss(16): <alphanum-name 1..8>
Information is to be output on the print jobs processed on the specified output media. Information can be requested on:

- all jobs (*ALL)
- jobs for local SPOOL devices (*LOCAL)
- jobs for RSO devices (*REMOTE)
- jobs whose destination is the central printer pool (*CENTRAL)
- jobs for devices managed by the user (*MANAGED-DEVICES)
- jobs for specific devices (*DEVICE)

DESTINATION = *LOCAL(...)
Information is requested on spoolout jobs to be processed on local SPOOL devices.

SELECTION-TYPE = *MAY / *MUST
Selection of local spoolout jobs is restricted to those that may be output on at least one of the specified device types (*MAY) or to those that must be output on one of the specified device types and must not be output on any device type other than the ones specified (*MUST).

DEVICE-TYPE = *ALL / list-poss(16): *HP-PRINTER / *HP90-PRINTER / *LP-PRINTER / *LP48-PRINTER / *LP-EMULATED-PRINTER / *LP65-PRINTER / *TAPE / *2050-APA-PRINTER / *2090-APA-PRINTER / *2090-TWIN-PRINTER / *VIRTUAL-PRINTER / *PCL-PRINTER
Device types for local spoolout jobs on which information is requested.

DESTINATION = *REMOTE(...)
Information is requested on spoolout jobs to be processed on RSO devices.

SELECTION-TYPE = *MAY / *MUST
Selection of RSO spoolout jobs is restricted to those that may be output on at least one of the specified device types (*MAY) or to those that must be output on one of the specified device types and may not be output on any device type other than the ones specified (*MUST).

DEVICE-TYPE = *ALL / list-poss(16): *DJET-REMOTE-PRINTER / ...
Device types for RSO jobs on which information is requested. For possible values see the syntax chart.

DESTINATION = *CENTRAL(...)
Information is requested on spoolout jobs to be processed on SPOOL devices belonging to the central printer pool.

SELECTION-TYPE = *MAY / *MUST
Selection of local spoolout jobs is restricted to those that may be output on at least one of the specified device types (*MAY) or to those that must be output on one of the specified device types and may not be output on any device type other than the ones specified (*MUST).

DEVICE-TYPE =*ALL / list-poss(16): *HP-PRINTER / *HP90-PRINTER / *LP-PRINTER / *LP48-PRINTER / *LP-EMULATED-PRINTER / *LP65-PRINTER / *TAPE / *2050-APA-PRINTER / *2090-APA-PRINTER / *2090-TWIN-PRINTER / *VIRTUAL-PRINTER / *PCL-PRINTER
Device types for local spoolout jobs on which information is requested.

DESTINATION = *MANAGED-DEVICES(...)
Requests information on jobs for devices that you yourself manage.

SELECTION-TYPE = *MAY / *MUST
Selection of self-managed spoolout jobs is restricted to those that may be output on at least one of the specified device types (MAY) or to those that must be output on one of the specified device types and must not be output on any device type other than the ones specified (MUST).

DEVICE-TYPE = *ALL / list-poss(16): *DJET-REMOTE-PRINTER / ...
Device types for self-managed jobs on which information is requested. For possible values see the syntax chart.

DESTINATION = *DEVICE(...)
Information is requested on spoolout jobs for the devices specified in the substructure.

NAME = *OWN / *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
Names of the devices on which information is requested.

FORMS-OVERLAY-BUFFER = *ANY / *ONLY / *NO / *RANGE(...)
Information is to be output on spoolout jobs for which

- a particular FOB data overlay has been specified (*ONLY)
- no FOB data overlay has been specified (*NO)

- FOB data overlays in the specified range have been specified (*RANGE)

If you specify *ANY, the operand does not act as a selection criterion.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Specifies a range of values.

LOW = 0 / <integer 0..32767>
Bottom of range.

HIGH = 32767 / <integer 1..32767>
Top of range.

CHARACTER-SET-NUMBER = *ALL / *ONE / *RANGE(...)
Information is to be output on spoolout jobs that

- require only one character set (*ONE)
- require a number of character sets within the specified range (*RANGE)

CHARACTER-SET-NUMBER = *RANGE(...)
Specifies a range of values.

LOW = 1 / <integer 0..32767>
Bottom of range.

HIGH = 32767 / <integer 1..32767>
Top of range.

PRIORITY = *ALL / *RANGE(...)
Information is to be output on spoolout jobs with priorities within the specified range (*RANGE). If you specify *ALL, the operand does not act as a selection criterion.

PRIORITY = *RANGE(...)
Specifies a range of values.

LOW = 30 / <integer 30..255>
Bottom of range.

HIGH = 255 / <integer 30..255>
Top of range.

ROTATION = *ANY / *YES / *NO
The following information is to be output on spoolout jobs for which

- page rotation has been requested in PRINT-DOCUMENT (*YES)
- page rotation has not been requested in PRINT-DOCUMENT (*NO)

If you specify *ANY, the operand does not act as a selection criterion.

JOB-TYPE = *ALL / list-poss(10): *WAIT / *ACTIVE / *KEEP / *REPLAY / *WAIT-PREPROCESSING / *PREPROCESSING / *BEFORE-APA-PRINT / *AFTER-APA-PRINT / *WAIT-FILE-TRANSFER / *FILE-TRANSFER
Information is to be output on the following types of spoolout job:

- waiting spoolout jobs: *WAIT
- active spoolout jobs: *ACTIVE

- suspended spoolout jobs: *KEEP
- spoolout jobs to be output to replay tape: *REPLAY
- waiting SECTION-SPOOLOUT jobs (output section by section): *WAIT-PREPROCESSING
- active SECTION-SPOOLOUT jobs (output section by section): *PREPROCESSING
- *BEFORE-APA (APA printers: job status = “TRANSFERRED” (see also the “Spool & Print Commands” manual [42]))
- *AFTER-APA (APA printers: job status = “TRANSIT” (see also the “Spool & Print Commands” manual [42]))
- jobs waiting for file transfer: *WAIT-FILE-TRANSFER
- jobs currently undergoing file transfer: *FILE-TRANSFER

FORMAT-NAME = *ALL / list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
Allows print jobs to be included in the selection on the basis of their document format name.

FORMAT-NAME = *ALL
Information is output on all print jobs.

FORMAT-NAME = list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
Print jobs whose document format name is contained in the list are included in the selection.

EXCEPT = *NONE / *PARAMETERS(...)
Specifies whether the information is to be output on all print jobs or whether jobs with certain attributes (EXCEPT = *PARAMETERS) are to be excluded from output.

EXCEPT = *PARAMETERS(...)
Criteria for print jobs to be excluded from the information output.

SPOOLOUT-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Spoolout names of the spoolout jobs to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

USER-IDENTIFICATION = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <name 1..8> / <c-string 1..8 with-low>
User IDs of the spoolout jobs to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

HOST-NAME = *NONE / *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
Print jobs started from the specified hosts are excluded from the information output. The specified hosts must belong to the local cluster. If you specify *NONE, the operand does not act as a selection criterion.

SERVER-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> /list-poss(16): <alphanum-name 1..8>
Print jobs to be processed on the specified server are excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

FORM-NAME = *NONE / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6>
Form names of the spoolout jobs to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

TSN = *NONE / list-poss(16): <alphanum-name 1..4>
Task sequence numbers of the spoolout jobs to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

SERVER-TSN = *NONE / list-poss(16): <alphanum-name 1..4>
Print jobs with the specified server TSN are excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

FORMS-OVERLAY = *NONE / list-poss(16): <alphanum-name 2..2>
Spoolout jobs for which these physical forms overlays have been specified are to be excluded from the information output.

SPOOLOUT-CLASS = *NONE / list-poss(16): <integer 1..255>
Spoolout classes of the spoolout jobs to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

VIRTUAL-PRINTER-NAME = *NONE / list-poss(16): <alphanum-name 1..8>
Print jobs allocated to the specified virtual printer are removed from the selection.

ACCOUNT = *NONE / list-poss(16): <alphanum-name 1..8>
Account numbers of the spoolout jobs to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

DESTINATION = *NONE / <alphanum-name 1..8 with-wild(24)> / *DEVICE(...) / *CENTRAL / list-poss(16): <alphanum-name 1..8>
Print jobs to be processed on the specified output media (pool or devices) are excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

DESTINATION = *DEVICE(...)
Print jobs to be processed on the specified devices are excluded from the information output.

> **NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>**
> Names of the devices to be excluded from the information output. If you specify *NONE, the operand does not act as a selection criterion.

FORMAT-NAME = *ALL / list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
Allows print jobs to be excluded from the selection on the basis of their document format name.

FORMAT-NAME = *ALL
Information is output on all print jobs.

FORMAT-NAME = list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
Print jobs whose document format name is contained in the list are excluded from the selection.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error guaranteed message: SCP0947
2	0	SCP0932	No corresponding job exists
2	0	SCP1052	One or more servers unavailable
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
2	64	SCP0975	No authorization for command
4	64	SCP0976	Invalid operand value guaranteed messages: SCP1028, SCP1029
6	128	SPC1063	DPRINTCL subsystem not loaded guaranteed message: SCP1062
1	128	SPS0266	SPOOL subsystem or SPOOL administrator task not available

Notes

- When INFO=*ORIGIN / *DESTINATION / *TRAITS is specified, the local TSN is displayed in the TSN field, i.e. the TSN assigned to the print job locally. This is either the server TSN (for a print job issued on a remote client and processed on the local server) or the client TSN (for a print job issued on the local client and processed locally or on a remote server).
  For nonprivileged users and the SPOOL administrator, this has no effect on subsequent processing; i.e. the TSN displayed is the TSN that must be specified in order to cancel, display and modify the print job.
- For the cluster administrator, this command always displays the TSN at the server end. For other users (nonprivileged users and the SPOOL administrator), if *HOME is displayed in the SERVER field, this means that the print job is processed on the local server and the server TSN is displayed in the TSN field. If not, the client TSN is displayed. In the case of global output, if the fields TSN and P-TSN are identical, this means that the print job is processed by the client’s local server.
- If the DPRINTCL subsystem is not loaded, distributed print jobs issued on a remote server are not displayed. The next time DPRINTCL is loaded, a check establishes whether the print job has been processed by the remote server.
- If values other than the defaults are specified for the CLUSTER-NAME and IDENTIFICATION operands when DPRINTCL is not loaded, the command is rejected.
- If the DPRINTSV subsystem is not loaded, distributed print jobs issued by a remote client to the local server are not displayed. They are restarted the next time DPRINTSV is loaded. For the cluster administrator, the selected jobs are searched for on the server. If SERVER-NAME=*ALL is specified, the jobs of unavailable servers are not displayed.

  For nonprivileged users, however, jobs issued to a server are displayed even when this server is not available.

- If the specified cluster name is not the local cluster, the value DESTINATION=*ALL has the same effect as DESTINATION=*LOCAL.
- Only for the cluster administrator:
  If the server of the cluster whose jobs are to be displayed is not accessible, the information is obtained from all the cluster's accessible clients (if the jobs have not already been returned to the server).
- If the server's name is defined in the UNIX-based system with a maximum of 8 characters, it may be assumed that the job ID (global ID) is a maximum 14 characters long (<server-name>: integer 1..30000).
  The server's name is shortened to 8 characters in every output format.

Output

There are various output formats depending on what is specified for the INFO operand. The meanings of the output fields are listed alphabetically in a table after the output formats.

Output when INFO=*ORIGIN is specified

In BS2000

```
TSN  SERVER   SP-NAME  RTSN HOST     USER-ID  ACCOUNT  F-C P-C F-T FCB-T F-SIZE
@@@@ @@@@@@@@ @@@@@@@@ @@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@ @@@ @@@ @@@@  @@@@@@
Access to print jobs on a UNIX-based system
IDENTIFICATION SERVER   SP-NAME  HOST     USER-ID  F-C P-C
##########     @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@ @@@
```

Access to print jobs on a UNIX-based system

```
IDENTIFICATION SERVER   SP-NAME  HOST     USER-ID  F-C P-C
##########     @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@ @@@
```

Output when INFO=*DESTINATION is specified

In BS2000

```
TSN  SERVER   M STA R DEVICE   DESTIN   ERCOD    ERMSG    DEVICE TYPE
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@-@@,@@@@,@@@@,.
                                                             @@@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@,@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@,@@@@,@@@@
```

Access to print jobs on a UNIX-based system

```
IDENTIFICATION SERVER   SP-NAME  HOST     USER-ID  F-C P-C
##########     @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@ @@@
```

Output when INFO=*TRAITS is specified

In BS2000

```
TSN SERVER  PRI FORM-N CLAS C-S-N F-O-B F-O ROT     CONT  RES-LOC
@@@@ @@@@@@@@ @@@ @@@@@@ @@@@   @@@ @@@@ @@ @@@/@@@ @@@@  @@@@@@
```

Access to print jobs on a UNIX-based system

```
IDENTIFICATION SERVER   PRI FORM-N ROT
##########     @@@@@@@@ @@@ @@@@@@ @@
```

Output when INFO=*DISTRIBUTED is specified

```
TSN  SERVER   P-TSN J-TYPE HOST     USER-ID  ACCOUNT  ERCOD    ERMSG
@@@@ @@@@@@@@ @@@@  @@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@
```

Output when INFO=*SPOOL-FILTER

```
TSN  SERVER   M STA R DEVICE   DESTIN   ERCOD    ERMSG    DEVICE TYPE
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@-
@@,@@@@,@@@@,.
                                                             @@@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@,@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@,@@@@,@@@@
```

Output when INFO=*RSO-FILTER

```
TSN  SERVER   M STA R DEVICE   DESTIN   ERCOD    ERMSG    DEVICE TYPE
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@-
@@,@@@@,@@@@,.
                                                             @@@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@,@@,@@@@
@@@@ @@@@@@@@ @ @@@ @ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@,@@@@,@@@@,@@@@
```

Meanings of the output fields

Output field	Meaning / Contents
ACCOUNT	Account number of the user who issued the command; output only under TSOS and the user's own user ID
C-S-N	In the case of SPOOL jobs for HP printers: Number of character sets specified for this SPOOL job; in the case of SPOOL jobs for other printer types and RSO jobs, the value in this field is 1.
CLAS	Spoolout class as defined in the JOIN entry (blank if no spoolout class has been defined)
CONT	Control character interpretation specified in PRINT-DOCUMENT for this SPOOL job: PHYS: CONTROL-MODE = *PHYSICAL LOG: CONTROL-MODE = *LOGICAL TRAN: DOCUMENT-FORMAT = *SPECIAL-FORMAT LINE: CONTROL-MODE = *LINE-MODE NO: DOCUMENT-FORMAT = *TEXT
DESTIN	Name of the device pool
DEVICE	Device name of the local or RSO printer
DEVICE TYPE	List of device types (separated by commas) on which the specified job can be processed. Possible values for RSO jobs: 4011,4812, 4813, 4821, 4824, 8121, 9000, 9001, 9001-31, 9002, 9003, 9004, 9011, 9012, 9013, 9014, 9021, 9022, 9022-200, 9025, 9026-LJ, 9026-RN, 9097, 9645, DJET, LJII Possible values for SPOOL jobs: DISK, HP, HP90, LP, LP-EM, LP48, LP65, TAPE, VIRT, 2050-APA, 2090-APA, 2090-TWIN, PCL
ERCOD	FT error code, POSIX error code or RSO error code
ERMSG	FT error message, POSIX error message or RSO error message. The string 'DELAYED' appears in this field if the execution of a print job is delayed with the SCHEDULING-TIME operand of the PRINT-DOCUMENT or MODIFY-PRINT-JOB-ATTRIBUTES commands, but only for jobs in the WAIT, WAIT PRE-PROCESSING and WAIT FILE TRANSFER states. If 'DELAYED' does not appear here, this means that the scheduling time has passed. If the job is being filtered, the value 'FILTER' appears here. If a print job for which a scheduling time was defined is to be filtered, the value 'DEL/FLT' appears in the error message field.
F-C	Number of copies (FILE COPIES) requested (in the ADDITIONAL-COPIES operand of the PRINT-DOCUMENT command)
FCB-T	FCB type (access method) PAM: PAM file SAM: SAM file ISAM: ISAM file

	EAM: EAM file TAPE: replay tape file BTAM: BTAM file
FORM-N	Form with which the SPOOL job must be processed
F-O	EFO data overlay (HP90) specified for the SPOOL job or physical overlay specified for the RSO job
F-O-B	Size of the FOB data overlay to be processed for this SPOOL job
F-SIZE	File size in PAM pages (FILE-SIZE)
F-T	File type (FILE TYPE): EAM: EAM file OPT: displayed only for reasons of compatibility DMS: (permanent) user file TMP: temporary user file LST: SYSLST file OUT: SYSOUT file OMF: temporary object module file in EAM area PLM: PLAM library element
HOST	BCAM name of the host on which the command was issued
J-TYPE	Type of print job: *LOC: Job is processed by SPOOL *DIST: Job is processed by DPRINT *INTER: Job comes from a remote cluster and is processed by DPRINT
M	Job type (MODE): L - local job R - RSO job I - job to virtual printer
P-C	Number of page copies requested (in the PAGE-COPIES operand of the PRINT-DOCUMENT command)
PRI	Priority of the print job
P-TSN	Task sequence number of the print job (only for Distributed Print Services; see the manual “Distributed Print Services” [10])
R	* - Job from replay tape in COPY mode (the job can have the status WAIT, KEEP or ACTIVE)
RES-LOC	Specifies whether the resources for processing the print job are used by the client or by the server: *HOME: the resources where checked on the client system *SERVER: the resources where checked on the server
ROT	Only for local SPOOL (page rotation module)
RTSN	TSN of the task issuing the command

SERVER	Logical name of the server that processes the print job (only for Distributed Print Services; see the manual “Distributed Print Services” [10])
SP-NAME	Job name of the print job
STA	Job status: WT - WAIT KP - KEEP ACT - ACTIVE DIR - DIRECT (job from replay tape in DIRECT mode, waiting for an output device) WP - WAITING FOR PRE-PROCESSING (print job waits until a pseudo controller is free in order to position on the SECTION record from which a file section is to be output) PRE - IN PRE-PROCESSING (active PRE-PROCESSING job) TRD - TRANSFER (APA printer: job status = “TRANSFERRED”) TRT - TRANSIT (APA printer: job status = “TRANSIT”) FT - FILE TRANSFER (active file transfer) WFT - WAIT FILE TRANSFER (job waiting for file transfer)
TSN	Task sequence number of the print job
USER-ID	User ID of the user who issued the command; output only under TSOS and the user’s own user ID

Table 138: Meaning of the output fields of SHOW-PRINT-JOB-STATUS

Output in S variables

The command's INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ORIGIN	INF=ORIG
INFORMATION = *DESTINATION	INF=DEST
INFORMATION = *TRAITS	INF=TRAITS
INFORMATION = *SUMMARY	INF=SUM
INFORMATION = *DISTRIBUTED	INF=DISTR
INFORMATION = *SPOOL-FILTER	INF=SP
INFORMATION = *RSO-FILTER	INF=RSO

Note

S variables marked S/X in the “Name of the S variable” column are generated both for SPOOL and for Xprint jobs. S variables marked X are generated for Xprint jobs only. All other (unmarked) S variables are generated for SPOOL jobs only.

Output information	Name of the S variable	T	Contents	Condition
Access method (FCB type)	var(*LIST).ACCESS-METHOD	S	*BTAM *EAM *ISAM *PAM *SAM *TAPE	INF=ORIG
Account number of the user issuing the command	var(*LIST).ACCOUNT	S	' ' <account>	INF=DISTR/ ORIG
Number of copies requested	var(*LIST).ADD-COP$^{S/X}$	S	0..255	INF=ORIG
Number of character sets specified for this SPOOL job	var(*LIST).CHAR-SET-NUM	S	1..32767	INF=TRAITS
Control character interpretation	var(*LIST).CONTR-CHAR	S	' ' *APA *LINE *LOG *NO *PHYS *TRAN	INF=TRAITS
Print job destination	var(*LIST).DEST	S	' ' *CENTRAL <destination>	INF=DEST/ SP/RSO
Device name of the local or RSO printer	var(*LIST).DEV-NAME$^{S/X}$	S	' ' <dev-name>	INF=DEST/ SP/RSO
Type of device on which the current job is being processed	var(*LIST).DEV-TYPE(*LIST)		' ' <dev-type> *2030-PCL-R-P *2050-APA-PRINT *2090-APA-PRINT *2090-TWIN-PRINT *4011-REM-PRINT *4812-REM-PRINT *4813-REM-PRINT *4818-PCL-PRINT *4821-PCL-PRINT *4822-PCL-PRINT *4824-PCL-PRINT *4825-PCL-PRINT *8121-REM-PRINT *9000-EPFX-R-P *9000-EPLQ-R-P *9000-EPSQ-R-P	INF=DEST/ SP/RSO

			*9000-PCL-R-P *9000-PRO-R-P *9000-PS-PRINT *9000-REM-PRINT *9001-31-REM-PR *9001-REM-PRINT *9002-REM-PRINT *9003-REM-PRINT *9004-REM-PRINT *9011-REM-PRINT *9012-REM-PRINT *9013-REM-PRINT *9014-REM-PRINT *9015-REM-PRINT *9021-REM-PRINT *9022-200-REM-PR *9022-REM-PRINT *9025-REM-PRINT *9026-PCL-R-P *9026-RN-REM-PR *9097-REM-PRINT *9043-ANSI-R-P *9044-ANSI-R-P *9046-REM-PRINT *9645-REM-PRINT *DJET-REM-PRINT *HP-PRINTER *HP90-PRINTER *LP-EMUL-PRINTER *LP-PRINTER *LP48-PRINTER *LP65-PRINTER *TAPE *VIRTUAL	
RSO error code	var(*LIST).ERROR-CODE	S	' ' <error-code>	INF=DEST/ DISTR/ SP/RSO
RSO error message	var(*LIST).ERROR-MSG	S	' ' <msg-id> DELAYED FILTER DEL/FLT	INF=DEST/ DISTR/ SP/RSO
File size (in PAM pages)	var(*LIST).F-SIZE	S	0..32767	INF=ORIG
File type	var(*LIST).FILE-TYPE	S	*DMS *EAM *OMF	INF=ORIG

			*PLM *LST *OPT *OUT *TMP *UFS	
Size of the FOB overlay resource	var(*LIST).FOB	S	<integer>	INF=TRAITS
Name of the form handling the SPOOL job	var(*LIST).FORM-NAME$^{S/X}$	S	' ' <form-name>	INF=TRAITS
EFO overlay resource	var(*LIST).FORM-OVERLAY	S	' ' <forms-overlay>	INF=TRAITS
Host name	var(*LIST).HOST-NAME$^{S/X}$	S	' ' <host-name>	INF=DISTR/ ORIG
Xprint job identification	var(*LIST).IDENTIFICATION^{X}	S	<identification>	INF=DEST/ ORIG/ TRAITS/ SP/RSO
Number of jobs	var(*LIST).JOB-COUNT$^{S/X}$	S	<integer>	INF=SUM
Method of job processing	var(*LIST).JOB-TYPE	S	*LOC *REM	INF=DEST
		S	*DIST *INTER *LOC	INF=DISTR
Number of requested page copies	var(*LIST).PAGE-COP$^{S/X}$	S	0..255	INF=ORIG
Number of PAM pages	var(*LIST).PAM-PAGE-COUNT	S	<integer>	INF=SUM
TSN of the partner print job	var(*LIST).PARTNER-TSN	S	<tsn>	INF=DISTR
Spoolout class	var(*LIST).PRINT-JOB-CLASS	S	0..255	INF=TRAITS
SPOOL job priority	var(*LIST).PRINT-JOB-PRIO$^{S/X}$	S	30..255	INF=TRAITS
Replay tape	var(*LIST).REPLAY-TAPE	S	*NO *YES	INF=DEST/ SP/RSO
Use client or server resources to print the file	var(*LIST).RESOURCE-LOC	S	*HOME *SERVER	INF=TRAITS
Pages are rotated by a defined number of degrees for printing	var(*LIST).ROT$^{S/X}$	S	0 90 180 270	INF=TRAITS

			0/180 90/270 180/0 270/90 *NO *YES	
TSN of the job issuing the command	var(*LIST).RTSN	S	<tsn>	INF=ORIG
Name of the server	var(*LIST).SERVER-NAME[S/X]	S	' ' <server-name>	INF=DEST/ DEV-TYPE/ DISTR/ ORIG/ TRAITS
SPOOL job name	var(*LIST).SPOOL-NAME[S/X]	S	' ' <spool-name>	INF=ORIG
Current status of the job	var(*LIST).STA[S/X]	S	*ACT *DIR *FT *KP *PRE *TRD *TRT *WFT *WP *WT	INF=DEST/ SP/RSO
SPOOL job number	var(*LIST).TSN	S	<tsn>	INF=DEST/ DEV-TYPE/ DISTR/ ORIG/ TRAITS/ SP/RSO
ID of the user who issued the command	var(*LIST).USER-ID[S/X]	S	' ' <user-id>	INF=DISTR/ ORIG

Examples

Output in S variable

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd (show-print-job-status select=*par(host=*all,server=*all),inf=*origin),
            text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
VAR#1.IDENTIFICATION = ' '
VAR#1.TSN = '3DNB'
VAR#1.SERVER-NAME = 'GH5090Y0'
VAR#1.SPOOL-NAME = ' '
VAR#1.RTSN = '3DHC'
VAR#1.HOST-NAME = 'D016ZE04'
VAR#1.USER-ID = 'USER1'
VAR#1.ACCOUNT = '89001'
VAR#1.ADD-COP = '0'
VAR#1.PAGE-COP = '0'
VAR#1.FILE-TYPE = '*DMS'
VAR#1.ACCESS-METHOD = '*SAM'
VAR#1.F-SIZE = '13'
*END-OF-VAR VAR#2.IDENTIFICATION = ' '
VAR#2.TSN = '3DND'
VAR#2.SERVER-NAME = 'GH5090Y0'
VAR#2.SPOOL-NAME = ' '
VAR#2.RTSN = '3DHC'
VAR#2.HOST-NAME = 'D016ZE04'
VAR#2.USER-ID = 'USER1'
VAR#2.ACCOUNT = '89001'
VAR#2.ADD-COP = '0'
VAR#2.PAGE-COP = '0'
VAR#2.FILE-TYPE = '*DMS'
VAR#2.ACCESS-METHOD = '*SAM'
VAR#2.F-SIZE = '12'
*END-OF-VAR
```

```
/exec-cmd cmd=(show-print-job-status select=*par(host=*all,server=*all),
           inf=*traits),text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal)
```

```
VAR#1.IDENTIFICATION = ' '
VAR#1.TSN = '3DNB'
VAR#1.SERVER-NAME = 'GH5090Y0'
VAR#1.PRINT-JOB-PRIO = '240'
VAR#1.FORM-NAME = 'STD'
VAR#1.PRINT-JOB-CLASS = '1'
VAR#1.CHAR-SET-NUM = '1'
VAR#1.FOB = '0'
VAR#1.FORM-OVERLAY = ' '
VAR#1.ROT = '*NO'
VAR#1.CONTR-CHAR = '*NO'
VAR#1.RESOURCE-LOC = '*HOME'
*END-OF-VAR
VAR#2.IDENTIFICATION = ' '
VAR#2.TSN = '3DND'
VAR#2.SERVER-NAME = 'GH5090Y0'
VAR#2.PRINT-JOB-PRIO = '240'
VAR#2.FORM-NAME = 'STD'
VAR#2.PRINT-JOB-CLASS = '1'
VAR#2.CHAR-SET-NUM = '1'
VAR#2.FOB = '0'
VAR#2.FORM-OVERLAY = ' '
VAR#2.ROT = '*NO'
VAR#2.CONTR-CHAR = '*NO'
VAR#2.RESOURCE-LOC = '*HOME'
*END-OF-VAR
```

Output to SYSOUT

/print-doc $tsos.sysrme.archive.090.d,line-spacing=*by-ebcdic,
scheduling=*earliest(time=23:00)

```
% SCP0810 SPOOLOUT FOR FILE ':2OSH:$TSOS.SYSRME.ARCHIVE.090.D' ACCEPTED. TSN: '3QY4',
SPOOLOUT-NAME: '*NONE', MONJV: '*NONE'
% SCP1025 PRINT JOB ACCEPTED BY SERVER 'GH5090Y0' WITH TSN '41IH'
```

/print-doc $tsos.sysrme.archive.090.e,line-spacing=*by-ebcdic,
scheduling=*earliest(time=23:00)

```
% SCP0810 SPOOLOUT FOR FILE ':2OSH:$TSOS.SYSRME.ARCHIVE.090.E' ACCEPTED. TSN: '3QY5',
SPOOLOUT-NAME: '*NONE', MONJV: '*NONE'
% SCP1025 PRINT JOB ACCEPTED BY SERVER 'GH5090Y0' WITH TSN '41II'
```

/show-print-job-status select=*par(host-name=*all,server-name=*all)

```
TSN SERVER  SP-NAME RTSN HOST     USER-ID ACCOUNT F-C P-C F-T FCB-T F-SIZE
3PIU GH5090Y0 ALT     3PBR D016ZE04 USER1   89001     0  0 DMS SAM       13
3QY4 GH5090Y0         3QY3 D016ZE04 USER1   89001     0  0 DMS SAM       44
3QY5 GH5090Y0         3QY3 D016ZE04 USER1   89001     0  0 DMS SAM       44
% SCP0947 3 JOBS FOUND WITH 101 PAM PAGES. COMMAND TERMINATED
```

6.54 SHOW-PRINTER-POOLS

Request information on printer pool names

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$

Function

Requests information on printer pools (output to SYSOUT).

Information can be requested for the following:

- Device pools (BY-POOL operand); the RSO devices or local printers associated with the specified pools are listed.
- RSO devices or local printers (BY-DEVICE operand); the names of the device pools to which the specified RSO devices or local printers belong are listed.

A device pool may contain either local spool devices or RSO devices, but not both at the same time. The wildcard format can also be used to specify a pool or device name.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-PRINTER**-POOLS**

```
SELECT = *BY-POOL (...) / *BY-DEVICE(...)

    *BY-POOL(...)

        |       POOL-NAME = *ALL / <name 1..8> / <alphanum-name 1..8 with-wild(24)>

    *BY-DEVICE(...)

        |       DEVICE-NAME = *ALL / <alphanum-name 1..8 with-wild(24)>

,SERVER-NAME = *HOME / <alphanum-name 1..8>
```

Operands

SELECT =
Determines whether to output the devices belonging to a pool or a list of pools (BY-POOLS) or the pools to which a device belongs or a list of devices (BY-DEVICE).

SELECT = BY-POOL(...)

POOL-NAME = *ALL / <name 1..8> / <alphanum-name 1..8 with-wild(24)>
All devices (RSO or local) belonging to the specified pool (RSO or local), or to a list of pools, are to be output on SYSOUT.

SELECT = BY-DEVICE(...)

DEVICE-NAME = *ALL / <alphanum-name 1..8 with-wild(24)>
All pools to which the specified device (RSO or local) or the list of devices (RSO or local) belong are to be output on SYSOUT.

SERVER-NAME = *HOME / <alphanum-name 1..8>
Identifies the server for which information is required.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SPM0455	No pool found
	32	SCP0974	System error. Command rejected
	128	SPS0266	SPOOL administrator task not available

Output formats

Output for a single RSO device pool

```
POOL-NAME:   @@@@@@@@     POOL-TYPE:    @@@@@@
DEVICE-NAME(S):
@@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
...
```

Output for a single RSO device

```
DEVICE-NAME:  @@@@@@@@
POOL-NAME(S):
@@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
...
```

Output for a pool list

```
POOL-NAME(S) :
@@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
...
```

Output for a device list

```
DEVICE-NAME(S) :
@@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
...
```

Output in S variables

The command's SELECT operand identifies the S variables which are to be created. The following specifications are possible for SELECT:

Notation used in command	Abbreviated form used in table
SELECT = *BY-DEVICE(DEVICE-NAME=<name with-wild>)	1
SELECT = *BY-DEVICE(DEVICE-NAME=<name>)	2
SELECT = *BY-POOL(POOL-NAME=<name with-wild>)	3
SELECT = *BY-POOL(POOL-NAME=<name>)	4

Output information	Name of the S variable	T	Contents	Condition
Device names	var(*LIST).DEV-NAME(*LIST)	S	<device-name>	1,4
	var(*LIST).DEV-NAME	S	<device-name>	2
Time stamp	var(*LIST).LAST-ACCESS	S	*NONE <yyyy-mm-dd>	INF=*ALL
Pool name	var(*LIST).POOL-NAME(*LIST)	S	<pool-name>	2,3
	var(*LIST).POOL-NAME	S	<pool-name>	4
Pool type	var(*LIST).POOL-TYPE	S	*LOC *REM	4

6.55 SHOW-PUBSET-ATTRIBUTES

Request overview of pubset attributes

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	E

Function

With this command systems support can display the values and characteristics which have been defined for a pubset using the SET-PUBSET-ATTRIBUTES command.

Only the PUBRES of the relevant SF pubset or the control volume set of the SM pubset needs to be available for executing the command.
If PUBSET=*BY-VOLUME-SET is specified, the VOLRES of the specified volume set must also be available.

The command supports structured output in S variables (see "Output in S variable").

Format

SHOW-PUBSET**-ATTR**IBUTES

PUBSET = <cat-id 1..4>(...) / ***BY-VOL**UME**-SET**(...)

<cat-id 1..4>(...)

| **PUB**SET**-TYPE** = ***ANY** / ***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED(...)

| ***SYS**TEM**-MANAG**ED(...)

| | **CONTR**OL**-VOL**UME**-SET** = ***ANY** / <cat-id 1..4>

***BY-VOL**UME**-SET**(...)

| **VOL**UME**-SET** = <cat-id 1..4>

,**DEV**ICE**-TYPE** = ***STD** / <device>

Operands

PUBSET = <cat-id 1..4>(...)
Catalog ID of the pubset (alphanumeric) for which information is required.

PUBSET-TYPE = *ANY / *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Specifies the type of pubset involved.
The default applies if an MRSCAT entry exists or if the pubset identifier refers to a single-feature pubset.

PUBSET-TYPE = *ANY
Default: A valid MRSCAT entry exists (the pubset type is irrelevant), or the pubset is a single-feature pubset.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset in question is a single-feature pubset.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset in question is a system-managed pubset.

CONTROL-VOLUME-SET = *ANY
The pubset in question is an SM pubset with a valid MRSCAT entry which contains the name of the control volume set.

CONTROL-VOLUME-SET = <cat-id 1..4>
Control volume set of the specified SM pubset.

PUBSET = *BY-VOLUME-SET(...)
If the catalog ID of an SM pubset is not known, the pubset attributes can also be requested by specifying one of the volume sets which belong to the SM pubset. The volume set requires an existing valid MRSCAT.

VOLUME-SET = <cat-id 1..4>
Volume set ID.

DEVICE-TYPE = *STD / <device>
Device type of the PUBRES for the SF pubset or for the control volume set of the SM pubset. If a device type is specified explicitly, only disk device types known on the system will be accepted. Entering DEVICE-TYPE=? in interactive mode calls up a list of available device types.

DEVICE-TYPE = *STD
General disk type STDDISK with which the system itself finds the disk type.

DEVICE-TYPE =<device>
Specifies the device type.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMD0202	Syntax error
	32	DMS03BE	Error in command processing:
			• during MRSCAT read access
			• during time stamp read access
			• during SVL access
			• during the SYSID conversion call

			• during output to SYSOUT
			• in the pubset occupancy
	64	DMS03BE	No authorization for command
	64	DMS03BE	Device type missing in the MRSCAT
	130	DMS03BE	Disk request rejected
	130	DMS03BE	Pubset in process of being exported

Note on output

Column	Meaning	Value
PVSID	Pubset identifier of pubset	1-4 characters
SYSID	Identifier for the system which uses this pubset as home pubset	1-3 characters / ?
SHARABILITY	Shared pubset is mode possible	YES/NO
CURRENT MASTER	System ID of the current master processor	1-3 characters / NONE / ?
DESIGNATED MASTER	System ID of the master processor designated via the SET-PUBSET-ATTRIBUTES command	1-3 characters / NONE / ?
	If the backup master is defined as alternate master, the value OR is output in the column between DESIGNATED MASTER and BACKUP MASTER. This indicates that of these two, the one on which the pubset import was first conducted becomes master.	OR
BACKUP MASTER	System ID of the processor to take over from master processor if master processor crashes	1-3 characters / NONE / ?
ALTERNATE BACKUP	Response when automatic master is not possible	*NONE / *BY-SHARER / *BY-OPERATOR
DEFAULT-STORAGE-TYPE	Default storage type for creating files	*PUBLIC-SPACE
LARGE VOLUMES	Large volumes (>= 32 GB) permitted	*FORBIDDEN / *ALLOWED
LARGE FILES	Files >= 32 GB permitted	*FORBIDDEN / *ALLOWED

SNAPSET-LIMIT	maximum permitted number of snapsets	Number from 0 to 52

Table 139: Output columns of the SHOW-PUBSET-ATTRIBUTES command

> The “?” character means that there is no correct entry for this value.

Output in S variable

Output information	Name of the S variable	T	Contents	Condition
Alternate backup master	var(*LIST).ALT-BACKUP	S	*BY-OPER *BY-SHARER *NONE	
Alternate master	var(*LIST).ALT-MASTER	S	*BACKUP-MASTER *NONE	
System ID of the backup master processor (takes over as master if the pubset owner fails)	var(*LIST).BACKUP-MASTER	S	*NONE <sys-id>	
ID of the control volume set (SM pubsets only)	var(*LIST).CONTROL-VOLSET	S	<cat-id>	
System ID of the current master processor (owner of the pubset)	var(*LIST).CURR-MASTER	S	*NONE <sys-id>	
Default storage type for creating files	var(*LIST).DEFAULT-STORAGE-TYPE	S	*PUBLIC-SPACE	
System ID of the designated master processor	var(*LIST).DESIGNATED-MASTER	S	*NONE <sys-id>	
Large volumes (> 32 GB) allowed in pubset	var(*LIST).LARGE-VOL	S	*NOT-ALLOW *ALLOW	
Creating large files (> 32 GB) allowed	var(*LIST).LARGE-FILE	S	*NOT-ALLOW *ALLOW	
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id>	
Type of pubset *STANDARD=single-feature pubset *SM-PUBSET=system-managed pubset	var(*LIST).PUBSET-TYPE	S	*STANDARD *SM-PUBSET	
Shareability of the pubset	var(*LIST).SHARE	S	*NO *YES	
System ID of the processor which uses the pubset as its home pubset	var(*LIST).SYS-ID	S	*NONE <sys-id>	
Snapset limit for the pubset	var(*LIST).SNAPSET-LIMIT	S	<integer 0..52>	

Example

/set-pubset-attr pubset=3g2,snapset-limit=2
/show-pubset-attributes pubset=3g2

```
================================================================================
 PVSID   SYSID   SHARABILITY   CURRENT   DESIGNATED   BACKUP     ALTERNATE
                               MASTER      MASTER     MASTER       BACKUP
--------------------------------------------------------------------------------
  3G2     250       *YES       *NONE       *NONE      *NONE        *NONE
================================================================================
 DEFAULT-STORAGE-TYPE   LARGE VOLUMES   LARGE FILES   SNAPSET LIMIT
--------------------------------------------------------------------------------
 *PUBLIC-SPACE          *FORBIDDEN      *FORBIDDEN          2
================================================================================
```

6.56 SHOW-PUBSET-CACHE-ATTRIBUTES

Display PFA cache configuration of a pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	@

Function

The SHOW-PUBSET-CACHE-ATTRIBUTES command provides system support with information on the PFA cache configuration of a pubset. In the case of an SF pubset, these attributes are cross-pubset attributes, and in the case of an SM pubset, the attributes are defined specifically for each volume set.

The default causes information on all pubsets to be output. The SELECT-PUBSET can be used to restrict the output volume to pubsets with particular attributes. The PUBSET or VOLUME-SET operands can also be used to request information output explicitly for a specific pubset or volume set.

The PFA cache configuration of a pubset or volume set can be modified using the MODIFY-PUBSET-CACHE-ATTRIBUTES command.

The command supports structured output in S variables (see "Output in S variable").

> The information on cache configuration is also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Restrictions

In the case of SF pubsets in a shared pubset network, only the information displayed on the pubset master is valid. The information displayed on a pubset slave becomes valid if that slave is made the pubset master.

Format

SHOW-PUBSET-**CACHE-ATTR**IBUTES

PUBSET = ***ALL** / <cat-id 1..4>

,**SEL**ECT-**PUB**SET = ***ALL** / ***EXCL**USIVE / ***SHARE**D / ***LOCAL** / ***REM**OTE / ***ACCESS**IBLE /
***LOCAL-ACCESS**IBLE / ***REMOTE-ACCESS**IBLE / ***HSMS-SUP**PORTED /
***SPEEDCAT** / ***PAGING** / ***SINGLE-FEATURE** / ***SYS**TEM-**MANAG**ED /
***INACCESS**IBLE / ***QUIET** / ***DEFINED-XCS-CONF**IGURATED /
***XCS-CONF**IGURATED

,**VOL**UME-**SET** = ***ALL** / <cat-id 1..4>

Operands

PUBSET = *ALL / <cat-id 1..4>
Specifies the pubsets for which the cache attributes are to be displayed.

PUBSET = *ALL
The cache attributes of all volume sets are to be displayed. The SELECT-PUBSET operand can be used to restrict the selection to pubsets with specific attributes.

PUBSET = <cat-id 1..4>
ID of the pubset whose cache attributes are to be displayed. For an SM pubset the display of the cache attributes can be restricted to a specific volume set using the VOLUME-SET operand.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *LOCAL / *REMOTE / *ACCESSIBLE / *LOCAL-ACCESSIBLE / *REMOTE-ACCESSIBLE / *HSMS-SUPPORTED / *SPEEDCAT / *PAGING / *SINGLE-FEATURE / *SYSTEM-MANAGED / *INACCESSIBLE / *QUIET / *DEFINED-XCS-CONFIGURATED / *XCS-CONFIGURATED
Specifies whether information is required only for specific pubsets. This restriction is useful if *ALL is used in the PUBSET operand to select all pubsets.

SELECT-PUBSET = *ALL
The cache attributes of all the pubsets specified in the PUBSET operand are displayed.

SELECT-PUBSET = *EXCLUSIVE
The cache attributes of all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The cache attributes of all pubsets imported as shared are displayed.

SELECT-PUBSET = *LOCAL
The cache attributes of all locally imported pubsets are displayed. The cache attributes of the pubsets which cannot be accessed are also displayed.

SELECT-PUBSET = *REMOTE
The cache attributes of all pubsets for which the *LOCAL attribute does not apply are displayed.

SELECT-PUBSET = *ACCESSIBLE
The cache attributes of all pubsets which can be accessed are displayed.

SELECT-PUBSET = *LOCAL-ACCESSIBLE
The cache attributes of all locally accessible, i.e. imported, pubsets are displayed.

SELECT-PUBSET = *REMOTE-ACCESSIBLE
The cache attributes of all pubsets which have not been imported locally but whose file catalog can be accessed over an MSCF connection are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The cache attributes of all pubsets which are supported by the HSMS subsystem are displayed.

SELECT-PUBSET = *SPEEDCAT
The cache attributes of all SF pubsets whose file catalog can be accessed in the local system via SPEEDCAT are displayed.

SELECT-PUBSET = *PAGING
The cache attributes of all pubsets with paging areas which are used locally are displayed.

SELECT-PUBSET = *SINGLE-FEATURE
The cache attributes of all SF pubsets are displayed.

SELECT-PUBSET = *SYSTEM-MANAGED
The cache attributes of the volume set selected in the VOLUME-SET operand are displayed.

SELECT-PUBSET = *INACCESSIBLE
The cache attributes of all pubsets which are not available are displayed.

SELECT-PUBSET = *QUIET
The cache attributes of all pubsets whose MSCF connections no longer exist are displayed.

SELECT-PUBSET = *DEFINED-XCS-CONFIGURATED
The cache attributes of all pubsets which are defined as XCS pubsets in the MRS catalog are displayed.

SELECT-PUBSET = *XCS-CONFIGURATED
The cache attributes of all XCS pubsets are displayed.

VOLUME-SET = *ALL / <cat-id 1..4>
Identifies the volume sets whose cache attributes are to be displayed.

VOLUME-SET = *ALL
The cache attributes of all volume sets are displayed.

VOLUME-SET = <cat-id 1..4>
Catalog ID of the volume set whose cache attributes are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	CMD0221	Internal system error
	32	CMD2009	Error on output in S variables (e.g. subsystem not available)
	64	CMD0216	Privilege error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138E	Volume set does not exist
	128	DMS1386	Class 4/5 memory shortage

Output format

The output starts with a header line consisting of the command name. The output information per pubset breaks down into three groups of output blocks:

1. output block for pubset-global summary information
2. output blocks for pubset-global detailed information
3. output blocks for volume set-specific detailed information

Pubset-global summary information

The output block for pubset-global summary information consists of a row of values which at the same time acts as a header line introducing the information output for a pubset. The summary information has the following layout:

```
PUBSET <catid>: <type>, CTL-SET = (<ctlid>, <type>), <status>, <hsms>
```

Meaning of the output values:

<catid>	Pubset ID
<type>	Pubset type; possible values: SINGLE-FEATURE or SYSTEM-MANAGED
<ctlid>	Control volume set ID (for SM pubsets)
<type>	Device type of control volume set’s system disk (for SM pubsets)
<status>	Pubset accessibility; possible values:
	• ACC: Pubset is locally accessible.
	• INACC: Pubset is not locally accessible.
<hsms>	HSMS subsystem support (for SM pubsets); possible values:
	• HSMS-SUP: Pubset is supported by HSMS.
	• NO-HSMS-SUP: Pubset is not supported by HSMS.

Pubset-global detailed information

Only for SF pubsets is the cache configuration displayed on a pubset-global basis (for SM pubsets see "Volume set-specific information").

The header line divides the subsequent rows of values into a three-column table. Each row of values contains the parameter name in the first column, the defined pubset-global values (DEFINED) in the second and the currently set values (CURRENT) in the third.

The output block is introduced by the following header line:

```
--- CACHE CONFIGURATION   ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Information on the cache medium:

  ```
  CACHE MEDIUM                  | NONE             | NONE
                                | MAIN MEMORY      | MAIN MEMORY
                                | GLOBAL STORAGE   | GLOBAL STORAGE
  ```

  The following extra row is displayed if the cache is currently not active:

  ```
                                |                  | NOT ACTIVE
  ```

  The following extra row is displayed if the cache has been disabled for reconfiguration:

  ```
                                |                  | IN HOLD
  ```

- Information on cache size (in MB or KB):

  ```
  CACHE SIZE                    | NONE             |
                                | <n> MB           | <n> MB
                                | <n> KB           | <n> KB
  ```

- Information on whether caching must be granted by the user, applies to all files or whether the files are selected automatically by the system (AutoDAB for the cache medium main memory):

  ```
  CACHED FILES                  | BY USER          |
                                | ALL              |
                                | BY SYSTEM        |
  ```

The status of the following additional information depends on the type of cache medium. The defined value is always shown, but it applies only if the associated medium is defined (value in parentheses). The currently set value is shown only if the currently associated medium is currently being used.

- Information on whether the consistency of the cached write data is ensured in the event of a power failure in the global storage system:

```
VOLATILITY (GLOBAL STORAGE)   | YES            | YES
                              | NO             | NO
```

- For global storage, extra information on the GS unit is displayed:

```
GS-UNIT (GLOBAL STORAGE)      | BY DEFAULT      | DUAL
                              | DUAL            |
                              | MONO (1)        | MONO (1)
                              | MONO (2)        | MONO (2)
```

- Information on the segment size:

```
SEGMENT SIZE (NOT CONTROLLER) |  4          KB|  4          KB
                              |  8          KB|  8          KB
                              | 16          KB| 16          KB
                              | 32          KB| 32          KB
```

- Information on the time at which the cache contents are asynchronously written out to disk by the DAB cache handler (threshold-controlled save):

```
FORCE OUT (NOT CONTROLLER)    | NO FORCE OUT    | NO FORCE OUT
                              | AT LOW FILLING  | AT LOW FILLING
                              | AT HIGH FILLING | AT HIGH FILLING
```

Volume set-specific information

In the case of an SM pubset configuration information is displayed for each volume set (for all volume sets or for an explicitly specified volume set). The information on a volume set is preceded by the following header line:

```
--- VOLUME SET INFORMATION  -------------------------------------
```

This is followed by the output information for all volume sets of the SM pubset or for the volume set specified explicitly. The output information for each volume set begins with the volume set summary:

```
VOLUME-SET <catid>:  <type> <status>
```

Meaning of the output values:

<catid>	Volume set ID
<type>	VOLRES device type
<status>	Volume operating status:
	• NORMAL-USE: The volume set is in operation and therefore accessible.
	• IN-HOLD: The volume set is temporarily not in operation.
	• DEFECT: The volume set is defective.
	• DEFINED-ONLY: The volume set is defined but not accessible.

Subsequently, the cache configuration of the volume set is displayed.

The header line divides the subsequent rows of values into a three-column table. Each row of values contains the parameter name in the first column, the defined pubset-global values (DEFINED) in the second and the currently set values (CURRENT) in the third.

The output block is introduced by the following header line:

```
--- CACHE CONFIGURATION   ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Information on the cache medium:

```
CACHE MEDIUM                 | NONE            | NONE
                             | MAIN MEMORY     | MAIN MEMORY
                             | GLOBAL STORAGE  | GLOBAL STORAGE
```

The following extra row is displayed if the cache is currently not active:

```
                                |                | NOT ACTIVE
```

The following extra row is displayed if the cache has been disabled for reconfiguration:

```
                                |                | IN HOLD
```

- Information on cache size (in MB or KB):

```
CACHE SIZE                      | NONE           |
                                | <n> MB         | <n> MB
                                | <n> KB         | <n> KB
```

- Information on whether caching must be granted by the user or applies to all files:

```
CACHED FILES                    | BY USER        |
                                | ALL            |
```

The status of the following additional information depends on the type of cache medium. The defined value is always shown, but it applies only if the associated medium is defined (value in parentheses). The currently set value is shown only if the currently associated medium is currently being used.

- Information on whether the consistency of the cached write data is ensured in the event of a power failure in the global storage system:

```
VOLATILITY (GLOBAL STORAGE)     | YES            | YES
                                | NO             | NO
```

- For global storage, extra information on the GS unit is displayed:

```
GS-UNIT (GLOBAL STORAGE)        | BY DEFAULT      | DUAL
                                | DUAL            |
                                | MONO (1)        | MONO (1)
                                | MONO (2)        | MONO (2)
```

- Information on the segment size:

```
SEGMENT SIZE (NOT CONTROLLER) |  4          KB|  4          KB
                              |  8          KB|  8          KB
                              | 16          KB| 16          KB
                              | 32          KB| 32          KB
```

- Information on the time at which the cache contents are asynchronously written out to disk by the DAB cache handler (threshold-controlled save):

```
FORCE OUT (NOT CONTROLLER)    | NO FORCE OUT    | NO FORCE OUT
                              | AT LOW FILLING  | AT LOW FILLING
                              | AT HIGH FILLING | AT HIGH FILLING
```

Example

/show-pubset-cache-attributes pubset=nets

```
%-------------------------------------------------------------------------
%COMMAND: SHOW-PUBSET-CACHE-ATTRIBUTES
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
%PUBSET NETS: SINGLE-FEATURE, ACC
%---- CACHE CONFIGURATION    --------- + ---- DEFINED ---- + ---- CURRENT ---
% CACHE MEDIUM                         | NONE              | NONE
% CACHE SIZE                           | NONE              |
% CACHED FILES                         | BY USER           |
% SEGMENT SIZE     (NOT CONTROLLER)    | 32            KB  |
% FORCE OUT        (NOT CONTROLLER)    | AT LOW FILLING    |
%-------------------------------------------------------------------------
```

Output in S variable

Some S variables are generated only for the volume-set-specific information. These are labeled with “1” in the Condition column of the table below.

Output information	Name of the S variable	T	Contents	Condition
Current FORCE-OUT value *NO=no forced removal *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *UNDEF=no definition (for SM pubset)	var(*LIST).CACHE-CURR.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO *UNDEF	
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-CURR.GS-UNIT	S	*DUAL *MONO *UNDEF	
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-CURR.GS-UNIT-NUM	I	0 <integer 1..2>	
Current cache medium *MAIN-MEM=main memory *NONE=no cache defined (*UNDEF for SM pubset only)	var(*LIST).CACHE-CURR.MED	S	*MAIN-MEM *NONE *UNDEF	
Current status of the cache medium *ACTIVE=cache active *NOT-ACTIVE=cache not active *IN-HOLD=cache temporarily deactivated (*UNDEF for SM pubset only)	var(*LIST).CACHE-CURR.MED-STAT	S	*ACTIVE *IN-HOLD *NOT-ACTIVE *UNDEF	
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-CURR.PREFETCH	S	*HIGH *LOW *NO *UNDEF	
Current segment size of the cache medium (0 for SM pubset)	var(*LIST).CACHE-CURR.SEG-SIZE	I	0 4 8 16 32	
Current cache size (0 for SM pubset)	var(*LIST).CACHE-CURR.SIZE	I	0 <integer 1..32767>	
Current unit of measurement for the cache size	var(*LIST).CACHE-CURR.SIZE-DIM	S		

*KB=size in kilobytes *MB=size in megabytes *UNDEF=no definition (for SM pubset)			*KB *MB *UNDEF	
Current value for data consistency *NO=full data consistency after crash *YES=no data consistency after crash *UNDEF=no definition (for SM pubset)	var(*LIST).CACHE-CURR. VOLATILITY	S	*NO *YES *UNDEF	
Defined caching setting *ALL=caching for all files *BY-USER=activation by the user *BY-SYSTEM=activation by the system (AutoDAB) (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI.CACH-FILE	S	*ALL *BY-USER *BY-SYSTEM *UNDEF	
Defined FORCE-OUT value *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *NO=no forced removal (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO *UNDEF	
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-DEFI.GS-UNIT	S	*BY-DEFAULT *DUAL *MONO *UNDEF	
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-DEFI.GS-UNIT-NUM	I	0 <integer 1..2>	
Defined cache medium *MAIN-MEM=main memory *NONE=no cache defined (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI.MED	S	*MAIN-MEM *NONE *UNDEF	
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-DEFI. PREFETCH	S	*HIGH *LOW *NO *UNDEF	
Defined segment size of the cache medium (0 for SM pubset)	var(*LIST).CACHE-DEFI.SEG-SIZE	I	0 4 8 16 32	

Defined cache size (0 for SM pubset)	var(*LIST).CACHE-DEFI.SIZE	I	<integer 1..32767> 0	
Defined unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI.SIZE-DIM	S	*KB *MB *UNDEF	
Defined guarantee of data consistency *NO=full data consistency after crash *YES=no data consistency after crash (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI. VOLATILITY	S	*NO *YES *UNDEF	
Device type of the system disk of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-DEV-TYPE	S	*NO <c-string 1..8>	
ID of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-VOLSET	S	*NO <cat-id>	
HSMS support for the pubset *NO=pubset is not supported *STD=for SF pubsets *YES=pubset is supported	var(*LIST).HSMS-SUP	S	*NO *STD *YES	
Pubset ID	var(*LIST).PUBSET-ID	S	<cat-id>	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Availability of the pubset *ACCESSIBLE=locally accessible *INACCESSIBLE=not locally accessible	var(*LIST).STA	S	*ACCESSIBLE *INACCESSIBLE	
Current FORCE-OUT value *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *NO=no forced removal *UNDEFINED=not defined	var(*LIST).VOLSET(*LIST). CACHE-CURR.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST). CACHE-CURR.GS-UNIT	S	*DUAL *MONO *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST). CACHE-CURR.GS-UNIT-NUM	I	0 <integer 1..2>	1

Current cache medium *MAIN-MEM=main memory *NONE=no cache defined	var(*LIST).VOLSET(*LIST). CACHE-CURR.MED	S	*MAIN-MEM *NONE	1
Current status of the cache medium *ACTIVE=cache active *IN-HOLD=cache temporarily deactivated *NOT-ACTIVE=cache not active	var(*LIST).VOLSET(*LIST). CACHE-CURR.MED-STAT	S	*ACTIVE *IN-HOLD *NOT-ACTIVE	1
Current prefetching value *HIGH=prefetching for a maximum number of blocks *LOW=prefetching for a minimum number of blocks *NO=no prefetching *UNDEFINED=not defined	var(*LIST).VOLSET(*LIST). CACHE-CURR.PREFETCH	S	*HIGH *LOW *NO *UNDEF	1
Current segment size of the cache medium	var(*LIST).VOLSET(*LIST). CACHE-CURR.SEG-SIZE	I	0 4 8 16 32	1
Current cache size	var(*LIST).VOLSET(*LIST). CACHE-CURR.SIZE	I	0 <integer 1..32767>	1
Current unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes *UNDEFINED=not defined	var(*LIST).VOLSET(*LIST). CACHE-CURR.SIZE-DIM	S	*KB *MB *UNDEFINED	1
Current value for data consistency *NO=full data consistency after crash *YES=no data consistency after crash *UNDEF=not defined	var(*LIST).VOLSET(*LIST). CACHE-CURR.VOLATILITY	S	*NO *YES *UNDEF	1
Defined cache value *ALL=caching for all files *BY-USER=activation by the user	var(*LIST).VOLSET(*LIST). CACHE-DEFI.CACH-FILE	S	*ALL *BY-USER	1
Defined FORCE-OUT value *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *NO=no forced removal	var(*LIST).VOLSET(*LIST). CACHE-DEFI.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO	1

No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST). CACHE-DEFI.GS-UNIT	S	*BY-DEFAULT *DUAL *MONO	1

No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST).CACHE-DEFI.GS-UNIT-NUM	I	0 <integer 1..2>	1
Defined cache medium *MAIN-MEM=main memory *NONE=no cache defined	var(*LIST).VOLSET(*LIST).CACHE-DEFI.MED	S	*MAIN-MEM *NONE	1
Defined prefetching value *HIGH=prefetching for a maximum number of blocks *LOW=prefetching for a minimum number of blocks *NO=no prefetching	var(*LIST).VOLSET(*LIST).CACHE-DEFI.PREFETCH	S	*HIGH *LOW *NO	1
Defined segment size of the cache medium	var(*LIST).VOLSET(*LIST).CACHE-DEFI.SEG-SIZE	I	0 4 8 16 32	1
Defined cache size	var(*LIST).VOLSET(*LIST).CACHE-DEFI.SIZE	I	<integer 1..32767>	1
Defined unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes	var(*LIST).VOLSET(*LIST).CACHE-DEFI.SIZE-DIM	S	*KB *MB	1
Defined guarantee of data consistency *NO=full data consistency after crash *YES=no data consistency after crash	var(*LIST).VOLSET(*LIST).CACHE-DEFI.VOLATILITY	S	*NO *YES	1
Device type of the system disk of the volume set	var(*LIST).VOLSET(*LIST).DEV-TYPE	S	*UNKNOWN <device>	1
Status of the volume set *DEFECT=permanently inaccessible (defective) *DEFINED=not available, all that exists is an entry in the configuration file *IN-HOLD=temporarily not accessible (frozen) *NORMAL=available	var(*LIST).VOLSET(*LIST).STA	S	*DEFECT *DEFINED *IN-HOLD *NORMAL	1
Volume set ID	var(*LIST).VOLSET(*LIST).VOLSET	S	<vsid>	1

6.57 SHOW-PUBSET-CATALOG-ALLOCATION

Display information on catalogs of a pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The SHOW-PUBSET-CATALOG-ALLOCATION command enables systems support to display information on the format of a pubset, its catalogs, the utilization level of these catalogs and how these catalogs can be extended.

Information on shared pubsets is only output on the master system.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-PUBSET-CATALOG-ALLOCATION
PUBSET-ID = ***ALL** / <cat-id 1..4>

Operands

PUBSET-ID = *ALL / <cat-id 1..4>
Designates the pubset for which the information is to be output. The default *ALL causes information to be output for all the pubsets which the local computer has imported exclusively or as master.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0221	Internal error
	32	CMD2009	Error when generating S variables
	64	DMS0301	Catalog not available
	64	DMS0312	Catalog not known in system
	64	DMS134C	MRSCAT cannot be determined
	64	DMS13BF	Pubset is not master
	130	DMS0594	Not enough virtual memory available
	130	OPS0001	Lack of memory when outputting in S variables

Format of the output

Output for an SM pubset:

```
================================================================================
PUBSET-ID:  XXXX        TYPE: SM-PUBSET      CATALOG-FORMAT: XXXX
================================================================================
CATALOG      | USED |   EXTENSION                              |   REMARK
--------------------------------------------------------------------------------
 INDEX       | nn % | <text>                                   | <remark-text>
 NAME-LIST   | nn % | <text>                                   | <remark-text>
 NL-COPY     | nn % | <text>                                   | <remark-text>
 JV          | nn % | <text>                                   | <remark-text>
 MIGRATED    | nn % | <text>                                   | <remark-text>
 PRIVATE     | nn % | <text>                                   | <remark-text>
 Volset-ID 1 | nn % | <text>                                   | <remark-text>
 ...         |      |                                          |
 Volset-ID n | nn % | <text>                                   | <remark-text>
```

Output for an SF pubset:

```
================================================================================
PUBSET-ID:  XXXX        TYPE: SF-PUBSET      CATALOG-FORMAT: XXXX
================================================================================
CATALOG      | USED |    EXTENSION                             |   REMARK
--------------------------------------------------------------------------------
 XXXX        | nn % | <text>                                   | <remark-text>
```

Explanation of the output

Field/column and possible values	Meaning
PUBSET-ID	Pubset identification (catalog ID)
TYPE • SM-PUBSET • SF-PUBSET	Pubset type
CATALOG-FORMAT • NORMAL • LARGE • EXTRA LARGE	Catalog format
CATALOG	Name of the catalog to which the information line belongs:
• INDEX	Information on the catalog index file TSOSCAT.$PFI
• NAME-LIST	Information on the name list file TSOSCAT.$NLO
• NL-COPY	Information on the name list copy file TSOSCAT.$NLC
• JV	Information on the catalog for the job variables. With the “extra large” format the catalog consists of several files and the information is combined for these files.
• MIGRATED	Information on the catalog for the migrated and no-space files. With the “extra large” format the catalog consists of several files and the information is combined for these files.
• PRIVATE	Information on the catalog for the private disk and tape files. With the “extra large” format the catalog consists of several files and the information is combined for these files.
• <Volset-ID i>	Information on the catalog of volume set i.
• <catid>	SF pubset only: Information on the TSOSCAT catalog
USED	Specification of the utilization level in percent. In the case of a volume set in the IN-HOLD status this field is empty.

EXTENSION	Proposal for extending the catalog if it has reached the maximum value. In the case of a volume set in the IN-HOLD status this field is empty.
REMARK	Field for general comments. Usually empty:
• IN HOLD	This volume set is in the IN-HOLD status.
• Catalog-ID	As in the “extra large” format certain catalogs (JV, MIGRATE, PRIVATE) consist of multiple catalog files, and in this case precisely that catalog file is described to which the file extension proposal refers.

Table 140: Information on pubset catalogs

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Pubset ID	var(*list).PUBSET-ID	S	<cat-id>	
Pubset type	var(*list).TYPE	S	*SM-PUBSET *SF-PUBSET	
Catalog format	var(*list).FORMAT	S	*NORMAL *LARGE *EXTRA-LARGE	
Catalog name INDEX: Catalog index file NAME-LIST:Name list file NL-COPY: Name list copy file JV: Catalog for the job variables MIGRATED: Catalog for the migrated and no-space files. PRIVATE: Catalog for the private disk and tape files volset-id: Catalog of a volume set	var(*list).CATALOG (*list).NAME	S	INDEX NAME-LIST NL-COPY JV MIGRATED PRIVATE <volset-id> <cat-id>	
Utilization level in percent	var(*list).CATALOG (*list).USED	S	'' <integer 1..100>	
Information on the options for extending the catalog	var(*list).CATALOG (*list).EXTENSION	S	'' * FILE-EXTENSION-(AUTOMATIC) *CHANGE-TO-LARGE-CATALOG *CHANGE-TO-LARGE-CATALOG-OR-ADD-VOLSET *CHANGE-TO-EXTRA-LARGE-CATALOG *CHANGE-TO-EXTRA-LARGE-CATALOG-OR-ADD-VOLSET *ADD-CATALOG-FILE-(AUTOMATIC) *ADD-VOLSET *CHANGE-TO-SM-PUBSET *LIMIT-REACHED	

6.58 SHOW-PUBSET-CONFIGURATION

Show current pubset configuration

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING STD-PROCESSING
Routing code:	@

Function

The SHOW-PUBSET-CONFIGURATION command supplies information relating to the physical composition of pubsets which are available locally (imported). The information possible depends on the pubset type:

- In the case of SM pubsets both cross-pubset and volume-set-specific configuration parameters are displayed (see also the MODIFY-PUBSET-DEFINITION-FILE command).
- With regard to SF pubsets, the output is restricted to the summary information and information on the physical pubset configuration. The SHOW-MASTER-CATALOG-ENTRY command must be used to request any other information.

The command supports structured output in S variables (see "Output in S variables").

i You also obtain some of the information of the SHOW-PUBSET-CONFIGURATION command with the following SHOW commands which exist as a counterpart to the corresponding MODIFY command:

Command	Corresponding operands in SHOW-PUBSET-CONFIGURATION

`SHOW-PUBSET-DEFINITION-FILE`	`INFORMATION=*VOLUME-SET-PARAMETERS(`
	`  SELECT-VOLUME-SET=*ALL,`
	`  VOLUME-SET-INFO=*ALL)`

`SHOW-PUBSET-PROCESSING`	`INFORMATION=*PHYSICAL-CONFIGURATION`
`SHOW-PUBSET-RESTRICTION`	`INFORMATION=*PHYSICAL-CONFIGURATION`

Format

SHOW-PUBSET**-CONF**IGURATION

PUBSET = ***ALL** / <cat-id 1..4>

,**SEL**ECT**-PUB**SET = ***ALL** / ***EXCL**USIVE / ***SHARE**D / ***HSMS-SUPPORTED**

,**INF**ORMATION = ***SUMM**ARY / ***VOL**UME**-SET-PAR**AMETERS(...) /

list-poss(2): ***PHYS**ICAL**-CONF**IGURATION / ***PUB**SET**-FEATURES**

***VOL**UME**-SET-PAR**AMETERS(...)

| **VOL**UME**-SET** = ***ALL** / <cat-id 1..4>

| ,**SEL**ECT**-VOL**UME**-SET** = ***ALL** / ***NORMAL-USE** / ***IN-HOLD** / ***DEFECT** / ***DEFINED-ONLY**

| ,**VOL**UME**-SET-INFO** = ***SUMM**ARY / ***ALL** / list-poss(2): ***GLOBAL-ATTR**IBUTES /

| ***PERF**ORMANCE**-ATTR**IBUTES

Operands

PUBSET = *ALL / <cat-id 1..4>
Identifies the locally available pubsets for which the configuration parameters are to be displayed.

PUBSET = *ALL
The configuration parameters of all locally available pubsets are to be displayed. The SELECT-PUBSET operand can be used to restrict the selection to specific pubsets.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the configuration parameters are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *HSMS-SUPPORTED
Defines criteria for selecting specific pubsets from the set of all locally available pubsets (see PUBSET=*ALL). The default is *ALL, i.e. the configuration parameters of all pubsets are displayed.

SELECT-PUBSET = *EXCLUSIVE
The configuration parameters of all exclusive imported pubsets are displayed.

SELECT-PUBSET = *SHARED
The configuration parameters of all shared imported pubsets are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The configuration parameters of all SM pubsets which are supported by the HSMS subsystem are displayed.

INFORMATION = *SUMMARY / *VOLUME-SET-PARAMETERS(...) / list-poss(2): *PHYSICAL-CONFIGURATION / *PUBSET-FEATURES
Specifies the configuration parameters which are to be displayed and the scope of the information.

INFORMATION = *SUMMARY
Only summary information relating to the pubset configuration is displayed. This comprises the pubset type and the number of volumes (in SF pubsets) or the number of volume sets and the default file format (in SM pubsets).

INFORMATION = *VOLUME-SET-PARAMETERS(...)
In the case of SM pubsets, the configuration parameters are shown relative to volume sets. The following operands select the volume sets and the scope of the information.

VOLUME-SET = *ALL / <cat-id 1..4>
Identifies the volume sets for which the configuration parameters are to be displayed.

VOLUME-SET = *ALL
The configuration parameters of all volume sets are to be shown. The SELECT-VOLUME-SET operand can be used to restrict the selection to specific volume sets.

VOLUME-SET = <cat-id 1..4>
Catalog ID of the volume set for which the configuration parameters are to be displayed.

SELECT-VOLUME-SET = *ALL / *NORMAL-USE / *IN-HOLD / *DEFECT / *DEFINED-ONLY
Defines criteria for selecting specific volume sets from the set of all volume sets (see VOLUME-SET=*ALL). The default is *ALL, i.e. the configuration parameters of all volume sets are displayed.

SELECT-VOLUME-SET = *NORMAL-USE
The configuration parameters of all accessible volume sets are displayed.

SELECT-VOLUME-SET = *IN-HOLD
The configuration parameters of all temporarily inoperable volume sets are displayed.

SELECT-VOLUME-SET = *DEFECT
The configuration parameters of all defective volume sets are displayed.

SELECT-VOLUME-SET = *DEFINED-ONLY
The configuration parameters of all defined but inaccessible volume sets are displayed.

VOLUME-SET-INFO = *SUMMARY / *ALL / list-poss(2): *GLOBAL-ATTRIBUTES / *PERFORMANCE-ATTRIBUTES
Specifies the configuration parameters which are to be displayed and the scope of the information.

VOLUME-SET-INFO = *SUMMARY
Only summary information relating to the volume set-specific configuration parameters is displayed. This comprises the volume set ID and the operating status of the volume set. The summary information is also included with all the other operand values. *SUMMARY, in addition, shows the format, the usage mode if it differs from the default and the availability.

VOLUME-SET-INFO = *ALL
The output consists of the summary information, the global attributes and the performance attributes of the volume set.

VOLUME-SET-INFO = *GLOBAL-ATTRIBUTES
In addition to the summary, information on the following configuration parameters is supplied:

- availability of the volume set
- usage mode of the volume set
- format of the volume set
- maximum I/O length
- allocation unit
- restrictions on file creation and volume set access

VOLUME-SET-INFO = *PERFORMANCE-ATTRIBUTES
In addition to the summary, information on the volume set-specific profile of the performance attributes is supplied.

INFORMATION = *PHYSICAL-CONFIGURATION
In addition to the summary (see INFORMATION=*SUMMARY), detailed information on the physical pubset configuration is supplied. This comprises the name, device type and allocation capabilities of the volumes (in SF pubsets) or of the volume sets and their volumes (in SM pubsets).

INFORMATION = *PUBSET-FEATURES
In addition to the summary (see INFORMATION=*SUMMARY), the following pubset attributes are shown for SF pubsets:

- format attributes
- maximum I/O length
- allocation unit

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	32	DMS138A	Internal parameter error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138C	Pubset not accessible
	64	DMS138E	Volume set does not exist
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. The output information per pubset breaks down into four groups of output blocks:

1. output block giving pubset-global summary information (INFORMATION=*SUMMARY)
2. output block giving information on the physical pubset configuration (INFORMATION=*PHYSICAL-CONFIGURATION)
3. output block giving information on the pubset-global configuration parameters (INFORMATION=*PUBSET-FEATURES); output for SF pubsets only
4. output block giving information on the volume set-specific configuration parameters (INFORMATION=*VOLUME-SET-PARAMETERS)

If information is supplied for a number of pubsets, SF pubsets are listed before SM pubsets.

Pubset-global summary information

The output block comprises one line showing the catalog ID, the pubset type (SF or SM) and the number of volumes or volume sets which belong to the pubset. With SM pubsets the default file format is shown as well. In more detailed information output, this line is also displayed as a header before each pubset information block.

Output for an SF pubset:

```
PUBSET <catid>: TYPE = SINGLE-FEATURE, VOLUMES = <n>
```

Output for an SM pubset:

```
PUBSET <catid>: TYPE = SYSTEM-MANAGED, VOLUME-SETS = <m>, DEFAULT-FILE-FORMAT =
<f>
```

Information on the physical pubset configuration

The output block is introduced by the following header line:

```
--- PHYSICAL CONFIGURATION --------------------------------------
```

For an SF pubset, the information about the volumes is displayed on one or more lines of values beneath the following header:

```
VOLUME-CONFIGURATION:
VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
<vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

For each volume set of an SM pubset, the volume set ID and the number of volumes in the set are displayed. This is followed by information about the volumes one or more lines of values beneath the following header:

```
--- VOLUME SET INFORMATION  -------------------------------------
 VOLUME-SET <catid>: VOLUMES = <n>
 VOLUME CONFIGURATION:
 VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
 <vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

Meaning of the output values:

<catid>	pubset or volume set ID
<n>	number of volumes in the pubset/volume set
<vsn>	volume serial number of the volume
<type>	device type assigned to the volume
<alloc>	allocation capability of the volume • NOT RESTR: allocation possible • NOT ALLOWED: allocation not possible • PHYSICAL: volume can only be physically allocated

Information on the pubset-global configuration parameters

This information is output for SF pubsets only. The output block is introduced by the following header line:

```
--- PUBSET FEATURES       ---- + --------------------------------
```

This is followed by the information in table form. The left-hand column identifies the parameter, the right-hand its possible values.

- Information on pubset format:

```
PUBSET-FORMAT                | K-FORMAT
                             | NK2-FORMAT
                             | NK4-FORMAT
```

- Information on maximum I/O length (in PAM pages)

```
MAXIMAL I/O LENGTH           | <n> HP
```

- Information on the smallest allocation unit (in PAM pages)

```
ALLOCATION UNIT SIZE         | <n> HP
```

- Information on disk attributes with regard to DRV:

```
DRV-PUBSET                   | NO
                             | YES
```

Information on volume set-specific configuration parameters

The output block is introduced by the following header line:

```
--- VOLUME-SET INFORMATION  ------------------------------------
```

The volume set-specific summary information is output for each volume set:

`VOLUME-SET <catid>:  [CONTROL-VOLSET] <status>,<usage>,<format>,<avail>`

Meaning of the output values:

<catid>	Volume set ID
CONTROL-VOLSET	Output for the control volume set only. This volume set contains the SM pubset control data.
<status>	Volume operating status:
• NORMAL-USE	• The volume set is in operation and therefore accessible.
• IN-HOLD	• The volume set is temporarily not in operation.
• DEFECT	• The volume set is defective.
• DEFINED-ONLY	• The volume set is defined but not accessible.
<usage>	Usage mode (output only if the default does not apply)
• WORK	• Storage location for work files
• HSMS	• Supported by the HSMS subsystem
<format>	File format
• K-FORMAT	• Storage location for K files
• NK2-FORMAT	• Storage location for NK2 files
• NK4-FORMAT	• Storage location for NK4 files

<avail>	Availability (output only if the default does not apply)
• HIGH-AVAIL	• High availability

The VOLUME-SET-INFO operand enables two other information blocks to be requested in addition to the summary information. These items of information are each preceded by a header line and are then displayed in table form. The left-hand column identifies the parameter, the right-hand its possible values. A value of *list-poss(n):* means that up to *n* values can be displayed, each on a separate line.

1. Output with VOLUME-SET-INFO = *GLOBAL-ATTRIBUTES

   The output begins with the following header line:

   ```
   --- GLOBAL ATTRIBUTES     ---- + --------------------------------
   ```

   Then come the individual items of information:

   - Information on the availability attributes of the volume set:

     ```
     AVAILABILITY                | STANDARD
                                 | HIGH
     ```

   - Information on the usage modes of the volume set:

     ```
     USAGE                       | STANDARD
                                 | WORK
                                 | HSMS-CONTROLLED
     ```

   - Information on the volume set format:

     ```
     FORMAT                      | UNDEFINED
                                 | K-FORMAT
                                 | NK2-FORMAT
                                 | NK4-FORMAT
     ```

   - Information on the maximum I/O length (in PAM pages).

     ```
     MAXIMAL I/O LENGTH          | <n> HP
     ```

   - Information on the smallest allocation unit (in PAM pages).

     ```
     ALLOCATION UNIT SIZE        | <n> HP
     ```

   - Information on disk attributes with regard to DRV:

     ```
     DRV-VOLSET                  | NO
     ```

- Information on restrictions on new file allocation:

```
NEW FILE ALLOCATION           | NOT RESTRICTED
                              | PHYSICAL ONLY
                              | NOT ALLOWED
```

- Information on volume set access:

```
VOLUME SET ACCESS             | NOT RESTRICTED
                              | ADMIN ONLY
```

2. Output with VOLUME-SET-INFO = *PERFORMANCE-ATTRIBUTES

   The output begins with the following header line:

```
PERFORMANCE-ATTRIBUTES        |
```

   Then come the individual items of information:

   - Information on the performance attribute profile:

```
PERFORMANCE:                  | NO VALUES
                              | or list-poss(3):
                              | STANDARD
                              | HIGH
                              | VERY-HIGH
```

   - Information on the time at which data consistency is required:

```
WRITE-CONSISTENCY:            | IMMEDIATE
                              | BY-CLOSE
```

The output for VOLUME-SET-INFO=*ALL includes both these additional information blocks.

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *PHYSICAL-CONFIGURATION	1
INFORMATION = *PUBSET-FEATURES (SF-Pubsets only)	2
INFORMATION = *SUMMARY	3
INFORMATION = *VOLUME-SET-PARAMETERS(VOLUME-SET-INFO=*GLOBAL-ATTRIBUTES)	4
INFORMATION = *VOLUME-SET-PARAMETERS(VOLUME-SET-INFO=*PERFORMANCE-ATTRIBUTES)	5
INFORMATION = *VOLUME-SET-PARAMETERS(VOLUME-SET-INFO=*SUMMARY)	6

Output information	Name of the S variable	T	Contents	Condition
Number of volume sets for single-feature pubsets Number of volume sets for SM pubsets	var(*LIST).COUNT	I	<integer 1..255>	1,2,3,4,5,6
Maximum I/O transfer length (HP) of the SM pubset	var(*LIST).MAX-IO-LEN	I	<integer>	1,2,3,4,5,6
allocation unit	var(*LIST).PUBSET.ALLOC-UNIT-SIZE	I	<integer>	2
DRV attribute of the pubset	var(*LIST).PUBSET.DRV	S	*NO *YES	2
Format of the SF pubset	var(*LIST).PUBSET.FORM	S	*K *NK2 *NK4	2
Maximum I/O transfer length (HP)	var(*LIST).PUBSET.MAX-IO-LEN	I	<integer>	2
Pubset catalog ID	var(*LIST).PUBSET-ID	S	FALSE=none	1,2,3,4,5,6
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	1,2,3,4,5,6
Allocation lock for the SF pubset *NOT-RESTRICT=no lock *NOT-ALLOW=locked against allocation *PHYS-ONLY=can only be allocated physically	var(*LIST).VOL(*LIST).ALLOC	S	*NOT-RESTRICT *NOT-ALLOW *PHYS-ONLY	1
Device types of the SF pubset volumes	var(*LIST).VOL(*LIST).DEV	S	<device>	1
VSNs of the SF pubset volumes	var(*LIST).VOL(*LIST).VOL	S	<vsn>	1
Current allocation unit	var(*LIST).VOLSET(*LIST).ALLOC-UNIT-SIZE	I	<integer>	4
Access to volume set *ADM-ONLY=for system support only *NOT-RESTRICT=not restricted	var(*LIST).VOLSET(*LIST).ACCESS	S	*ADM-ONLY *NOT-RESTRICT	4
Current availability status *STD=no increased data availability *HIGH=increased data availability	var(*LIST).VOLSET(*LIST).AVAIL	S	*STD *HIGH	4

Output information	Name of the S variable	T	Contents	Condition
Volume set contains the pubset management data	var(*LIST).VOLSET(*LIST).CONTR	S	*NO *YES	4,5,6
DRV attribute of the volume set	var(*LIST).VOLSET(*LIST).DRV	S	*NO *YES	4
Format of the volume set	var(*LIST).VOLSET(*LIST).FORM	S	*K *NK2 *NK4 *UNDEF	4
Current maximum I/O transfer length	var(*LIST).VOLSET(*LIST).MAX-IO-LEN	I	<integer>	4
Current allocation restrictions *NOT-RESTRICT=no restrictions *PHYS-ONLY=can only be allocated physically *NOT-ALLOW=allocation not permitted	var(*LIST).VOLSET(*LIST).NEW-FILE-ALLOC	S	*NOT-RESTRICT *PHYS-ONLY *NOT-ALLOW	4
I/O performance *STD=not increased *HIGH=high *VERY-HIGH=highest	var(*LIST).VOLSET(*LIST).PERF.PERF(*LIST)	S	*STD *HIGH *VERY-HIGH	5
Data consistency in conjunction with increased I/O performance *BY-CLOSE=no data consistency *IMMED=data consistency	var(*LIST).VOLSET(*LIST).PERF.WRITE-CONSIST	S	*BY-CLOSE *IMMED	5
Status of the volume set *DEFECT=permanently inaccessible (defective) *DEFINED=not available, all that exists is an entry in the configuration file *IN-HOLD=temporarily not accessible (frozen) *NORMAL= available	var(*LIST).VOLSET(*LIST).STA	S	*DEFECT *DEFINED *IN-HOLD *NORMAL	4,5,6
Files belonging to the volume set *HSMS-CONTR=HSMS files only *STD=standard files only *WORK=work files only	var(*LIST).VOLSET(*LIST).USAGE	S	*HSMS-CONTR *STD *WORK	4
Volume set ID	var(*LIST).VOLSET(*LIST).VOLSET	S	<vsid>	1,4,5,6
Number of volumes for the volume		I	<integer 0..255>	1

	var(*LIST).VOLSET(*LIST). VOL-COUNT			
Allocation lock for the volume set *NOT-RESTRICT=no lock *NOT-ALLOW=locked against allocation *PHYS-ONLY=can only be allocated physically	var(*LIST).VOLSET(*LIST). VOL(*LIST).ALLOC	S	*NOT-RESTRICT *NOT-ALLOW *PHYS-ONLY	1
Device types of the volumes per volume set	var(*LIST).VOLSET(*LIST). VOL(*LIST).DEV	S	<device>	1
VSNs of the volumes per volume set	var(*LIST).VOLSET(*LIST). VOL(*LIST).VOL		<vsn>	1

6.59 SHOW-PUBSET-DEFINITION-FILE

Display SM pubset definitions

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING STD-PROCESSING
Routing code:	@

Function

The SHOW-PUBSET-DEFINITION-FILE command provides information on the volume set-specific configuration parameters of system-managed pubsets (SM pubsets). Information is supplied only for locally available (imported) pubsets.

The configuration parameters can be modified with the MODIFY-PUBSET-DEFINITION-FILE command.

The command supports structured output in S variables (see "Output in S variables").

> The volume-set-specific configuration parameters are also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Format

SHOW-PUBSET-**DEF**INITION-**FILE**

PUBSET = **_*ALL_** / <cat-id 1..4>

,**SEL**ECT-**PUB**SET = **_*ALL_** / ***EXCL**USIVE / ***SHARE**D / ***HSMS-SUPPORTED**

,**VOL**UME-**SET** = **_*ALL_** / <cat-id 1..4>

Operands

PUBSET = _*ALL_ / <cat-id 1..4>
Identifies the locally available pubsets for which the configuration parameters are to be displayed.

PUBSET = _*ALL_
The configuration parameters of all locally available pubsets are to be displayed. The SELECT-PUBSET operand can be used to restrict the selection to specific pubsets.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the configuration parameters are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *HSMS-SUPPORTED
Defines criteria for selecting specific pubsets from the set of all locally available pubsets (see PUBSET=*ALL). The default is *ALL, i.e. the configuration parameters of all pubsets are displayed.

SELECT-PUBSET = *EXCLUSIVE
The configuration parameters of all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The configuration parameters of all pubsets imported as shared are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The configuration parameters of all SM pubsets which are supported by the HSMS subsystem are displayed.

VOLUME-SET = *ALL / <cat-id 1..4>
Identifies the volume sets for which the configuration parameters are to be displayed.

VOLUME-SET = *ALL
The configuration parameters of all volume sets are to be shown.

VOLUME-SET = <cat-id 1..4>
Catalog ID of the volume set for which the configuration parameters are to be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	32	DMS138A	Internal parameter error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138C	Pubset not accessible
	64	DMS138E	Volume set does not exist
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. This is then followed for each pubset by:

1. the output block with cross-pubset summary information
2. the output block with information on the volume-set-specific configuration parameters

Pubset-global summary information

The output block comprises one line showing the catalog ID, the pubset type (SM pubset), the number of associated volumes or volume sets and the default file format.

```
PUBSET <catid>: TYPE = SYSTEM-MANAGED, VOLUMESETS = <m>,
                DEFAULT-FILE-FORMAT = <f>
```

Information on volume set-specific configuration parameters

The output block is introduced by the following header line:

```
--- VOLUME-SET INFORMATION  -------------------------------------
```

The volume set-specific summary information is output for each volume set:

```
VOLUME-SET <catid>:  [CONTROL-VOLSET] <status>,<usage>,<format>,<avail>
```

Key to the output values

<catid>	Volume set ID
CONTROL-VOLSET	Output for the control volume set only. This volume set contains the SM pubset control data.
<status>	Volume operating status:
• NORMAL-USE	• The volume set is in operation and therefore accessible.
• IN-HOLD	• The volume set is temporarily not in operation.
• DEFECT	• The volume set is defective.
• DEFINED-ONLY	• The volume set is defined but not accessible.
<usage>	Usage mode (output only if the default does not apply)
• WORK	• Storage location for work files
• HSMS	• Supported by the HSMS subsystem
<format>	File format
• K-FORMAT	• Storage location for K files
• NK2-FORMAT	• Storage location for NK2 files

• NK4-FORMAT	• Storage location for NK4 files
<avail>	Availability (output only if the default does not apply)
• HIGH-AVAIL	• High availability

Two further information blocks are output in addition to the summary information. These items of information are each preceded by a header line and are then displayed in table form. The left-hand column identifies the parameter, the right-hand its possible values. A value of *list-poss(n):* means that up to *n* values can be displayed, each on a separate line.

1. Global attributes

   The output begins with the following header line:

   ```
   --- GLOBAL ATTRIBUTES     ---- + --------------------------------
   ```

   Then come the individual items of information:

   - Information on the availability attributes of the volume set:

     ```
     AVAILABILITY                | STANDARD
                                 | HIGH
     ```

   - Information on the usage modes of the volume set:

     ```
     USAGE                       | STANDARD
                                 | WORK
                                 | HSMS-CONTROLLED
     ```

   - Information on the volume set format:

     ```
     FORMAT                      | UNDEFINED
                                 | K-FORMAT
                                 | NK2-FORMAT
                                 | NK4-FORMAT
     ```

   - Information on the maximum I/O length (in PAM pages).

     ```
     MAXIMAL I/O LENGTH          | <n> HP
     ```

   - Information on the smallest allocation unit (in PAM pages).

     ```
     ALLOCATION UNIT SIZE        | <n> HP
     ```

   - Information on disk attributes with regard to DRV

     ```
     DRV-VOLSET                  | NO / YES
     ```

- Information on restrictions on new file allocation:

```
NEW FILE ALLOCATION           | NOT RESTRICTED
                              | PHYSICAL ONLY
                              | NOT ALLOWED
```

- Information on volume set access:

```
VOLUME SET ACCESS             | NOT RESTRICTED
                              | ADMIN ONLY
```

2. Performance requirements

   The output begins with the following header line:

   ```
   PERFORMANCE-ATTRIBUTES        |
   ```

   Then come the individual items of information:

   - Information on the performance attribute profile:

   ```
   PERFORMANCE:                  | NO VALUES
                                 | or list-poss(3):
                                 | STANDARD
                                 | HIGH
                                 | VERY-HIGH
   ```

   - Information on the time at which data consistency is required:

   ```
   WRITE-CONSISTENCY:            | IMMEDIATE
                                 | BY-CLOSE
   ```

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Number of volume sets for system-managed pubsets	var(*LIST).COUNT	I	<integer 1..255>	
Maximum I/O transfer length (HP) of the system-managed pubset	var(*LIST).MAX-IO-LEN	I	<integer>	
Pubset catalog ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Current allocation unit	var(*LIST).VOLSET(*LIST). ALLOC-UNIT-SIZE	I	<integer>	
Access to volume set *ADM-ONLY=for system support only *NOT-RESTRICT=not restricted	var(*LIST).VOLSET(*LIST). ACCESS	S	*ADM-ONLY *NOT-RESTRICT	
Current availability status *STD=no increased data availability *HIGH=increased data availability	var(*LIST).VOLSET(*LIST). AVAIL	S	*STD *HIGH	
Volume set contains the pubset management data	var(*LIST).VOLSET(*LIST). CONTR	S	*NO *YES	
DRV attribute of the volume set	var(*LIST).VOLSET(*LIST).DRV	S	*NO *YES	
format of the volume set	var(*LIST).VOLSET(*LIST). FORM	S	*K *NK2 *NK4 *UNDEF	
Current maximum I/O transfer length	var(*LIST).VOLSET(*LIST). MAX-IO-LEN	I	<integer>	
Current allocation restrictions *NOT-RESTRICT=no restrictions *PHYS-ONLY=can only be allocated physically *NOT-ALLOW=allocation not permitted	var(*LIST).VOLSET(*LIST). NEW-FILE-ALLOC	S	*NOT-RESTRICT *PHYS-ONLY *NOT-ALLOW	
I/O performance *STD=not increased *HIGH=high *VERY-HIGH=highest	var(*LIST).VOLSET(*LIST). PERF.PERF(*LIST)	S	*STD *HIGH *VERY-HIGH	

Data consistency in conjunction with increased I/O performance *BY-CLOSE=no data consistency *IMMED=data consistency	var(*LIST).VOLSET(*LIST). PERF.WRITE-CONSIST	S	*BY-CLOSE *IMMED	
Status of the volume set *DEFECT=permanently inaccessible (defective) *DEFINED=not available, all that exists is an entry in the configuration file *IN-HOLD=temporarily not accessible (frozen) *NORMAL= available	var(*LIST).VOLSET(*LIST).STA	S	*DEFECT *DEFINED *IN-HOLD *NORMAL	
Files belonging to the volume set *HSMS-CONTR=HSMS files only *STD=standard files only *WORK=work files only	var(*LIST).VOLSET(*LIST). USAGE	S	*HSMS-CONTR *STD *WORK	
Volume set ID	var(*LIST).VOLSET(*LIST). VOLSET	S	<vsid>	

Example

/show-pubset-definition-file pubset=2os6,volume-set=6vs5

```
------------------------------------------------------------------------------
COMMAND: SHOW-PUBSET-DEFINITION-FILE
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
PUBSET 2OS6: TYPE = SYSTEM-MANAGED, VOLUMESETS = 6, DEFAULT FILE FORMAT = K
---- VOLUME-SET INFORMATION --------- + -----------------------------------
VOLUME-SET 6VS5: NORMAL-USE, WORK, K-FORMAT
---- GLOBAL ATTRIBUTES      --------- + -----------------------------------
 AVAILABILITY                         | STANDARD
 USAGE                                | WORK
 FORMAT                               | K-FORMAT
 MAXIMAL I/O LENGTH                   | 80                    HP
 ALLOCATION UNIT SIZE                 | 3                     HP
 DRV-VOLSET                           | NO
 GS-VOLSET                            | NO
 NEW FILE ALLOCATION                  | NOT RESTRICTED
 VOLUME SET ACCESS                    | NOT RESTRICTED
---- PERFORMANCE ATTRIBUTES --------- + -----------------------------------
 PERFORMANCE                          | STANDARD
 WRITE-CONSISTENCY                    | BY-CLOSE
------------------------------------------------------------------------------
```

6.60 SHOW-PUBSET-FILE-SERVICES

Show available services for SM pubset

Component:	BS2000
Functional area:	File processing Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	STD-PROCESSING TSOS

Function

The SHOW-PUBSET-FILE-SERVICES command shows which services are provided by a locally available SM pubset. This allows the user to establish what requirements can be met on a given SM pubset in terms of storage-related file attributes. The user can formulate file service requirements when creating files with the CREATE-FILE command when modifying file attributes with the MODIFY-FILE-ATTRIBUTES command, and to some extent at the time of file generation (using OPEN).

The range of services that an SM pubset can offer is determined by the attribute profiles of the volume sets which form the pubset. The system uses these profiles when automatically selecting a volume set as the storage location for a file. The range of services can be described in terms of the various combinations of values for the file attributes which govern the storage location (WORK-FILE, AVAILABILITY, FILE-FORMAT, PERFORMANCE, USAGE, DISK-WRITE) and are supported on the SM pubset. The SHOW-PUBSET-FILE-SERVICES command shows how well each selected attribute value combination is supported (SUPPORT-QUALITY).

The file attribute combinations which are to be shown are selected by the SUPPORT-QUALITY and FILE-ATTRIBUTES operands:

- SUPPORT-QUALITY: shows the combinations of file attributes which can be supported at the specified level of quality. Default: support at optimum quality (SUPPORT-QUALITY=*OPTIMAL) If no quality restrictions are required, SUPPORT-QUALITY should be set to *ANY. In this case, though, it is advisable to use the FILE-ATTRIBUTES operand to restrict the volume of output information.
- FILE-ATTRIBUTES: shows the file attribute combinations which match the specified attribute values. Default: no restriction on the selection on the basis of attribute values (FILE-ATTRIBUTES=*ANY).

The command offers nonprivileged users support primarily in making use of the services provided by an SM pubset by explicitly specifying file attributes.

The SHOW-STORAGE-CLASS command can be used to find out about SM pubset services for which storage classes have been defined and to make use of them by selecting a suitable storage class (in the CREATE-FILE command).

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

The command offers systems support personnel (TSOS privilege) the following additional features such as support for the creation and maintenance of storage classes and volume set lists (see the CREATE-STORAGE-CLASS, MODIFY-STORAGE-CLASS, CREATE-VOLUME-SET-LIST, and MODIFY-VOLUME-SET-LIST commands):

- The name of a volume set list can be specified in the VOLUME-SET-LIST operand. The list must have been defined in the specified SM pubset. If a volume set list is named, the output information regarding support quality for file attribute combinations relates to the volume sets which are on the list. If no volume set list is named (equivalent to VOLUME-SET-LIST=*NONE), support quality is evaluated with regard to the volume sets which are not on any volume set list (as for nonprivileged users).
- The file attribute combinations which are to be displayed can be specified in the form of a storage class (see FILE-ATTRIBUTES=*BY-STORAGE-CLASS(...)). In this case, the file attributes are taken from the storage class definition.

Format

SHOW-PUBSET**-FILE-SERVICE**S

PUBSET = <cat-id 1..4>

,**VOL**UME**-SET-LIST** = ***NONE** / <composed-name 1..8>

,**SEL**ECT = ***BY-ATTR**IBUTES (...)

***BY-ATTR**IBUTES(...)

| **SUPPORT-QUALITY** = ***OPTIM**AL / ***ANY** / list-poss(5): ***OPTIM**AL / ***NEARLY-OPTIM**AL /
| ***BETTER-THAN-REQ**UESTED / ***WORSE-THAN-REQ**UESTED /
| ***CONFLICT-WITH-VOL**UME**-SET-LIST**
| ,**FILE-ATTR**IBUTES = ***ANY** / ***PAR**AMETERS(...) / ***BY-STOR**AGE**-CLASS**(...)
| ***PAR**AMETERS(...)
| | **WORK-FILE** = ***ANY** / list-poss(2): ***NO** / ***Y**ES
| | ,**AVAIL**ABILITY = ***ANY** / list-poss(2): ***STD** / ***HIGH**
| | ,**FILE-FORMAT** = ***ANY** / ***BY-PUB**SET**-DEF**AULT / list-poss(3): ***K** / ***NK2** / ***NK4**
| | ,**IO-ATTR**IBUTES = ***ANY** / ***PAR**AMETERS(...)
| | ***PAR**AMETERS(...)
| | | **PERFORMANCE** = ***ANY** / list-poss(3): ***STD** / ***HIGH** / ***VERY-HIGH**
| | | ,**USAGE** = ***ANY** / list-poss(3): ***READ-WRITE** / ***WR**ITE / ***READ**
| | ,**DISK-WRITE** = ***ANY** / list-poss(2): ***IMMED**IATE / ***BY-CLOSE**
| ***BY-STOR**AGE**-CLASS**(...)
| | **STOR**AGE**-CLASS-NAME** = <composed-name 1..8>

Operands

PUBSET = <cat-id 1..4>
SM pubset identifier. The pubset must have been imported to the local system (in exclusive or shared mode).

VOLUME-SET-LIST = *NONE / <composed-name 1..8>
Specifies the volume set list to which the quality of service subsequently described applies.

VOLUME-SET-LIST = *NONE
The quality of service described next applies to volume sets which are not assigned to any volume set list.
When a volume set is selected as the storage location for a file, these volume sets will be given precedence if no storage class at all or the storage not assigned to any volume set list is specified in the CREATE-FILE command.

VOLUME-SET-LIST = <composed-name 1..8>
Only allowed for users with TSOS privilege.
Name of a volume set list. A volume set list with this name must have been defined in the specified SM pubset (see the CREATE-VOLUME-SET-LIST command). The quality of service applies to volume sets which are assigned to this volume set list.

SELECT = *BY-ATTRIBUTES(...)
Defines the criteria for selecting which combinations of file attribute values are to be displayed (FILE-ATTRIBUTES operand), taking into account the quality of support offered for the specified file attributes (SUPPORT-QUALITY operand).
The values specified for the various selection criteria are logically ANDed. The default (*ANY) means that the associated attribute is not a selection criterion.

SUPPORT-QUALITY = *OPTIMAL / *ANY / list-poss(5): *OPTIMAL / *NEARLY-OPTIMAL / *BETTER-THAN-REQUESTED / *WORSE-THAN-REQUESTED / *CONFLICT-WITH-VOLUME-SET-LIST
Governs the selection of displayed value combinations for file attributes affecting storage location, based on the quality of service support that can be offered. The quality is expressed in terms of the match between the file attributes and the corresponding volume set attributes of the volume set which, on the basis of the selection strategy, appears to be the most suitable storage location for a file with these attributes (irrespective of the current allocation situation).
A list of several quality criteria can be specified.

SUPPORT-QUALITY = *OPTIMAL
Only attribute value combinations for which optimum support is provided are displayed. Optimum support for a request means that there is a volume set available for selection in the SM pubset which has attributes that exactly match the requested attributes and which is not on any volume set list or is on the specified volume set list, as appropriate.

SUPPORT-QUALITY = *ANY
Output selection is not based on the supported quality.

SUPPORT-QUALITY = *NEARLY-OPTIMAL
Only attribute value combinations for which “nearly optimum” support is provided are displayed.
Support for a request is considered to be nearly optimum if the attributes of the volume which most closely matches the requirements differ only marginally from the specified requirements (e.g. a file in NK4 format on a volume set in NK2 format).

SUPPORT-QUALITY = *BETTER-THAN-REQUESTED
Only “better-than-requested” file attribute combinations are displayed.

This means that the attributes of the volume set which most closely matches the request are of higher quality than the requested attributes (e.g. a file with standard availability on a high-availability volume set).

SUPPORT-QUALITY = *WORSE-THAN-REQUESTED
Only “worse-than-requested” file attribute combinations are displayed.
This means that the specified requirements cannot be met in full, but that the mismatch is not great enough to cause the associated command to abort (e.g. a file with enhanced performance requirements on a volume set offering only standard performance).

SUPPORT-QUALITY = *CONFLICT-WITH-VOLUME-SET-LIST
The only file attribute combinations displayed are those which can only be matched on volume sets which do not belong to the specified volume set list (see the VOLUME-SET-LIST operand; the default is those which do not belong to any volume set list).

Ordinary users are advised not to specify such file attribute combinations explicitly, as these volume sets should be reserved for requests which use the storage class mechanism.

Systems support can use this operand value in conjunction with an explicit volume set list specification as a means of finding out which file attribute combinations a storage class should definitely not have if it is to be assigned this volume set list (in a CREATE-STORAGE-CLASS or MODIFY-STORAGE-CLASS command).

FILE-ATTRIBUTES = *ANY / *PARAMETERS(...) / *BY-STORAGE-CLASS(...)
Governs the selection of the displayed attribute combinations on the basis of the values of the requested file attributes.

FILE-ATTRIBUTES = *ANY
Displays any file attribute combinations for which the support quality defined in the SUPPORT-QUALITY operand is offered.

FILE-ATTRIBUTES = *PARAMETERS(...)
The only file attribute combinations that are to be displayed are those which match the file attributes specified next and for which the support quality defined in the SUPPORT-QUALITY operand is offered.

The selection is restricted by values specified for individual file attributes.
The default (*ANY) in each case means that there is no restriction based on the associated attribute. A list of values for a single file attribute selects combinations for which the associated attribute has one of the specified values (logical ORing).

WORK-FILE = *ANY / list-poss(2): *NO / *YES
Selects file attribute combinations in which the work file attribute has the specified value. Values in a list are logically ORed.

WORK-FILE = *ANY
The work file attribute is not to be used as a selection criterion.

WORK-FILE = *NO
Selects file attribute combinations in which the value of the work file attribute is *NO (ordinary files).

WORK-FILE = *YES
Selects file attribute combinations in which the value of the work file attribute is *YES (work files).

AVAILABILITY = *ANY / list-poss(2): *STD / *HIGH
Selects file attribute combinations in which the availability attribute matches the specified value. Values in a list are logically ORed.

AVAILABILITY = *ANY
The availability attribute is not to be used as a selection criterion.

AVAILABILITY = *STD
Only selects combinations in which no special availability requirements are defined.

AVAILABILITY = *HIGH
Only selects combinations in which high availability is required.

FILE-FORMAT = *ANY / *BY-PUBSET-DEFAULT / list-poss(3): *K / *NK2 / *NK4
Selects file attribute combinations in which the file format attribute has the specified value. This can be either the preferred file format (see the FILE-PREFORMAT operand in the CREATE-FILE command) or the “true” file format as defined when the file is generated (at OPEN time). Values in a list are logically ORed.

FILE-FORMAT = *ANY
The file format is not to be used as a selection criterion.

FILE-FORMAT = *BY-PUBSET-DEFAULT
Selects only those combinations in which the file format matches the value defined by systems support as the pubset-global default for the SM pubset.

FILE-FORMAT = *K
Only selects combinations in which the value of the file format is *K (K files).

FILE-FORMAT = *NK2
Only selects combinations in which the value of the file format is *NK2 (NK2 files).

FILE-FORMAT = *NK4
Only selects combinations in which the value of the file format is *NK4 (NK4 files).

IO-ATTRIBUTES = *ANY / *PARAMETERS(...)
Specifies whether the performance attributes are to be used as a selection criterion.

IO-ATTRIBUTES = *PARAMETERS(...)
Selects only those file attribute combinations in which the performance attributes have the PERFORMANCE and USAGE values specified next.

PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
Selects all combinations which have one of the specified performance attributes. Values in a list are logically ORed.

PERFORMANCE = *ANY
The performance attribute is not a selection criterion.

PERFORMANCE = *STD
Only selects combinations in which the value of the performance attribute is *STD (no special performance requirements).

PERFORMANCE = *HIGH
Only selects combinations in which the value of the performance attribute is *HIGH (enhanced performance requirements).

PERFORMANCE = *VERY-HIGH
Only selects combinations in which the value of the performance attribute is *VERY-HIGH (very high performance requirements).

USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
Selects all combinations which match the performance attribute for one of the specified I/O operations. Values in a list are logically ORed.

USAGE = *ANY
The I/O operation mode is not a selection criterion.

USAGE = *READ-WRITE
Only selects combinations with a performance attribute which applies to read/write operations.

USAGE = *WRITE
Only selects combinations with a performance attribute which applies to write operations.

USAGE = *READ
Only selects combinations with a performance attribute which applies to read operations.

DISK-WRITE = *ANY / list-poss(2): *IMMEDIATE / *BY-CLOSE
Selects file attribute combinations in which the attribute governing the time of data consistency after write operations matches the specified value. Values in a list are logically ORed.

DISK-WRITE = *ANY
The point at which data consistency is required is not a selection criterion.

DISK-WRITE = *IMMEDIATE
Only selects combinations in which data consistency is required immediately on completion of the write operation (relevant only for enhanced performance for write access).

DISK-WRITE = *BY-CLOSE
Only selects combinations in which data consistency is not required until after CLOSE processing.

FILE-ATTRIBUTES = *BY-STORAGE-CLASS(...)
Only users with the TSOS privilege are allowed to select this value.
The individual file attributes are to be taken from the specified storage class.

STORAGE-CLASS-NAME = <composed-name 1..8>
Name of the storage class.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	32	CMD2009	Error on structured output in S variables
	64	CMD0216	User does not have necessary authorization
	64	DMS140B	Pubset not available
	64	DMS141B	Pubset is not an SM pubset
	64	DMS1406	No combination selected
	64	DMS1407	Storage class management problem
	64	DMS1408	Volume set list not defined
	64	DMS1409	Storage class not defined
	130	DMS140F	Not enough class 4/5 memory

Output format

The information is shown in the form of a table. The output is divided into seven columns. The first six columns each refer to a file attribute, the seventh shows the quality of support offered for the given combination of file attributes.

The table begins with a header line labeling the output columns. This is followed by rows of values for the selected combinations:

```
WORK-F  AVAIL F-FORM  IO(PERF) IO(USAGE) DISK-WRITE  SUPPORT-QUALITY
------+------+------+---------+---------+-----------+--------------<work>
 <av>  <format>  <perf>   <usage>   <diskw>     <supqu>
```

Output column	Possible values	Meaning
WORK-F		Work file flag:
	NO	ordinary file
	YES	work file
AVAIL		Availability:
	STD	no special availability requirements

	HIGH	high availability
F-FORM		File format (FILE-FORMAT):
	K	K file
	NK2	NK2 file
	NK4	NK4 file
IO(PERF)		Performance attribute:
	STD	no special performance requirements
	HIGH	enhanced performance priority
	VERY-HIGH	highest performance priority
IO(USAGE)		I/O operation mode in conjunction with performance requirement (USAGE); no value for IO(PERF)=STD:
	READ-WRITE	read and write operations
	WRITE	write operations only
	READ	read operations only
DISK-WRITE		Time when data consistency is required; no value for IO(PERF)=STD or IO(USAGE)=WRITE
	IMMEDIATE	immediately after write operations
	BY-CLOSE	not until after CLOSE processing
SUPPORT-QUALITY		Quality of support for shown file attribute combination
	OPTIMAL	Optimum support
	NEARLY-OPTIMAL	Nearly optimum support
	BETTER-THAN-REQUEST	“Better-than-requested” support
	WORSE-THAN-REQUEST	“Worse-than-requested” support
	CONFL-W-VOL-SET-LST	Support possible only on volume sets which conflict with the volume set list specification

Table 141: Output columns of the SHOW-PUBSET-FILE-SERVICES command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Requirements concerning failsafe capability *STD=no particular requirements *HIGH=increased reliability required	var(*LIST).AVAIL	S	*STD *HIGH	
File consistency time *IMMED=immediately after termination of the write operation *BY-CLOSE=after CLOSE processing	var(*LIST).DISK-WRITE	S	'' *BY-CLOSE *IMMED	
File format *K=K format *NK2=NK2 format *NK4=NK4 format	var(*LIST).F-FORM	S	*K *NK2 *NK4	
Performance requirements *STD=no particular requirements *HIGH=high performance requirements *VERY-HIGH=very high performance requirements	var(*LIST).IO-ATTR.PERF	S	*STD *HIGH *VERY-HIGH	
Type of file access covered by the performance requirement *HIGH or *VERY-HIGH *READ=for read operations only *READ-WRITE= for read and write operations *WRITE=for write operations only	var(*LIST).IO-ATTR.USAGE	S	'' *READ *READ-WRITE *WRITE	
Quality of service support for the combination of file attributes resulting from the values of the other S variables of the relevant list member *BETTER-THAN-REQUEST=combination of file attributes better than requested *CONFL-W-VOL-SET-LST=combination of file attributes that can only be satisfied on volume sets not belonging to the prescribed volume set list *NEARLY-OPTIMAL=almost ideal support for combinations of file attributes *OPTIMAL=ideally supported combinations of file attributes *WORSE-THAN-REQUEST=combination of file attributes worse than requested	var(*LIST).SUP-QUALITY	S	*BETTER-THAN-REQUEST *CONFL-W-VOL-SET-LST *NEARLY-OPTIMAL *OPTIMAL *WORSE-THAN-REQUEST	
	var(*LIST).WORK-F	S	*NO *YES	

Work file *NO=normal file *YES=work file				

6.61 SHOW-PUBSET-IMPORT-EXPORT

Show pubset processing status

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	@

Function

The SHOW-PUBSET-IMPORT-EXPORT command informs the systems support staff of the processing status of all pubsets that are currently being imported or exported. If one or more pubsets are named explicitly, the processing status of the volume sets belonging to them may also be output for SM pubsets.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-PUBSET**-IMP**ORT**-EXP**ORT

PUBSET = ***ALL** / list-poss(256): <cat-id 1..4>(...)

<cat-id 1..4>(...)

| VOLUME-SET = ***NONE** / ***ALL** / <cat-id 1..4>

Operands

PUBSET = *ALL / list-poss(256): <cat-id 1..4>(...)
Specifies the pubsets for which the processing status is to be displayed.

PUBSET = *ALL
The processing status of all pubsets that are currently being imported or exported is displayed (i.e. the status of all import/export jobs that are currently underway).

PUBSET = list-poss(256): <cat-id 1..4>(...)
The ID of the pubset whose processing status is to be displayed. As many as 256 pubsets can be specified in a list. In the case of SM pubsets, the processing status of the volume sets belonging to them may also be requested. Note that in that case the processing status of the control volume set is not displayed explicitly and is represented by the processing state of the SM pubset.

VOLUME-SET = *NONE / *ALL / list-poss(255): <cat-id 1..4>
This operand is ignored in the case of SF pubsets.
Specifies whether the processing statuses of the volume sets belonging to an SM pubset are to be displayed as well.

VOLUME-SET = *NONE
On information is issued for the volume sets.

VOLUME-SET = *ALL
The processing status is displayed for all volume sets belonging to an SM pubset.

VOLUME-SET = list-poss(255): <cat-id 1..4>
The processing status of the specified volume set is displayed for SM pubsets. As many as 255 volume sets can be specified in a list.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	Internal error
	32	DMS13D0	Internal processing error
	64	CMD0216	User is not authorized
	64	DMS13D0	MRSCAT not found, wrong MRSCAT type

Output format

The output begins with a heading line followed by value lines. One value line is output for each pubset. If information concerning the volume sets was also requested, the value line of the pubset is followed by an additional value line for each volume set belonging to the pubset. No separate value line is output for the control volume set since it is represented by the value line of the SM pubset.

1. Heading line:

   ```
   ID TYPE PROCESS STATE PROGRESS TSN
   ```

2. Value line for a pubset:

   ```
   <catid> <pubset-type> <process-type> <process-state> <progress> <tsn>
   ```

3. Value line for a volume set:

   ```
   <catid> VOLSET <process-type> <process-state> <progress> <tsn>
   ```

   This information is only issues if VOLUME-SET= *ALL / <cat-id> was specified for an SM pubset.

Meaning of the output columns

Output column	Meaning and possible values
ID	ID of the pubset or volume set
TYPE	Pubset types: SF-PUBSET, SM-PUBSET, VOLSET
PROCESS	Pubset or volume set processing type: • IMPORTING: Pubset/volume set being imported • EXPORTING: Pubset/volume set being exported • IMPORTED: Pubset/volume set already imported • EXPORTED: Pubset/volume set already exported
STATE	Details on the processing status if the pubset/volume set is currently being imported or exported.
PROGRESS	Progress of processing • *RUNNING: the current processing status was just reached • IN WAIT: nnnn sec: the current processing status was reached nnnn seconds ago
TSN	TSN of the import/export task of the pubset or volume set

Table 142: Output columns of the SHOW-PUBSET-IMPORT-EXPORT command

Output in S variables

The VOLUME-SET operand determines whether additional information about the volume sets associated with an SM pubset are output.

Notation used in command	Abbreviated form used in table
SM-Pubset, VOLUME-SET=*ALL / <cat-id> and number of volume sets (NUM-OF-VOLSETS) is nonzero	1

Output information	Name of the S variable	T	Contents	Condition
Number of volume sets	var(*LIST).PUBSET.NUM-OF-VOLSETS	I	<integer 0..255>	
Pubset type	var(*LIST).PUBSET.TYPE	S	SF-PUBSET SM-PUBSET	
Pubset processing mode	var(*LIST).PUBSET.PROCESS	S	IMPORTING IMPORTED EXPORTING EXPORTED	
Progress of current processing	var(*LIST).PUBSET.PROGRESS	S	<c-string 20..20> *RUNNING IN WAIT: nnn SEC	
Pubset ID	var(*LIST).PUBSET.PUBSET	S	<cat-id>	
Current processing state	var(*LIST).PUBSET.STATE	S	<c-string 20..20>	
Current TSN of pubset import /export task	var(*LIST).PUBSET.TSN	S	<c-string 4..4>	
Processing mode of volume set	var(*LIST).PUBSET.VOLSET (*LIST).PROCESS	S	IMPORTING EXPORTING IMPORTED EXPORTED	1
Progress of current processing	var(*LIST).PUBSET.VOLSET (*LIST).PROGRESS	S	<c-string 18..18> *RUNNING IN WAIT: nnn SEC	1
Current processing state	var(*LIST).PUBSET.VOLSET (*LIST).STATE	S	<c-string 20..20>	1
Volume set ID	var(*LIST).PUBSET.VOLSET (*LIST).VOLSET	S	<cat-id>	1
Current TSN of volume-set import/export task	var(*LIST).PUBSET.VOLSET (*LIST).TSN	S	<c-string 4..4>	1

6.62 SHOW-PUBSET-LOCKS

Show pubset locks

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The SHOW-PUBSET-LOCKS function provides information on the locks which have been set for a pubset by pubset management. All locks are displayed which are set for the pubset in the shared pubset network on systems with BS2000/OSD >= V8.0. The following information is output for each pubset lock:

- Host name of the lock location and the associated sysid
- Type of pubset sharer (master or slave) on which the lock is stored
- Type of lock set
- Task identifier (TID) of the lock holder
- Sysid of the lock holder and BS2000 version of the associated system

If no information can be supplied for a system, the message DMS13CF is issued.

The command supports structured output in S variables (see also "Output in S variables").

An existing lock can be reset using the REMOVE-PUBSET-LOCK command.

Format

SHOW-PUBSET**-LOCKS**
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which all existing locks in the shared pubset network are to be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	32	DMS138A	Internal error with Serslog entry
	64	CMD0216	Privileges error
	64	DMS138B	Pubset not found
	64	DMS138C	Pubset not accessible
	64	DMS1397	Partner host with illegal version
	64	DMS13CB	Specified lock does not exist
	64	DMS13CC	Lock holder task is still active
	128	CMD0217	Command processing incomplete
	128	DMS1386	Error in the memory request
	128	DMS1389	Error in MSCF communication

Output fields and meaning

The information on the specified pubset's locks is output in a table. A separate line containing the following information is displayed for each lock which is set on a host in the associated shared pubset network:

Output column	Meaning and possible values
LOCK-TYPE	Type of lock set (*PUBSET-RECONF / *SHARED-EXCAT / *SHARED-IMCAT / *SHARED-MASTER-EXCAT)
LOCK-LOCATION	***Lists the information on the lock location:***
HOSTNAME	Host name of the system in which the lock is set (<alphanum-name 1..8>)
SYSID	Sysid of the system in which the lock is set (<alphanum-name 1..3>)
SHARER-TYPE	Sharer type of the system in which the lock is set (*MASTER / *SLAVE)
LOCK-HOLDER-INFORMATION	***Lists the information on the lock holder:***
TID	Task identifier (TID) of the lock holder (<x-text 8..8>)
SYSID	Sysid of the lock holder (<alphanum-name 1..3>)
BS2000 Version	BS2000 version of the lock holder (Vmm.n)

Table 143: Output columns of the SHOW-PUBSET-LOCKS command

Message DMS13CF is also issued for each slave about which no information can be obtained. The precise reason is provided in an insert in the message.

Notes

- Only one single lock (irrespective of the type) can be set on each slave of the pubset.
- The following locks can be set on the master of the pubset:
  - either just one lock of the type PUBSET-RECONFIGURATION
  - or up to 16 locks of the types SHARED-EXCAT, SHARED-MASTER-EXCAT and SHARED-IMCAT; type SHARED-MASTER-EXCAT can only be set once.

Output in S variables

The following variables are output for a pubset lock. All of a system's locks are displayed in a list.

Output information	Name of the S variable	T	Contents	Condition
Type of pubset lock	var(*LIST).LIST(*LIST).LOCK-TYPE	S	*PUBSET-RECONFIGURATION *SHARED-EXCAT *SHARED-IMCAT *SHARED-MASTER-EXCAT	
Host name of the system	var(*LIST).LIST(*LIST).HOST-NAME	S	<alphanum-name 1..8>	
Sysid of the system with the lock entry	var(*LIST).LIST(*LIST).SYS-ID	S	<alphanum-name 1..3>	
Type of pubset sharer	var(*LIST).LIST(*LIST).SHARER-TYPE	S	*MASTER *SLAVE	
TID of the lock holder	var(*LIST).LIST(*LIST).HOLDER-TID	S	<alphanum-name 8..8>	
Sysid of the lock holder	var(*LIST).LIST(*LIST).HOLDER-SYS-ID	S	<alphanum-name 1..3>	
BS2000 version	var(*LIST).LIST(*LIST).SYS-VERSION	S	<version>	

Example

Output in S variable

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-pubset-locks pubset=xyz),
          text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
VAR#1.LIST#1.LOCK-TYPE = '*SHARED-MASTER-EXCAT '
VAR#1.LIST#1.HOST-NAME = 'D017ZE15'
VAR#1.LIST#1.SYS-ID = '183'
VAR#1.LIST#1.SHARER-TYPE = '*MASTER'
VAR#1.LIST#1.HOLDER-TID = '1000004F'
VAR#1.LIST#1.HOLDER-SYS-ID = '183'
VAR#1.LIST#1.SYS-VERSION = 'V20.0'
*END-OF-VAR
VAR#1.LIST#2.LOCK-TYPE = '*SHARED-EXCAT'
VAR#1.LIST#2.HOST-NAME = 'D017ZE15'
VAR#1.LIST#2.SYS-ID = '183'
VAR#1.LIST#2.SHARER-TYPE = '*MASTER'
VAR#1.LIST#2.HOLDER-TID = '2000009F'
VAR#1.LIST#2.HOLDER-SYS-ID = '184'
VAR#1.LIST#2.SYS-VERSION = 'V20.0'
*END-OF-VAR
VAR#1.LIST#3.LOCK-TYPE = '*SHARED-EXCAT'
VAR#1.LIST#3.HOST-NAME = 'D017ZE15'
VAR#1.LIST#3.SYS-ID = '183'
VAR#1.LIST#3.SHARER-TYPE = '*MASTER'
VAR#1.LIST#3.HOLDER-TID = '20000038'
VAR#1.LIST#3.HOLDER-SYS-ID = '185'
VAR#1.LIST#3.SYS-VERSION = 'V20.0'
*END-OF-VAR
*END-OF-VAR
VAR#2.LIST#1.LOCK-TYPE = '*SHARED-EXCAT'
VAR#2.LIST#1.HOST-NAME = 'D017ZE16'
VAR#2.LIST#1.SYS-ID = '184'
VAR#2.LIST#1.SHARER-TYPE = '*SLAVE'
VAR#2.LIST#1.HOLDER-TID = '2000009F'
VAR#2.LIST#1.HOLDER-SYS-ID = '184'
VAR#2.LIST#1.SYS-VERSION = 'V20.0'
*END-OF-VAR
*END-OF-VAR
```

6.63 SHOW-PUBSET-NET-STORAGE

Display Net-Storage of a pubset

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	STORAGE-MANAGEMENT
Privileges:	STD-PROCESSING TSOS

Function

The SHOW-PUBSET-NET-STORAGE command provides information on the Net-Storage which is assigned to an imported pubset in the form of Net-Storage volume(s). For each Net-Storage volume the display shows the VSN, the current status and the net server providing it.

The command supports structured output in S variables (see "Output in S variables").

Information on the tasks occupying the Net-Storage can be requested using the SHOW-NET-STORAGE-OCCUPATION command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the "Introductory Guide to DMS" [13].

Format

SHOW-PUBSET**-NET-STOR**AGE
PUBSET = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Specifies the pubset about whose Net-Storage volumes information is to be provided.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
	32	CMD0221	System error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	32	DMS1CFF	System error (see SERSLOG entry)
	64	DMS1C02	Net-Storage volume not found
	64	DMS1C05	Pubset not found
	64	DMS1C06	Pubset not accessible

Meaning of the output fields

Output field	Possible values	Meaning
NET-VOLUME	<vsn 6..6>	VSN of the Net-Storage volume
STATUS		Status of the Net-Storage volume
	IN USE	• Being used, pubset has been imported
	ONLINE	• Known in the BS2000 system, but pubset has not been imported
	PERMISSION DENIED	• No authorization to access the Net-Storage volume
	NOT MOUNTED	• Net-Storage not connected
	NO CONNECTION	• No connection to the net server
	NOT VALID	• Invalid, does not exist
NET-DIRECTORY[1]	<name 1..64>	Directory name of the Net-Storage released on the net server
SERVER-NAME[1]	<name 1..255>	Name of the net server
IPV4-ADDRESS[1]	<name 7..15>	IP address of the net client in IPv4 format
IPV6-ADDRESS[1]	<name 15..39>	IP address of the net client in IPv6 format

Table 144: Output fields for the SHOW-NET-STORAGE command

1 Status-dependent output: output only when the information is available. Output values which are longer than 60 bytes begin in a new line. The line is also wrapped from a length of 77 bytes.

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id 1..4>	
Number of the Net-Storage volumes	var(*LIST).NUM-OF-NET-VOL	I	<integer 1..4096>	
VSN of the Net-Storage volumes	var(*LIST).NET-VOL(*LIST).VSN	S	<vsn 6..6>	
Status of the Net-Storage volumes	var(*LIST).NET-VOL(*LIST).STATUS	S	*IN USE *ONLINE *PERMISSION-DENIED *NOT MOUNTED *NO CONNECTION *NOT VALID	
Directory name of the Net-Storage released on the net server	var(*LIST).NET-VOL(*LIST).DIR[1]	S	<name 1..64> ''	
Name of the net server	var(*LIST).NET-VOL(*LIST).SERVER[1]	S	<name 1..256> ''	
IP address of the net client in IPv4 format	var(*LIST).NET-VOL(*LIST).IPV4[1]	S	<name 7..15> ''	
IP address of the net client in IPv6 format	var(*LIST).NET-VOL(*LIST).IPV6[1]	S	<name 15..39> ''	

1 Status-dependent output: Null string, only when the information is available.

Example

/show-pubset-net-storage bigf

```
%NET-VOLUMES FOR PUBSET : BIGF
%-----------------------------------------------------------------------
%NET-VOLUME      :   BIGF@00
%STATUS             :   IN USE
%NET-DIRECTORY :   /nas/200/bs2-cs1
%IPV4-ADDRESS  :   10.20.30.40
%-----------------------------------------------------------------------
%NET-VOLUME      :   MONI00
%STATUS              :   NOT MOUNTED
%-----------------------------------------------------------------------
%NET-VOLUME      :   NET001
%STATUS              :   PERMISSION DENIED
%NET-DIRECTORY :   /nas/200/bs2data
%IPV4-ADDRESS  :   10.20.50.60
%-----------------------------------------------------------------------
```

6.64 SHOW-PUBSET-OCCUPATION

Display tasks which are occupying pubsets

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	@

Function

The SHOW-PUBSET-OCCUPATION command provides system support with information on the tasks which are occupying pubsets. The command supplies information both for single-feature (SF) pubsets and for system-managed (SM) pubsets.

The command supports structured output in S variables (see "Output in S variables").

> The information on pubset occupancy is also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Restrictions

In the case of SF pubsets in a shared pubset network, only the information displayed on the pubset master is valid. The information displayed on a pubset slave becomes valid if that slave is made the pubset master.

Format

SHOW-PUBSET**-OCCUPATION**

PUBSET = **<u>*ALL</u>** / <cat-id 1..4>

,**SEL**ECT**-PUB**SET = **<u>*ALL</u>** / ***EXCL**USIVE / ***SHARE**D / ***ACCESS**IBLE / ***LOCAL-ACCESS**IBLE /
***REMOTE-ACCESS**IBLE / ***HSMS-SUP**PORTED / ***SPEEDCAT** / ***PAGING** /
***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED / ***DEFINED-XCS-CONF**IGURATED /
***XCS-CONF**IGURATED

,**HOST** = **<u>*LOC</u>**AL / ***ALL** / <alphanum-name 1..8>

Operands

PUBSET = *ALL / <cat-id 1..4>
Specifies the pubsets for which the occupying jobs are to be displayed.

PUBSET = *ALL
The occupying jobs of all pubsets are displayed. The SELECT-PUBSET operand can be used to restrict the selection to pubsets with specific attributes.

PUBSET = <cat-id 1..4>
Identifies the pubset for which the occupying jobs are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *ACCESSIBLE / *LOCAL-ACCESSIBLE / *REMOTE-ACCESSIBLE / *HSMS-SUPPORTED / *SPEEDCAT / *PAGING / *SINGLE-FEATURE / *SYSTEM-MANAGED / *DEFINED-XCS-CONFIGURATED / *XCS-CONFIGURATED
Specifies whether information is required only for specific pubsets. This restriction is useful if *ALL is used in the PUBSET operand to select all pubsets.

SELECT-PUBSET = *ALL
The occupying jobs of all the pubsets specified in the PUBSET operand are displayed.

SELECT-PUBSET = *EXCLUSIVE
The occupying jobs of all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The occupying jobs of all pubsets imported as shared are displayed.

SELECT-PUBSET = *ACCESSIBLE
The occupying jobs of all pubsets which can be accessed are displayed.

SELECT-PUBSET = *LOCAL-ACCESSIBLE
The occupying jobs of all locally accessible, i.e. imported, pubsets are displayed.

SELECT-PUBSET = *REMOTE-ACCESSIBLE
The occupying jobs of all pubsets which have not been imported locally but whose file catalog can be accessed over an MSCF connection are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The occupying jobs of all pubsets which are supported by the HSMS subsystem are displayed.

SELECT-PUBSET = *SPEEDCAT
The occupying jobs of all SF pubsets whose file catalog can be accessed in the local system via SPEEDCAT are displayed.

SELECT-PUBSET = *PAGING
The occupying jobs of all pubsets with paging areas which are used locally are displayed.

SELECT-PUBSET = *SINGLE-FEATURE
The occupying jobs of all SF pubsets are displayed.

SELECT-PUBSET = *SYSTEM-MANAGED
The occupying jobs of all SM pubsets are displayed.

SELECT-PUBSET = *DEFINED-XCS-CONFIGURATED
The occupying jobs of all pubsets which are defined as XCS pubsets in the MRS catalog are displayed.

SELECT-PUBSET = *XCS-CONFIGURATED
The occupying jobs of all XCS pubsets are displayed.

HOST = *LOCAL / *ALL / <alphanum-name 1..8>
Identifies the host system of the jobs which are to be listed.

HOST = *LOCAL
Only the occupying jobs on the local host are displayed.

HOST = *ALL
If the local host is the pubset master, the occupying jobs on all the hosts in the shared pubset network are displayed. If it is not, only the occupying jobs on the local host are displayed (as for HOST=*LOCAL).

HOST = <alphanum-name 1..8>
The occupying jobs on the specified host are displayed. If the specified BCAM name is not that of the local host, the information is output only if the local host is the pubset master of the shared pubset and the specified BCAM name is that of a pubset sharer.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	64	CMD0216	Privilege error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138E	Volume set does not exist
	64	DMS1396	Invalid host name
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. The output information per pubset breaks down into two groups of output blocks:

1. output block for pubset-global summary information
2. output blocks for pubset-global detailed information

Pubset-global summary information

The output block for pubset-global summary information consists of a row of values which at the same time acts as a header line introducing the information output for a pubset. The summary information has the following layout:

```
PUBSET <catid>: <type>, CTL-SET = (<ctlid>, <type>), <status>, <hsms>
```

Key to the output values

<catid>	Pubset ID
<type>	Pubset type; possible values: SINGLE-FEATURE or SYSTEM-MANAGED
<ctlid>	Control volume set ID (for SM pubsets)
<type>	Device type of control volume set's system disk (for SM pubsets)
<status>	Pubset accessibility; possible values:
	• ACC: Pubset is locally accessible.
	• INACC: Pubset is not locally accessible.
<hsms>	HSMS subsystem support (for SM pubsets); possible values:
	• HSMS-SUP: Pubset is supported by HSMS.
	• NO-HSMS-SUP: Pubset is not supported by HSMS.

Pubset-global detailed information

The occupying jobs are displayed for the pubsets.

The output block is introduced by the following header line:

```
--- REFERENCE             ---------------------------------------
```

The following row of values shows the number of jobs occupying the pubset:

```
NUMBER OF OCCUPYING TASKS        | <number>
```

If there is at least one job occupying the pubset, detailed information about the occupying jobs is shown next. The output is arranged according to the host on which the occupying jobs reside. The information about the occupying jobs of each host is preceded by one of the following header lines:

- Header line for occupying jobs on the local host:
  `OCCUPATIONS BY LOCAL TASKS`
- Header line for occupying jobs on unknown hosts:
  `OCCUPATIONS FROM HOST: (UNKNOWN)`
- Header line for occupying jobs on a remote host:
  `OCCUPATIONS FROM HOST: <bcam name>`

The header line is followed by one or more lines indicating all the occupying jobs on the given host, showing the task sequence number (TSN) and the user ID (if there is one):

```
<tsn> <userid>    <tsn> <userid>    <tsn> <userid>    <tsn> <userid>
```

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Device type of the system disk of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-DEV-TYPE	S	*NO <c-string 1..8>	
ID of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-VOLSET	S	*NO FALSE=none	
HSMS support for the pubset *NO=pubset is not supported *STD=for single-feature pubsets *YES=pubset is supported	var(*LIST).HSMS-SUP	S	*NO *STD *YES	
Number of occupying tasks	var(*LIST).OCCUP.NUM-OF-TASK	I	<integer>	
Host name (only if OCCUP.NUM-OF-TASK > 0)	var(*LIST).OCCUP.HOST(*LIST).NAME	S	*LOC *UNKNOWN <alphan.-name 1..8>	
TSN of an occupying task (only if OCCUP.NUM-OF-TASK > 0)	var(*LIST).OCCUP.HOST(*LIST).TASK(*LIST).TSN	S	<tsn>	
User ID of an occupying task (only if OCCUP.NUM-OF-TASK > 0)	var(*LIST).OCCUP.HOST(*LIST).TASK(*LIST).USER-ID	S	*NONE <user-id>	
Pubset ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Availability of the pubset *ACCESSIBLE=locally accessible *INACCESSIBLE=not locally accessible	var(*LIST).STA	S	*ACCESSIBLE *INACCESSIBLE	

Example

/show-pubset-occupation pubset=x

```
%-------------------------------------------------------------------------
%COMMAND: SHOW-PUBSET-OCCUPATION
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
PUBSET X   : SINGLE-FEATURE, ACC
---- REFERENCE            ------------------------------------------------
 NUMBER OF OCCUPYING TASKS            | 1
---- DETAILS OF OCCUPATION  -----------------------------------------------
 OCCUPATIONS BY LOCAL TASKS
  RP02
-------------------------------------------------------------------------
```

6.65 SHOW-PUBSET-PARAMETERS

Show pubset operating parameters

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	@

Function

The SHOW-PUBSET-PARAMETERS command provides systems support with information on the default and current settings of pubset operating parameters. The command supplies detailed information both for single-feature (SF) pubsets and for system-managed (SM) pubsets and the volume sets in them.

The command supports structured output in S variables (see "Output in S variables").

i You also obtain some information on SHOW-PUBSET-PARAMETERS with the following SHOW commands. With the exception of SHOW-PUBSET-OCCUPATION these commands exist as counterparts to the corresponding MODIFY commands:

Command	Corresponding operand in SHOW-PUBSET-PARAMETERS
SHOW-PUBSET-CACHE-ATTRIBUTES	INFORMATION=*CACHE-CONFIGURATION, VOLUME-SET-INFO=*YES(INFORMATION=*CACHE-CONFIGURATION)
SHOW-PUBSET-OCCUPATION	INFORMATION=*PUBSET-OCCUPATION, VOLUME-SET-INFO=*NO
SHOW-PUBSET-SPACE-DEFAULTS	INFORMATION=*SPACE-ALLOCATION, VOLUME-SET-INFO=*NO
SHOW-SPACE-SATURATION-LEVELS	INFORMATION=*SPACE-ALLOCATION, VOLUME-SET-INFO=*YES(INFORMATION=*SPACE-SATURATION)

Restrictions

The current settings of the pubset operating parameters are shown only for locally accessible (i.e. imported) pubsets.

In the case of SF pubsets in a shared pubset network, only the information about pubset operating parameter settings which is displayed on the pubset master is valid. The information displayed on a pubset slave becomes valid if that slave is made the pubset master.

Format

SHOW-PUBSET**-PAR**AMETERS

PUBSET = **<u>*ALL</u>** / <cat-id 1..4>

,**SEL**ECT**-PUB**SET = **<u>*ALL</u>** / ***EXCL**USIVE / ***SHARE**D / ***LOCAL-ACCESS**IBLE / ***HSMS-SUP**PORTED /

***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED / ***XCS-CONF**IGURATED

,**INF**ORMATION = **<u>*SUMM</u>**ARY / ***ALL** / ***PUB**SET**-OCCUP**ATION(...) /

list-poss(4): ***GLOBAL-PAR**AMETERS / ***SPACE-ALLOC**ATION / ***EAM-PAR**AMETERS /

***CACHE-CONF**IGURATION

***PUB**SET**-OCCUP**ATION(...)

| **HOST** = **<u>*LOC</u>**AL / ***ALL** / <alphanum-name 1..8>

,**VOL**UME**-SET-INFO** = **<u>*NO</u>** / ***Y**ES(...)

***Y**ES(...)

| **VOL**UME**-SET** = **<u>*ALL</u>** / <cat-id 1..4>

| ,**SEL**ECT**-VOL**UME**-SET** = **<u>*ALL</u>** / ***NORMAL-USE** / ***IN-HOLD** / ***DEFECT** / ***DEFINED-ONLY**

| ,**INF**ORMATION = **<u>*SUMM</u>**ARY / ***ALL** / ***VOL**UME**-SET-OCCUP**ATION(...) /

| list-poss(2): ***CACHE-CONF**IGURATION / ***SPACE-SAT**URATION

| ***VOL**UME**-SET-OCCUP**ATION(...)

| | **HOST** = **<u>*LOC</u>**AL / ***ALL** / <alphanum-name 1..8>

Operands

PUBSET = <u>*ALL</u> / <cat-id 1..4>
Specifies the pubsets for which the operating parameters are to be displayed.

PUBSET = <u>*ALL</u>
The operating parameters of all pubsets are displayed. The SELECT-PUBSET operand can be used to restrict the selection to pubsets with specific attributes.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the operating parameters are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *LOCAL-ACCESSIBLE / *HSMS-SUPPORTED / *SINGLE-FEATURE / *SYSTEM-MANAGED / *XCS-CONFIGURATED
Specifies whether any information is required only for specific pubsets. This restriction is useful if *ALL is used in the PUBSET operand to select all pubsets.

SELECT-PUBSET = *ALL
The operating parameters of all the pubsets specified in the PUBSET operand are to be displayed.

SELECT-PUBSET = *EXCLUSIVE
The operating parameters of all exclusive imported pubsets are displayed.

SELECT-PUBSET = *SHARED
The operating parameters of all shared imported pubsets are displayed.

SELECT-PUBSET = *LOCAL-ACCESSIBLE
The operating parameters of all locally accessible, i.e. imported, pubsets are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The operating parameters of all pubsets which are supported by the HSMS subsystem are displayed.

SELECT-PUBSET = *SINGLE-FEATURE
The operating parameters of all SF pubsets are displayed.

SELECT-PUBSET = *SYSTEM-MANAGED
The operating parameters of all SM pubsets are displayed.

SELECT-PUBSET = *XCS-CONFIGURATED
The operating parameters of all XCS pubsets are displayed.

INFORMATION = *SUMMARY / *ALL / *PUBSET-OCCUPATION(...) / list-poss(4): *GLOBAL-PARAMETERS / *SPACE-ALLOCATION / *EAM-PARAMETERS / *CACHE-CONFIGURATION
Governs exactly which of the pubset-global operating parameters are to be displayed. Output can be restricted to summary information or include all the detailed information. It is also possible to request specific information blocks from the full range of information.

INFORMATION = *SUMMARY
A summary of the pubset-global information is displayed:

- Pubset ID
- pubset type (SF or SM pubset)
- control volume set ID and device type (for SM pubsets)
- operating mode
- HSMS support (for SM pubsets)

INFORMATION = *ALL
All the detailed information is output.

INFORMATION = *PUBSET-OCCUPATION(...)
Detailed information on jobs occupying the pubset is to be output. The HOST suboperand can be used to identify the host system of the jobs in question.

HOST = *LOCAL / *ALL / <alphanum-name 1..8>
Identifies the host system of the jobs which are to be listed.

HOST = *LOCAL
Only the occupying jobs on the local host are displayed.

HOST = *ALL
If the local host is the pubset master, the occupying jobs on all the hosts in the shared pubset network are displayed. If it is not, only the occupying jobs on the local host are displayed (as for HOST=*LOCAL).

HOST = <alphanum-name 1..8>
The occupying jobs on the specified host are displayed. If the specified BCAM name is not that of the local host, the information is output only if the local host is the master of the shared pubset and the specified BCAM name is that of a pubset sharer.

INFORMATION = *GLOBAL-PARAMETERS
In addition to the pubset-global summary (see INFORMATION=*SUMMARY), information on the following pubset operating parameters is supplied:

- wait times for batch and interactive jobs in the event of host connection failures
- response to loss of connection
- number of CMS buffers
- import mode (shared or exclusive)
- import behavior in response to cache defects and invalid cache parameters
- access control
- SPEEDCAT mode
- BCAM name of the master
- XCS attribute of the pubset and, where relevant, name of the XCS network using the pubset
- information on locally importing the catalog of a remote host
- information on V10 conversion of the file catalog during SF pubset export

INFORMATION = *SPACE-ALLOCATION
In addition to the pubset-global summary (see INFORMATION=*SUMMARY), detailed information on the pubset-specific defaults for file space allocation is supplied.

INFORMATION = *EAM-PARAMETERS
In addition to the pubset-global summary (see INFORMATION=*SUMMARY), detailed information on the pubset-specific settings of the SYSEAM files is supplied.

INFORMATION = *CACHE-CONFIGURATION
This operand value is evaluated for SM pubsets only.
In addition to the cross-pubset summary information (see INFORMATION=*SUMMARY), detailed information on the cache configuration of SF pubsets is output.
For SM pubsets this information is volume set-specific and can be requested with the VOLUME-SET-INFO operand.

VOLUME-SET-INFO = *NO / *YES(...)
Governs whether volume set-specific operating parameters for SM pubsets are also to be displayed.

VOLUME-SET-INFO = *NO
Volume set-specific operating parameters are not to be shown.

VOLUME-SET-INFO = *YES(...)

This operand value is evaluated for SM pubsets only.

Volume set-specific operating parameters are also to be shown. In this case, the VOLUME-SET and SELECT-VOLUME-SET suboperands identify the volume sets, and the INFORMATION operand specifies how much information to display.

VOLUME-SET = *ALL / <cat-id 1..4>

Identifies the volume sets for which the operating parameters are to be displayed.

VOLUME-SET = *ALL

The operating parameters of all volume sets are to be shown. The SELECT-VOLUME-SET operand can be used to restrict the selection to specific volume sets.

VOLUME-SET = <cat-id 1..4>

Catalog ID of the volume set for which the operating parameters are to be displayed.

SELECT-VOLUME-SET = *ALL / *NORMAL-USE / *IN-HOLD / *DEFECT / *DEFINED-ONLY

Defines the criterion for selecting specific volume sets from the set of all volume sets (see VOLUME-SET=*ALL). The default is *ALL, i.e. the operating parameters of all volume sets are displayed.

SELECT-VOLUME-SET = *NORMAL-USE

The operating parameters of all accessible volume sets are displayed.

SELECT-VOLUME-SET = *IN-HOLD

The operating parameters of all temporarily inoperable volume sets are displayed.

SELECT-VOLUME-SET = *DEFECT

The operating parameters of all defective volume sets are displayed.

SELECT-VOLUME-SET = *DEFINED-ONLY

The configuration parameters of all defined but inaccessible volume sets are displayed.

INFORMATION = *SUMMARY / *ALL / *VOLUME-SET-OCCUPATION(...) /
list-poss(2): *CACHE-CONFIGURATION / *SPACE-SATURATION

Specifies the operating parameters which are to be displayed and the scope of the information.

INFORMATION = *SUMMARY

Only summary information relating to the pubset configuration is displayed:

- Volume set ID
- device type of the volume set’s system disk
- volume set operating status

INFORMATION = *ALL

In addition to the summary, detailed information is supplied on the cache configuration of the volume set, on volume set-specific space saturation levels and on jobs occupying the volume set.

INFORMATION = *VOLUME-SET-OCCUPATION(...)

Detailed information on jobs occupying the volume set is to be output in addition to the summary. The HOST suboperand can be used to identify the host system of the jobs in question.

HOST = *LOCAL / *ALL / <alphanum-name 1..8>

Identifies the host system of the jobs which are to be listed.

HOST = *LOCAL
Only the occupying jobs on the local host are displayed.

HOST = *ALL
If the local host is the pubset master, the occupying jobs on all the hosts in the shared-pubset network are displayed. If it is not, only the occupying jobs on the local host are displayed (as for HOST=*LOCAL).

HOST = <alphanum-name 1..8>
The occupying jobs on the specified host are displayed. If the specified BCAM name is not that of the local host, the information is output only if the local host is the pubset master of the shared pubset and the specified BCAM name is that of a pubset sharer.

INFORMATION = *CACHE-CONFIGURATION
In addition to the summary, detailed information on the cache configuration of the volume set is supplied.

INFORMATION = *SPACE-SATURATION
In addition to the summary, detailed information on the volume set-specific space saturation levels is supplied.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	64	CMD0216	Privilege error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138E	Volume set does not exist
	64	DMS1396	Invalid host name
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. The output information per pubset breaks down into three groups of output blocks:

1. output block for pubset-global summary information
2. output blocks for pubset-global detailed information
3. output blocks for volume set-specific detailed information

Pubset-global summary information

The output block for pubset-global summary information consists of a row of values which at the same time acts as a header line introducing the information output for a pubset. The summary information has the following layout:

```
PUBSET <catid>: <type>, CTL-SET = (<ctlid>, <type>), <status>, <hsms>
```

Meaning of the output values:

<catid>	Pubset ID
<type>	Pubset type; possible values: SINGLE-FEATURE or SYSTEM-MANAGED
<ctlid>	Control volume set ID (for SM pubsets)
<type>	Device type of control volume set’s system disk (for SM pubsets)
<status>	Pubset accessibility; possible values:
	• ACC: Pubset is locally accessible.
	• INACC: Pubset is not locally accessible.
<hsms>	HSMS subsystem support (for SM pubsets); possible values:
	• HSMS-SUP: Pubset is supported by HSMS.
	• NO-HSMS-SUP: Pubset is not supported by HSMS.

Pubset-global detailed information

The pubset-global detailed information breaks down into five output blocks, each preceded by a header line. The header line indicates the output block type. With
INFORMATION=*ALL, the five output blocks are displayed one after the other. Depending on what is specified in the INFORMATION operand, it is also possible to request each of the output blocks separately:

1. Pubset operating parameters (INFORMATION=*GLOBAL-PARAMETERS)
2. Space allocation defaults (INFORMATION=*SPACE-ALLOCATION)
3. SYSEAM file settings (INFORMATION=*EAM-PARAMETERS)
4. Cache configuration of an SF pubset (INFORMATION=*CACHE-CONFIGURATION)
5. Information on jobs occupying the pubset (INFORMATION=*PUBSET-OCCUPATION)

The header lines of output blocks 1 to 4 divide the subsequent rows of values into a three-column table. Each row of values contains the parameter name in the first column, the defined pubset-global values (DEFINED) in the second and the currently set values (CURRENT) in the third. Output block 4, containing information on cache configuration, is displayed for SF pubsets only. For SM pubsets this information is volume set-specific.

*Pubset operating parameters (INFORMATION=*GLOBAL-PARAMETERS)*

The output block is introduced by the following header line:

```
--- GLOBAL PARAMETERS     ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Information on wait times (in seconds) for batch and interactive (dialog) jobs in the event:

```
DIALOG WAIT TIME              | <n> SEC        | <n>
SEC BATCH WAIT TIME           | <n> SEC        | <n> SEC
```

- Information on CMS buffers:

```
NUMBER OF CMS BUFFERS         | UNDEFINED      | UNDEFINED
                              | <n> (PAGEABLE) | <n> (PAGEABLE)
                              | <n> (RESIDENT) | <n> (RESIDENT)
```

- Information on the import mode (exclusive or shared)

```
IMPORT MODE                   | EXCLUSIVE      | EXCLUSIVE
                              | SHARED         | SHARED
```

- Information on import behavior; appears only if the SF pubset or individual volume sets in the SM pubset have nonvolatile cache areas and if a cache used in a pubset session which terminated abnormally beforehand can no longer be connected.

```
FORCE IMPORT                  | NO             |
                              | BY OPERATOR    |
```

- Information on import behavior in response to invalid cache parameters:

```
SIZE TOLERANCE                | NO             |
                              | YES            |
```

- Information on access control:

```
ACCESS CONTROLLED             | NO             | NO
                              | FOR <userid>   | FOR <userid>
```

- Information on the SPEEDCAT mode (for SF pubsets only):

```
SPEEDCAT MODE                 | NO             | NO SCA RUNNING
                              | SPEEDCAT TASK  | SCA RUNNING
                              | OWN TASK       |
```

- Information on the name of the pubset owner (only for imported pubsets whose owner is not the local computer):

```
HOST NAME                    |                | <alphanum-name 1..8>
```

- Information on the XCS name and on XCS pubset usage:

```
XCS NAME                     |                | <alphanum-name 1..8> XCS CONFIGURATED
                             | NO             | NO
                             | YES            | YES
```

- Information on whether at least one disk of the pubset is emulated in the GS:

```
GS VOLUMES                   |                | NO
```

- Information on locally importing a remote catalog:

```
REMOTE IMPORT                | BY COMMAND ONLY|
                             | BY CONNECTION  |
```

- Information on converting the file catalog to V10 format on export (for SF pubsets only):

```
CONVERT TSOSCAT DURING NEXT EXPORT           | NO CONVERSION  |
                                             | V10-COMPATIBLE
```

*Space allocation defaults (INFORMATION=*SPACE-ALLOCATION)*

The output block is introduced by the following header line:

```
--- SPACE ALLOCATION      ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Default values (in PAM pages) for space allocation for files. Values with invalid definitions (<= 0) are replaced by the system with suitable current values.

```
PRIMARY ALLOCATION           | <number> HP     | <number> HP
SECONDARY ALLOCATION         | <number> HP     | <number> HP
MAXIMAL ALLOCATION           | <number> HP     | <number> HP
```

- For SM pubsets the next section gives information on the default file format:

```
DEFAULT FILE FORMAT          | PAMKEY          | PAMKEY
                             | NK2             | NK2
                             | NK4             | NK4
```

- For SF pubsets the next section gives information on whether absolute (physical) space allocation is allowed for nonprivileged users or only for systems support:

```
PHYSICAL ALLOCATION           | BY ADMINISTRATOR| BY ADMINISTRATOR
                              | USER ALLOWED    | USER ALLOWED
```

- For SF pubsets again, the next section gives information on space saturation thresholds and on space reserved for a ZIP startup. For SM pubsets this information is volume setspecific.

```
--- SPACE SATURATION       --- + --- DEFINED --- + --- CURRENT ---
 SPACE SATURATION LEVEL 1      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 2      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 3      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 4      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 5      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 ZIP LEVEL                     | BY SYSTEM       | <number> HP
                               | <number> HP     |
```

*SYSEAM file settings (INFORMATION=*EAM-PARAMETERS)*

The output block is introduced by the following header line:

```
--- EAM PARAMETERS         --- + --- DEFINED --- + --- CURRENT ---
```

The following rows of values show information relating to SYSEAM files. An output value of SYSTEM-STANDARD means that the value of the corresponding system parameter (EAMMIN, EAMSIZ, EAMSEC or EAMMEM) applies.

```
MINIMAL SIZE OF SYSEAM        | SYSTEM-STANDARD |    <number> HP
                              | <number> HP     |
                              | UNLIMITED       |
MAXIMAL SIZE OF SYSEAM        | SYSTEM-STANDARD |    <number> HP
                              | <number> HP     |
SECONDARY ALLOCATION OF SYSEAM| SYSTEM-STANDARD |    <number> HP
                              | <number> HP     |
VIRTUAL MEMORY OF SYSEAM      | SYSTEM-STANDARD |    <number> HP
                              | <number> HP     |
```

*Cache configuration of an SF pubset (INFORMATION=*CACHE-CONFIGURATION)*

This information is shown for SF pubsets only. For SM pubsets the information is volume set-specific. The output block is introduced by the following header line:

```
--- CACHE CONFIGURATION   ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Information on the cache medium:

```
CACHE MEDIUM                  | NONE            | NONE
                              | MAIN MEMORY     | MAIN MEMORY
                              | GLOBAL STORAGE  | GLOBAL STORAGE
```

  The following extra row is displayed if the cache is currently not active:

```
|                 | NOT ACTIVE
```

  The following extra row is displayed if the cache has been disabled for reconfiguration:

```
|                 | IN HOLD
```

- Information on the size of the cache (in MB or KB):

```
CACHE SIZE                    | NONE            |
                              | <n> MB          | <n> MB
                              | <n> KB          | <n> KB
```

- Information on whether caching must be granted by the user, applies to all files or whether the files are selected automatically by the system (AutoDAB for MM):

```
CACHED FILES                  | BY USER         |
                              | ALL             |
                              | BY SYSTEM       |
```

The status of the following additional information depends on the type of cache medium. The defined value is always shown, but it applies only if the associated medium is defined (value in parentheses). The currently set value is shown only if the currently associated medium is currently being used.

- Information on whether the consistency of the cached write data is ensured in the event of a power failure in the global storage system:

```
VOLATILITY (GLOBAL STORAGE)   | YES             | YES
                              | NO              | NO
```

- For global storage, extra information on the GS unit is displayed:

```
GS-UNIT (GLOBAL STORAGE)      | BY DEFAULT      | DUAL
                              | DUAL            |
                              | MONO (1)        | MONO (1)
                              | MONO (2)        | MONO (2)
```

- Information on the segment size:

```
SEGMENT SIZE (NOT CONTROLLER) |  4          KB|  4          KB
                              |  8          KB|  8          KB
                              | 16          KB| 16          KB
                              | 32          KB| 32          KB
```

- Information on the time at which the cache contents are asynchronously written out to disk by the main memory of the DAB cache handler (threshold-controlled save):

```
FORCE OUT (NOT CONTROLLER)    | NO FORCE OUT    | NO FORCE OUT
                              | AT LOW FILLING  | AT LOW FILLING
                              | AT HIGH FILLING | AT HIGH FILLING
```

*Information on jobs occupying the pubset (INFORMATION=*PUBSET-OCCUPATION)*

The output block is introduced by the following header line:

```
--- REFERENCE             ---------------------------------------
```

The following row of values shows the number of jobs occupying the pubset:

```
NUMBER OF OCCUPYING TASKS        | <number>
```

If there is at least one job occupying the pubset, detailed information about the occupying jobs is shown next. The output is arranged according to the host on which the occupying jobs reside. The information about the occupying jobs of each host is preceded by one of the following header lines:

- Header line for occupying jobs on the local host:

  `OCCUPATIONS BY LOCAL TASKS`
- Header line for occupying jobs on unknown hosts:

  `OCCUPATIONS FROM HOST: (UNKNOWN)`
- Header line for occupying jobs on a remote host:

  `OCCUPATIONS FROM HOST: <bcam name>`

The header line is followed by one or more lines indicating all the occupying jobs on the given host, showing the task sequence number (TSN) and the user ID (if there is one):

```
<tsn> <userid>    <tsn> <userid>    <tsn> <userid>    <tsn> <userid>
```

Volume set-specific information

Volume set-specific information can be requested with VOLUME-SET-INFO=*YES. The output information is preceded by the header line “VOLUME SET INFO”:

```
--- VOLUME SET INFORMATION  -----------------------------------
```

This is followed by the output information for the selected volume sets. The output information for each volume set begins with the volume set summary:

```
VOLUME-SET <catid>:  <type> <status>
```

Meaning of the output values:

<catid>	Volume set ID
<type>	VOLRES device type
<status>	Volume operating status:
	• NORMAL-USE: The volume set is in operation and therefore accessible.
	• IN-HOLD: The volume set is temporarily not in operation.
	• DEFECT: The volume set is defective.
	• DEFINED-ONLY: The volume set is defined but not accessible.

The amount of information shown per volume set is governed by the INFORMATION operand within the VOLUME-SET-INFO=*YES(...) structure. INFORMATION=*SUMMARY causes only the summary information to be output. With INFORMATION=*ALL, the following three additional blocks of detailed information is output. Depending on what is specified in the INFORMATION operand, it is also possible to request each of the output blocks separately:

1. Space saturation thresholds (INFORMATION=*SPACE-SATURATION)
2. volume set cache configuration (INFORMATION=*CACHE-CONFIGURATION)
3. Information on jobs occupying the volume set (INFORMATION=*VOLUME-SET-OCCUPATION)

The header lines of output blocks 1 and 2 divide the subsequent rows of values into a three column table. Each row of values contains the parameter name in the first column, the defined pubset-global values (DEFINED) in the second and the currently set values (CURRENT) in the third.

*Volume set cache configuration (INFORMATION=*CACHE-CONFIGURATION)*

The output block is introduced by the following header line:

```
--- CACHE CONFIGURATION   ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Information on the cache medium:

  ```
  CACHE MEDIUM                | NONE            | NONE
                              | MAIN MEMORY     | MAIN MEMORY
                              | GLOBAL STORAGE  | GLOBAL STORAGE
  ```

  The following extra row is displayed if the cache is currently not active:

  ```
  |                 | NOT ACTIVE
  ```

  The following extra row is displayed if the cache has been disabled for reconfiguration:

  ```
  |                 | IN HOLD
  ```

- Information on the size of the cache (in MB or KB):

  ```
  CACHE SIZE                  | NONE            |
                              | <n> MB          | <n> MB
                              | <n> KB          | <n> KB
  ```

- Information on whether caching must be granted by the user or applies to all files:

  ```
  CACHED FILES                | BY USER         |
                              | ALL             |
  ```

The status of the following additional information depends on the type of cache medium. The defined value is always shown, but it applies only if the associated medium is defined (value in parentheses). The currently set value is shown only if the currently associated medium is currently being used.

- Information on whether the consistency of the cached write data is ensured in the event of a power failure in the global storage system:

  ```
  VOLATILITY (GLOBAL STORAGE) | YES             | YES
                              | NO              | NO
  ```

- For global storage, extra information on the GS unit is displayed:

```
GS-UNIT (GLOBAL STORAGE)      | BY DEFAULT      | DUAL
                              | DUAL            |
                              | MONO (1)        | MONO (1)
                              | MONO (2)        | MONO (2)
```

- Information on the segment size:

```
SEGMENT SIZE (NOT CONTROLLER) |  4          KB|  4          KB
                              |  8          KB|  8          KB
                              | 16          KB| 16          KB
                              | 32          KB| 32          KB
```

- Information on the time at which the cache contents are asynchronously written out to disk by the main memory or global storage of the DAB cache handler (thresholdcontrolled save):

```
FORCE OUT (NOT CONTROLLER)    | NO FORCE OUT    | NO FORCE OUT
                              | AT LOW FILLING  | AT LOW FILLING
                              | AT HIGH FILLING | AT HIGH FILLING
```

*Space saturation thresholds (INFORMATION=*SPACE-SATURATION)*

The output block is introduced by the following header line:

```
--- SPACE ALLOCATION      ---- + --- DEFINED --- + --- CURRENT ---
```

The next rows of values give information on space saturation thresholds and on space reserved for a ZIP startup.

```
--- SPACE SATURATION       --- + --- DEFINED --- + --- CURRENT ---
 SPACE SATURATION LEVEL 1      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 2      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 3      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 4      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 SPACE SATURATION LEVEL 5      | BY SYSTEM       | <number> HP
                               | <number> HP     |
 ZIP LEVEL                     | BY SYSTEM       | <number> HP
                               | <number> HP     |
```

*Information on jobs occupying the volume set (INFORMATION=*VOLUME-SET-OCCUPATION)*

The output block is introduced by the following header line:

```
--- REFERENCE             ---------------------------------------
```

The following row of values shows the number of jobs occupying the volume set:

```
NUMBER OF OCCUPYING TASKS        | <number>
```

If there is at least one job occupying the volume set, detailed information about the occupying jobs is shown next. The output is arranged according to the host on which the occupying jobs reside. The information about the occupying jobs of each host is preceded by one of the following header lines:

Header line for occupying jobs on the local host:

```
OCCUPATIONS BY LOCAL TASKS
```

Header line for occupying jobs on unknown hosts:

```
OCCUPATIONS FROM HOST: (UNKNOWN)
```

Header line for occupying jobs on a remote host:

```
OCCUPATIONS FROM HOST: <bcam name>
```

The header line is followed by one or more lines indicating all the occupying jobs on the given host, showing the task sequence number (TSN) and the user ID (if there is one):

```
<tsn> <userid>    <tsn> <userid>    <tsn> <userid>    <tsn> <userid>
```

Example

/show-pubset-parameters pubset=p1,inf=*all, vol-set-info=*yes

```
%-------------------------------------------------------------------------
-
%COMMAND: SHOW-PUBSET-PARAMETERS
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
%PUBSET DATA: SYSTEM-MANAGED, CTL-SET=(KEY, STDDISK), INACC, NO-HSMS-SUP
%---- GLOBAL PARAMETERS      --------- + ---- DEFINED ---- + ---- CURRENT ---
% DIALOG WAIT TIME                     | 30          SEC   |
% BATCH WAIT TIME                      | 28800        SEC  |
% NUMBER OF CMS BUFFERS                | UNDEFINED         |
% IMPORT MODE                          | EXCLUSIVE         |
% FORCE IMPORT                         | NO                |
% SIZE TOLERANCE                      | YES               |
% ACCESS CONTROLLED                    | NO                |
% HOST NAME                           |                   |
% XCS NAME                            |                   |
% XCS CONFIGURATED                     | NO                |
% REMOTE IMPORT                       | BY CONNECTION     |
%---- SPACE ALLOCATION       --------- + ---- DEFINED ---- + ---- CURRENT ---
% PRIMARY ALLOCATION                   | 3             HP  |
% SECONDARY ALLOCATION                 | 3             HP  |
% MAXIMAL ALLOCATION                   | 24            HP  |
% DEFAULT FILE FORMAT                  | UNDEFINED         |
%---- EAM PARAMETERS         --------- + ---- DEFINED ---- + ---- CURRENT ---
% MINIMAL SIZE OF SYSEAM               | SYSTEM-STANDARD   |
% MAXIMAL SIZE OF SYSEAM               | SYSTEM-STANDARD   |
% SECONDARY ALLOCATION OF SYSEAM       | SYSTEM-STANDARD   |
% VIRTUAL MEMORY OF SYSEAM             | SYSTEM-STANDARD   |
%---- REFERENCE              ----------------------------------------------
% NUMBER OF OCCUPYING TASKS            | 0
%---- VOLUME-SET INFORMATION ----------------------------------------------
%VOLUME-SET KEY : STDDISK, NORMAL-USE
%VOLUME-SET NK2 : STDDISK, NORMAL-USE
%-------------------------------------------------------------------------
```

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *CACHE-CONFIGURATION	1
INFORMATION = *EAM-PARAMETERS	2
INFORMATION = *GLOBAL-PARAMETERS	3
INFORMATION = *PUBSET-OCCUPATION	4
INFORMATION = *SPACE-ALLOCATION	5
INFORMATION = *SUMMARY	6
VOLUME-SET-INFO = *YES(INFORMATION = *CACHE-CONFIGURATION)	7
VOLUME-SET-INFO = *YES(INFORMATION = *SPACE-SATURATION)	8
VOLUME-SET-INFO = *YES(INFORMATION = *SUMMARY)	9
VOLUME-SET-INFO = *YES(INFORMATION = *VOLUME-SET-OCCUPATION)	10

Output information	Name of the S variable	T	Contents	Condition
Current standard file format (*UNDEF for SF pubset)	var(*LIST).ALLOC-CURR.FILE-FORM	S	*K *NK2 *NK4 *UNDEF	5
Current secondary allocation limit	var(*LIST).ALLOC-CURR.MAX-ALLOC	S	*UNDEF <integer 1..32767>	5
Physical allocation possible (FALSE for SM pubset)	var(*LIST).ALLOC-CURR.PHYS-ALLOC	B	FALSE TRUE	5
Current primary allocation standard	var(*LIST).ALLOC-CURR.PRIMARY-ALLOC	S	*UNDEF <integer 1..16777215>	5
Current value of saturation level 1 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL1	S	*UNDEF <integer 1..2147483647>	5
		S		5

Current value of saturation level 2 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL2		*UNDEF <integer 1..2147483647>	
Current value of saturation level 3 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL3	S	*UNDEF <integer 1..2147483647>	5
Current value of saturation level 4 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL4	S	*UNDEF <integer 1..2147483647>	5
Current value of saturation level 5 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL5	S	*UNDEF <integer 1..2147483647>	5
Current secondary allocation standard *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SECONDARY-ALLOC	S	*UNDEF <integer 1..32767>	5
Current ZIP level *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.ZIP-LEVEL	S	*UNDEF <integer 0..2147483647>	5
Defined standard file format (*UNDEF always this value for SF pubset)	var(*LIST).ALLOC-DEFI.FILE-FORM	S	*K *NK2 *NK4 *UNDEF	5
Defined secondary allocation limit	var(*LIST).ALLOC-DEFI.MAX-ALLOC	S	<integer 1..32767>	5
Defined possibility for physical allocation (FALSE for SM pubset)	var(*LIST).ALLOC-DEFI.PHYS-ALLOC	B	FALSE TRUE	5
Defined primary allocation standard	var(*LIST).ALLOC-DEFI.PRIMARY-ALLOC	S	<integer 1..16777215>	5
Defined saturation level 1	var(*LIST).ALLOC-DEFI.SAT-LEVEL1	S	*BY-SYS <integer 1..2147483647>	5
Defined saturation level 2	var(*LIST).ALLOC-DEFI.SAT-LEVEL2	S	*BY-SYS <integer 1..2147483647>	5
Defined saturation level 3	var(*LIST).ALLOC-DEFI.SAT-LEVEL3	S	*BY-SYS <integer 1..2147483647>	5

Defined saturation level 4	var(*LIST).ALLOC-DEFI.SAT-LEVEL4	S	*BY-SYS <integer 1..2147483647>	5
Defined saturation level 5	var(*LIST).ALLOC-DEFI.SAT-LEVEL5	S	*BY-SYS <integer 1..2147483647>	5
Defined secondary allocation standard	var(*LIST).ALLOC-DEFI.SECONDARY-ALLOC	S	<integer 1..32767>	5
Defined ZIP level (*UNDEF for SM pubset)	var(*LIST).ALLOC-DEFI.ZIP-LEVEL	S	*BY-SYS <integer 0..2147483647>	5
Current FORCE-OUT value *NO=no forced removal *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *UNDEF=no definition (for SM pubset)	var(*LIST).CACHE-CURR.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-CURR.GS-UNIT	S	*DUAL *MONO *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-CURR.GS-UNIT-NUM	I	0 <integer 1..2>	1
Current cache medium *MAIN-MEM=main memory *NONE=no cache defined (*UNDEF for SM pubset only)	var(*LIST).CACHE-CURR.MED	S	*MAIN-MEM *NONE *UNDEF	1
Current status of the cache medium *ACTIVE=cache active *NOT-ACTIVE=cache not active *IN-HOLD=cache temporarily deactivated (*UNDEF for SM pubset only)	var(*LIST).CACHE-CURR.MED-STAT	S	*ACTIVE *IN-HOLD *NOT-ACTIVE *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-CURR.PREFETCH	S	*HIGH *LOW *NO *UNDEF	1
Current segment size of the cache medium (0 for SM pubset)	var(*LIST).CACHE-CURR.SEG-SIZE	I	0 4 8 16 32	1

Current cache size (0 for SM pubset)	var(*LIST).CACHE-CURR. SIZE	I	0 <integer 1..32767>	1

Output information	Name of the S variable	T	Contents	Condition
Current unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes *UNDEF=no definition (for SM pubset)	var(*LIST).CACHE-CURR. SIZE-DIM	S	*KB *MB *UNDEF	1
Current value for data consistency *NO=full data consistency after crash *YES=no data consistency after crash *UNDEF=no definition (for SM pubset)	var(*LIST).CACHE-CURR. VOLATILITY	S	*NO *YES *UNDEF	1
Defined caching setting *ALL=caching for all files *BY-USER=activation by the user *BY-SYSTEM=activation by the system (AutoDAB) (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI. CACH-FILE	S	*ALL *BY-USER *BY-SYSTEM *UNDEF	1
Defined FORCE-OUT value *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *NO=no forced removal (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI. FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-DEFI. GS-UNIT	S	*BY-DEFAULT *DUAL *MONO *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-DEFI. GS-UNIT-NUM	I	0 <integer 1..2>	1
Defined cache medium *MAIN-MEM=main memory *NONE=no cache defined (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI. MED	S	*MAIN-MEM *NONE *UNDEF	1
No meaning (displayed only for reasons of compatibility)	var(*LIST).CACHE-DEFI. PREFETCH	S	*HIGH *LOW *NO *UNDEF	1

Output information	Name of the S variable	T	Contents	Condition
Defined segment size of the cache medium (0 for SM pubset)	var(*LIST).CACHE-DEFI. SEG-SIZE	I	0 4 8 16 32	1
Defined cache size (0 for SM pubset)	var(*LIST).CACHE-DEFI. SIZE	I	<integer 1..32767> 0	1
Defined unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI. SIZE-DIM	S	*KB *MB *UNDEF	1
Defined guarantee of data consistency *NO=full data consistency after crash *YES=no data consistency after crash (*UNDEF for SM pubset only)	var(*LIST).CACHE-DEFI. VOLATILITY	S	*NO *YES *UNDEF	1
Device type of the system disk of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-DEV- TYPE	S	*NO <c-string 1..8>	
ID of the control volume set; *NO for SF pubsets	var(*LIST).CONTR- VOLSET	S	*NO FALSE=none	
Current access control value FALSE=none TRUE=access only for authorized user IDs	var(*LIST).CURR.ACCESS- CONTR	B	FALSE TRUE	3
Current waiting time in seconds for batch jobs	var(*LIST).CURR.BATCH- WAIT-TIME	I	<integer 0..2147483647>	3
Current waiting time in seconds for dialog jobs	var(*LIST).CURR.DIALOG- WAIT-TIME	I	<integer 0..2147483647>	3
BCAM name of the pubset owner (only for imported pubsets whose owner is not the local host)	var(*LIST).CURR.HOST- NAME	S	*UNDEF <alphan.-name 1..8>	3
Current number of CMS buffers	var(*LIST).CURR.NUM-OF- BUF	I	<integer 0..255>	3

Output information	Name of the S variable	T	Contents	Condition
Current CMS buffer class FALSE=PAGEABLE TRUE=RESIDENT	var(*LIST).CURR.RESID-BUF	B	FALSE TRUE	3
Current operating mode FALSE=EXCL TRUE=SHARED	var(*LIST).CURR.SHARE-PUBSET	B	FALSE TRUE	3
Current SPEEDCAT mode *NOT-RUN=not activated *RUN=activated *UNDEF=no definition (for SM pubset)	var(*LIST).CURR. SPEEDCAT-MODE	S	*NOT-RUN *RUN *UNDEF	3
Authorized user ID if CURR. ACCESS-CONTR=TRUE	var(*LIST).CURR.USER-ID	S	*UNDEF <user-id>	3
Current XCS attribute FALSE=not an XCS pubset TRUE=declared as an XCS pubset	var(*LIST).CURR.XCS-CONF	B	FALSE TRUE	3
Current XCS name of the pubset	var(*LIST).CURR.XCS-NAME	S	*UNDEF <alphan.-name 1..8>	3
Defined access control FALSE=none TRUE=access only for authorized user IDs	var(*LIST).DEFI.ACCESS-CONTR	B	FALSE TRUE	3
No meaning (displayed only for reasons of compatibility)	var(*LIST).DEFI.ACCESS-FAILURE	S	*CANCEL-JOBS *HOLD-JOBS	3
Defined waiting period in seconds for batch jobs	var(*LIST).DEFI.BATCH-WAIT-TIME	I	<integer 0..2147483647>	3
Definition of whether the TSOS catalog of the SF pubset is converted to V10 format when exported	var(*LIST).DEFI. CONVERSION	S	*NO-CONVERSION *V10-COMPATIBLE	3
Defined waiting period in seconds for dialog jobs	var(*LIST).DEFI.DIALOG-WAIT-TIME	I	<integer 0..2147483647>	3
Defined import behavior in the event of a cache defect FALSE=import is aborted TRUE=output of a console query	var(*LIST).DEFI.FORCE-IMP	B	FALSE TRUE	3
Defined number of CMS buffers		I	<integer 0..255>	3

	var(*LIST).DEFI.NUM-OF-BUF			
Definition of when a catalog of a remote processor is entered locally *BY-CMD-ONLY=by explicit IMPORT-PUBSET command *BY-CONNECTION=when establishing the MSCF connection	var(*LIST).DEFI.REMOTE-IMPORT	S	*BY-CMD-ONLY *BY-CONNECTION	3
Defined CMS buffer class FALSE=PAGEABLE TRUE=RESIDENT	var(*LIST).DEFI.RESID-BUF	B	FALSE TRUE	3
Defined operating mode FALSE=EXCL TRUE=SHARED	var(*LIST).DEFI.SHARE-PUBSET	B	FALSE TRUE	3
Defined import behavior if the cache parameters are incorrect FALSE=import is aborted TRUE=import is forced without caching	var(*LIST).DEFI.SIZE-TOL	B	FALSE TRUE	3
Defined SPEEDCAT mode for next import *NO=SPEEDCAT is not started (for SM pubset) *OWN-TASK=SPEEDCAT under the user's task *SPEEDCAT-TASK=SPEEDCAT under SCA-TASK	var(*LIST).DEFI.SPEEDCAT-MODE	S	*NO *OWN-TASK *SPEEDCAT-TASK	3
Defined authorized user ID if DEFI.ACCESS-CONTR=TRUE	var(*LIST).DEFI.USER-ID	S	*UNDEF <user-id>	3
Defined XCS attribute FALSE=not an XCS pubset TRUE=declared as an XCS pubset	var(*LIST).DEFI.XCS-CONF	B	FALSE TRUE	3
No meaning (displayed only for reasons of compatibility)	var(*LIST).EAM-CURR.MAX-SIZE	S	*UNDEF <integer 12..193536>	2
Current minimum size of SYSEAM	var(*LIST).EAM-CURR.MIN-SIZE	S	*UNDEF <integer 12..193536>	2
Current secondary allocation for SYSEAM	var(*LIST).EAM-CURR.SECONDARY-ALLOC	S	*UNDEF <integer 1..193536>	2
Current memory size for SYSEAM	var(*LIST).EAM-CURR.VIRT-MEM	S	*UNDEF <integer 0..8192>	2

No meaning (displayed only for reasons of compatibility)	var(*LIST).EAM-DEFI.MAX-SIZE	S	*SYS-STD <integer 12..193536>	2
Defined minimum size of SYSEAM	var(*LIST).EAM-DEFI.MIN-SIZE	S	*SYS-STD <integer 12..193536>	2
Defined secondary allocation for SYSEAM	var(*LIST).EAM-DEFI. SECONDARY-ALLOC	S	*SYS-STD <integer 1..193536>	2
Defined memory size for SYSEAM	var(*LIST).EAM-DEFI.VIRT-MEM	S	*SYS-STD <integer 0..8192>	2
HSMS support for the pubset *NO=pubset is not supported *STD=for single-feature pubsets *YES=pubset is supported	var(*LIST).HSMS-SUP	S	*NO *STD *YES	
Number of occupying tasks	var(*LIST).OCCUP.NUM-OF-TASK	I	<integer>	4
Host name (only if OCCUP.NUM-OF-TASK > 0)	var(*LIST).OCCUP.HOST (*LIST).NAME	S	*LOC *UNKNOWN <alphan.-name 1..8>	4
TSN of an occupying task (only if OCCUP.NUM-OF-TASK > 0)	var(*LIST).OCCUP.HOST (*LIST).TASK(*LIST).TSN	S	<tsn>	4
User ID of an occupying task (only if OCCUP.NUM-OF-TASK > 0)	var(*LIST).OCCUP.HOST (*LIST).TASK(*LIST).USER-ID	S	*NONE <user-id>	4
Pubset ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Availability of the pubset *ACCESSIBLE=locally accessible *INACCESSIBLE=not locally accessible	var(*LIST).STA	S	*ACCESSIBLE *INACCESSIBLE	
Current FORCE-OUT value *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *NO=no forced removal *UNDEFINED=not defined	var(*LIST).VOLSET(*LIST). CACHE-CURR.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO *UNDEF	7
No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST). CACHE-CURR.GS-UNIT	S	*DUAL *MONO *UNDEF	7

No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST).CACHE-CURR.GS-UNIT-NUM	I	0 <integer 1..2>	7
Current cache medium *MAIN-MEM=main memory *NONE=no cache defined	var(*LIST).VOLSET(*LIST).CACHE-CURR.MED	S	*MAIN-MEM *NONE	7
Current status of the cache medium *ACTIVE=cache active *IN-HOLD=cache temporarily deactivated *NOT-ACTIVE=cache not active	var(*LIST).VOLSET(*LIST).CACHE-CURR.MED-STAT	S	*ACTIVE *IN-HOLD *NOT-ACTIVE	7
Current prefetching value *HIGH=prefetching for a maximum number of blocks *LOW=prefetching for a minimum number of blocks *NO=no prefetching *UNDEFINED=not defined	var(*LIST).VOLSET(*LIST).CACHE-CURR.PREFETCH	S	*HIGH *LOW *NO *UNDEF	7
Current segment size of the cache medium	var(*LIST).VOLSET(*LIST).CACHE-CURR.SEG-SIZE	I	0 4 8 16 32	7
Current cache size	var(*LIST).VOLSET(*LIST).CACHE-CURR.SIZE	I	0 <integer 1..32767>	7
Current unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes *UNDEFINED=not defined	var(*LIST).VOLSET(*LIST).CACHE-CURR.SIZE-DIM	S	*KB *MB *UNDEFINED	7
Current value for data consistency *NO=full data consistency after crash *YES=no data consistency after crash *UNDEF=not defined	var(*LIST).VOLSET(*LIST).CACHE-CURR.VOLATILITY	S	*NO *YES *UNDEF	7
Defined cache value *ALL=caching for all files *BY-USER=activation by the user	var(*LIST).VOLSET(*LIST).CACHE-DEFI.CACH-FILE	S	*ALL *BY-USER	7

Output information	Name of the S variable	T	Contents	Condition
Defined FORCE-OUT value *AT-HIGH-FILL=removal with high filling level *AT-LOW-FILL=removal with low filling level *NO=no forced removal	var(*LIST).VOLSET(*LIST). CACHE-DEFI.FORCE-OUT	S	*AT-HIGH-FILL *AT-LOW-FILL *NO	7
No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST). CACHE-DEFI.GS-UNIT	S	*BY-DEFAULT *DUAL *MONO	7
No meaning (displayed only for reasons of compatibility)	var(*LIST).VOLSET(*LIST). CACHE-DEFI.GS-UNIT-NUM	I	0 <integer 1..2>	7
Defined cache medium *MAIN-MEM=main memory *NONE=no cache defined	var(*LIST).VOLSET(*LIST). CACHE-DEFI.MED	S	*MAIN-MEM *NONE	7
Defined prefetching value *HIGH=prefetching for a maximum number of blocks *LOW=prefetching for a minimum number of blocks *NO=no prefetching	var(*LIST).VOLSET(*LIST). CACHE-DEFI.PREFETCH	S	*HIGH *LOW *NO	7
Defined segment size of the cache medium	var(*LIST).VOLSET(*LIST). CACHE-DEFI.SEG-SIZE	I	0 4 8 16 32	7
Defined cache size	var(*LIST).VOLSET(*LIST). CACHE-DEFI.SIZE	I	<integer 1..32767>	7
Defined unit of measurement for the cache size *KB=size in kilobytes *MB=size in megabytes	var(*LIST).VOLSET(*LIST). CACHE-DEFI.SIZE-DIM	S	*KB *MB	7
Defined guarantee of data consistency *NO=full data consistency after crash *YES=no data consistency after crash	var(*LIST).VOLSET(*LIST). CACHE-DEFI.VOLATILITY	S	*NO *YES	7
Device type of the system disk of the volume set	var(*LIST).VOLSET(*LIST). DEV-TYPE	S	*UNKNOWN <device>	7,8,9,10
Number of occupying tasks		I	<integer>	10

	var(*LIST).VOLSET(*LIST). OCCUP.NUM-OF-TASK			
Host name (only if OCCUP. NUM-OF-TASK > 0)	var(*LIST).VOLSET(*LIST). OCCUP.HOST(*LIST).NAME	S	*LOC *UNKNOWN <alphan.-name 1..8>	10
TSN of an occupying task (only if OCCUP.NUM-OF- TASK > 0)	var(*LIST).VOLSET(*LIST). OCCUP.HOST(*LIST).TASK (*LIST).TSN	S	<tsn>	10
User ID of an occupying task (only if OCCUP.NUM-OF- TASK > 0)	var(*LIST).VOLSET(*LIST). OCCUP.HOST(*LIST).TASK (*LIST).USER-ID	S	*NONE <user-id>	10
Current value of saturation level 1	var(*LIST).VOLSET(*LIST). SAT-CURR.SAT-LEVEL1	S	*UNDEF <integer 1..2147483647>	8
Current value of saturation level 2	var(*LIST).VOLSET(*LIST). SAT-CURR.SAT-LEVEL2	S	*UNDEF <integer 1..2147483647>	8
Current value of saturation level 3	var(*LIST).VOLSET(*LIST). SAT-CURR.SAT-LEVEL3	S	*UNDEF <integer 1..2147483647>	8
Current value of saturation level 4	var(*LIST).VOLSET(*LIST). SAT-CURR.SAT-LEVEL4	S	*UNDEF <integer 1..2147483647>	8
Current value of saturation level 5	var(*LIST).VOLSET(*LIST). SAT-CURR.SAT-LEVEL5	S	*UNDEF <integer 1..2147483647>	8
Current ZIP level	var(*LIST).VOLSET(*LIST). SAT-CURR.ZIP-LEVEL	S	*UNDEF <integer 0..2147483647>	8
Defined saturation level 1	var(*LIST).VOLSET(*LIST). SAT-DEFI.SAT-LEVEL1	S	*BY-SYS <integer 1..2147483647>	8
Defined saturation level 2	var(*LIST).VOLSET(*LIST). SAT-DEFI.SAT-LEVEL2	S	*BY-SYS <integer 1..2147483647>	8
Defined saturation level 3	var(*LIST).VOLSET(*LIST). SAT-DEFI.SAT-LEVEL3	S	*BY-SYS <integer 1..2147483647>	8
Defined saturation level 4	var(*LIST).VOLSET(*LIST). SAT-DEFI.SAT-LEVEL4	S	*BY-SYS <integer 1..2147483647>	8
Defined saturation level 5	var(*LIST).VOLSET(*LIST). SAT-DEFI.SAT-LEVEL5	S	*BY-SYS <integer 1..2147483647>	8
Defined ZIP level	var(*LIST).VOLSET(*LIST). SAT-DEFI.ZIP-LEVEL	S	*BY-SYS <integer 0..2147483647>	8
Status of the volume set *DEFECT=permanently inaccessible (defective)	var(*LIST).VOLSET(*LIST).STA	S		7,8,9,10

*DEFINED=not available, all that exists is an entry in the configuration file *IN-HOLD=temporarily not accessible (frozen) *NORMAL=available			*DEFECT *DEFINED *IN-HOLD *NORMAL	
Volume set ID	var(*LIST).VOLSET(*LIST).VOLSET	S	<vsid>	7,8,9,10

6.66 SHOW-PUBSET-PROCESSING

Display pubset composition

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING STD-PROCESSING
Routing code:	@

Function

The SHOW-PUBSET-PROCESSING command provides information on the physical configuration of pubsets. The name, device type and allocation capabilities of the volumes (in SF pubsets) or of the volume sets and their volumes (in SM pubsets) are displayed. Information is supplied only for locally available (imported) pubsets.

The pubset configuration can be modified with the MODIFY-PUBSET-PROCESSING command.

The command supports structured output in S variables (see "Output in S variables").

> This command corresponds to the SHOW-PUBSET-RESTRICTION command. The information on the physical configuration of the pubset is also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Format

SHOW-PUBSET**-PROC**ESSING
PUBSET = ***ALL** / <cat-id 1..4> ,**SEL**ECT**-PUB**SET = ***ALL** / ***EXCL**USIVE / ***SHARE**D / ***HSMS-SUPPORTED**

Operands

PUBSET = *ALL / <cat-id 1..4>
Identifies the locally available pubsets for which the configuration parameters are to be displayed.

PUBSET = *ALL
The configuration parameters of all locally available pubsets are to be displayed. The SELECT-PUBSET operand can be used to restrict the selection to specific pubsets.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the configuration parameters are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *HSMS-SUPPORTED
Defines criteria for selecting specific pubsets from the set of all locally available pubsets (see PUBSET=*ALL). The default is *ALL, i.e. the configuration parameters of all pubsets are displayed.

SELECT-PUBSET = *EXCLUSIVE
The configuration parameters of all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The configuration parameters of all pubsets imported as shared are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The configuration parameters of all SM pubsets which are supported by the HSMS subsystem are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	32	DMS138A	Internal parameter error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138C	Pubset not accessible
	64	DMS138E	Volume set does not exist
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. This is then followed for each pubset by:

1. the output block with cross-pubset summary information
2. the output block with information on the physical pubset configuration

Pubset-global summary information

The output block comprises one line showing the catalog ID, the pubset type (SF or SM) and the number of volumes or volume sets which belong to the pubset. With SM pubsets the default file format is shown as well.

Output for an SF pubset:

```
PUBSET <catid>: TYPE = SINGLE-FEATURE, VOLUMES = <n>
```

Output for an SM pubset:

```
PUBSET <catid>: TYPE = SYSTEM-MANAGED, VOLUMESETS = <m>,
                DEFAULT-FILE-FORMAT = <f>
```

Information on the physical pubset configuration

The output block is introduced by the following header line:

```
--- PHYSICAL CONFIGURATION --------------------------------------
```

For an SF pubset, the information about the volumes is displayed on one or more lines of values beneath the following header:

```
VOLUME-CONFIGURATION:
VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
<vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

For each volume set of an SM pubset, the volume set ID and the number of volumes in the set are displayed. This is followed by information about the volumes one or more lines of values beneath the following header:

```
--- VOLUME SET INFORMATION ---------------------------------------
 VOLUME-SET <catid>: VOLUMES = <n>
 VOLUME CONFIGURATION:
 VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
 <vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

Key to the output values

<catid>	pubset or volume set ID
<n>	number of volumes in the pubset/volume set
<vsn>	volume serial number of the volume
<type>	device type assigned to the volume
<alloc>	allocation capability of the volume • NOT RESTR: allocation possible • NOT ALLOWED: allocation not possible • PHYSICAL: volume can only be physically located

Output in S variables

Some S variables are generated in accordance with the pubset type. These are shown in the Condition column of the table below, with "1" meaning SF pubset and "2" meaning SM pubset.

Output information	Name of the S variable	T	Contents	Condition
Number of volumes for SF pubset Number of volume sets for SM pubset	var(*LIST).COUNT	I	<integer 1..255>	
Maximum I/O transfer length (HP) of the SM pubset	var(*LIST).MAX-IO-LEN	I	<integer>	2
Pubset catalog ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Allocation lock for the SF pubset *ALLOW=no lock *NOT-ALLOW=locked against allocation *PHYS-ONLY=can only be allocated physically	var(*LIST).VOL(*LIST).ALLOC	S	*ALLOW *NOT-ALLOW *PHYS-ONLY	1
Device types of the SF pubset	var(*LIST).VOL(*LIST).DEV	S	<device>	1
VSNs of the SF pubset volumes	var(*LIST).VOL(*LIST).VOL	S	<vsn>	1
Volume set ID	var(*LIST).VOLSET(*LIST). VOLSET	S	<vsid>	2
Number of volumes per volume set	var(*LIST).VOLSET(*LIST).VOL- COUNT	I	<integer 1..255>	2
Allocation lock for the volume set *ALLOW=no lock *NOT-ALLOW=locked against allocation *PHYS-ONLY=can only be allocated physically	var(*LIST).VOLSET(*LIST).VOL (*LIST).ALLOC	S	*ALLOC *NOT-ALLOW *PHYS-ONLY	2
Device types of the volumes per volume set	var(*LIST).VOLSET(*LIST).VOL (*LIST).DEV	S	<device>	2
VSNs of the volumes per volume set	var(*LIST).VOLSET(*LIST).VOL (*LIST).VOL		<vsn>	2

Example

/show-pubset-processing pubset=2os6

```
%-------------------------------------------------------------------------
%COMMAND: SHOW-PUBSET-PROCESSING
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
%PUBSET 2OS6: TYPE = SYSTEM-MANAGED, VOLUMESETS = 6, DEFAULT FILE FORMAT = K
%---- PHYSICAL CONFIGURATION --------- + ----------------------------------
%---- VOLUME-SET INFORMATION --------- + ----------------------------------
%VOLUME-SET 6CV1: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6CV1.0    D3435      NOT RESTR        6CV1.1    D3435      NOT RESTR
%VOLUME-SET 6VS1: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS1.0    D3435      NOT RESTR        6VS1.1    D3435      NOT RESTR
%VOLUME-SET 6VS2: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS2.0    D3435      NOT RESTR        6VS2.1    D3435      NOT RESTR
%VOLUME-SET 6VS3: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS3.0    D3435      NOT RESTR        6VS3.1    D3435      NOT RESTR
%VOLUME-SET 6VS4: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS4.0    D3435      NOT RESTR        6VS4.1    D3435      NOT RESTR
%VOLUME-SET 6VS5: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS5.0    D3435      NOT RESTR        6VS5.1    D3435      NOT RESTR
%-------------------------------------------------------------------------
```

6.67 SHOW-PUBSET-RESTRICTION

Display usage restrictions of a pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING STD-PROCESSING
Routing code:	@

Function

The SHOW-PUBSET-RESTRICTION command provides information on the physical pubset configuration and the usage restrictions defined in it. The name, device type and allocation capabilities of the volumes (in SF pubsets) or of the volume sets and their volumes (in SM pubsets) are displayed. Information is supplied only for locally available (imported) pubsets.

Usage restrictions are set or canceled using the MODIFY-PUBSET-RESTRICTION command.

The command supports structured output in S variables (see "Output in S variables").

> This command corresponds to the SHOW-PUBSET-PROCESSING command. The information on the physical configuration of the pubset is also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Format

SHOW-PUBSET**-RESTRICT**ION
PUBSET = ***ALL** / <cat-id 1..4> ,**SEL**ECT**-PUB**SET = ***ALL** / ***EXCL**USIVE / ***SHARE**D / ***HSMS-SUPPORTED**

Operands

PUBSET = *ALL / <cat-id 1..4>
Identifies the locally available pubsets for which the configuration parameters are to be displayed.

PUBSET = *ALL
The configuration parameters of all locally available pubsets are to be displayed. The SELECT-PUBSET operand can be used to restrict the selection to specific pubsets.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for which the configuration parameters are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *HSMS-SUPPORTED
Defines criteria for selecting specific pubsets from the set of all locally available pubsets (see PUBSET=*ALL). The default is *ALL, i.e. the configuration parameters of all pubsets are displayed.

SELECT-PUBSET = *EXCLUSIVE
The configuration parameters of all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The configuration parameters of all pubsets imported as shared are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The configuration parameters of all SM pubsets which are supported by the HSMS subsystem are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	32	DMS138A	Internal parameter error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138C	Pubset not accessible
	64	DMS138E	Volume set does not exist
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. This is then followed for each pubset by:

1. the output block with cross-pubset summary information
2. the output block with information on the physical pubset configuration and the usage restrictions

Pubset-global summary information

The output block comprises one line showing the catalog ID, the pubset type (SF or SM) and the number of volumes or volume sets which belong to the pubset. With SM pubsets the default file format is shown as well.

Output for an SF pubset:

```
PUBSET <catid>: TYPE = SINGLE-FEATURE, VOLUMES = <n>
```

Output for an SM pubset:

```
PUBSET <catid>: TYPE = SYSTEM-MANAGED, VOLUMESETS = <m>,
                DEFAULT-FILE-FORMAT = <f>
```

Information on the physical pubset configuration

The output block is introduced by the following header line:

```
--- PHYSICAL CONFIGURATION ---------------------------------------
```

For an SF pubset, the information about the volumes is displayed on one or more lines of values beneath the following header:

```
VOLUME-CONFIGURATION:
VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
<vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

For each volume set of an SM pubset, the volume set ID and the number of volumes in the set are displayed. This is followed by information about the volumes one or more lines of values beneath the following header:

```
--- VOLUME SET INFORMATION  ---------------------------------------
 VOLUME-SET <catid>: VOLUMES = <n>
 VOLUME CONFIGURATION:
 VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
 <vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

Key to the output values

<catid>	pubset or volume set ID
<n>	number of volumes in the pubset/volume set
<vsn>	volume serial number of the volume
<type>	device type assigned to the volume
<alloc>	allocation capability of the volume • NOT RESTR: allocation possible • NOT ALLOWED: allocation not possible • PHYSICAL: volume can only be physically allocated

Output in S variables

Some S variables are generated in accordance with the pubset type. These are shown in the Condition column of the table below, with "1" meaning SF pubset and "2" meaning SM pubset.

Output information	Name of the S variable	T	Contents	Condition
Number of volume sets for single-feature pubsets Number of volume sets for SM pubset	var(*LIST).COUNT	I	<integer 1..255>	
Maximum I/O transfer length (HP) of the SM pubset	var(*LIST).MAX-IO-LEN	I	<integer>	2
Pubset catalog ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Allocation lock for the single-feature pubset *ALLOW=no lock *NOT-ALLOW=locked against allocation *PHYS-ONLY=can only be allocated physically	var(*LIST).VOL(*LIST).ALLOC	S	*ALLOW *NOT-ALLOW *PHYS-ONLY	1
Device types of the SF pubset	var(*LIST).VOL(*LIST).DEV	S	<device>	1
VSNs of the SF pubset volumes	var(*LIST).VOL(*LIST).VOL	S	<vsn>	1
Volume set ID	var(*LIST).VOLSET(*LIST). VOLSET	S	<vsid>	2
Number of volumes per volume set	var(*LIST).VOLSET(*LIST).VOL- COUNT	I	<integer 1..255>	2
Allocation lock for the volume set *ALLOW=no lock *NOT-ALLOW=locked against allocation *PHYS-ONLY=can only be allocated physically	var(*LIST).VOLSET(*LIST).VOL (*LIST). ALLOC	S	*ALLOC *NOT-ALLOW *PHYS-ONLY	2
Device types of the volumes per volume set	var(*LIST).VOLSET(*LIST).VOL (*LIST).DEV	S	<device>	2
VSNs of the volumes per volume set	var(*LIST).VOLSET(*LIST).VOL (*LIST).VOL		<vsn>	2

Example

/show-pubset-restriction pubset=2os6

```
%--------------------------------------------------------------------------
%COMMAND: SHOW-PUBSET-RESTRICTION
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
%PUBSET 2OS6: TYPE = SYSTEM-MANAGED, VOLUMESETS = 6, DEFAULT FILE FORMAT = K
%---- PHYSICAL CONFIGURATION --------- + ----------------------------------
%---- VOLUME-SET INFORMATION --------- + ----------------------------------
%VOLUME-SET 6CV1: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6CV1.0    D3435      NOT RESTR        6CV1.1    D3435      NOT RESTR
%VOLUME-SET 6VS1: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS1.0    D3435      NOT RESTR        6VS1.1    D3435      NOT RESTR
%VOLUME-SET 6VS2: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS2.0    D3435      NOT RESTR        6VS2.1    D3435      NOT RESTR
%VOLUME-SET 6VS3: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS3.0    D3435      NOT RESTR        6VS3.1    D3435      NOT RESTR
%VOLUME-SET 6VS4: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS4.0    D3435      NOT RESTR        6VS4.1    D3435      NOT RESTR
%VOLUME-SET 6VS5: VOLUMES = 2
% VOLUME CONFIGURATION:
%  VOLUME    DEVICE     ALLOCATION       VOLUME    DEVICE     ALLOCATION
%  6VS5.0    D3435      NOT RESTR        6VS5.1    D3435      NOT RESTR
%--------------------------------------------------------------------------
```

6.68 SHOW-PUBSET-SPACE-ALLOCATION

Show space allocation on pubset

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING
Routing code:	@

Function

The SHOW-PUBSET-SPACE-ALLOCATION command provides systems support with information on space allocation on a pubset which is currently in service. Information can be requested globally for the pubset or in detail for all the volumes within the pubset. In the case of an SM pubset the information is output for each volume set, and the output can be restricted to specific volume sets.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-PUBSET**-SPACE-ALLOC**ATION
PUBSET = <cat-id 1..4> ,**INF**ORMATION = ***SUMM**ARY / ***ALL** ,**SEL**ECT**-VOL**UME**-SET** = ***ALL** / ***STD** / ***WORK** / ***HSMS-CONTR**OLLED / list-poss(255): <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
Identifies the pubset for which the space allocation is to be displayed.

INFORMATION = *SUMMARY / *ALL
Specifies how much information to display.

INFORMATION = *SUMMARY
Displays global information about space allocation on the entire pubset. With an SM pubset, the information is shown for each volume set selected in the SELECT-VOLUME-SET operand.

INFORMATION = *ALL
Displays global information about space allocation on the entire pubset (see INFORMATION=*SUMMARY).
Also, displays space allocation on all the volumes in an SF pubset or on the selected volume set of an SM pubset.

SELECT-VOLUME-SET = *ALL / *STD / *WORK / *HSMS-CONTROLLED / list-poss(255): <cat-id 1..4>
This operand value is evaluated for SM pubsets only.
Identifies those volume sets in the SM pubset for which the space allocation is to be displayed. Volume sets can be selected by usage mode (see the USAGE operand of the MODIFY-PUBSET-DEFINITION-FILE command) or explicitly by catalog ID.

SELECT-VOLUME-SET = *ALL
Space allocation is shown for all volume sets.

SELECT-VOLUME-SET = *STD
Space allocation is shown only for volume sets which can be used as the storage location for ordinary files.

SELECT-VOLUME-SET = *WORK
Space allocation is shown only for volume sets which can be used as the storage location for work files.

SELECT-VOLUME-SET = *HSMS-CONTROLLED
Space allocation is shown only for volume sets which are used exclusively by the HSMS subsystem.

SELECT-VOLUME-SET = list-poss(255): <cat-id 1..4>
Catalog ID of the volume set for which the space allocation is to be displayed. Up to 255 volume sets can be listed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	64	CMD0216	User does not have necessary authorization
	64	DMS140B	Pubset not available
	130	DMS140F	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. This is then followed for each pubset by:

1. the output block with cross-pubset summary information
2. the output block with information on the physical pubset configuration and the usage restrictions

Pubset-global summary information

The output block comprises one line showing the catalog ID, the pubset type (SF or SM) and the number of volumes or volume sets which belong to the pubset. With SM pubsets the default file format is shown as well.

Output for an SF pubset:

```
PUBSET <catid>: TYPE = SINGLE-FEATURE, VOLUMES = <n>
```

Output for an SM pubset:

```
PUBSET <catid>: TYPE = SYSTEM-MANAGED, VOLUMESETS = <m>,
               DEFAULT-FILE-FORMAT = <f>
```

Information on the physical pubset configuration

The output block is introduced by the following header line:

```
--- PHYSICAL CONFIGURATION ---------------------------------------
```

For an SF pubset, the information about the volumes is displayed on one or more lines of values beneath the following header:

```
VOLUME-CONFIGURATION:
VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
<vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

For each volume set of an SM pubset, the volume set ID and the number of volumes in the set are displayed. This is followed by information about the volumes one or more lines of values beneath the following header:

```
--- VOLUME SET INFORMATION  ---------------------------------------
 VOLUME-SET <catid>: VOLUMES = <n>
 VOLUME CONFIGURATION:
 VOLUME   DEVICE    ALLOCATION    VOLUME   DEVICE    ALLOCATION
 <vsn>    <type>    <alloc>       <vsn>    <type>    <alloc>
```

Key to the output values

<catid>	pubset or volume set ID
<n>	number of volumes in the pubset/volume set
<vsn>	volume serial number of the volume
<type>	device type assigned to the volume
<alloc>	allocation capability of the volume • NOT RESTR: allocation possible • NOT ALLOWED: allocation not possible • PHYSICAL: volume can only be physically allocated

Output in S variables

The scope of the output varies depending on the type of pubset (SF or SM) and on the value of the INFORMATION operand. The following combinations are of importance:

Notation used in command	Abbreviated form used in table
Any pubset type, INFORMATION = any value	1
SF pubset, INFORMATION = any value	2
SF pubset, INFORMATION = *ALL	3
SM pubset, INFORMATION = any value	4
SM pubset, INFORMATION = *ALL	5

Output information	Name of the S variable	T	Contents	Condition
Actual saturation level of the pubset; 6 stands for the ZIP level	var(*LIST).ACTUAL-SATUR-LEV	I	<integer 0..6>	2
Number of PAM pages available for occupation on the pubset	var(*LIST).AVAIL-SPACE	I	<integer 0..2147483647>	2
Number of disks on the pubset not affected by allocation restrictions	var(*LIST).NOT-RESTRICT-VOL	I	<integer 0..255>	2
Pubset ID	var(*LIST).PUBSET	S	<cat-id>	1
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	1
Number of disks on the pubset affected by allocation restrictions	var(*LIST).RESTRICT-VOL	I	<integer 0..255>	2
Total amount of free and occupied space on the pubset disks not affected by allocation restrictions (number of PAM pages)	var(*LIST).TOTAL-SPACE	I	<integer 0..2147483647>	2
Restrictions when occupying space on the disk *NOT-RESTRICT=no restrictions *PHYS-ONLY=can only be	var(*LIST).VOL(*LIST). ALLOC-MODE	S	*NOT-RESTRICT *PHYS-ONLY *NOT-ALLOW	3

physically allocated *NOT-ALLOW=no space can be occupied on the specified disk				
Available space on a disk belonging to the pubset	var(*LIST).VOL(*LIST). AVAIL-SPACE	I	<integer 0..2147483647>	3
Occupied space on a disk belonging to a pubset	var(*LIST).VOL(*LIST). USED-SPACE	I	<integer 0..2147483647>	3
VSN of the disk	var(*LIST).VOL(*LIST).VOL	S	<vsn>	3
Actual saturation level of the volume set; 6 stands for the ZIP level	var(*LIST).VOL-SET(*LIST). ACTUAL-SATUR-LEV	I	<integer 0..6>	4
Number of PAM pages available for allocation on the volume set	var(*LIST).VOL-SET(*LIST). AVAIL-SPACE	I	<integer 0..2147483647>	4
Restrictions concerning the creation of new files on the volume set *NOT-RESTRICT=no restrictions *PHYS-ONLY=can only be physically allocated *NOT-ALLOW=no new files may be created on the volume set	var(*LIST).VOL-SET(*LIST). NEW-FILE-ALLOC		*NOT-RESTRICT *PHYS-ONLY *NOT-ALLOW	4
Number of disks belonging to the volume set that are not affected by allocation restrictions	var(*LIST).VOL-SET(*LIST). NOT-RESTRICT- VOL	I	<integer 0..255>	4
Number of disks belonging to the volume set that are affected by allocation restrictions	var(*LIST).VOL-SET(*LIST). RESTRICT-VOL	I	<integer 0..255>	4
Total amount of free and occupied space on the volume set disks not affected by allocation restrictions (number of PAM pages)	var(*LIST).VOL-SET(*LIST). TOTAL-SPACE	I	<integer 0..2147483647>	4
Way in which the volume set is used	var(*LIST).VOL-SET(*LIST). USAGE	S	*STD *WORK *HSMS-CONTR	4
ID of the volume set	var(*LIST).VOL-SET(*LIST). VOL-SET	S	<cat-id>	4

Restrictions when occupying space on the individual disks of the volume set *NOT-RESTRICT=no restrictions *PHYS-ONLY=can only be physically allocated *NOT-ALLOW=no space may be occupied on the specified disk	var(*LIST).VOL-SET(*LIST).VOL(*LIST).ALLOC-MODE	S	*NOT-RESTRICT *PHYS-ONLY *NOT-ALLOW	5
Available space on a disk of a volume set	var(*LIST).VOL-SET(*LIST).VOL(*LIST).AVAIL-SPACE	I	<integer 0..2147483647>	5
Occupied space on a disk of a volume set	var(*LIST).VOL-SET(*LIST).VOL(*LIST).USED-SPACE	I	<integer 0..2147483647>	5
VSN of the disk of a volume set	var(*LIST).VOL-SET(*LIST).VOL(*LIST).VOLUME	S	<vsn>	5

6.69 SHOW-PUBSET-SPACE-DEFAULTS

Display disk space management defaults

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	@

Function

The SHOW-PUBSET-SPACE-DEFAULTS command provides system support with information on the pubset-specific default values of the disk space management. The command supplies information both for single-feature (SF) pubsets and for system-managed (SM) pubsets.

The pubset-specific disk space management defaults are modified using the MODIFY-PUBSET-SPACE-DEFAULTS command.

The command supports structured output in S variables (see "Output in S variables").

> The pubset-specific disk space management defaults are also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Restrictions

In the case of SF pubsets in a shared pubset network, a pubset slave shows the locally set values in the output column DEFINED. This only change when the local system becomes the pubset master.

The currently valid values set on the pubset master are contained in the output column CURRENT.

I

Format

SHOW-PUBSET**-SPACE-DEF**AULTS

PUBSET = ***ALL** / <cat-id 1..4>

,**SEL**ECT**-PUB**SET = ***ALL** / ***EXCL**USIVE / ***SHARE**D / ***LOCAL** / ***REM**OTE / ***ACCESS**IBLE /
***LOCAL-ACCESS**IBLE / ***REMOTE-ACCESS**IBLE / ***HSMS-SUP**PORTED /
***SPEEDCAT** / ***PAGING** / ***SINGLE-FEATURE** / ***SYS**TEM-**MANAG**ED /
***INACCESS**IBLE / ***QUIET** / ***DEFINED-XCS-CONF**IGURATED /
***XCS-CONF**IGURATED

Operands

PUBSET = *ALL / <cat-id 1..4>
Specifies the pubsets for which the defaults are to be displayed.

PUBSET = *ALL
The defaults of all volume sets are to be displayed. The SELECT-PUBSET operand can be used to restrict the selection to pubsets with specific attributes.

PUBSET = <cat-id 1..4>
ID of the pubset whose defaults are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *LOCAL / *REMOTE / *ACCESSIBLE / *LOCAL-ACCESSIBLE / *REMOTE-ACCESSIBLE / *HSMS-SUPPORTED / *SPEEDCAT / *PAGING / *SINGLE-FEATURE / *SYSTEM-MANAGED / *INACCESSIBLE / *QUIET / *DEFINED-XCS-CONFIGURATED / *XCS-CONFIGURATED
Specifies whether information is required only for specific pubsets. This restriction is useful if *ALL is used in the PUBSET operand to select all pubsets.

SELECT-PUBSET = *ALL
The defaults of all the pubsets specified in the PUBSET operand are displayed.

SELECT-PUBSET = *EXCLUSIVE
The defaults of all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The defaults of all pubsets imported as shared are displayed.

SELECT-PUBSET = *LOCAL
The defaults of all locally imported pubsets are displayed. The defaults of the pubsets which cannot be accessed are also displayed.

SELECT-PUBSET = *REMOTE
The defaults of all pubsets for which the *LOCAL attribute does not apply are displayed.

SELECT-PUBSET = *ACCESSIBLE
The defaults of all pubsets which can be accessed are displayed.

SELECT-PUBSET = *LOCAL-ACCESSIBLE
The defaults of all locally accessible, i.e. imported, pubsets are displayed.

SELECT-PUBSET = *REMOTE-ACCESSIBLE
The defaults of all pubsets which have not been imported locally but whose file catalog can be accessed over an MSCF connection are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The defaults of all pubsets which are supported by the HSMS subsystem are displayed.

SELECT-PUBSET = *SPEEDCAT
The defaults of all SF pubsets whose file catalog can be accessed in the local system via SPEEDCAT are displayed.

SELECT-PUBSET = *PAGING
The defaults of all pubsets with paging areas which are used locally are displayed.

SELECT-PUBSET = *SINGLE-FEATURE
The defaults of all SF pubsets are displayed.

SELECT-PUBSET = *SYSTEM-MANAGED
The defaults of all SM pubsets are displayed.

SELECT-PUBSET = *INACCESSIBLE
The defaults of all pubsets which are not available are displayed.

SELECT-PUBSET = *QUIET
The defaults of all pubsets whose file catalog can be accessed over an MSCF connection are displayed.

SELECT-PUBSET = *DEFINED-XCS-CONFIGURATED
The defaults of all pubsets which are defined as XCS pubsets in the MRS catalog are displayed.

SELECT-PUBSET = *XCS-CONFIGURATED
The defaults of all XCS pubsets are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	64	CMD0216	Privilege error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138E	Volume set does not exist
	64	DMS1396	Invalid host name
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. The output information per pubset breaks down into two groups of output blocks:

1. output block for pubset-global summary information
2. output blocks for pubset-global detailed information

Pubset-global summary information

The output block for pubset-global summary information consists of a row of values which at the same time acts as a header line introducing the information output for a pubset. The summary information has the following layout:

```
PUBSET <catid>: <type>, CTL-SET = (<ctlid>, <type>), <status>, <hsms>
```

Key to the output values

<catid>	Pubset ID
<type>	Pubset type; possible values: SINGLE-FEATURE or SYSTEM-MANAGED
<ctlid>	Control volume set ID (for SM pubsets)
<type>	Device type of control volume set's system disk (for SM pubsets)
<status>	Pubset accessibility; possible values: • ACC: Pubset is locally accessible. • INACC: Pubset is not locally accessible.
<hsms>	HSMS subsystem support (for SM pubsets); possible values: • HSMS-SUP: Pubset is supported by HSMS. • NO-HSMS-SUP: Pubset is not supported by HSMS.

Pubset-global detailed information

The defaults for storage space allocation are displayed for the pubsets.

The output block is introduced by the following header line:

```
--- SPACE ALLOCATION      ---- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

- Default values (in PAM pages) for space allocation for files. Values with invalid definitions (<= 0) are replaced by the system with suitable current values.

```
PRIMARY ALLOCATION            | <number> HP     | <number> HP
SECONDARY ALLOCATION          | <number> HP     | <number> HP
MAXIMAL ALLOCATION            | <number> HP     | <number> HP
```

- For SM pubsets the next section gives information on the default file format:

```
DEFAULT FILE FORMAT           | PAMKEY          | PAMKEY
                              | NK2             | NK2
                              | NK4             | NK4
                              | UNDEFINED       | NK4
```

- For SF pubsets the next section gives information on whether absolute (physical) space allocation is allowed for nonprivileged users or only for systems support:

```
PHYSICAL ALLOCATION           | BY ADMINISTRATOR| BY ADMINISTRATOR
                              | USER ALLOWED    | USER ALLOWED
```

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Current standard file format (*UNDEF for SF pubset)	var(*LIST).ALLOC-CURR.FILE-FORM	S	*K *NK2 *NK4 *UNDEF	
Current secondary allocation limit	var(*LIST).ALLOC-CURR.MAX-ALLOC	S	*UNDEF <integer 1..32767>	
Physical allocation possible (FALSE for SM pubset)	var(*LIST).ALLOC-CURR.PHYS-ALLOC	B	FALSE TRUE	
Current primary allocation standard	var(*LIST).ALLOC-CURR.PRIMARY-ALLOC	S	*UNDEF <integer 1..16777215>	
Current secondary allocation standard *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SECONDARY-ALLOC	S	*UNDEF <integer 1..32767>	
Defined standard file format (*UNDEF always this value for SF pubset)	var(*LIST).ALLOC-DEFI.FILE-FORM	S	*K *NK2 *NK4 *UNDEF	
Defined secondary allocation limit	var(*LIST).ALLOC-DEFI.MAX-ALLOC	S	<integer 1..32767>	
Defined possibility for physical allocation (FALSE for SM pubset)	var(*LIST).ALLOC-DEFI.PHYS-ALLOC	B	FALSE TRUE	
Defined primary allocation standard	var(*LIST).ALLOC-DEFI.PRIMARY-ALLOC	S	<integer 1..16777215>	
Defined secondary allocation standard	var(*LIST).ALLOC-DEFI.SECONDARY-ALLOC	S	<integer 1..32767>	
Device type of the system disk of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-DEV-TYPE	S	*NO <c-string 1..8>	

Output information	Name of the S variable	T	Contents	Condition
ID of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-VOLSET	S	*NO FALSE=none	
HSMS support for the pubset *NO=pubset is not supported *STD=for SF pubsets *YES=pubset is supported	var(*LIST).HSMS-SUP	S	*NO *STD *YES	
Pubset ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Availability of the pubset *ACCESSIBLE=locally accessible *INACCESSIBLE=not locally accessible	var(*LIST).STA	S	*ACCESSIBLE *INACCESSIBLE	

Example

`/show-pubset-space-defaults pubset=x`

```
%-------------------------------------------------------------------------
%COMMAND: SHOW-PUBSET-SPACE-DEFAULTS
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
%PUBSET DATA: SYSTEM-MANAGED, CTL-SET=(KEY, STDDISK), INACC, NO-HSMS-SUP
%---- SPACE ALLOCATION --------- + ---- DEFINED ---- + ---- CURRENT ---
% PRIMARY ALLOCATION             | 3              HP |
% SECONDARY ALLOCATION           | 3              HP |
% MAXIMAL ALLOCATION             | 24             HP |
% DEFAULT FILE FORMAT            | UNDEFINED         |
%-------------------------------------------------------------------------
```

7 SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

The manual "Commands" is divided into the following chapters:

- General Part
- ACTIVATE-SNAPSHOT - DECRYPT-FILE
- DELETE-ALTERNATE-INDEX - LOGOFF
- MAIL-FILE - MOVE-TASK-TO-CATEGORY
- OPEN-VARIABLE-CONTAINER - SHOW-DSSM-INFORMATION
- SHOW-FILE - SHOW-PUBSET-SPACE-DEFAULTS
- SHOW-RESOURCE-ALLOCATION - WRITE-TEXT

7.1 SHOW-RESOURCE-ALLOCATION

Display resource allocation for job

Component:	BS2000
Functional area:	Device management Job processing
Domain:	DEVICE JOB
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE OPERATING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT
Routing code:	E

Function

With the SHOW-RESOURCE-ALLOCATION command, users can display information on the resources tied up by the jobs running under their own user IDs. The information may be obtained for private volumes, devices for private volumes and files. The quantity of information to be output can be limited to those resources for which an operator action is still pending by means of the INFORMATION operand.

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Privileged users (OPERATING privilege) can request information for any job with SHOW-RESOURCE-ALLOCATION.

Format

SHOW-RESOURCE**-ALLOC**ATION

JOB-IDENTIFICATION = ***TSN** (...) / ***MONJV**(...) / <alphanum-name 1..4>

***TSN**(...)

| **TSN** = ***OWN-TSN** / <alphanum-name 1..4>

***MONJV**(...)

| **MONJV** = <filename 1..54 without-gen-vers>

,**OUT**PUT**-INF**ORMATION = ***JOB-NAME** / ***USER-ID**ENTIFICATION

,**INF**ORMATION = ***RESOURCES** / ***ACTIONS**

Operands

JOB-IDENTIFICATION =
Type of job identification. A job may be identified by its task sequence number or its monitoring job variable. Only privileged users (OPERATING privilege) are shown information for jobs running under other user IDs.

JOB-IDENTIFICATION = *TSN(...)
Identifies a job by its task sequence number (TSN).

TSN =
Specifies the TSN of the job.

TSN = *OWN-TSN
Provides information about the user's own job.

TSN = <alphanum-name 1..4>
Provides information about the job with the specified TSN.

JOB-IDENTIFICATION = *MONJV(...)
Identifies a job by its monitoring job variable.

MONJV = <filename 1..54 without-gen-vers>
Name of the JV monitoring the desired job.

JOB-IDENTIFICATION = <alphanum-name 1..4>
Identifies a job by its task sequence number (TSN).

OUTPUT-INFORMATION = *JOB-NAME / *USER-IDENTIFICATION
Specifies whether the job name or the user ID is to be entered into the NAME/ID output field.

INFORMATION =
Specifies whether information about all resources is to be output.

INFORMATION = *RESOURCES
A record is produced for each resource occupied up by the specified job.

INFORMATION = *ACTIONS
A record is produced for each operator action still pending for a volume involved in the specified job. Operator actions may include:
mounting, activating/deactivating write protection, recovering INOP, premounting, remounting, etc.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Incomplete information
2	0	NKD0011	The caller is not authorized to receive information about the specified TSN
2	0	NKD0018	MONJV was not found
2	0	NKD0019	The job variable found is not an active MONJV
	1	NKD0001	Syntax error in the input, correction of the command parameters recovers the error
	32	NKD0006	Software error in JINBAS parameter
	32	CMD2009	Error during S variable output (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Internal error during initialization of the command server
	64	NKD0014	No information available for the TSN
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
4	130	NKD0009	The disk monitor is temporarily not available; the information may be incomplete
8	130	NKD0009	The tape monitor is temporarily not available; the information may be incomplete
	130	NKD0026	JVS is not loaded
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Output format

A header line and a values line are displayed. Two display formats are possible, depending on the specification in the INFORMATION operand.

The meaning of the output columns and possible values are described in section "Information services of device management: Meanings of the output values of SHOW commands".

*Output for INFORMATION=*RESOURCES*

Header line:

```
MNEM     TYPE        VSN      VOL-A       TSN      NAME / ID       PHASE
```

Values:

```
mn       device      vsn      volume      tsn      see      volume
         allocation           allocation           IDENTIFICATION  phase
         type                 state                operand
```

In the case of type-related reservation, the storage location assigned to the device is displayed in a second values line.

`LOCATION: <location-name>`

*Output for INFORMATION=*ACTIONS*

The information is displayed in the same way as for INFORMATION=*RESOURCES except that values lines are output only for those resources for which an operator action is still pending.

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The possible values for INFORMATION are *RESOURCES (in the RES table) and *ACTIONS (ACT).

With regard to INFORMATION=*ACTIONS you should note that the S variables are given values only if there is an operator action outstanding.

No S variables are generated if the command is rejected with the following message:

```
NKD0014 NO ALLOCATION EXISTS FOR THE TASK WITH TSN (&00). COMMAND NOT PROCESSED
```

Output information	Name of the S variable	T	Contents	Condition
Mount operation being performed for the volume by the volume monitoring system	var(*LIST).ACTION	S	'' *CANCEL *DISMOUNT INOP *MOUNT NO-ACTION *NO-DEV *POS *PREMOUNT *RECOVER REMOUNT SNATCHED *SVL-UPDATE *UNLOCK WP-MISSING	INF=RES/ ACT
Location name	var(*LIST).LOCATION	S	'' <location>	INF=RES/ ACT
Job name	var(*LIST).NAME-ID	S	'' <name 1..8>	INF=RES/ ACT
Tape and disk monitoring mode	var(*LIST).PHASE	S	'' *IN-USE *MOUNT *ONLINE *PREMOUNT	INF=RES/ ACT
TSN of the job	var(*LIST).TSN	S	'' <tsn>	INF=RES/ ACT
Volume device type	var(*LIST).TYPE	S	'' <dev-type> <volume-type> EXPLICIT	INF=RES/ ACT
Device unit mnemonic	var(*LIST).UNIT	S	'' <mnemo-name>	INF=RES/ ACT
Volume serial number	var(*LIST).VOL	S	'' <vsn>	INF=RES/ ACT
Private volume attribute	var(*LIST).VOL-ALLOC	S	'' *CANCEL *EXCL *FREE *SHARE	INF=RES/ ACT

Example

Information for multiple reservation

/show-file-attr sup=(*priv,*tape),alloc=*yes ——————————————————— (1)

```
%         :2OSG:$USERXY01.TAPE.FILE.1
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT                                  BLK-COUNT =  5
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%              M5658K       TAPE-C4
%00000003*:2OSG:$USERXY01.TEST.X.1
%  ------------------------------ ALLOCATION   ------------------------------
%  SUPPORT    = PVT         S-ALLOC    = 9           HIGH-US-PA = 0
%  EXTENTS     VOLUME     DEVICE-TYPE      EXTENTS     VOLUME     DEVICE-TYPE
%      1       WORK01       D3435
%  NUM-OF-EXT = 1
%:2OSG: PRDISC:      1 FILE  RES=        3  FRE= 3  REL=        0 PAGES
%:2OSG: TAPE  :      1 FILE
```

/sec-res tape=((vol=m5658k,type=tape-c4),(vol=m5660k,type=tape-c4)),
file=((test.x.1),(tape.file.1)),wait=(300) ——————————————————(2)
/show-res-alloc ——(3)

```
%  MNEM  TYPE     VSN     VOL-A  TSN  NAME/ID    PHASE    ACTION
%  EK   TAPE-C4  M5658K    EXCL  19U2 ULF      PREMOUNT  NO ACTION
%       LOCATION : ROBOTER2
%  EL   TAPE-C4  M5660K    EXCL  15LZ ULF      PREMOUNT  NO ACTION
%       LOCATION : ROBOTER2
%  4342 D3435    WORK01   SHARE  19U2 ULF        IN-USE  NO ACTION
```

(1) Information about all files for the user ID on private disks and tapes (or magnetic tape cartridges).

(2) Reservation of resources: Two magnetic tape cartridges (volume serial numbers *M5658K* and *M5660K*, both volume type *TAPE-C4*) and the files *TAPE-FILE.1* and *TEST.X.1* are to be reserved.

(3) The SHOW-RESOURCE-ALLOCATION command gives information about the reservation made:

- The magnetic tape cartridge *M5658K* was reserved only once, although it was specified both explicitly (TAPE operand) and implicitly (FILE operand, file *TAPE-FILE.1* saved on *M5658K*, see also item 1). Tape files are always reserved exclusively (see *VOL-A* output field).
- The magnetic tape cartridge *M5660K* was reserved explicitly.
- The private disk *WORK01* was reserved for the file *TEST.X.1* (see also item 1).

7.2 SHOW-RESOURCE-REQUESTS

Request information on secure queue and collector task

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	TSOS OPERATING
Routing code:	E

Function

The SHOW-RESOURCE-REQUESTS command provides information about the secure queue (device queue) and the collector task.
The output either includes the attributes of all tasks currently waiting for a successive reservation of requested resources or is limited to information on the collector task. In addition, the parameters set by the system operator by means of the RESOURCE-COLLECTION command on the system's selection of the collector task can also be requested.
The various output fields and their functions are described in section "Information services of device management: Meanings of the output values of SHOW commands".

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-RESOURCE-**REQ**UESTS
OUTPUT-**INF**ORMATION = ***JOB-NAME** / ***USER-ID**ENTIFICATION ,**INF**ORMATION = ***ALL-TASKS** / ***COLL**ECTOR-**TASK** / ***COLL**ECT-**PAR**AMETER

Operands

OUTPUT-INFORMATION =
Controls the contents of the output field NAME/ID.

OUTPUT-INFORMATION = *JOB-NAME
The job name is entered in the NAME/ID field.

OUTPUT-INFORMATION = *USER-IDENTIFICATION
The user ID is entered in the NAME/ID field.

INFORMATION =
Specifies the type of information required.

A header line and a values line are output.

INFORMATION = *ALL-TASKS
Outputs information about all tasks in the secure queue.

Output format:

```
TSN      NAME/ID    TSK-TYPE    TSK-PRIO    ADMISSION-TIME  WAIT-TIME
RESOURCES REQUESTED
```

INFORMATION = *COLLECTOR-TASK
Outputs information about the collector task only.

Output format:

```
TSN      NAME/ID    TSK-TYPE    TSK-PRIO    ADMISSION-TIME  WAIT-TIME
RESOURCES REQUESTED                RESOURCES COLLECTED
```

INFORMATION = *COLLECT-PARAMETER
Outputs information about the collect parameters which were set with the RESOURCE-COLLECTION commands.

Output format:

```
RESOURCE-COLLECTION
TIME-WEIGHT
```

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
	1	NKD0001	Syntax error in input; correct the command parameters to eliminate the error
	32	CMD2009	Error during S variable output (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Internal error during initialization of the command server or: software error
	64	NKD0007	Caller not privileged
	64	NKD0040	Secure queue does not exist
	64	NKD0041	Collector task does not exist
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
	130	OPS0001	SDF-P reporting space problems (possible response: FREE-VARIABLE and repeat command)

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL-TASKS	INF=A-TASK
INFORMATION = *COLLECTOR-TASK	INF=COLL-TASK
INFORMATION = *COLLECT-PARAMETER	INF=COLL-PARA

Output information	Name of the S variable	T	Contents	Condition
TSN of the collector task	var(*LIST).COLL	S	'' <tsn>	INF=A-TASK/ COLL-TASK
Status of the collector task	var(*LIST).COLL-INFO		'' TASK WAITING FOR FILE LOCKS TASK WAITING FOR MOUNT OR OPERATOR ACKNOWLEDGMENT TASK WAITING FOR MAREN LOCK	INF=A-TASK/ COLL-TASK
Depot name of the device pool from which the device reserved for the collector task was taken	var(*LIST).COLL-TYPE(*LIST). LOCATION	S	'' <location>	INF=A-TASK/ COLL-TASK
Number of devices of the specified type reserved for the collector task	var(*LIST).COLL-TYPE(*LIST). NUM	I	<integer>	INF=A-TASK/ COLL-TASK
Device type reserved for the collector task	var(*LIST).COLL-TYPE(*LIST). TYPE	S	'' <dev-type>	INF=A-TASK/ COLL-TASK
Device mnemonic of the device reserved for the collector task	var(*LIST).COLL-UNIT(*LIST)	S	'' <mnemo-name>	INF=A-TASK/ COLL-TASK
Depot name of the volume recording the collector task data	var(*LIST).COLL-VOL(*LIST). LOCATION	S	'' <location>	INF=A-TASK/ COLL-TASK

Output information	Name of the S variable	T	Contents	Condition
Volume reserved for the collector task	var(*LIST).COLL-VOL(*LIST).RESERVED	S	" EXCL OFFL	INF=A-TASK/COLL-TASK
Device type on which the volume recording the collector task data is set up	var(*LIST).COLL-VOL(*LIST).TYPE	S	" <volume-type>	INF=A-TASK/COLL-TASK
VSN of the volume selected using the device reservation mechanism to store the collector task data	var(*LIST).COLL-VOL(*LIST).VOL	S	" <vsn>	INF=A-TASK/COLL-TASK
Time when the task was admitted to the device queue	var(*LIST).REQ(*LIST).ADMIS-TIME	S	<admission-time>	INF=A-TASK/COLL-TASK
Job name of the task waiting	var(*LIST).REQ(*LIST).NAME	S	" <name>	INF=A-TASK/COLL-TASK
Priority of the task on the device queue	var(*LIST).REQ(*LIST).TASK-PRIO	S	<task-priority>	INF=A-TASK/COLL-TASK
Type of queued task	var(*LIST).REQ(*LIST).TASK-TYPE	S	" BAT DIA RFA	INF=A-TASK/COLL-TASK
TSN of the queued task	var(*LIST).REQ(*LIST).TSN	S	" <tsn>	INF=A-TASK/COLL-TASK
Depot name of the device pool from which the device reserved for the queued task was taken	var(*LIST).REQ(*LIST).TYPE(*LIST).LOCATION	S	" <location>	INF=A-TASK/COLL-TASK
Number of devices of the specified type reserved for the queued task	var(*LIST).REQ(*LIST).TYPE(*LIST).NUM	I	<integer>	INF=A-TASK/COLL-TASK
Device type reserved for the queued task	var(*LIST).REQ(*LIST).TYPE(*LIST).TYPE	S	" <dev-type>	INF=A-TASK/COLL-TASK
Device mnemonic of the device reserved for the queued task	var(*LIST).REQ(*LIST).UNIT(*LIST)	S	" <mnemo-name>	INF=A-TASK/COLL-TASK
Depot name of the volume recording the data of the queued task	var(*LIST).REQ(*LIST).VOL(*LIST).LOCATION	S	" <location>	INF=A-TASK/COLL-TASK
		S		

Volume to be reserved for the task	var(*LIST).REQ(*LIST).VOL(*LIST).RESERVED		" EXCL OFFL	INF=A-TASK/COLL-TASK

Output information	Name of the S variable	T	Contents	Condition
Device type on which the volume recording the data of the queued task is set up	var(*LIST).REQ(*LIST).VOL (*LIST).TYPE	S	" <device-type>	INF=A-TASK/ COLL-TASK
VSN of the volume selected using the device reservation mechanism to store the task data	var(*LIST).REQ(*LIST).VOL (*LIST).VOL	S	" <vsn>	INF=A-TASK/ COLL-TASK
Length of time the task has been waiting on the queue	var(*LIST).REQ(*LIST).WAIT-TIME	S	<wait-time>	INF=A-TASK/ COLL-TASK
Collector task selection	var(*LIST).RES-COLL	S	*NO *YES	INF= COLL-PARA
Maximum time the task is to wait for the reservation request to be carried out	var(*LIST).TIME-WEIGHT	S	*NONE <sec>	INF= COLL-PARA

7.3 SHOW-RESTART-OPTIONS

Display information on automatic restart

Component:	BS2000
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING
Routing code:	R

Function

The SHOW-RESTART-OPTIONS command outputs information indicating whether automatic restart is switched on or off and, if it is on, which parameters are set for the restart.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-RESTART-**OPT**IONS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0216	Caller is not privileged
	64	EXC0684	Syntax error

Output to SYSOUT

Automatic restart is off

`/show-restart-opt`

```
% EXC0682 AUTOMATIC RESTART SWITCHED OFF
```

`/show-restart-opt`

```
%  EXC0681 AUTOMATIC RESTART SWITCHED ON: DELAY=0000000000 SEC.,
UPTIME=0000000010 MIN., IPL DEVICE='7D00', IPL VSN='1SBZ.0', DUMP='*STD'
```

Meaning of the possible inserts

Insert	Possible values	Meaning
DELAY	<integer 0..32767>	Number of seconds the automatic dump is displayed by to allow the operator to intervene
UPTIME	<integer 0..32767>	Number of minutes after SYSTEM READY before automatic restart is initiated after a system crash
IPL DEVICE	<alphanum-name 2..2> <alphanum-name 4..4>	IPL device mnemonic (2 or 4 characters)
IPL VSN	<vsn>	VSN of the IPL volume
DUMP	*NO	Dumps are not generated
	*STD	Dumps are generated on request
	*SNAP	Snapshots are always generated
	*SLED	SLEDs are always generated

Table 148: Output of the SHOW-RESTART-OPTIONS command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Time (in seconds) to wait for SLED to write a dump	var(*LIST).DELAY	I	<integer 0..32767>	
Dump type	var(*LIST).DUMP	S	*NO *SLED *SNAP *STD	
Device mnemonic of the IPL disk	var(*LIST).IPL-PATH	S	<alphan.-name 2..2> <alphan.-name 4..4>	
VSN of the IPL disk	var(*LIST).IPL-VOL	S	<vsn 6..6>	
Automatic restart activated (*ON) or deactivated (*OFF)	var(*LIST).RESTART	S	*ON *OFF	
Time (in minutes) to wait after SYSTEM READY for an automatic restart to be initiated	var(*LIST).UPTIME	I	<integer 0..32767>	

7.4 SHOW-RETURNCODE

Output return code of the last command

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-RETURNCODE command outputs the return code of the last entered command at SYSOUT.

Format

SHOW-RETURNCODE	Alias: **SHRTC**

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors

Example

`/show-file-attr xxx.file`

```
%  DMS0807 ERROR FROM SHOW-FILE-ATTRIBUTES FILE-NAME ':2OS6:$USER1.XXX.FILE'
%  DMS0533 REQUESTED FILE NOT CATALOGED IN PUBSET '2OS6'. COMMAND TERMINATED
```

`/show-ret`

```
%Returncode:
%Subcode2  = 0
%Subcode1  = 64
%Maincode  = DMS0533
```

7.5 SHOW-RFA-CONNECTIONS

Output information on RFA connections

Component:	RFA
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

This command is only available to users who have the software product RFA (see “RFA” manual [31]).

Function

The SHOW-RFA-CONNECTIONS command allows the user to request information on all existing RFA connections. The information is output to SYSOUT. The user receives an output line for the local processor (beginning with “LOCAL HOST”) and one output line for each existing RFA connection (beginning with “CONNECTION”) containing the following information:

- catalog ID to which the RFA connection exists (for RFA connections only)
- indication of whether the RFA connection is local or remote
- processor name to which the RFA connection is set up
- user ID of the AFR partner task or of the local task
- task sequence number (TSN) of the AFR partner task or the local task

The RFA connection is displayed once only per catalog ID, even if more than one SET-RFA-CONNECTION command was issued for the catalog ID. A maximum of 16 RFA connections can exist for different catalogs.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-RFA-CONNECTIONS
CATALOG**-ID** = ***ALL** / <cat-id 1..4>

Operands

CATALOG-ID = <cat-id 1..4> / *ALL
Catalog ID of an RFA connection for which information was requested. Specifying *ALL produces information on all RFA connections.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	RFA0002	Command executed
	32	RFA0019	Output incomplete
	32	RFA0020	Error in outputting to SYSOUT
	32	CMD2009	Error during generation of output variables
	64	RFA0017	No RFA connection exists
	64	RFA0018	No RFA connection exists for the specified catalog ID

Output format

The information is output in table form. The first line contains information on the local processor (without catalog ID) and begins with “LOCAL HOST:”. This is followed by one information line for each existing RFA connection. These lines each begin with “CONNECTION:” and are output in ascending order of catalog ID. The information is split up into the following 5 output columns:

Output column	Meaning
CATID	Catalog ID to which the RFA connection exists. Only one RFA connection is displayed per catalog ID. No catalog ID is displayed in the information line for the local processor.
STATE	LOCAL is displayed for a catalog ID assigned to the local processor or, for a shared pubset, to the master processor. REMOTE is displayed for a catalog ID assigned to a remote processor or, for a shared pubset, to a slave processor.
HOST	BCAM name of the processor to which the RFA connection exists.
USERID	User ID of the AFR partner task (when STATE is shown as REMOTE) or of the local task (when STATE is shown as LOCAL).
TSN	Task sequence number of the AFR partner task or of the local task.

Table 149: Output columns of the SHOW-RFA-CONNECTIONS command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Catalog ID to which the RFA connection exists	var(*LIST).CAT-ID	S	<cat-id 1..4>	
Type of information	var(*LIST).INDICATOR	S	*CONN *LOC-HOST	
Name of the processor to which the RFA connection exists	var(*LIST).PARTNER-NAME	S	<alphan.-name 1..8>	
RFA connection status	var(*LIST).PUBSET-STA	S	*LOC *REM	
TSN of the AFR partner task or the local task	var(*LIST).TSN	S	<name 1..4>	
User ID of the AFR partner task or the local task	var(*LIST).USER-ID	S	<name 1..8>	

Example

`/show-rfa-connections`

```
%             CATID STATE  HOST     USERID   TSN
%LOCAL HOST:        LOCAL  D017ZE11 USER2    0C1R
%CONNECTION:  2OSG  REMOTE D016ZE04 USER2    2PQT
%CONNECTION:  2OS6  REMOTE D016ZE04 USER2    2PQT
```

In the dialog job with the task sequence number *0C1R* and the user ID *USER2*, the user issues the SHOW-RFA-CONNECTIONS command to request information on existing RFA connections.

- The output shows the local processor *D017ZE11*.
- Two remote RFA connections to the processor *D016ZE04* with catalogs *2OSG* and *2OS6* are shown.
- On the remote processor *D016ZE04* there is **one** partner task active under the user ID *USER2* and the task sequence number *2PQT*.

7.6 SHOW-SDF-OPTIONS

Show active syntax files and SDF options

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-SDF-OPTIONS command displays the names and versions of the currently active syntax files as well as the current settings of the SDF options. For syntax files, it always displays their real file names, even if the user entered a MODIFY-SDF-OPTIONS command in order to specify a user syntax file using the appropriate alias name declared in the alias catalog (see the ADD-ALIAS-CATALOG-ENTRY command).

The INFORMATION operand controls the scope of the information to be displayed. INFORMATION=*USER provides information only on settings which the user can modify via MODIFY-SDF-OPTIONS for each task: this information includes the names and versions of all activated user syntax files and all settings of the SDF options. INFORMATION=*GROUP provides the names and versions of the activated group syntax files in addition to the user-specific settings.

The MODIFY-SDF-OPTIONS command can then be used to activate or deactivate user syntax files and to change the settings of SDF options for a specific task.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SDF-OPTIONS	Alias: **SHSDFO**
INFORMATION = ***ALL** / ***USER** / ***GROUP**	

Operands

INFORMATION = *ALL / *USER / *GROUP
Determines the scope of the information to be displayed.

INFORMATION = *ALL
Outputs information on the activated syntax files and the current settings of the SDF options

INFORMATION = *USER
Outputs information on the activated user syntax files and the current settings of the SDF options.

INFORMATION = *GROUP
Outputs information on the activated group and user syntax files and the current settings of the SDF options.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without errors

Output format

The output fields and values under the heading “CURRENT SDF OPTIONS” correspond to the operands and operand values of the MODIFY-SDF-OPTIONS command.

Output field	Meaning and possible values
SYNTAX FILES CURRENTLY ACTIVATED:	Header line for information on the activated syntax files
• SYSTEM	Name of the active system syntax file
• VERSION	Version of the system syntax file
• SUBSYSTEM	Name of an active subsystem syntax file
• VERSION	Version of the subsystem syntax file
• GROUP	Name of an active group syntax file
• VERSION	Version of the group syntax file; omitted if no group syntax file is activated (GROUP=*NONE)
• USER	Name of an active user syntax file
• VERSION	Version of the user syntax file; omitted if no user syntax file is activated (USER=*NONE)
• CURRENT SDF OPTIONS:	Header line for information on the current settings of the SDF options
• GUIDANCE	Guidance level: *EXPERT / *NO / *MINIMUM / *MEDIUM / *MAXIMUM

• LOGGING	Scope of the logging of commands and statements: *INPUT-FORM / *ACCEPTED-FORM / *INVARIANT-FORM
• CONTINUATION	Command continuation: *OLD-MODE / *NEW-MODE
• UTILITY-INTERFACE	Input interface for utilities: *OLD-MODE / *NEW-MODE
• PROCEDURE-DIALOGUE	Syntax error dialog or help dialog in procedures: *YES /*NO
• MENU-LOGGING	Menu logging: *YES /*NO
• CMD-STATISTICS	*Output for privileged users only (TSOS)* Statistical recording of commands: *YES /*NO
• MODE	Syntax check of commands: *EXECUTION / *TEST
• CHECK-PRIVILEGES	Consideration of privileges during syntax check: *YES /*NO
• DEFAULT-PROGRAM-NAME	Syntax check of statements of a program: *NONE / <structured-name 1..20>
• FUNCTION-KEYS	Function key assignment: *OLD-MODE / *NEW-MODE
• INPUT-HISTORY	Input buffer: *ON / *OFF
• NUMBER-OF-INPUTS	Size of the input buffer (maximum number of inputs that can be saved): <integer 1..100>
• PASSWORD-PROTECTION	Protection of secret operand values in the input buffer: *YES / *NO

Table 150: Output format of the SHOW-SDF-OPTIONS command

Output in S variables

The INFORMATION operand controls the output scope with regard to the active syntax files: *GROUP suppresses the information on system and subsystem files, and *USER suppresses the information on system, subsystem and group syntax files. A variable structure SF with the S variables F-NAME, TYPE, and VERSION is created for each active syntax file contained in the output. Exception: If no user syntax file is activated, a variable structure with TYPE=*USER is created anyway, with the F-NAME and VERSION variables containing the empty string.

Output information	Name of the S variable	T	Contents	Condition
Check privileges during syntax check	var(*LIST).CHECK-PRIV	S	*NO *YES	
Command history statistics are written on the basis of the system syntax file. The values *NO and *YES are output only for users with TSOS privilege. A value of '' is output for users without TSOS privilege.	var(*LIST).CMD-STATIS	S	'' *NO *YES	
Position of the continuation character for command input *NEW-MODE: in columns 2 thru 72 *OLD-MODE: in column 72	var(*LIST).CONTI	S	*NEW-MODE *OLD-MODE	
Function of key mapping	var(*LIST).FUNC-KEY	S	*OLD-MODE *STYLE-GUIDE-MODE	
Dialog guidance mode	var(*LIST).GUIDE	S	*EXPERT *MAX *MED *MIN *NO	
Command input history feature active	var(*LIST).INPUT-HIST	S	*OFF *ON	
Logging form for commands and statements	var(*LIST).LOG	S	*ACCEPT-FORM *INPUT-FORM *INVARIANT-FORM	
Full menu logging in guided dialog	var(*LIST).MENU-LOG	S	*NO *YES	
Execution of all issued commands (*EXEC) or command syntax checking (*TEST) on input; the MODIFY-	var(*LIST).MODE	S	*EXEC *TEST	

SDF-OPTIONS command is always executed				
Size of the input buffer	var(*LIST).NUM-OF-INPUT	I	<integer 0..100>	
Passwords are replaced by ^ in the buffer and ISP commands are not recorded	var(*LIST).PASSWORD-PROT	S	*NO *YES	
Invalid procedure commands can be corrected during the procedure run	var(*LIST).PROC-DIALOG	S	*NO *YES	
Syntax file name. If INF=*USER is specified in the command and no user syntax file is active, the S variable is assigned the null string ''	var(*LIST).SF(*LIST).F-NAME	S	'' <filename 1..54>	
Syntax file type. If INF=*USER is specified in the command and no syntax file is active, the S variable is nonetheless assigned a value of *USER; the SF(*LIST).F-NAME and SF(*LIST).VERSION variables are assigned the null string ''	var(*LIST).SF(*LIST).TYPE	S	*GROUP *SUBSYS *SYS *USER	
Syntax file version. If INF=*USER is specified in the command and no syntax file is active, the S variable is assigned the null string ''	var(*LIST).SF(*LIST).VERSION	S	'' UNDEFINED <text 1..12>	
Name of the test program used for syntax checking on SDF program statements. Syntax checking enabled with MODE=*TEST.	var(*LIST).TEST-PROG-NAME	S	*NONE <struc.-name 1..30>	
Input interface mode for utilities which offer both old-style (*OLD-MODE) and new-style (*NEW-MODE) interfaces	var(*LIST).UTILITY-INTERF	S	*NEW-MODE *OLD-MODE	

Examples

Output in S variable

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-sdf-options inf=*all),text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
VAR#1.SF#1.F-NAME = ':1OSH:$TSOS.SYSSDF.SDF.048'
VAR#1.SF#1.TYPE = '*SYS'
VAR#1.SF#1.VERSION = 'SESD04.8A00'
*END-OF-VAR
VAR#1.SF#2.F-NAME = ':1OSH:$TSOS.SYSSDF.ACS.200'
VAR#1.SF#2.TYPE = '*SUBSYS'
VAR#1.SF#2.VERSION = 'SESD20.0A000'
*END-OF-VAR
...........
...........

VAR#1.SF#161.F-NAME = ':1OSH:$TSOS.SYSSDF.TASKDATE.200'
VAR#1.SF#161.TYPE = '*SUBSYS'
VAR#1.SF#161.VERSION = 'SESD20.0A000'
*END-OF-VAR
OUT#1.SF#162.F-NAME = ':1OSH:$TSOS.SYSSDF.BCAM.240.CMD'
OUT#1.SF#162.TYPE = '*SUBSYS'
OUT#1.SF#162.VERSION = 'SESD24.0A000'
VAR#1.SF#163.F-NAME = ':2OSG:$USER1.SDF.USER.SYNTAX'
VAR#1.SF#163.TYPE = '*USER'
VAR#1.SF#163.VERSION = 'UNDEFINED'
*END-OF-VAR
VAR#1.GUIDE = '*EXPERT'
VAR#1.LOG = '*INPUT-FORM'
VAR#1.CONTI = '*NEW-MODE'
VAR#1.UTILITY-INTERF = '*NEW-MODE'
VAR#1.PROC-DIALOG = '*NO'
VAR#1.MENU-LOG = '*NO'
VAR#1.CMD-STATIS = ''
VAR#1.MODE = '*EXEC'
VAR#1.CHECK-PRIV = '*YES'
VAR#1.TEST-PROG-NAME = '*NONE'
VAR#1.FUNC-KEY = '*STYLE-GUIDE-MODE'
VAR#1.INPUT-HIST = '*ON'
VAR#1.NUM-OF-INPUT = 20
VAR#1.PASSWORD-PROT = '*YES'
*END-OF-VAR
*END-OF-CMD
```

Output on SYSOUT

/show-sdf-opt ——————————————————————————————— (1)

```
%SYNTAX FILES CURRENTLY ACTIVATED :
%  SYSTEM    : :1OSH:$TSOS.SYSSDF.SDF.048
%              VERSION : SESD04.8A00
%  SUBSYSTEM : :1OSH:$TSOS.SYSSDF.ACS.200
%              VERSION : SESD20.0A000
   .
   .
   .
%  SUBSYSTEM : :1OSH:$TSOS.SYSSDF.TASKDATE.200
%              VERSION : SESD20.0A000
%  SUBSYSTEM : :1OSH:$TSOS.SYSSDF.BCAM.240.CMD
%              VERSION : SESD24.0A000
%  GROUP     : *NONE
%  USER      : :2OSG:$USER1.SYSSDF.USER.SYNTAX
%              VERSION : UNDEFINED
%CURRENT SDF OPTIONS :
%  GUIDANCE           : *EXPERT
%  LOGGING            : *INPUT-FORM
%  CONTINUATION       : *NEW-MODE
%  UTILITY-INTERFACE  : *NEW-MODE
%  PROCEDURE-DIALOGUE : *NO
%  MENU-LOGGING       : *NO
%  MODE               : *EXECUTION
%     CHECK-PRIVILEGES   : *YES
%  DEFAULT-PROGRAM-NAME : *NONE
%  FUNCTION-KEYS      : *STYLE-GUIDE-MODE
%  INPUT-HISTORY      : *ON
%     NUMBER-OF-INPUTS   : 20
%     PASSWORD-PROTECTION: *YES
```

/mod-sdf-opt syntax=*add(syssdf.user.special.01) ——————————————— (2)
/show-sdf-opt inf=*user ——————————————————————————————— (3)

```
%  USER      : :2OSG:$USER1.SDF.USER.SYNTAX
%              VERSION : UNDEFINED
%  USER      : :2OSG:$USER1.SYSSDF.USER.SPECIAL.01
%              VERSION : UNDEFINED
%CURRENT SDF OPTIONS :
%  GUIDANCE           : *EXPERT
%  LOGGING            : *INPUT-FORM
%  CONTINUATION       : *NEW-MODE
%  UTILITY-INTERFACE  : *NEW-MODE
%  PROCEDURE-DIALOGUE : *NO
%  MENU-LOGGING       : *NO
%  MODE               : *EXECUTION
%     CHECK-PRIVILEGES   : *YES
%  DEFAULT-PROGRAM-NAME : *NONE
%  FUNCTION-KEYS      : *STYLE-GUIDE-MODE
%  INPUT-HISTORY      : *ON
%     NUMBER-OF-INPUTS   : 20
%     PASSWORD-PROTECTION: *YES
```

(1) The SHOW-SDF-OPTIONS command displays information on all activated syntax files and the SDF options set. The output of the subsystem syntax files can be very extensive, depending on the number of activated subsystems. This example shows only an excerpt. The user syntax file SYSSDF.SDF.USER.SYNTAX is active.

(2) The user syntax file SYSSDF.USER.SPECIAL01 is activated with the MODIFY-SDF-OPTIONS command.

(3) The SHOW-SDF-OPTIONS command with INFORMATION=*USER provides information on activated user syntax files and the SDF options set.

7.7 SHOW-SDF-PARAMETERS

Show entries in SDF parameter file

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	TSOS
Routing code:	@

Function

The SHOW-SDF-PARAMETERS command provides information on the entries of an SDF parameter file. The names of the system syntax files and all PROFILE-ID allocations to a group syntax file are displayed. There is also an option for including the names of the system-wide LOGON or LOGOFF procedures (call and include procedures).

> Subsystem syntax files located on a pubset that were not available during system initialization are not displayed. These syntax files can only be activated when importing the pubset.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SDF-PARAMETERS

SCOPE = ***TEMP**ORARY / ***NEXT-SESSION**(...)

***NEXT-SESSION**(...)

| **PAR**AMETER-**FILE-NAME** = ***CURR**ENT / <filename 1..54>

,**SYNTAX-F**ILE-**TYPE** = ***ALL** / ***SYS**TEM / ***SUBSYS**TEM(...) / ***GR**OUP(...) / ***NONE**

***GR**OUP(...)

| **PROF**ILE-**ID** = ***ALL** / <structured-name 1..30>

***SUBSYS**TEM(...)

| **SUBSYS**TEM-NAME = ***ALL** / <structured-name 1..8 with-wild(24)>

,**SYS**TEM-**LOGON-PROC** = ***Y**ES / ***NO**

,**SYS**TEM-**LOGON-INCL** = ***Y**ES / ***NO**

,**SYS**TEM-**LOGOFF-PROC** = ***Y**ES / ***NO**

,**SYS**TEM-**LOGOFF-INCL** = ***Y**ES / ***NO**

Operands

SCOPE =
Defines the scope of the information requested.

SCOPE = *TEMPORARY
The syntax files which were activated during the current session and/or the system-wide LOGON or LOGOFF procedures are output.

SCOPE = *NEXT-SESSION(...)
The syntax files and/or the system-wide LOGON or LOGOFF procedures stored in an SDF parameter file are output.

PARAMETER-FILE-NAME =
Specifies the SDF parameter file in which the requested information is stored.

PARAMETER-FILE-NAME = *CURRENT
The required information is stored in the current SDF parameter file, which was used when the session was started.

PARAMETER-FILE-NAME = <filename 1..54>
The fully qualified name of the SDF parameter file in which the requested information is stored. If alias names are being used, the name displayed for the SDF parameter file can be taken as being the result of a file name replacement carried out by ACS. Only if no alias name was declared for the SDF parameter file will the fully qualified, real, name of the SDF file be stored and output.

SYNTAX-FILE-TYPE =
Specifies the name(s) of the syntax files to be displayed.

SYNTAX-FILE-TYPE = *ALL
The output is to show the names of the basic system syntax file, of the subsystem syntax files (in conjunction with the names of the subsystems), and the names of the group syntax files (with their associated PROFILE-IDs).

SYNTAX-FILE-TYPE = *SYSTEM
The name of the basic system syntax file is to be output.

SYNTAX-FILE-TYPE = *SUBSYSTEM(...)
The names of the subsystem syntax files are to be output.

SUBSYSTEM-NAME =
Specifies the subsystems for which the syntax files are to be selected.

SUBSYSTEM-NAME = *ALL
The names of all the system syntax files which are assigned to a subsystem are to be output.

SUBSYSTEM-NAME = <structured-name 1..8 with-wild(24)>
The syntax files of the specified subsystems are to be displayed.

SYNTAX-FILE-TYPE = *GROUP(...)
The names of the group syntax files are to be output.

PROFILE-ID =
Uses the PROFILE-ID to determine the names of the group syntax files which are to be displayed.

PROFILE-ID = *ALL
The names of all group syntax files (in conjunction with the associated PROFILE-IDs) are to be output.

PROFILE-ID = <structured-name 1..30>
Specifies the PROFILE-IDs whose assigned group syntax files are to be displayed by name.

SYNTAX-FILE-TYPE = *NONE
No syntax file names will be displayed.

SYSTEM-LOGON-PROC = *YES / *NO
Specifies whether to display the name of the system-wide LOGON call procedure (invoked with the CALL-PROCEDURE command).

SYSTEM-LOGON-INCL = *YES / *NO
Specifies whether to display the name of the system-wide LOGON include procedure (invoked with the INCLUDE-PROCEDURE command).

SYSTEM-LOGOFF-PROC = *YES / *NO
Specifies whether to display the name of the system-wide LOGOFF call procedure (invoked with the CALL-PROCEDURE command).

SYSTEM-LOGOFF-INCL = *YES / *NO
Specifies whether to display the name of the system-wide LOGOFF include procedure (invoked with the INCLUDE-PROCEDURE command).

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No errors Guaranteed message: CMD0001
1	32	CMD0500	Erroneous syntax description in the current syntax file Guaranteed message: CMD0500
1	64	CMD0601	Command is reserved for systems support Guaranteed message: CMD0601
1	64	CMD0680	Error in SDF parameter file Guaranteed messages: CMD0300, CMD0680, CMD0687

Output in S variables

All the operands of the command (SCOPE, SYNTAX-FILE-TYPE, SYSTEM-LOGOFF-INCL, SYSTEM-LOGOFF-PROC, SYSTEM-LOGON-INCL and SYSTEM-LOGON-PROC) support structured output in S variables. As a rule, all the S variables are generated.

Exceptions

The exceptions to this rule are the S variables marked a), b) or c) in the “Condition” column:

1. These S variables are not generated if SYNTAX-FILE-TYPE=*NONE is specified in the command.
2. This S variable is not generated if no corresponding LOGON- or LOGOFF procedure was specified in the command (e.g. SYSTEM-LOGON-PROC=*NONE).

Output information	Name of the S variable	T	Contents	Condition
Scope of the active syntax files. If SCOPE=*NEXT-SESSION(...) is specified in the command, the name of the parameter file is output.	var(*LIST).SCOPE	S	*TEMP <filename 1..54>	
Syntax file name	var(*LIST).SF(*LIST).F-NAME	S	<filename 1..54>	a)
The SDF file hierarchy is retained (the system syntax file is used for syntax analysis) With SF(*LIST).TYPE=*SYS or *SUBSYS the value of the S variable is ''	var(*LIST).SF(*LIST).HIERARCHY	S	'' *NO *YES	a)
Subsystem name with SF(*LIST).TYPE=*SUBSYS. With SF(*LIST).TYPE=*SYS the value of the S variable is BS2000. With SF(*LIST).TYPE=*GROUP the value of the S variable is ''	var(*LIST).SF(*LIST).NAME	S	'' <struc.-name 1..8> BS2000	a)
Profile ID of the group syntax file. With SF(*LIST).TYPE=*SYS or *SUBSYS the value of the S variable is ''	var(*LIST).SF(*LIST).PROF-ID	S	'' <struc.-name 1..30>	a)

Subsystem status.
The value of the S variable is'' in the following cases:
a) SF(*LIST).TYPE=*SYS;
b) SF(*LIST).TYPE=*SUBSYS;
c) a parameter file is specified in the SCOPE=*NEXT-SESSION(...) structure in the command.
ACTIVE status is always displayed for subsystems that are not activated by DSSM, with the following two exceptions:
1) If the subsystem syntax file could not be activated during system initialization, TO-IMPORT is displayed.
2) If the subsystem syntax file is deactivated by IMON, DEACTIVATED is displayed.
	var(*LIST).SF(*LIST).STATE	S	''
			ACTIVE
			COEXISTENT
			DEACTIVATED
			HOLD
			IN-EXCHA
			IN-HOLD
			TO-IMPORT
				a)

Syntax file type	var(*LIST).SF(*LIST).TYPE	S	*GROUP *SUBSYS *SYS	a)

Syntax file version	var(*LIST).SF(*LIST).VERSION	S	<text 1..12>	a)
Name of the system-wide LOGOFF procedure (called with INCLUDE-PROCEDURE)	var(*LIST).SYS-LOGOFF-INCL	S	*STD <filename 1..54>	b)
Name of the system-wide LOGOFF procedure (called with CALL-PROCEDURE)	var(*LIST).SYS-LOGOFF-PROC	S	*STD <filename 1..54>	b)
Name of the system-wide LOGON procedure (called with INCLUDE-PROCEDURE)	var(*LIST).SYS-LOGON-INCL	S	'' *STD <filename 1..54>	b)
Name of the system-wide LOGON procedure (called with CALL-PROCEDURE)	var(*LIST).SYS-LOGON-PROC	S	'' *STD <filename 1..54>	b)

Examples

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-sdf-parameters syntax-file-type=*sys),
          text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal)
```

```
VAR(*LIST).SCOPE = '*TEMP'
VAR(*LIST).SF(*LIST).NAME = 'BS2000'
VAR(*LIST).SF(*LIST).TYPE = '*SYS'
VAR(*LIST).SF(*LIST).VERSION = '20'
VAR(*LIST).SF(*LIST).F-NAME = ':SQGB:$TSOS.SYSSDF.SDF.048'
VAR(*LIST).SF(*LIST).STATE = ''
VAR(*LIST).SF(*LIST).PROF-ID = ''
VAR(*LIST).SF(*LIST).HIERARCHY = ''
*END-OF-VAR
VAR(*LIST).SYS-LOGON-PROC = '$TSOS.SYS.SDF.LOGON.SYSPROC'
VAR(*LIST).SYS-LOGON-INCL = '$TSOS.SYS.SDF.LOGON.SYSINCL'
VAR(*LIST).SYS-LOGOFF-PROC = '$TSOS.SYS.SDF.LOGOFF.SYSPROC'
VAR(*LIST).SYS-LOGOFF-INCL = '$TSOS.SYS.SDF.LOGOFF.SYSINCL'
*END-OF-VAR
```

```
/exec-cmd cmd=(show-sdf-parameters syntax-file-type=*none),
          text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal)
```

```
VAR(*LIST).SCOPE = '*TEMP'
VAR(*LIST).SYS-LOGON-PROC = '$TSOS.SYS.SDF.LOGON.SYSPROC'
VAR(*LIST).SYS-LOGON-INCL = '$TSOS.SYS.SDF.LOGON.SYSINCL'
VAR(*LIST).SYS-LOGOFF-PROC = '$TSOS.SYS.SDF.LOGOFF.SYSPROC'
VAR(*LIST).SYS-LOGOFF-INCL = '$TSOS.SYS.SDF.LOGOFF.SYSINCL'
*END-OF-VAR
```

7.8 SHOW-SELECTED-PRODUCT-VERSION

Show selected product version

Component:	IMON-GPN
Functional area:	Program control
Domain:	PROGRAM PROGRAMMING-SUPPORT SYSTEM-MANAGEMENT UTILITIES
Privileges:	STD-PROCESSING

Function

The SHOW-SELECTED-PRODUCT-VERSION command allows nonprivileged users to check the product version of an installation unit or of a DSSM subsystem (TU), as selected with the SELECT-PRODUCT-VERSION command.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SELECTED-**PROD**UCT-**VERS**ION

PRODUCT-**NAME** = ***ALL** / <text 1..30 without-sep>

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = ***STD** / <integer 1..99>

Operands

PRODUCT-NAME = *ALL / <text 1..30 without-sep>(...)
Specifies the name of the product. For subsystems (TU) loaded by DSSM this is the name of the subsystem; for IMON it is the name of an installation unit.

OUTPUT =
Determines where the output is sent.

OUTPUT = *SYSOUT
The information is written to SYSOUT.

OUTPUT = *SYSLST(...)
The information is written to SYSLST.

SYSLST-NUMBER =
SYSLST number.

SYSLST-NUMBER = *STD
The information is written to the default SYSLST file.

SYSLST-NUMBER = <integer 1..99>
Explicit SYSLST number specification.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	32	IMO9101	Command terminated abnormally. Internal error in IMON-GPN
	64	IMO9100	Command not executed. Installation unit or version not found

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Product name (name of the installation unit)	var(*LIST).PRODUCT-NAME	S	<c-string 1..30>	
The version of the product defined for SCOPE=*PROGRAM	var(*LIST).PROGRAM-SELECTION	S	" <product-version 4..7>	
The version of the product defined for SCOPE=*SYSTEM	var(*LIST).SYSTEM-SELECTION	S	" <product-version 4..7>	
The version of the product defined for SCOPE=*TASK	var(*LIST).TASK-SELECTION	S	" <product-version 4..7>	

Example

`/show-select-product`

```
PRODUCT NAME                  PROGRAM  TASK     SYSTEM
----------------------------  -------  -------  -------
EDT                                    17.0
SDF-A                         04.1
%  IMO9001 Command successfully processed
```

7.9 SHOW-SERSLOG-STATUS

Request information on software error logging

Component: BS2000

Functional area: Error logging

Domain: ERROR-LOGGING

Privileges: TSOS
OPERATING

Routing code: A

Function

The SHOW-SERSLOG-STATUS command issues a message providing information about the software error logging status (active or inactive). If SERSLOG is active, the name of the current SERSLOG file is also output (see below).

Format

SHOW-SERSLOG-STATUS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NER0000	Internal error
	32	CMD0221	System error
	32	NER0000	Internal error
	64	NER1000	No authorization for command
	128	NER1010	A SERSLOG command is already being processed

Example

`/show-serslog-status`

```
% NER1060 SERSLOG ACTIVE. FILE : ':SBZ7:$TSOS.SYS.SERSLOG.2017-01-27.006.01'
```

7.10 SHOW-SNAPSET-CONFIGURATION

Display information about existing Snapsets

Component:	BS2000
Functional area:	File processing Job variables
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT SNAPSET
Privileges:	STD-PROCESSING TSOS HSMS-ADMINISTRATION OPERATING

Function

The SHOW-SNAPSET-CONFIGURATION command outputs information concerning the Snapset concerned for a pubset. The output is directed to SYSOUT; it can optionally also be directed to SYSLST. The following information is output:

- Pubset-global information
  - Pubset catalog ID
  - Name of a save pool which is assigned to the pubset
  - Displays whether additional snap copies are to be created for the pubset on a remote disk storage system.
- Snapset-specific information
  - Snapset identification consisting of the Snapset ID (letter identifier) and relative age (historical sequence number)
  - Creation time (date and time) of the Snapset
  - Snapset status: either the CCOPY session ID concerned (created for Snapset access) or another status display

If no Snapset exists for the pubset, the command is rejected with the message DMS13D8 or DMS13E5.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

If the privileged user (privilege TSOS, OPERATING, HSMS administrator) requests information on a particular Snapset, the VSNs of the pubset volumes and the MNs of the assigned snap units of the local disk storage system are also output (in the case of remote mirroring, possibly also for the remote disk storage system).

Format

SHOW-SNAPSET-CONFIGURATION
PUBSET = ***DEF**AULT-**PUB**SET / <cat-id 1..4> ,**SNAPSET** = ***ALL** / <name 1..1 with-low> / <integer -52..-1> ,**OUTPUT** = ***SYSOUT** / ***SYSLST**

Operands

PUBSET = *DEFAULT-PUBSET / <cat-id 1..4>
Catalog ID of the pubset about whose Snapsets information is to be provided. The default value is the catalog ID of the calling user’s default pubset.

SNAPSET =
Specifies the Snapsets about which information is to be provided.

SNAPSET = *ALL
Information about all Snapsets is output.

SNAPSET = <name 1..1 with-low> / <integer -52..-1>
Information about the specified Snapset is output, the Snapset being specified by means of the Snapset ID or its relative age (-1 corresponds to the latest Snapset). The maximum of 52 pubsets is distinguished by means of Snapset IDs specified which comprise letters from the 26 lowercase letters a to z and the 26 uppercase letters A to Z.

OUTPUT =
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The output is directed to SYSOUT.

OUTPUT = *SYSLST
Output is written to SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without error
1	0	DMS13D8	No Snapset exists on the pubset
	32	CMD0216	Required authorization not available
	64	DMS1351	Internal error
	64	DMS1386	Error in the memory request
	64	DMS1389	Error in MSCF communication
	64	DMS138B	Pubset does not exist (no MRSCAT entry)
	64	DMS138C	Pubset not accessible
	64	DMS13D5	The Snapset specified does not exist
	64	DMS13DF	Subsystem SHC-OSD not available
	64	DMS13E5	No Snapset catalog exists on the pubset
	64	DMS13EC	Error in structured output in S variable
	64	DMS148F	GCF subsystem not available
1	64	DMS13D7	Internal error in Snapset management: Return code of GCF
7	64	DMS13D7	Internal error in Snapset management: Return code of CCOPY

Output in S variable

The SNAPSET operand identifies the S variables which are to be created. The following specifications are possible for SNAPSET:

Notation used in command	Abbreviated form used in table
SNAPSET = *ALL	1
SNAPSET = <name 1..1 with-low> / <integer -52..-1> (Nonprivileged user)	2
SNAPSET = <name 1..1 with-low> / <integer -52..-1> (Privileged user)	3

Output information	Name of the S variable	T	Contents	Condition
Number of Snapsets: When SNAPSET=*ALL is specified, the number of Snapsets currently created, otherwise the value is 1	var(*LIST).NUM-OF-SNAPSETS	S	<integer 1..52>	1, 2, 3
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id>	1, 2, 3
Current setting for keeping additional snap copies on a remote disk storage system	var(*LIST).REMOTE-COPY	S	*NO *YES	1
Name of the save pool which is assigned to the pubset	var(*LIST).SAVE-POOL-NAME	S	*DEFAULT-POOL	1
Date when the Snapset was created	var(*LIST).SNAPSET(*LIST). CRE-DATE	S	<yyyy-mm-dd>	1, 2, 3
Time when the Snapset was created	var(*LIST).SNAPSET(*LIST). CRE-TIME	S	<hh:mm:ss>	1, 2, 3
Number of pubset volumes	var(*LIST).SNAPSET(*LIST). NUM-OF-VOL	S	<integer 1..255>	3
Displays whether an additional snap copy has been created on a remote disk storage system	var(*LIST).SNAPSET(*LIST). REMOTE-COPY	S	*NO *YES	3
Name of the save pool which is assigned to the Snapset With ETERNUS DX/AF systems in S#-volume mode there is no save pool, hence *NONE is displayed. With ETERNUS DX/AF systems in SDV mode a distinction must be made between - the Snapset does not use storage space on the save pool: *DEFAULT-POOL is then displayed - the Snapset is already using storage space on the save pool: the name of the save pool as configured in the system is displayed	var(*LIST).SNAPSET(*LIST). SAVE-POOL- NAME	S	*DEFAULT-POOL <name> *NONE	2, 3
Snapset status: When access is possible, the CCOPY session ID	var(*LIST).SNAPSET(*LIST). SESSION-ID	S	<x-text 8..8> CREATING	1, 2, 3

(<x-text 8..8>) is displayed, otherwise the corresponding status display			ACTIVATE DELETING NOT_ACC.	
Snapset ID	var(*LIST).SNAPSET(*LIST). SNAPSET-ID	S	a..z A..Z	1, 2, 3
Relative age of the Snapset	var(*LIST).SNAPSET(*LIST). SNAPSET-NR	S	<integer -52..-1>	1, 2, 3
MN of the assigned snap unit of the local disk storage system	var(*LIST).SNAPSET(*LIST). VOL(*LIST).SOURCE-SNAP- UNIT	S	<mnemo-name>	3
In the case of remote mirroring, MN of the assigned snap unit of the remote disk storage system. Otherwise *NO	var(*LIST).SNAPSET(*LIST). VOL(*LIST).TARGET-SNAP- UNIT	S	*NO <mnemo-name>	3
VSN of a pubset volume	var(*LIST).SNAPSET(*LIST). VOL(*LIST).VOL	S	<vsn>	3

If the Snapset cannot be accessed, SESSION-ID (output field or S variable) displays the Snapset status. Meaning of the possible status displays:

- ACTIVATE, CREATING and DELETING are transient statuses which can occur during ongoing Snapset processing.
- In the case of NOT_ACC., the Snapset is currently not available or cannot be accessed. The /CHECK-SNAPSET-CONFIGURATION command enables the Snapset configuration to be checked, and under some circumstances the Snapset to be subsequently activated. Configuration problems may need to be rectified beforehand.

Examples

Output in S variables

```
/declare-var var-name=var1(type=*structure),multi-elem=*list
/exec-cmd cmd=(show-snapset-conf pubset=abn7),
          text-output=*none,structure-out=var1
/show-var var1,inf=*par(val=*c-literal)
```

```
VAR1(*LIST).PUBSET = 'ABN7'
VAR1(*LIST).NUM-OF-SNAPSETS = 2
VAR1(*LIST).SNAPSET(*LIST).SNAPSET-NR = ' -1'
VAR1(*LIST).SNAPSET(*LIST).SNAPSET-ID = 'b'
VAR1(*LIST).SNAPSET(*LIST).CRE-DATE = '2015-05-08'
VAR1(*LIST).SNAPSET(*LIST).CRE-TIME = '13:38:51'
VAR1(*LIST).SNAPSET(*LIST).SESSION-ID = '88042577'
*END-OF-VAR
VAR1(*LIST).SNAPSET(*LIST).SNAPSET-NR = ' -2'
VAR1(*LIST).SNAPSET(*LIST).SNAPSET-ID = 'a'
```

```
VAR1(*LIST).SNAPSET(*LIST).CRE-DATE = '2015-03-30'
VAR1(*LIST).SNAPSET(*LIST).CRE-TIME = '13:46:21'
VAR1(*LIST).SNAPSET(*LIST).SESSION-ID = '87042577'
*END-OF-VAR
VAR1(*LIST).SAVE-POOL-NAME = '*DEFAULT-POOL'
VAR1(*LIST).REMOTE-COPY = '*YES'
*END-OF-VAR
```

```
/declare-var var-name=var2(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-snapset-conf pubset=abn7,snapset=b),
          text-output=*none,structure-output=var2
/show-var var2,inf=*par(val=*c-literal)
```

```
VAR2(*LIST).PUBSET = 'ABN7'
VAR2(*LIST).NUM-OF-SNAPSETS = 1
VAR2(*LIST).SNAPSET(*LIST).SNAPSET-NR = ' -1'
VAR2(*LIST).SNAPSET(*LIST).SNAPSET-ID = 'b'
VAR2(*LIST).SNAPSET(*LIST).CRE-DATE = '2015-05-08'
VAR2(*LIST).SNAPSET(*LIST).CRE-TIME = '13:38:51'
VAR2(*LIST).SNAPSET(*LIST).SESSION-ID = '88042577'
VAR2(*LIST).SNAPSET(*LIST).SAVE-POOL-NAME = '*DEFAULT-POOL'
VAR2(*LIST).SNAPSET(*LIST).REMOTE-COPY = '*YES'
VAR2(*LIST).SNAPSET(*LIST).NUM-OF-VOL = 2
VAR2(*LIST).SNAPSET(*LIST).VOL(*LIST).VOL = 'ABN7.0'
VAR2(*LIST).SNAPSET(*LIST).VOL(*LIST).SOURCE-SNAP-UNIT = '9BED'
VAR2(*LIST).SNAPSET(*LIST).VOL(*LIST).TARGET-SNAP-UNIT = '9DEB'
*END-OF-VAR
VAR2(*LIST).SNAPSET(*LIST).VOL(*LIST).VOL = 'ABN7.1'
VAR2(*LIST).SNAPSET(*LIST).VOL(*LIST).SOURCE-SNAP-UNIT = '9BEE'
VAR2(*LIST).SNAPSET(*LIST).VOL(*LIST).TARGET-SNAP-UNIT = '9DEC'
*END-OF-VAR
*END-OF-VAR
*END-OF-VA
```

Output to SYSOUT

/show-snapset-conf pubset=abn7

```
% PUBSET = 2OS6 , SAVE-POOL-NAME = *DEFAULT-POOL, REMOTE-COPY = *NO
% SNAP-ID CREATION-DATE/TIME  SESSION-ID  SNAP-ID CREATION-DATE/TIME  SESSION-ID
%  -1  b  2015-05-08 13:38:51  88042577    -2  a  2015-03-30 13:46:21  87042577
```

/show-snapset-conf pubset=abn7,snapset=b

```
% PUBSET = ABN7 , SAVE-POOL-NAME = *DEFAULT-POOL
% SNAP-ID CREATION-DATE/TIME  SESSION-ID
%  -1  b  2015-05-08 13:38:51  88042577
% VOLUME  SOURCE-UNIT  TARGET-UNIT
% ABN7.0  9BED         9DEB
% ABN7.1  9BEE         9DEC
```

7.11 SHOW-SNAPSHOT-STATUS

Display information about the dump generator

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	R

Function

The SHOW-SNAPSHOT-STATUS command displays the following information about the dump generator SNAP:

- Status of the SNAP dump function (enabled or disabled)
- Maximum SNAP runtime (value of the system parameter SNAPTIME)
- Information about the system files of SNAP

Format

SHOW-SNAPSHOT-STATUS

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
	1	CMD2201	Error in function call: Function errored
	3	CMD2203	Error in function call: Version errored
	32	CMD0221	System error
	64	CMD0216	Command privilege missing

Output format

The information is output on a line-by-line basis.

Sample output

```
SNAPSHOT-STATUS: READY
SNAPTIME       : 24             SECONDS
SNAPFILE.DAT   : :4V08:$TSOS.SNAPFILE.DAT
SNAPFILE       : :4V08:$TSOS.SNAPFILE
    SIZE       : 153744         PAM PAGES
    EXTENTS    : 2
    EXTENT#  VSN     EXTENT_SIZE
    1        4V08.0  153600
    2        4V08.1  144
```

Explanation of the output lines

Output line	Meaning and possible values
SNAPSHOT-STATUS	Shows whether the SNAP dump function is initialized for the active session. Possible values: • OFF SNAP dump function is disabled (after system startup with SNAP-ACTIVE-SWITCH=OFF parameter or after /DEACTIVATE-SNAPSHOT) • READY SNAP dump function is enabled (after system startup with SNAP-ACTIVE-SWITCH=ON parameter or after /ACTIVATE-SNAPSHOT) • PREVIOUS Data of a SNAP dump was not copied to the $SYSSNAP.xxx file • NOT_INIT Not all resources are ready • IN_INIT Resources provided • IN_PROCESS A SNAP dump will be created • IN_COPY Data of a SNAP dump will be copied to the $SYSSNAP.xxx file • LOCKED The Snapshot process was suspended as the result of an internal error (see messages or SERSLOG entries). Systems support must initiate measures to correct this error.
SNAPTIME	Currently set maximum SNAP runtime in seconds which is set using the system parameter SNAPTIME. Possible values: <integer 8..24>, where a value < 8 is shown with 8 and a value > 24 with 24.
SNAPFILE.DAT	Complete path name of the system file: :$TSOS.SNAPFILE.DAT. If the file does not exist “-” is output.

SNAPFILE	Complete path name of the system file: :$TSOS.SNAPFILE. If the file does not exist “-” is output.
If the system file $TSOS.SNAPFILE exists further information is output.	
SIZE	Size of the system file $TSOS.SNAPFILE in PAM pages
EXTENTS	Number of extents of the system file $TSOS.SNAPFILE
Detailed information on the extents is provided in a table with the following columns:	
EXTENT#	Sequence number of the extent, beginning with 1
VSN	VSN of the pubset disk on which the file is located
EXTENT_SIZE	Size of the extent in PAM pages

Table 151: Output lines of the SHOW-SNAPSHOT-STATUS command

7.12 SHOW-SPACE-SATURATION-LEVELS

Display space saturation thresholds

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	@

Function

The SHOW-SPACE-SATURATION-LEVELS command provides system support with information for monitoring space saturation on pubsets.
In the case of an SF pubset these attributes are cross-pubset attributes, and in the case of an SM pubset the attributes are defined specifically for each volume set.

The thresholds for monitoring space saturation can be modified using the MODIFY-SPACE-SATURATION-LEVELS command.

The command supports structured output in S variables (see "Output in S Variable").

> The thresholds for space saturation are also contained in the output of the SHOW-PUBSET-PARAMETERS command.

Restrictions

In the case of SF pubsets in a shared pubset network, only the information displayed on the pubset master is valid. The information displayed on a pubset slave becomes valid if that slave is made the pubset master.

Format

SHOW-SPACE-SATURATION**-LEV**ELS

PUBSET = ***ALL** / <cat-id 1..4>

,**SEL**ECT**-PUB**SET = ***ALL** / ***EXCL**USIVE / ***SHARE**D / ***LOCAL** / ***REM**OTE / ***ACCESS**IBLE /
***LOCAL-ACCESS**IBLE / ***REMOTE-ACCESS**IBLE / ***HSMS-SUP**PORTED /
***SPEEDCAT** / ***PAGING** / ***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED /
***INACCESS**IBLE / ***QUIET** / ***DEFINED-XCS-CONF**IGURATED /
***XCS-CONF**IGURATED

,**VOL**UME**-SET** = ***ALL** / <cat-id 1..4>

Operands

PUBSET = *ALL / <cat-id 1..4>
Specifies the pubsets for which the space saturation values are to be displayed.

PUBSET = *ALL
The space saturation values for all pubsets are displayed. The SELECT-PUBSET operand can be used to restrict the selection to pubsets with specific attributes.

PUBSET = <cat-id 1..4>
ID of the pubset whose space saturation values are to be displayed.

SELECT-PUBSET = *ALL / *EXCLUSIVE / *SHARED / *LOCAL / *REMOTE / *ACCESSIBLE / *LOCAL-ACCESSIBLE / *REMOTE-ACCESSIBLE / *HSMS-SUPPORTED / *SPEEDCAT / *PAGING / *SINGLE-FEATURE / *SYSTEM-MANAGED / *INACCESSIBLE / *QUIET / *DEFINED-XCS-CONFIGURATED / *XCS-CONFIGURATED
Specifies whether information is required only for specific pubsets. This restriction is useful if *ALL is used in the PUBSET operand to select all pubsets.

SELECT-PUBSET = *ALL
The space saturation values for all the pubsets specified in the PUBSET operand are displayed.

SELECT-PUBSET = *EXCLUSIVE
The space saturation values for all pubsets imported exclusively are displayed.

SELECT-PUBSET = *SHARED
The space saturation values for all pubsets imported as shared are displayed.

SELECT-PUBSET = *LOCAL
The space saturation values for all locally imported pubsets are displayed. The space saturation values for the pubsets which cannot be accessed are also displayed.

SELECT-PUBSET = *REMOTE
The space saturation values for all pubsets for which the *LOCAL attribute does not apply are displayed.

SELECT-PUBSET = *ACCESSIBLE
The space saturation values for all pubsets which can be accessed are displayed.

SELECT-PUBSET = *LOCAL-ACCESSIBLE
The space saturation values for all locally accessible, i.e. imported, pubsets are displayed.

SELECT-PUBSET = *REMOTE-ACCESSIBLE
The space saturation values for all pubsets which have not been imported locally but whose file catalog can be accessed over an MSCF connection are displayed.

SELECT-PUBSET = *HSMS-SUPPORTED
The space saturation values for all pubsets which are supported by the HSMS subsystem are displayed.

SELECT-PUBSET = *SPEEDCAT
The space saturation values for all SF pubsets whose file catalog can be accessed in the local system via SPEEDCAT are displayed.

SELECT-PUBSET = *PAGING
The space saturation values for all pubsets with paging areas which are used locally are displayed.

SELECT-PUBSET = *SINGLE-FEATURE
The space saturation values for all SF pubsets are displayed.

SELECT-PUBSET = *SYSTEM-MANAGED
The space saturation values for all SM pubsets are displayed.

SELECT-PUBSET = *INACCESSIBLE
The space saturation values for all pubsets which cannot be accessed are displayed.

SELECT-PUBSET = *QUIET
The space saturation values for all pubsets whose MSCF connections no longer exist are displayed.

SELECT-PUBSET = *DEFINED-XCS-CONFIGURATED
The space saturation values for all pubsets which are defined as XCS pubsets in the MRS catalog are displayed.

SELECT-PUBSET = *XCS-CONFIGURATED
The space saturation values for all XCS pubsets are displayed.

VOLUME-SET = *ALL / <cat-id 1..4>
Identifies the volume sets whose space saturation values are to be displayed.

VOLUME-SET = *ALL
The space saturation values for all volume sets are displayed.

VOLUME-SET = <cat-id 1..4>
ID of the volume set for which the space saturation values are to be displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	32	CMD0221	Internal system error
	32	CMD2009	Error during output in S variables (e.g. subsystem not available)
	64	CMD0216	Privilege error
	64	DMS1381	Volume set conflict
	64	DMS138B	Pubset does not exist or not with specified attribute
	64	DMS138E	Volume set does not exist
	64	DMS1396	Invalid host name
	128	DMS1386	Not enough class 4/5 memory

Output format

The output starts with a header line consisting of the command name. The output information per pubset breaks down into three groups of output blocks:

1. output block for pubset-global summary information
2. output blocks for pubset-global detailed information
3. output blocks for volume set-specific detailed information

Pubset-global summary information

The output block for pubset-global summary information consists of a row of values which at the same time acts as a header line introducing the information output for a pubset. The summary information has the following layout:

```
PUBSET <catid>: <type>, CTL-SET = (<ctlid>, <type>), <status>, <hsms>
```

Key to the output values

<catid>	Pubset ID
<type>	Pubset type; possible values: SINGLE-FEATURE or SYSTEM-MANAGED
<ctlid>	Control volume set ID (for SM pubsets)
<type>	Device type of control volume set's system disk (for SM pubsets)
<status>	Pubset accessibility; possible values: • ACC: Pubset is locally accessible. • INACC: Pubset is not locally accessible.
<hsms>	HSMS subsystem support (for SM pubsets); possible values: • HSMS-SUP: Pubset is supported by HSMS. • NO-HSMS-SUP: Pubset is not supported by HSMS.

Pubset-global detailed information

Information on the space saturation thresholds and on space reserved for a ZIP startup is displayed only for SF pubsets (for SM pubsets see "Volume set-specific Information").

The header line divides the subsequent rows of values into a three-column table. Each row of values contains the parameter name in the first column, the defined pubset-global values (DEFINED) in the second and the currently set values (CURRENT) in the third.

The output block is introduced by the following header line:

```
--- SPACE SATURATION       --- + --- DEFINED --- + --- CURRENT ---
```

Then the following rows of values are displayed:

```
SPACE SATURATION LEVEL 1      | BY SYSTEM       | <number> HP
                              | <number> HP     |
SPACE SATURATION LEVEL 2      | BY SYSTEM       | <number> HP
                              | <number> HP     |
SPACE SATURATION LEVEL 3      | BY SYSTEM       | <number> HP
                              | <number> HP     |
SPACE SATURATION LEVEL 4      | BY SYSTEM       | <number> HP
                              | <number> HP     |
SPACE SATURATION LEVEL 5      | BY SYSTEM       | <number> HP
                              | <number> HP     |
ZIP LEVEL                     | BY SYSTEM       | <number> HP
                              | <number> HP     |
```

Volume set-specific information

In the case of an SM pubset the information on the space saturation thresholds and on space reserved for a ZIP startup is displayed for each volume set. The information on a volume set is preceded by the following header line:

The volume set-specific information begins with the following header line:

```
--- VOLUME SET INFORMATION  -------------------------------------
```

This is followed by the output information for all volume sets of the SM pubset or for the volume set specified explicitly. The output information for each volume set begins with the volume set summary:

```
VOLUME-SET <catid>:  <type> <status>
```

Meaning of the output values:

<catid>	Volume set ID
<type>	VOLRES device type
<status>	Volume operating status: • NORMAL-USE: The volume set is in operation and therefore accessible. • IN-HOLD: The volume set is temporarily not in operation. • DEFECT: The volume set is defective. • DEFINED-ONLY: The volume set is defined but not accessible.

Information on space saturation thresholds and on space reserved for a ZIP startup is then provided.

The header line divides the subsequent rows of values into a three-column table. Each row of values contains the parameter name in the first column, the defined volume-set-specific values (DEFINED) in the second and the currently set values (CURRENT) in the third.

```
--- SPACE SATURATION       --- + --- DEFINED --- + --- CURRENT ---
 SPACE SATURATION LEVEL 1       | BY SYSTEM       | <number> HP
                                | <number> HP     |
 SPACE SATURATION LEVEL 2       | BY SYSTEM       | <number> HP
                                | <number> HP     |
 SPACE SATURATION LEVEL 3       | BY SYSTEM       | <number> HP
                                | <number> HP     |
 SPACE SATURATION LEVEL 4       | BY SYSTEM       | <number> HP
                                | <number> HP     |
 SPACE SATURATION LEVEL 5       | BY SYSTEM       | <number> HP
                                | <number> HP     |
 ZIP LEVEL                      | BY SYSTEM       | <number> HP
                                | <number> HP     |
```

Output in S variables

Some S variables are generated only for the volume-set-specific information of an SM pubset. These are labeled with “1” in the Condition column of the table below.

Output information	Name of the S variable	T	Contents	Condition
Current value of saturation level 1 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL1	S	*UNDEF <integer 1..2147483647>	
Current value of saturation level 2 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL2	S	*UNDEF <integer 1..2147483647>	
Current value of saturation level 3 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL3	S	*UNDEF <integer 1..2147483647>	
Current value of saturation level 4 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL4	S	*UNDEF <integer 1..2147483647>	
Current value of saturation level 5 *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.SAT-LEVEL5	S	*UNDEF <integer 1..2147483647>	
Current ZIP level *UNDEF=no definition (always this value for SM pubset)	var(*LIST).ALLOC-CURR.ZIP-LEVEL	S	*UNDEF <integer 0..2147483647>	
Defined saturation level 1	var(*LIST).ALLOC-DEFI.SAT-LEVEL1	S	*BY-SYS <integer 1..2147483647>	

Defined saturation level 2	var(*LIST).ALLOC-DEFI.SAT-LEVEL2	S	*BY-SYS <integer 1..2147483647>	
Defined saturation level 3	var(*LIST).ALLOC-DEFI.SAT-LEVEL3	S	*BY-SYS <integer 1..2147483647>	
Defined saturation level 4	var(*LIST).ALLOC-DEFI.SAT-LEVEL4	S	*BY-SYS <integer 1..2147483647>	
Defined saturation level 5	var(*LIST).ALLOC-DEFI.SAT-LEVEL5	S	*BY-SYS <integer 1..2147483647>	
Defined ZIP level (*UNDEF for SM pubset)	var(*LIST).ALLOC-DEFI.ZIP-LEVEL	S	*BY-SYS <integer 0..2147483647>	
Device type of the system disk of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-DEV-TYPE	S	*NO <c-string 1..8>	
ID of the control volume set; *NO for SF pubsets	var(*LIST).CONTR-VOLSET	S	*NO FALSE=none	
HSMS support for the pubset *NO=pubset is not supported *STD=for single-feature pubsets *YES=pubset is supported	var(*LIST).HSMS-SUP	S	*NO *STD *YES	
Pubset ID	var(*LIST).PUBSET-ID	S	FALSE=none	
Pubset type	var(*LIST).PUBSET-TYPE	S	*SINGLE-FEATURE *SYS-MANAGE	
Availability of the pubset *ACCESSIBLE=locally accessible *INACCESSIBLE=not locally accessible	var(*LIST).STA	S	*ACCESSIBLE *INACCESSIBLE	
Device type of the system disk of the volume set	var(*LIST).VOLSET(*LIST).DEV-TYPE	S	*UNKNOWN <device>	1
Current value of saturation level 1	var(*LIST).VOLSET(*LIST).SAT-CURR.SAT-LEVEL1	S	*UNDEF <integer 1..2147483647>	1
Current value of saturation level 2	var(*LIST).VOLSET(*LIST).SAT-CURR.SAT-LEVEL2	S	*UNDEF <integer 1..2147483647>	1
Current value of saturation level 3	var(*LIST).VOLSET(*LIST).SAT-CURR.SAT-LEVEL3	S	*UNDEF <integer 1..2147483647>	1
Current value of saturation level 4	var(*LIST).VOLSET(*LIST).SAT-CURR.SAT-LEVEL4	S	*UNDEF <integer 1..2147483647>	1

Output information	Name of the S variable	T	Contents	Condition
Current value of saturation level 5	var(*LIST).VOLSET(*LIST).SAT-CURR.SAT-LEVEL5	S	*UNDEF <integer 1..2147483647>	1
Current ZIP level	var(*LIST).VOLSET(*LIST).SAT-CURR.ZIP-LEVEL	S	*UNDEF <integer 0..2147483647>	1
Defined saturation level 1	var(*LIST).VOLSET(*LIST).SAT-DEFI.SAT-LEVEL1	S	*BY-SYS <integer 1..2147483647>	1
Defined saturation level 2	var(*LIST).VOLSET(*LIST).SAT-DEFI.SAT-LEVEL2	S	*BY-SYS <integer 1..2147483647>	1
Defined saturation level 3	var(*LIST).VOLSET(*LIST).SAT-DEFI.SAT-LEVEL3	S	*BY-SYS <integer 1..2147483647>	1
Defined saturation level 4	var(*LIST).VOLSET(*LIST).SAT-DEFI.SAT-LEVEL4	S	*BY-SYS <integer 1..2147483647>	1
Defined saturation level 5	var(*LIST).VOLSET(*LIST).SAT-DEFI.SAT-LEVEL5	S	*BY-SYS <integer 1..2147483647>	1
Defined ZIP level	var(*LIST).VOLSET(*LIST).SAT-DEFI.ZIP-LEVEL	S	*BY-SYS <integer 0..2147483647>	1
Status of the volume set *DEFECT=permanently inaccessible (defective) *DEFINED=not available, all that exists is an entry in the configuration file *IN-HOLD=temporarily not accessible (frozen) *NORMAL=available	var(*LIST).VOLSET(*LIST).STA	S	*DEFECT *DEFINED *IN-HOLD *NORMAL	1
Volume set ID	var(*LIST).VOLSET(*LIST).VOLSET	S	<vsid>	1

Example

/show-space-saturation-levels pubset=x

```
%-------------------------------------------------------------------------%COMMAND:
 SHOW-SPACE-SATURATION-LEVELS
%- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
PUBSET X   : SINGLE-FEATURE, ACC
---- SPACE SATURATION       --------- + ---- DEFINED ---- + ---- CURRENT ----
 SPACE SATURATION LEVEL 1             | BY SYSTEM         | 939           HP
 SPACE SATURATION LEVEL 2             | BY SYSTEM         | 473           HP
 SPACE SATURATION LEVEL 3             | BY SYSTEM         | 240           HP
 SPACE SATURATION LEVEL 4             | 6             HP  | 6             HP
 SPACE SATURATION LEVEL 5             | BY SYSTEM         | 6             HP
 ZIP LEVEL                            | BY SYSTEM         | 6             HP
-------------------------------------------------------------------------
```

7.13 SHOW-SPOOL-CHARACTER-SETS

Request information on character sets

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$

Function

The SHOW-SPOOL-CHARACTER-SETS command provides information on data from the specified character set. The number of character sets listed can be freely limited by specifying selection criteria. All those character sets are selected whose entry contains the values specified in the relevant operands (logical ANDing).

The SHOW-SPOOL-CHARACTER-SETS operands have the same names and meanings as the operands of the SPSERVE statement ADD-SPOOL-CHARACTER-SET. The operand value *ALL (usually the default) means that the respective operand will not be used as a selection criterion.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SPOOL-CHARACTER-SETS

,**SELECT** = **_*ALL_** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **CHARACTER-SET-NAME** = **_*ALL_** / <alphanum-name 1..3 with-wild(24)> /

| list-poss(255): ***STD** / <alphanum-name 1..3 with-wild(24)>

| ,**OWNER** = **_*ALL_** / <alphanum-name 1..8 with-wild(24)> / list-poss(16): ***OWN** / ***NONE** /

| <name 1..8>

| ,**COLOUR** = **_*ALL_** / list-poss(9): ***BLACK** / ***MAGENTA** / ***BLUE** / ***GREEN** / ***YELLOW** /

| ***CYAN** / ***NEUTRAL** / ***RED** / ***IGNORE**

| ,**WEIGHT** =**_*ALL_** / list-poss(4): ***LIGHT** / ***NORMAL** / ***BOLD** / ***IGNORE**

| ,**CHAR**ACTER-**TYPE** = **_*ALL_** / list-poss(16): ***OCR-A** / ***OCR-B** / ***GOTHIC** / ***GRAPHIC** /

| ***NONE** / ***DATA** / ***COURIER** / ***FONT-1** / ***FONT-2** / ***FONT-3** / ***FONT-4** /

| ***FONT-5** / ***FONT-6** / ***FONT-7** / ***FONT-8** / ***FONT-9** / ***FONT-10** / ***FONT-11** /

| ***FONT-12** / ***FONT-13** / ***FONT-14** / ***FONT-15** / ***FONT-16** / ***IGNORE**

| ,**CHAR**ACTER-**STYLE** = **_*ALL_** / list-poss(3): ***STRAIGHT** / ***ITAL**ICS / ***IGNORE**

| ,**UNDERSCORE** = **_*ALL_** / list-poss(3): ***YES** / ***NO** / ***IGNORE**

| ,**CHAR**ACTERS-**P**ER-**INCH** = **_*ALL_** / ***IGNORE** / <integer 1..100> / ***RANGE**(...)

| ***RANGE**(...)

| | **LOW** = <integer 1..100>

| | ,**HIGH** = <integer 1..100>

| ,**LINE**S-**P**ER-**INCH** = **_*ALL_** / list-poss(9): **3** / **4** / **6** / **8** / **10** / **12** / **15** / **20** / **24**

| ,**LANG**UAGE = **_*ALL_** / list-poss(16): ***INTERNATIONAL** / ***ENGLISH** / ***USA** / ***BELGIAN** /

| ***FRENCH** / ***FRENCH** / ***DUTCH** / ***GERMAN** / ***NORWEGIAN** / ***SWEDISH** /

| ***DANISH** / ***SPANISH** /***SWISS** / ***ITALIAN** / ***ARABIC** / ***FARSI** / ***NONE** /

| ***ISO-8859-1** / ***ISO-8859-2** / ***ISO-8859-3** /***ISO-8859-3** / ***ISO-8859-4** /

| ***ISO-8859-5** / ***ISO-8859-6** / ***ISO-8859-7** / ***ISO-8859-8** /

| ***ISO-8859-9** / ***IGNORE**

| ,**NEAR-LETTER-QUALITY** = **_*ALL_** / list-poss(3): ***Y**ES / ***NO** / ***IGNORE**

| ,**ACCESS-DATE**= **_*ANY_** **/ *TODAY / *INTERVAL(...)**

```
        |           *INTERVAL(...)
        |               |       FROM = 1950-01-01 / <date with-compl>
        |               |       ,TO = *TODAY / <date with-compl>
,EXCEPT = *NONE / *PARAMETERS(...)
    *PARAMETERS(...)
        |       CHARACTER-SET-NAME = *NONE / <alphanum-name 1..3 with-wild(24)> /
        |                                    list-poss(16): *STD /<alphanum-name 1..3>
        |       ,OWNER = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
,SERVER-NAME = *HOME / <alphanum-name 1..8>
,CLUSTER-NAME = *LOCAL-CLUSTER / <alphanum-name 1..8>
```

Operands

SELECT = *ALL / *PARAMETERS(...)
Specifies from what character sets information is to be output.

SELECT = *PARAMETERS(...)
Initiates a list of selection criteria.

CHARACTER-SET-NAME = *ALL / <alphanum-name 1..3 with-wild(24)>/ list-poss(255): *STD / <alphanum-name 1..3>
The selection criterion is the name of the character set. Specifying *STD designates the standard character set of the same name.

OWNER = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *NONE / *OWN / <name 1..8>
The selection criterion is the user ID of the user who created the character set.
Nonprivileged users may only specify *ALL or *OWN.

COLOUR = ALL / list-poss(9): *BLACK / *MAGENTA / *BLUE / *GREEN / *YELLOW / *CYAN / *RED / *NEUTRAL / *IGNORE
The selection criterion is the color.

WEIGHT = *ALL / list-poss(4): *LIGHT / *NORMAL / *BOLD / *IGNORE
The selection criterion is the line weight.

CHARACTER-TYPE = ALL / list-poss(16): *OCR-A / *OCR-B / *GOTHIC /*GRAPHIC / *NONE / *DATA / *COURIER / *FONT-1 / *FONT-2 / *FONT-3 / *FONT-4 / *FONT-5 / *FONT-6 / *FONT-7 / *FONT-8 / *FONT-9 / *FONT-10 / *FONT-11 / *FONT-12 / *FONT-13 / *FONT-14 / *FONT-15 / *FONT-16 / *IGNORE
The selection criterion is the font.

CHARACTER-STYLE = *ALL / list-poss(3): *STRAIGHT / *ITALICS / *IGNORE
The selection criterion is the type size specified for the character set.

UNDERSCORE = *ALL / list-poss(3): *YES / *NO / *IGNORE
The selection criterion is whether underscoring has been specified for the character set.

CHARACTERS-PER-INCH = *ALL / <integer 1..100> / *IGNORE / *RANGE(...)
The selection criterion is the character density. (*IGNORE and <integer 1..100> are only available as of RSO2.2A.)

CHARACTERS-PER-INCH = *RANGE(...)
Specifies a value range. All character sets whose character density is within the specified range are output.

LOW = <integer 1..100>
Lower range limit.

HIGH = <integer 1..100>
Upper range limit.

LINES-PER-INCH = *ALL / list-poss(9): 3 / 4 / 6 / 8 / 10 / 12 / 15 / 20 / 24
The selection criterion is the line density.

LANGUAGE = *ALL / list-poss(16): *INTERNATIONAL / *ENGLISH / *USA / *BELGIAN / *FRENCH / *DUTCH / *GERMAN / *NORWEGIAN / *SWEDISH / *DANISH / *SPANISH / SWISS / ITALIAN / NONE / IGNORE / *ARABIC / *FARSI / *ISO-8859-1 / *ISO-8859-2 / *ISO-8859-3 / *ISO-8859-4 / *ISO-8859-5 / *ISO-8859-6 /*ISO-8859-7 / *ISO-8859-8 / *ISO-8859-9
The selection criterion is the language specified for the character set.

NEAR-LETTER-QUALITY = *ALL / list-poss(3): *YES / *NO / *IGNORE
The selection criterion is the indicator for NLQ quality in the character set.

ACCESS-DATE = *ANY / *TODAY / *INTERVAL(...)
The selection criterion is the date of the last change or the last utilization within a print process. This date may be required as an additional criterion for the output of the form entry. It can be a specific date or a date range.

ACCESS-DATE = *TODAY
The last modification or change was performed on the current date.

ACCESS-DATE = *INTERVAL(...)
Specifies a date range.

FROM = 1950-01-01 / <date with-compl>
Earliest date in the date range.

TO = *TODAY / <date with-compl>
Latest date in the date range. The current date is set by default.

EXCEPT = *NONE / *PARAMETERS(...)
Specifies what character sets are to be excluded from the selection (i.e. not taken into account). Specifying NONE (the default) means the operand is not used as a selection criterion.

EXCEPT = *PARAMETERS(...)
Initiates a list of selection criteria.

CHARACTER-SET-NAME = *NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *STD / <alphanum-name 1..3>
The character sets with the specified characteristics are not to be taken into account. Specifying *NONE (the default) means the operand is not used as a selection criterion.

OWNER = *NONE / alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
The character sets with the specified characteristics are not to be taken into account. Specifying *NONE (the default) means the operand is not used as a selection criterion.

Nonprivileged users may only specify values other than *NONE for OWNER if they specified SELECT=PARAMETERS(OWNER=*OWN) above.

SERVER-NAME = *HOME / <alphanum-name 1..8>
Specifies the server for which information is to be output.

CLUSTER-NAME = *LOCAL-CLUSTER / <alphanum-name 1..8>
Specifies the cluster for which information is to be output. Only BS2000 clusters can be specified.

Notes

- The value *STD is supported for reasons of compatibility. Which parameter file is used by default as the information source depends on the operating mode (dynamic, static, from configuration, from command.)
- If a SPOOL parameter file is assigned (statically or dynamically), this is the default source. If no parameter file is assigned, the default source is the SPOOL parameter file of the home system.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SPM0413	No character set present
2	0	SPM0518	No authorization
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command

Output

```
C-S-NAME COLOUR WEIGHT CH-TYPE CH-STYLE UND CPI LPI LANGUAGE NLQ OWNER
@@@@@@@@ @@@@@@ @@@@@@ @@@@@@@ @@@@@@@@ @@@ ###  ## @@@@@@@@ @@@ @@@@@@@@
ACCESS-DATE : @@@@-@@-@@
```

Note

The value IGN (IGNORE) in the fields COLOUR, WEIGHT, CH-TYPE, CH-STYLE, UNDERSCORE, LANGUAGE, NLQ and CPI shows that the respective operand is not interpreted by RSO.

Meaning of the fields

The name in parentheses is the corresponding operand of the ADD-SPOOL-CHARACTER-SET command.

Output field	Meaning / Contents
ACCESS-DATE	Date of the last modification or utilization
C-S-NAME(CHARACTER-SET-NAME)	Name of the character set
COLOUR(COLOUR)	Color in which the character set is to be printed
WEIGHT(WEIGHT)	Character weight
CH-TYPE(CHARACTER-TYPE)	Font (OCR-A, OCR-B, ...)
CH-STYLE(CHARACTER-STYLE)	Character style (STRAIGHT, ITALICS)
UND(UNDERSCORE)	Underlining
CPI(CHARACTERS-PER-INCH)	Character density
LPI(LINES-PER-INCH)	Line density (in lines per inch)
LANGUAGE(LANGUAGE)	Language for which the character set is intended (INTERNAT, ENGLISH, ...)
NLQ(NEAR-LETTER-QUALITY)	The print quality for printing: YES/NO
OWNER	Under TSOS: User ID of the character set owner, i.e. of the RSO device administrator or system administration who created it. For nonprivileged users, the output field is always blank

Table 152: Output fields of the SHOW-SPOOL-CHARACTER-SETS command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Character set name	var(*LIST).CHAR-SET-NAME	S	' ' <char-set-name>	
Character style used to print the character set	var(*LIST).CHAR-STYLE	S	*IGNORE *ITALICS *STRAIGHT	
Character type used to print the character set	var(*LIST).CHAR-TYPE	S	*COURIER *DATA *FONT-1 *FONT-10 *FONT-11 *FONT-12 *FONT-13 *FONT-14 *FONT-15 *FONT-16 *FONT-2 *FONT-3 *FONT-4 *FONT-5 *FONT-6 *FONT-7 *FONT-8 *FONT-9 *GOTHIC *GRAPHIC *IGNORE *NONE *OCR-A *OCR-B	
Color used to print the character set	var(*LIST).COLOUR	S	*BLACK *BLUE *CYAN *GREEN *IGNORE *MAGENTA *NEUTRAL *RED *YELLOW	
Pitch (in characters per inch)	var(*LIST).CPI	S	*IGNORE 1..100	

Output information	Name of the S variable	T	Contents	Condition
Language for which the character set it used	var(*LIST).LANG	S	*ARABIC *BELGIAN *DANISH *DUTCH *ENGLISH *FARSI *FRENCH *GERMAN *IGNORE *INTERNATIONAL *ISO-8859-1 *ISO-8859-2 *ISO-8859-3 *ISO-8859-4 *ISO-8859-5 *ISO-8859-6 *ISO-8859-7 *ISO-8859-8 *ISO-8859-9 *ITALIAN *NONE *NORWEGIAN *SPANISH *SWEDISH *SWISS *USA	
Time stamp	var(*LIST).LAST-ACCESS	S	*NONE <yyyy-mm-dd>	INF=*ALL
Line spacing (in lines per inch)	var(*LIST).LPI	S	3,4,6,8,10,12,15,20,24	
Near-letter quality (NLQ) printing	var(*LIST).NLQ	S	*IGNORE *NO *YES	
User ID of the character set owner	var(*LIST).OWNER	S	' ' <user-id>	
Underscore printed characters	var(*LIST).UNDERSCORE	S	*IGNORE *NO *YES	
Character weight used to print the character set	var(*LIST).WEIGHT	S	*BOLD *IGNORE *LIGHT *NORMAL	

Examples

Output to SYSOUT

/show-spool-character-set char-set=2*

```
C-S-NAME COLOUR WEIGHT CH-TYPE CH-STYLE UND CPI LPI LANGUAGE NLQ OWNER
208      BLACK  NORMAL DATA    STRAIGHT NO   12   6 NONE     NO  TSOS
ACCESS-DATE :  2016-12-29
224      BLACK  NORMAL COURIER STRAIGHT NO   10   6 NONE     NO  TSOS
ACCESS-DATE :  2016-12-29
```

Output in S variable

/declare-var var-name=out(type=*structure),multiple-elem=*list
/exec-cmd (show-spool-character-sets select=*par(char-set=2*)),
text-output=*none,structure-output=out
/show-var out,inf=*par(val=*c-literal,list-index=*yes)

```
OUT#1.CHAR-SET.NAME = '208'
OUT#1.COLOUR = '*BLACK'
OUT#1.WEIGHT = '*NORMAL'
OUT#1.CHAR-TYPE = '*DATA'
OUT#1.CHAR-STYLE = '*STRAIGHT'
OUT#1.UNDERSCORE = '*NO'
OUT#1.CPI = '12'
OUT#1.LPI = '6'
OUT#1.LANG = '*NONE'
OUT#1.NLQ = '*NO'
OUT#1.OWNER = 'TSOS'
OUT#1.LAST-ACCESS = '2016-12-29'
*END-OF-VAR
OUT#2.CHAR-SET.NAME = '224'
OUT#2.COLOUR = '*BLACK'
OUT#2.WEIGHT = '*NORMAL'
OUT#2.CHAR-TYPE = '*COURIER'
OUT#2.CHAR-STYLE = '*STRAIGHT'
OUT#2.UNDERSCORE = '*NO'
OUT#2.CPI = '10'
OUT#2.LPI = '6'
OUT#2.LANG = '*NONE'
OUT#2.NLQ = '*NO'
OUT#2.OWNER = 'TSOS'
OUT#2.LAST-ACCESS = '2016-12-29'
*END-OF-VAR
```

7.14 SHOW-SPOOL-DEVICES

Request information on devices

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION PRINT-SERVICE-ADMINISTRATION
Routing code:	$

Function

The SHOW-SPOOL-DEVICES command provides information on data from the device entry of the specified printer or type of printer. Specifying a printer type without specifying a printer name means only a selection of important data will be output, sorted by printer name. The number of devices listed can be freely limited by specifying selection criteria. Those printers are selected whose device entry contains the values specified for the relevant operands (logical ANDing).

The SHOW-SPOOL-DEVICES operands have the same names and meanings as the operands of the SPSERVE statement ADD-SPOOL-DEVICES. The operand value *ALL (usually the default) means that the respective operand will not be used as a selection criterion.

> Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high-performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
> This forwarding may not evaluate all printer properties defined in BS2000. Especially the DEVICE-ACCESS of a local printer may have any value.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SPOOL-DEVICES

,**SEL**ECT = ***ALL** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **DEV**ICE-**NAME** = ***ALL** / <alphanum-name 1..8 with-wild(24)> / list-poss(255): ***STD** /

| <alphanum-name 1..8>

| ,**DEV**ICE-**TYPE** = ***ALL** / <filename 1..16 without-cat-user-gen-vers> /

| list-poss(37): ***ALL-LOC**AL-**PRINT**ERS / ***ALL-REM**OTE-**PRINT**ERS /

| ***HP-PRINT**ER / ***HP90-PRINT**ER / ***LP-PRINT**ER /

| ***LP-EMUL**ATED-**PRINT**ER / ***LP48-PRINT**ER / ***LP65-PRINT**ER / ***VIRTUAL** /

| ***2050-APA**-PRINTER / ***2090-APA**-PRINTER / ***PCL-PRINT**ER /

| ***2090-TWIN**-PRINTER / ***DJET-REM**OTE-**PRINT**ER /

| ***2030**-PCL-PRINTER / ***4011**-REMOTE-PRINTER /

| ***4812**-REMOTE-PRINTER / ***4813**-REMOTE-PRINTER /

| ***4818**-PCL-REMOTE-PRINTER / ***4821**-PCL-REMOTE-PRINTER /

| ***4822**-PCL-REMOTE-PRINTER / ***4824**-PCL-REMOTE-PRINTER /

| ***4825**-PCL-REMOTE-PRINTER / ***8121**-REMOTE-PRINTER /

| ***9000-EPFX**-REMOTE-PRINTER / ***9000-EPLQ**-REMOTE-PRINTER /

| ***9000-EPSQ**-REMOTE-PRINTER / ***9000-PCL**-REMOTE-PRINTER /

| ***9000-PRO**-REMOTE-PRINTER / ***9000-PS**-REMOTE-PRINTER /

| ***9000**-REMOTE-PRINTER / ***9001**-REMOTE-PRINTER /

| ***9001-31**-REMOTE-PRINTER / ***9002**-REMOTE-PRINTER /

| ***9003**-REMOTE-PRINTER / ***9004**-REMOTE-PRINTER /

| ***9011**-REMOTE-PRINTER / ***9012**-REMOTE-PRINTER /

| ***9013**-REMOTE-PRINTER / ***9014**-REMOTE-PRINTER /

| ***9015**-REMOTE-PRINTER / ***9021**-REMOTE-PRINTER /

| ***9022**-REMOTE-PRINTER / ***9022-200**-REMOTE-PRINTER /

| ***9025**-REMOTE-PRINTER / ***9026-PCL**-REMOTE-PRINTER /

| ***9026-RENO**-REMOTE-PRINTER / ***9045**-ANSI-REMOTE-PRINTER /

| ***9046**-REMOTE-PRINTER / ***9097**-REMOTE-PRINTER /

| ***9645**-REMOTE-PRINTER

```
|     ,OWNER = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN /
|              *NONE / <name 1..8>
|     ,ACCESS-DATE = *ANY / *TODAY / *INTERVAL(...)
|       *INTERVAL(...)
|         |     FROM = 1950-01-01 / <date with-compl>
|         |     ,TO = *TODAY / <date with-compl>
|     ,DEVICE-ACCESS = *ALL / *NEA-ACCESS(...) / *TCP-ACCESS(...) / *LOCAL-ACCESS(...) /
|     *SCSI-ACCESS(...)
|       *NEA-ACCESS(...)
|         |     ACCESS-TYPE = *ALL / list-poss(6): *DIRECT / *HARDCOPY / *APPLICATION /
|         |                   *HDLC / *PC / *HARDCOPY-9751
|         |     ,PROCESSOR-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> /
|         |                       list-poss(16): *NONE / <alphanum-name 1..8>
|         |     ,STATION-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> /
|         |                     list-poss(16): *NONE / <alphanum-name 1..8>
|       *TCP-ACCESS(...)
|         |     ACCESS-TYPE = *ALL / *TACLAN / *IPP / *LPD(...)
|         |       *LPD(...)
|         |         |     LPD-PRINTER-NAME = *ALL / <c-string 1..8>
|         |         |     ,FROM-PORT-NUMBER = *ALL / *STD / <integer 0..1024> / *RANGE(...)
|         |         |       RANGE(...)
|         |         |         |     LOW = <integer 0 ..1024>
|         |         |         |     ,HIGH = <integer 0 ..1024>
|         |         |     ,TO-PORT-NUMBER = *ALL / *STD / <integer 0..1024> / *RANGE(...)
|         |         |       RANGE(...)
|         |         |         |     LOW = <integer 0 ..1024>
|         |         |         |     ,HIGH = <integer 0 ..1024>
|         |     ,INTERNET-ADDRESS = *ALL / <alphanum-name 1..24 with-wild(24)> /
|         |                         <composed-name 1..15 with-wild(24)> / list-poss(16): *NONE /
|         |                         <alphanum-name 1..15> / <composed-name 7..15>
|         |     ,PORT-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> /
|         |                  list-poss(16): *NONE / <alphanum-name 1..8>
|       *LOCAL-ACCESS(...)
```

```
|           |       ACCESS-TYPE = *ALL / list-poss(3): *CHANNEL-TYPE-1 / *CHANNEL-TYPE-2 /
|           |                                *BUS-TYPE-1
|           |       ,MNEMONIC-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> /
|           |                                  list-poss(16): <alphanum-name 2..2> / *NONE
|           |       ,PROGRAM-NAME = *ALL / *NONE / <filename 1..50>
|       *SCSI-ACCESS(...)
|           |       ACCESS-TYPE = *ALL / *EMULATED-CHANNEL-TYPE-2
|           |       ,MNEMONIC-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
|           |                                  <alphanum-name 2..2>
|   ,SLAVE-MNEMONIC-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> /
|                                      list-poss(16): <alphanum-name 2..2>/ *NONE
|   ,ESD-SIZE = *ALL / <integer 1..128> / *RANGE(...)
|       *RANGE(...)
|           |       LOW = 1 / <integer 1..128>
|           |       ,HIGH = 128 / <integer 1..128>
|   ,REDIRECTION-DEVICE = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
|                                  *NONE / <alphanum-name 1..8>
|   ,LANGUAGE-EXT-TYPE = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
|                                  *SYSTEM / <alphanum-name 1..8>
|   ,FORMS-OVERLAY-BUFFER = *ALL / *NO / *RANGE(...)
|       *RANGE(...)
|           |       LOW = <integer 1..32767>
|           |       ,HIGH = <integer 1..32767>
|   ,CHARACTER-SET-NUMBER = *ALL / list-poss(7): 1 / 4 / 6 / 23 / 36 / 46 / 64
|   ,ROTATION = *ALL / *YES / *NO
|   ,DUPLEX-PROCESSING = *ALL / *NO / *YES
|   ,FORMS-OVERLAY = *ALL / *YES / *NO
|   ,RASTER-PATTERN-MEM = *ALL / *NONE / *RANGE(...)
|       *RANGE(...)
|           |       LOW = <integer 4096..65535>
|           |       ,HIGH = <integer 4096..65535>
|   ,TRANSMISSION = *ALL / list-poss(3): *IGNORE / *7BIT / *8BIT
|   ,FONT-TYPE = *ALL / list-poss(3): *IGNORE / *7BIT / *8BIT
```

| ,**FACE-PROC**ESSING = ***ALL** / ***Y**ES / ***NO**
| ,**MAX**IMUM-**INPUT-TRAY** = ***ALL** / <integer 1.99> / ***RANGE**(...)
| ***RANGE**(...)
| | **LOW** = <integer 1..99>
| | ,**HIGH** = <integer 1..99>
| ,**SUP-FORMAT-NAMES** = ***ALL** / ***DEFAULT** / list-poss(8): ***TEXT** / ***HP** / ***SPDS** / ***PCL** /
| ***PLAIN-TEXT** / ***EXCCW** / ***PML** / <c-string 1..63 with-low>
| ,**MONJV** = ***ALL** / ***NO** / ***Y**ES
| ,**NOTIFICATION** = ***ALL** / ***NO** / ***Y**ES
| ,**ENCRYPTION** = ***ALL** / ***NO** / ***Y**ES
| ,**UNICODE** = ***ALL** / ***NO** / ***Y**ES
| ,**LINE-SIZE** = ***ALL** / ***IGNORE** / <integer 3..255> / ***RANGE**(...)
| ***RANGE**(...)
| | **LOW** = <integer 3..255>
| | ,**HIGH** = <integer 3..255>
| ,**CHAR**ACTER-**IMAGE** = ***ALL** / ***NONE** / <alphanum-name 1..3 with-wild(24)> /
| list-poss(16): <alphanum-name 1..3>
| ,**USER-ID**ENTIFICATION = ***ALL** / ***NONE** / <alphanum-name 1..8 with-wild(24)> /
| list-poss(16): ***OWN** / <name 1..8>
| ,**ID**ENTIFICATION = ***ALL** / list-poss(16): ***NONE** / <c-string 1..16>
| ,**TER**MINAL = ***ALL** / **NONE** / ***OWN** / ***PAR**AMETERS(...)
| ***PAR**AMETERS(...)
| | **PROCES**SOR-**NAME** = ***ALL** / <alphanum-name 1..8 with-wild(24)> /
| | list-poss(16): ***ANY** / ***OWN** / <alphanum-name 1..8>
| | ,**STAT**ION-**NAME** = ***ALL** / <alphanum-name 1..8 with-wild(24)> /
| | list-poss(16): ***ANY** / ***OWN** / <alphanum-name 1..8>
| ,**LEFT-MARGIN** = ***ALL** / <integer 0..31> / ***RANGE**(...)
| ***RANGE**(...)
| | **LOW** = <integer 0..31>
| | ,**HIGH** = <integer 0..31>
| ,**LINE-FEED-COMPR**ESS = ***ALL** / ***Y**ES / ***NO**
| ,**BLANK-COMPR**ESSION = ***ALL** / ***Y**ES / ***NO**
| ,**START-FORM-FEED** = ***ALL** / ***Y**ES / ***NO**

```
|     ,FORM-FEED = *ALL / *LISTING(...) / *SINGLE-SHEET(...)
|       *LISTING(...)
|         |     DEFAULT-TRAY-NUMBER = *ALL / *IGNORE / <integer 1..99> / *RANGE(...)
|         |       *RANGE(...)
|         |         |     LOW = <integer 1..99>
|         |         |     ,HIGH = <integer 1..99>
|         |     ,OUTPUT-TRAY-NUMBER = *ALL / <integer 0..99> / *RANGE(...)
|         |       *RANGE(...)
|         |         |     LOW = <integer 0..99>
|         |         |     ,HIGH = <integer 0..99>
|       *SINGLE-SHEET(...)
|         |     DEFAULT-TRAY-NUMBER = *ALL / *IGNORE / <integer 1..99> / *RANGE(...)
|         |       *RANGE(...)
|         |         |     LOW = <integer 1..99>
|         |         |     ,HIGH = <integer 1..99>
|         |     ,OUTPUT-TRAY-NUMBER = *ALL / <integer 0..99> / *RANGE(...)
|         |       *RANGE(...)
|         |         |     LOW = <integer 0..99>
|         |         |     ,HIGH = <integer 0..99>
|     ,SKIP-TO-CHANNEL-ONE = *ALL / *NORMAL / *OPTIMIZED
|     ,SKIP-TO-NEXT-PAGE = *ALL / *BY-LINES / *BY-FORM-FEED
|     ,ESCAPE-VALUE = *ALL / list-poss(16): *NONE / <x-string 1..2>
|     ,CONTROLLER-RESERVED = *ALL / *YES / *NO
|     ,FORM-NAME = *ALL / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6>
|     ,DISCONNECTION = *ALL / list-poss(2): *YES / *NO / *FORCE
|     ,BUFFER-SIZE = *ALL / <integer 256..32767> / *RANGE(...)
|       *RANGE(...)
|           LOW = <integer 256..32767>
|           ,HIGH = <integer 256..32767>
|     ,RESET = *ALL / *YES / *NO
|     ,REPEAT-MESSAGE = *ALL / *NO / *PARAMETERS(...)
|       *PARAMETERS(...)
|         |     TYPE = *ALL / *SYSTEM / *DUMMY
```

```
|           |       ,LIMIT = *ALL / *NO / <integer 1..255> / *RANGE(...)
|           |          *RANGE(...)
|           |              |       LOW = <integer 1..255>
|           |              |       ,HIGH = <integer 1..255>
|           |       ,RETRY-TIME = *ALL / GLOBAL / <integer 1..600> / *RANGE(...)
|           |          *RANGE(...)
|           |              |       LOW = <integer 1..600>
|           |              |       ,HIGH = <integer 1..600>
|       ,RESTART-ACTION = *ALL / *NO / *PARAMETERS(...)
|          *PARAMETERS(...)
|              |       LIMIT = *ALL / *NO / <integer 1..255> / *RANGE(...)
|              |          *RANGE(...)
|              |              |       LOW = <integer 1..255>
|              |              |       ,HIGH = <integer 1..255>
|              |       ,RETRY-TIME = *ALL / GLOBAL / <integer 1..600> / *RANGE(...)
|              |          *RANGE(...)
|              |              |       LOW = <integer 1..600>
|              |              |       ,HIGH = <integer 1..600>
|       ,SYNCHRONIZATION = *ALL / *PRINTER / *NETWORK
|       ,TIMEOUT-MAX = *ALL / <integer 2..30> / *RANGE(...)
|          *RANGE(...)
|              |       LOW = <integer 2..30>
|              |       ,HIGH = <integer 2..30>
|       ,PAGES-EJECT-TIMEOUT = *ALL / *NO / <integer 1..255> / *RANGE(...)
|          *RANGE(...)
|              |       LOW = <integer 1..255>
|              |       ,HIGH = <integer 1..255>
|       ,BAND-IDENTIFICATION = *ALL / <alphanum-name 1..4 with-wild(24)> / list-poss(16):
|                                     *NONE / <alphanum-name 4..4>
|       ,LOAD = *ALL / *YES / *NO
|       ,MODULO2 = *ALL / *YES / *NO
|       ,RECOVERY-RULES = *ALL / <composed-name 1..16 with-wild(24)> /
|                                 list-poss(16): *SYSTEM / <composed-name 1..16>
```

```
        |       ,POLLING = *ALL / *YES / *NO
        |       ,PRINTER-PARAM-FILE = *ALL / <composed-name 1..16 with-wild(24)> /
        |                                   *SYSTEM / <composed-name 1..16>
        |       ,RESOURCE-FILE-PREFIX = *ALL/ <composed-name 1..8 with-wild(16)>/
        |                                       *SYSTEM / <composed-name 1..16>
        |       ,CONTROLLER-START = *ALL / *AT-PRINTER-START / *AT-JOB-START
        |       ,CHARACTER-SET-POS = *ALL / *NONE / *PARAMETERS(...)
        |          *PARAMETERS(...)
        |             |       POSITION-1 = *ALL / list-poss(16): *OCR-A / *OCR-B / *GOTHIC /
        |             |                           *GRAPHIC / *NONE / *DATA / *COURIER / *FONT-1 / *FONT-2 /
        |             |                           *FONT-3 / *FONT-4 / *FONT-5 / *FONT-6 / *FONT-7 / *FONT-8 /
        |             |                           *FONT-9 / *FONT-10 / *FONT-11 / *FONT-12 / *FONT-13 /
        |             |                           *FONT-14 / *FONT-15 / *FONT-16 / *NOT-USABLE
        |             |                           .
        |             |                           .
        |             |                           .
        |             |       ,POSITION-16 = *ALL / list-poss(16): *OCR-A / *OCR-B / *GOTHIC /
        |             |                           *GRAPHIC / *NONE / *DATA / *COURIER / *FONT-1 / *FONT-2 /
        |             |                           *FONT-3 / *FONT-4 / *FONT-5 / *FONT-6 / *FONT-7 / *FONT-8 /
        |             |                           *FONT-9 / *FONT-10 / *FONT-11 / *FONT-12 / *FONT-13 /
        |             |                           *FONT-14 / *FONT-15 / *FONT-16 / *NOT-USABLE
,EXCEPT = *NONE / *PARAMETERS(...)
   *PARAMETERS(...)
        |       DEVICE-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> /
        |                           list-poss(16): *STD / <alphanum-name 1..8>
        |       ,OWNER = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
        |       ,SLAVE-MNEMONIC-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
        |                                   <alphanum-name 2..2>
        |       ,REDIRECTION-DEVICE = *NONE / <alphanum-name 1..8 with-wild(24)> /
        |                                   list-poss(16): *CENTRAL /<alphanum-name 1..8>
        |       ,CHARACTER-IMAGE = *NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16):
        |                               <alphanum-name 1..3>
        |       ,USER-IDENTIFICATION = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
```

```
|                                *OWN / <name 1..8>
|       ,TERMINAL = *NONE / *OWN / *PARAMETERS(...)
|          *PARAMETERS(...)
|             |       PROCESSOR-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
|             |                                *OWN / <alphanum-name 1..8>
|             |       ,STATION-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16):
|             |                                *OWN / <alphanum-name 1..8>
|       ,FORM-NAME = *NONE / <alphanum-name 1..6 with-wild(24)> / list-poss(16):
|                       <alphanum-name 1..6>
|       ,BAND-IDENTIFICATION = *NONE / <alphanum-name 1..4 with-wild(24)> / list-poss(16):
|                                    <alphanum-name 4..4>
|       ,RECOVERY-RULES = *NONE / <composed-name 1..16 with-wild(24)> / list-poss(16):
|                                 <composed-name 1..16>
|       ,PRINTER-PARAM-FILE = *NONE / <composed-name 1.16 with-wild(24)> / list-poss(16):
|                                 <composed-name 1..16>
|       ,RESOURCE-FILE-PREFIX = *NONE / <composed-name 1.8 with-wild(16)> / list-poss(16):
|                                    <composed-name 1..8>
,SERVER-NAME = *STD / *HOME / <alphanum-name 1..8>
,INFORMATION = *SUMMARY / *ALL / list-poss(7): *DEVICE-ACCESS / *TWIN-DEVICE-DEF /
                  *DEVICE-INFORMATION / *ADMINISTRATOR / *SPOOLOUT-CONTROL /
                  *PROCESSING-CONTROL / *CHARACTER-SET-POS
```

Operands

SELECT = ALL / PARAMETERS(...)
Specifies the criteria to be used for selecting the printers via which the information is to be output. Specifying *ALL (default value) means that information is output via all printers entered.

SELECT = *PARAMETERS(...)
The selection criteria are listed.

DEVICE-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(255): *STD / <alphanum-name 1..8>
The selection criterion is the device name. The specification *STD designates the same device name.

DEVICE-TYPE = ...
The selection criterion is the device type.

OWNER = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <name 1..8> / *OWN / *NONE
The selection criterion is the user ID of the user who created the device entry.
The permitted specifications depend on the users' access rights. See "Access rights".

ACCESS-DATE = *ANY / *TODAY / *INTERVAL(...)
The selection criterion is the date of the last change or the last utilization within a print process. This date may be required as an additional criterion for the output of the form entry. It can be a specific date or a date range.

ACCESS-DATE = *TODAY
The last modification or change was performed on the current date.

ACCESS-DATE = *INTERVAL(...)
Specifies a date range.

FROM = 1950-01-01 / <date with-compl>
Earliest date in the date range.

TO = *TODAY / <date with-compl>
Latest date in the date range. The current date is set by default.

DEVICE-ACCESS = *ALL / *NEA-ACCESS(...) / *TCP-ACCESS(...) / *LOCAL-ACCESS(...) / *SCSI-ACCESS(...)
The selection criterion is the access mode for the various local and RSO printers and the printer address (see also the “RSO” manual [32]). Instead of DEVICE-ACCESS, the old operands ACCESS, PROCESSOR-NAME, and STATION-NAME are also still supported, albeit only in procedures and in batch mode.

DEVICE-ACCESS = *NEA-ACCESS(...)
The RSO printer is accessed via the TRANSDATA-NEA network (NEA stands for **ne**twork **a**rchitecture).

ACCESS-TYPE = *ALL / list-poss(9): *DIRECT / *HARDCOPY / *APPLICATION / *HDLC / *PC / *HARDCOPY-9751
The selection criterion is the printer access mode.

PROCESSOR-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / *NONE
The selection criterion is the logical processor name (PDN generation).

STATION-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *NONE / <alphanum-name 1..8>
The selection criterion is the logical station name of the RSO printer.

DEVICE-ACCESS = *TCP-ACCESS(...)
The RSO printer is accessed directly via the TCP/IP LAN. The TCP/IP protocol is used.

ACCESS-TYPE = *ALL / *TACLAN / *IPP / *LPD(...)
The selection criterion is the printer access mode.

ACCESS-TYPE = *TACLAN
The value TACLAN means that the printer is connected to the TCP/IP-LAN via a LAN controller board (for further information, see the “RSO” manual [32]).

ACCESS-TYPE = *IPP
Printer is accessed across the Internet via the IPP protocol (see also the “RSO” [32] manual). This value is only relevant to RSO printers.

ACCESS-TYPE = *LPD(...)
The printer accessed via the BSD-LPD printer daemon serves as the selection criterion.

LPD-PRINTER-NAME = *ALL / <c-string 1..8>
The printer name as defined in the /etc/printcap file of the host to which the printer is connected serves as the selection criterion.

FROM-PORT-NUMBER = *ALL / *STD / <integer 0..1024> / *RANGE(...)
Minimum value for the number of the local port to which the printer is connected.

FROM-PORT-NUMBER = *RANGE(...)
Definition of the range for FROM-PORT-NUMBER.

LOW = <integer 0..1024>
Lower limit of the range.

HIGH = <integer 0..1024>
Upper limit of the range.

TO-PORT-NUMBER = *ALL / *STD / <integer 0..1024> / *RANGE(...)
Maximum value for the number of the local port to which the printer is connected.

TO-PORT-NUMBER = *RANGE(...)
Definition of the range for TO-PORT-NUMBER.

LOW = <integer 0..1024>
Lower limit of the range.

HIGH = <integer 0..1024>
Upper limit of the range.

INTERNET-ADDRESS = *ALL / <alphanum-name 1..24 with-wild(24)> / <composed-name 1..15 with-wild(24)> / list-poss(16): <alphanum-name 1..32> / <composed-name 7..15> / *NONE
The selection criterion is the Internet address of the LAN adapter card (or for the host on which BSD-LPD is running), depending on how the printer is connected. This address is a physical address (nnn.nnn.nnn.nnn). See also the “RSO” manual [32].

PORT-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / *NONE
The selection criterion is the port name of the LAN adapter card (or for the host on which BSD-LPD is running), depending on how the printer is connected. For BSD-LPD the port name is usually 515. For further information, see the “RSO” manual [32].

DEVICE-ACCESS = *LOCAL-ACCESS(...)
A local printer is used with a corresponding format.

ACCESS-TYPE = *ALL / list-poss(3): *CHANNEL-TYPE-1 / *CHANNEL-TYPE-2 / *BUS-TYPE-1
The selection criterion is the printer access mode.

MNEMONIC-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 2..2> / *NONE
The selection criterion is the mnemonic device name of the twin printer or of the master device of the twin printer for the local host.

PROGRAM-NAME = *ALL / *NONE / <filename 1..50>
Name of the LOGON procedure called by the virtual controller task.

DEVICE-ACCESS = *SCSI-ACCESS(...)
A SCSI printer and the appropriate format is used.

ACCESS-TYPE = *ALL / *EMULATED-CHANNEL-TYPE-2
The selection criterion is the connection type of the SCSI printer.

MNEMONIC-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 2..2>
The selection criterion is the mnemonic device name for the local printer on the SCSI host.

SLAVE-MNEMONIC-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 2..2> / *NONE
The selection criterion is the mnemonic device name of the slave device of the twin printer for the local host. The name specified here must not be the same as that of the master device. The slave device is always the second printer in the direction of the paper flow.

ESD-SIZE = *ALL / <integer 1..128> / *RANGE(...)
The selection criterion is the size (in MB) of the external memory for the twin printer.

ESD-SIZE = *RANGE(...)
Specification of a range of values.

LOW = <integer 256..4096>
Lower range limit.

HIGH = <integer 256..4096>
Upper range limit.

REDIRECTION-DEVICE = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *NONE / <alphanum-name 1..8>
The selection criterion is redirected RSO jobs.

LANGUAGE-EXT-TYPE = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *NONE /<alphanum-name 1..8>
This operand is only still available for reasons of compatibility.

FORMS-OVERLAY-BUFFER = *ALL / *NO / *RANGE(...)
The selection criterion is the size of the buffer for FOB data overlays.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Specification of the range of values.

LOW = <integer 1..32767>
Lower range limit.

HIGH = <integer 1..32767>
Upper range limit.

CHARACTER-SET-NUMBER = *ALL / list-poss(7): 1 / 4 / 6 / 23 / 36 / 46 / 64
The selection criterion is the number of character sets that can be loaded.

ROTATION = *ALL / *YES / *NO
The selection criterion is the existence of a page rotation module.

DUPLEX-PROCESSING = *ALL / *YES / *NO
The selection criterion is the characteristic of printing on both sides of the page.

FORMS-OVERLAY = *ALL / *YES / *NO
The selection criterion is the characteristic of processing film overlays.

RASTER-PATTERN-MEM = *ALL / *NONE / *RANGE(...)
All printers with a raster pattern memory of the specified size are selected.

RASTER-PATTERN-MEM = *RANGE(...)
Specification of a range of values.

LOW = <integer 4096..65535>
Lower range limit.

HIGH = <integer 4096..65535>
Upper range limit.

TRANSMISSION = *ALL / list-poss(3): *7BIT / *8BIT / *IGNORE
The selection criterion is the format of the transmission protocol (front-end processor --> printer).

FONT-TYPE = *ALL / list-poss(3): *7BIT / *8BIT / *IGNORE
The selection criterion is the bit format of the printer font.

FACE-PROCESSING = *ALL / *YES / *NO
The selection criterion is how the print pages are stacked.

MAXIMUM-INPUT-TRAY = *ALL / <integer 1..9> / *RANGE(...)
The selection criterion is the maximum number of input trays; it is possible to specify a range of values.

MAXIMUM-INPUT-TRAY = *RANGE(...)
Range of values that contains the value for the maximum number.

LOW = <integer 1..9>
Lower range limit.

HIGH = <integer 1..9>
Upper range limit.

SUP-FORMAT-NAMES = *ALL / list(8): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
The selection criterion is the document format which the printer can process.

MONJV = *ALL / *YES / *NO
The selection criterion is whether a monitor job variable was created to trace and, if necessary, control the asynchronous part of the START-PRINTER-OUTPUT command.

NOTIFICATION = *ALL / *NO / *YES
The selection criterion is whether notification processing is possible on the printer.

ENCRYPTION = *ALL / *NO / *YES
The selection criterion is whether encrypted print files are supported.

UNICODE = *ALL / *NO / *YES
The selection criterion is Unicode support.

LINE-SIZE = *ALL / *RANGE(...) / *IGNORE / <integer 3..255>
The selection criterion is the maximum number of characters that can be printed in a line; it is possible to specify a range of values.

LINE-SIZE = *RANGE(...)
Specification of a range of values containing the maximum number of lines.

LOW = <integer 3..255>
Lower range limit.

HIGH = <integer 3..255>
Upper range limit.

CHARACTER-IMAGE = *ALL / *NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
The selection criterion is the name of the conversion table.

USER-IDENTIFICATION = *ALL / *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <name 1..8> / *OWN
The selection criterion is the user ID of the RSO device administrator.
The permitted specifications depend on the users' access rights. See "Access rights".

IDENTIFICATION = *ALL / list-poss(16): *NONE / <c-string 1..16>
The selection criterion is details of the RSO device administrator (name, telephone number, etc.) as given in the device entry.

TERMINAL = *ALL / *OWN / *NONE / *PARAMETERS(...)
The selection criterion is the data display terminal defined for the RSO device administrator.

TERMINAL = *PARAMETERS(...)

PROCESSOR-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / *ANY / <alphanum-name 1..8>
The selection criterion is the logical processor name.
The permitted specifications depend on the users' access rights. See "Access rights".

STATION-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / *ANY / <alphanum-name 1..8>
The selection criterion is the terminal name.
The permitted specifications depend on the users' access rights. See "Access rights".

LEFT-MARGIN = *ALL / <integer 0..31> / *RANGE(...)
The selection criterion is the value for indenting the output text on printing.

LEFT-MARGIN = *RANGE(...)
Specification of a range of values.

LOW = <integer 0..31>
Lower range limit.

HIGH = <integer 0..31>
Upper range limit.

LINE-FEED-COMPRESS = *ALL / *NO / *YES
The selection criterion is whether line feed compression is switched on or off.

BLANK-COMPRESSION = *ALL / *NO / *YES
The selection criterion is whether space character compression is switched on or off.

START-FORM-FEED = *ALL / *NO / *YES
The selection criterion is whether page feed is automatic at the start of spoolout.

FORM-FEED = *ALL / *LISTING(...) / *SINGLE-SHEET(...)
The selection criterion is whether to print on continuous stationery or single-sheet paper and what input tray to use.

FORM-FEED = *LISTING(...) asd

DEFAULT-TRAY-NUMBER = *ALL / <integer 1..99> / *IGNORE / *RANGE(...)
The selection criterion is the number of the input tray.

DEFAULT-TRAY-NUMBER = *RANGE(...)
Specification of a range of values.

LOW = <integer 1..99>
Lower range limit.

HIGH = <integer 1..99>
Upper range limit.

OUTPUT-TRAY-NUMBER = *ALL / *IGNORE / <integer 0..99> / *RANGE(...)
The selection criterion is the number of the output tray.

OUTPUT-TRAY-NUMBER = *RANGE(...)
Specification of a range of values.

LOW = <integer 0..99>
Lower range limit.

HIGH = <integer 0..99>
Upper range limit.

FORM-FEED = *SINGLE-SHEET(...)

DEFAULT-TRAY-NUMBER = *ALL / <integer 1..99> / *IGNORE / *RANGE(...)
The selection criterion is the number of the input tray.

DEFAULT-TRAY-NUMBER = *RANGE(...)
Specification of a range of values.

LOW = <integer 1..99>
Lower range limit.

HIGH = <integer 1..99>
Upper range limit.

OUTPUT-TRAY-NUMBER = *ALL / <integer 0..99> / *RANGE(...)
The selection criterion is the number of the output tray.

OUTPUT-TRAY-NUMBER = *RANGE(...)
Specification of a range of values.

LOW = <integer 0..99>
Lower value limit.

HIGH = <integer 0..99>
Upper value limit.

SKIP-TO-CHANNEL-ONE = *ALL / *NORMAL / *OPTIMIZED
The selection criterion is what the printer does if a skip to the “channel 1” vertical tab is specified twice in succession.

SKIP-TO-NEXT-PAGE = *ALL / *BY-LINES / *BY-FORM-FEED
The selection criterion is the indication of how page feed is initiated (by counting lines or by the relevant control characters).

ESCAPE-VALUE = *ALL / list-poss(16): *NONE / <x-string 1..2>
The selection criterion is the specified escape character to identify the printer commands.

CONTROLLER-RESERVED = *ALL / *NO / *YES
The selection criterion is whether an RSO controller is available for the exclusive use of the RSO device.

FORM-NAME = *ALL / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6>
The selection criterion is the name of the standard form.

DISCONNECTION = *ALL / list-poss(2): *YES / *NO / *FORCE
The selection criterion is the entry specifying whether the connection between RSO and printer is interrupted.

BUFFER-SIZE = *ALL / <integer 256..4096> / *RANGE(...)
The selection criterion is the maximum buffer size for data transfer.

BUFFER-SIZE = *RANGE(...) Specification of a range of values.

LOW = <integer 256..4096>
Lower range limit.

HIGH = <integer 256..4096>
Upper range limit.

RESET = *ALL / *YES / *NO
The selection criterion is the indication of whether the printer switches are to be reset before and after each spoolout job.

REPEAT-MESSAGE = *ALL / *NO / *PARAMETERS(...)
The selection criterion is the indication of the procedure for dealing with errors (printer error, end of paper, etc.).

REPEAT-MESSAGE = *NO
No message is to be displayed in the event of errors.

REPEAT-MESSAGES = *PARAMETERS(...)
Specifies how to react to an error (type, frequency, time limit).

TYPE = *ALL / *SYSTEM / *DUMMY
Defines a response in the event of an error.

TYPE = *SYSTEM
A page feed occurs and message SRO1001 is printed (this means that the next page may already be printed). Printing is continued by another page feed operation.

TYPE = *DUMMY
A page feed occurs and, if necessary, the last page is repeated.

LIMIT = *ALL / *NO / <integer 1..255> / *RANGE(...)
Defines whether or how often to react to errors.

LIMIT = *NO
No limit has been set.

LIMIT = *RANGE(...)
Specifies a range of values containing the value specified for LIMIT.

LOW = <integer 1..255>
Lower range limit.

HIGH = <integer 1..255>
Upper range limit.

RETRY-TIME = *ALL / *GLOBAL / <integer 1..600> / *RANGE(...)
The selection criterion is the specified delay (in seconds) between two attempts to print the file. It is possible to specify a range of values.

RETRY-TIME = *RANGE(...)
Specification of a range of values.

LOW = <integer 1..600>
Lower range limit.

HIGH = <integer 1..600>
Upper range limit.

RESTART-ACTION = *ALL / *NO / *PARAMETERS(...)
The selection criterion is how to react to failure of connection setup (printer not available and/or printer malfunctions). Instead of RESTART-ACTION, the old operand REPEAT-OPEN-CONNECT is also still supported, albeit only in procedures and in batch mode.

RESTART-ACTION = *NO
No limit for the number of retries and the delay has been specified.

RESTART-ACTION = *PARAMETERS(...)
Specifies how to react to errors (frequency, time limit).

LIMIT = *ALL / *NO / <integer 1..255> / *RANGE(...)
Specifies the number of attempts to set up the connection.

LIMIT = *NO
No limit has been set.

LIMIT = *RANGE(...)
Specification of a range of values.

LOW = <integer 1..255>
Lower range limit.

HIGH = <integer 1..255>
Upper range limit.

RETRY-TIME = *ALL / *GLOBAL / <integer 1..600> / *RANGE(...)
The selection criterion is the specified delay (in seconds) between two attempts to set up the connection.

RETRY-TIME = *RANGE(...)
Specification of a range of values for the delay.

LOW = <integer 1..600>
Lower range limit.

HIGH = <integer 1..600>
Upper range limit.

SYNCHRONIZATION = *ALL / *PRINTER / *NETWORK
The selection criterion is the entry specifying whether printing with the printer acknowledgment (PRINTER) or the network acknowledgment (NETWORK) is to be synchronized.

TIMEOUT-MAX = *ALL / <integer 2..30> / *RANGE(...)
The selection criterion is the maximum printing time in minutes for each printer transmitted.

TIMEOUT-MAX = *RANGE(...)
Specification of a range of values.

LOW = <integer 2..30>
Lower range limit.

HIGH = <integer 2..30>
Upper range limit.

PAGES-EJECT-TIMEOUT = *ALL / *NO / <integer 1..255> / *RANGE(...)
The selection criterion is the maximum delay (in minutes) before print jobs are automatically ejected by the fusing unit into the output tray once the printer is inactive. The value *NO means that the print jobs are not ejected.

PAGES-EJECT-TIMEOUT = *RANGE(...)
Specification of a range of values.

LOW = <integer 1..255>
Lower range limit.

HIGH = <integer 1..255>
Upper range limit.

BAND-IDENTIFICATION = *ALL / <alphanum-name 1..4 with-wild(24)> / list-poss(16): <alphanum-name 4..4> / *NONE
The selection criterion is the name of the type band to be used for printing.

LOAD = *ALL / *YES / *NO
The selection criterion is the entry specifying whether an RSO printer that can be loaded with a loop record is to be operated with this function. For 9645 Printers only.

MODULO2 = *ALL / *YES / *NO
The selection criterion is whether a second buffer is to be transmitted to the printer while the first one is being printed.

RECOVERY-RULES = *ALL / <composed-name 1..4 with-wild(24)> / list-poss(16): *SYSTEM / <composed-name 1..16>
The selection criterion is the recovery rules file used for the specified device. The suffix of the file name is specified.

POLLING = *ALL / *YES / *NO
The selection criterion is whether RSO can obtain the printer status or printer error functions. This operand applies only to printers for which DEVICE-ACCESS = TCP-ACCESS(ACCESS-TYPE = TACLAN) is specified.

PRINTER-PARAM-FILE =*ALL / *SYSTEM / <composed 1..16>
The selection criterion is the printer parameter file used for the printer. Here the suffix of the file name is specified explicitly.

RESOURCE-FILE-PREFIX = *ALL / *SYSTEM / <composed 1..8>
The selection criterion is the prefix of the file name for prolog/epilog/DIA/member files used by the printer.

CONTROLLER-START = *ALL / *AT-PRINTER-START / *AT-JOB-START
The selection criterion is the start time and mode of the RSO controller: with START-PRINTER-OUTPUT (*AT-PRINTER-START) or PRINT-DOCUMENT (*AT-JOB-START).

CHARACTER-SET-POS= *ALL / *NONE / *PARAMETERS(...)
The selection criterion is the entry specifying whether character sets can be selected by their position in the character set memory.

CHARACTER-SET-POS = *PARAMETERS(...)
The selection criterion is the position of the character set in the character set memory.

POSITION-1 = *ALL / list-poss(16): *NONE / *OCR-A / *OCR-B / *GOTHIC / *GRAPHIC / *DATA / *COURIER / *FONT-1 / *FONT-2 / *FONT-3 / *FONT-4 / *FONT-5 / *FONT-6 / *FONT-7 / *FONT-8 / *FONT-9 / *FONT-10 / *FONT-11 / *FONT-12 / *FONT-13 / *FONT-14 / *FONT-15 / *FONT-16 / *NOT-USABLE

...

POSITION-16 = *ALL / list-poss(16): *NONE / *OCR-A / *OCR-B / *GOTHIC / *GRAPHIC / *DATA / *COURIER / *FONT-1 / *FONT-2 / *FONT-3 / *FONT-4 / *FONT-5 / *FONT-6 / *FONT-7 / *FONT-8 / *FONT-9 / *FONT-10 / *FONT-11 / *FONT-12 / *FONT-13 / *FONT-14 /*FONT-15 / *FONT-16 / *NOT-USABLE
The selection criterion is the position in the character set memory.

EXCEPT = *NONE / *PARAMETERS(...)
Specifies which device entries are to be excluded from the selection (negative list).

EXCEPT = *NONE
No device entries are excluded from the selection.

EXCEPT = *PARAMETERS(...)
Initiates a list of selection criteria.

DEVICE-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8> / *STD
Device entries with the specified devices are not taken into account. Specifying *NONE (the default) means the operand is ignored.

OWNER = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
Device entries with the specified user IDs are not taken into account. Specifying *NONE (the default) means the operand is ignored.
The permitted specifications depend on the users' access rights. See "Access rights".

SLAVE-MNEMONIC-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 2..2>
The mnemonic device name of the “slave device” of the twin printer for the local host is ignored.

REDIRECTION-DEVICE = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *CENTRAL / <alphanum-name 1..8>
The specified redirected RSO jobs are ignored.

CHARACTER-IMAGE = *NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Device entries with the specified conversion tables are not taken into account. Specifying *NONE (the default) means the operand is ignored.

USER-IDENTIFICATION = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <name 1..8> / *OWN
Device entries with the specified user IDs are not taken into account. Specifying *NONE (the default) means the operand is ignored.
The permitted specifications depend on the users' access rights. See "Access rights".

TERMINAL = *NONE / *OWN / *PARAMETERS(...)
Device entries with the specified data display terminals are not taken into account. Specifying *NONE (the default) means the operand is ignored.

TERMINAL = *PARAMETERS(...)
Subdividing data display terminals by processor and terminal names.

PROCESSOR-NAME = *NONE / <alphanum-name 1..8 with-wild(24) / list-poss(16): *OWN / <alphanum-name 1..8>
Specifying the logical processor names. Specifying *NONE (the default) means the operand is ignored.
The permitted specifications depend on the users' access rights. See "Access rights".

STATION-NAME =*NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <alphanum-name 1..8>
Specifying the terminal names. Specifying *NONE (the default) means the operand is ignored.
The permitted specifications depend on the users' access rights. See "Access rights".

FORM-NAME = *NONE / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6>
Device entries with the specified form name are not taken into account. Specifying *NONE (the default) means the operand is ignored.

BAND-IDENTIFICATION = *NONE / <alphanum-name 1..4 with-wild(24)> /
list-poss(16): <alphanum-name 4..4>
Device entries with the specified type bands are not taken into account. Specifying *NONE (the default) means the operand is ignored.

RECOVERY-RULES = *NONE / <composed-name 1..16 with-wild(24)> /
list-poss(16): <composed-name 1..16>
Devices having this suffix for their recovery rule file are not taken into account.

PRINTER-PARAM-FILE = *NONE / <composed-name 1..16 with-wild(24)> /
list-poss(16): <composed 1..16>
Printer parameter files with the specified suffix are not taken into account.

RESOURCE-FILE-PREFIX = *NONE / <composed-name 1..8 with-wild(16)> /
list-poss(16): <composed 1..8>
The prolog/epilog/DIA/member files with the specified prefix are not taken into account.

SERVER-NAME = *STD / *HOME / <alphanum-name 1..8>
Specifies the servers for which information is to be output. *HOME applies when *STD is specified. Only for “Distributed Print Services” (see manual of that name [10]).

INFORMATION =
Selects the information to be specified.

INFORMATION = *SUMMARY
Only one line with the device name and the device type is displayed for each element.

INFORMATION = *ALL
All information is to be displayed for each element.

INFORMATION = *list-poss(7): *DEVICE-ACCESS / *TWIN-DEVICE-DEV / *DEVICE-INFORMATION / *ADMINISTRATOR / *SPOOLOUT-CONTROL / *PROCESSING-CONTROL / *CHARACTER-SET-POS
Outputs information on the specified information blocks (see "Output formats"). The fields displayed for each INFORMATION value correspond to the operands of the related structure of the ADD-SPOOL-DEVICE statement. The fields not belonging to any structure are displayed only with INFORMATION = *ALL.
Exception: the fields DEVICE-NAME, DEVICE-TYPE and ACCESS-DATE are displayed with any INFORMATION value.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SPM0411	No device present
2	0	SPM0518	No authorization
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command

Access rights

The settings

```
SELECT = PARAM(OWNER/USER-IDENTIFICATION/TERMINAL = PARAM(PROCESSOR-NAME/STATION-NAME)
```

and

```
EXCEPT = PARAM(OWNER/USER-IDENTIFICATION/TERMINAL = PARAM(PROCESSOR-NAME / STATION-NAME)
```

are special values. They allow the user to specify or reject devices, depending on that user's rights.

In order to prevent the specification of contradictory entries, use of these operand values is strictly controlled. There are three user categories:

- System administration
  System administration is allowed to assign any device (local or RSO), and also to view the various user settings for the devices.
- RSO device administrator
  The RSO device administrator may only assign such devices as he/she manages, and may also only view the corresponding settings. The RSO device administrator may use the following combinations of operand values:

  ```
  SELECT = PARAM(...,USER-IDENTIFICATION = *OWN,TERMINAL = PARAM(
            STATION-NAME = (*OWN / *ANY), PROCESSOR-NAME = (*OWN / *ANY)),...)
  ```

  If inadequately precise specifications are made, they are expanded automatically, if permitted (warning SPM0518 is also output). If expansion is not permitted, they are rejected (and error message SPM0405 is output).
- Other users
  Users who are not authorized to assign any devices are likewise not authorized to view any settings. Corresponding commands are rejected or ignored.

Output formats

Different kinds of layouts are provided, depending on the INFORMATION value.

Output format when INFORMATION = *SUMMARY is specified

```
DEVICE-NAME  DEVICE-TYPE
@@@@@@@@     @@@@@@@@@@@@@@@@
```

Output format when INFORMATION = *DEVICE-ACCESS is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ DEVICE-ACCESS --------------------------
DEVICE-ACCESS       : @@@@@@@@@@@@@
ACCESS-TYPE         : @@@@@@@@@@@@@@@@
PROCESSOR-NAME      : @@@@@@@@
STATION-NAME        : @@@@@@@@
MNEMONIC-NAME       : @@
PROGRAM-NAME        : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
INTERNET-ADDRESS    : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
PORT-NAME           : @@@@@@@@
LPD-PRINTER-NAME    : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
FROM-PORT-NUMBER    : ####
TO-PORT-NUMBER      : ####
```

Output format when INFORMATION = *TWIN-DEVICE-DEF is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ TWIN-DEVICE-DEF ------------------------
SLAVE-MNEMONIC-NAME : @@@@@
ESD-SIZE            : ###
```

Output format when INFORMATION = *DEVICE-INFORMATION is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ DEVICE-INFORMATION ----------------------
FORMS-OVERLAY-BUFFER: #####
CHARACTER-SET-NUMBER: ##
ROTATION            : @@@
DUPLEX-PROCESSING   : @@@
FORMS-OVERLAY       : @@@
RASTER-PATTERN-MEM  : @@@@@
TRANSMISSION        : @@@@
FONT-TYPE           : @@@@
FACE-PROCESSING     : @@@
MAXIMUM-INPUT-TRAY  : ##
MONJV               : @@@
NOTIFICATION        : @@@@
ENCRYPTION          : @@@@
UNICODE             : @@@@
SUPP-FORMAT-NAMES   :
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
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@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

Output format when INFORMATION = *ADMINISTRATOR is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ ADMINISTRATOR --------------------------
USER-IDENTIFICATION : @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
                      @@@@@@@@ @@@@@@@@ @@@@@@@@ @@@@@@@@
IDENTIFICATION      : @@@@@@@@@@@@@@@@
TERMINAL            : PROCESSOR-NAME      : @@@@@@@@
                      STATION-NAME        : @@@@@@@@
```

Output format when INFORMATION = *SPOOLOUT-CONTROL is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ SPOOLOUT-CONTROL -----------------------
SHIFT               : ##
LINE-FEED-COMPRESS  : @@@
BLANK-COMPRESSION   : @@@
START-FORM-FEED     : @@@
FORM-FEED           : @@@@@@@@@@@@@@@@
                      DEFAULT-TRAY-NUMBER : @@@
                      OUTPUT-TRAY-NUMBER  : @@@
SKIP-TO-CHANNEL     : @@@@@@
SKIP-TO-NEXT-PAGE   : @@@@@@@@@@@@
ESCAPE-VALUE        : @@@@@@
```

Output format when INFORMATION = *PROCESSING-CONTROL is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ PROCESSING-CONTROL ----------------------
CONTROLLER-RESERVED : @@@
FORM-NAME           : @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
                      @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@ @@@@@@
DISCONNECTION       : @@@@@
BUFFER-SIZE         : #####
RESET               : @@@
REPEAT-MESSAGE      : TYPE               : @@@
                      LIMIT              : ###
                      RETRY-TIME         : @@@
RESTART-ACTION      : LIMIT              : ###
                      RETRY-TIME         : @@@
SYNCHRONIZATION     : @@@@@@@
TIMEOUT-MAX         : ##
PAGE-EJECT-TIMEOUT  : @@@
BAND-IDENTIFICATION : @@@@@
LOAD                : @@@
MODULO2             : @@@
RECOVERY-RULES      : @@@@@@@@@@@@@@@@
POLLING             : @@@
PRINTER-PARAM-FILE  : @@@@@@@@@@@@@@@@
RESOURCE-FILE-PREFIX: @@@@@@@@
CONTROLLER-START    : @@@@@@@@@@@@@@@@
```

Output format when INFORMATION = *CHARACTER-SET-POS is specified

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
------------------------------ CHARACTER-SET-POS -----------------------
POSITION-1          : @@@@@@@@
POSITION-2          : @@@@@@@@
POSITION-3          : @@@@@@@@
POSITION-4          : @@@@@@@@
POSITION-5          : @@@@@@@@
POSITION-6          : @@@@@@@@
POSITION-7          : @@@@@@@@
POSITION-8          : @@@@@@@@
POSITION-9          : @@@@@@@@
POSITION-10         : @@@@@@@@
POSITION-11         : @@@@@@@@
POSITION-12         : @@@@@@@@
POSITION-13         : @@@@@@@@
POSITION-14         : @@@@@@@@
POSITION-15         : @@@@@@@@
POSITION-16         : @@@@@@@@
```

Output format when INFORMATION = *ALL is specified

All the INFORMATION outputs described above are displayed, i.e. the following first three lines are displayed, then all the other information described above is displayed, and finally the last four lines.

```
DEVICE-NAME         : @@@@@@@@
DEVICE-TYPE         : @@@@@@@@@@@@@@@@
ACCESS-DATE         : ####-##-##
...
...
...
------------------------------ MISCELLANEOUS --------------------------
REDIRECTION-DEVICE  : @@@@@@@@
LANGUAGE-EXT-TYPE   : @@@@@@@@
LINE-SIZE           : @@@
CHARACTER-IMAGE     : @@@@@@@
```

Meanings of the output fields

Output field	Meaning / contents
SUMMARY/any information	
DEVICE-NAME	Device name
DEVICE-TYPE	Device type
ACCESS-DATE	Date of the last modification or use
DEVICE-ACCESS	
DEVICE-ACCESS	Access type to printers
ACCESS-TYPE	Printer connection: • With DEVICE-ACCESS = *NEA-ACCESS(...): Printer connection:*STD/*DIRECT/*HARDCOPY/ *APPLICATION/*HDLC/*PC/*HARDCOPY-9751 • With DEVICE-ACCESS = *TCP-ACCESS(...): Printer connection: *STD/*TACLAN/*LPD/*IPP • With DEVICE-ACCESS = *LOCAL-ACCESS(...): Printer connection: *STD/*CHANNEL-TYPE-2/*BUS-TYPE-1 • With DEVICE-ACCESS = *SCSI-ACCESS(...): Printer connection: *STD/EMULATED-CHANNEL-TYPE-2
PROCESSOR-NAME	Processor name as part of the device address
STATION-NAME	RSO device: station name as part of the device address
MNEMONIC-NAME	Device mnemonic for the twin printer or the “master” twin printer
PROGRAM-NAME	Name of the supervisor LOGON procedure
INTERNET-ADDRESS	Internet address of the TACLAN, IPP, LPD, DOS PC or LAN controller card
PORT-NAME	Port name of the TACLAN, IPP, LPD, DOS PC or LAN controller card
LPD-PRINTER-NAME	Printer name as defined in ’/etc/printcap’ of the host to which the printer is connected
FROM-PORT-NUMBER	Minimum value for the number of local ports to which the printer is connected
TO-PORT-NUMBER	Maximum value for the number of the local port to which the printer is connected
TWIN-DEVICE-DEF	
SLAVE-MNEMONIC-NAME	Device mnemonic for the “slave” twin printer

ESD-SIZE	Size of the external data storage of the twin printer
DEVICE-INFORMATION	
FORMS-OVERLAY-BUFFER	Size of the graphics buffer
CHARACTER-SET-NUMBER	Number of character sets
ROTATION	Page rotation module
DUPLEX-PROCESSING	Specifies whether paper is printed on both sides
FORMS-OVERLAY	Specifies whether form overlays can be processed on the device
RASTER-PATTERN-MEM	Specifies the size of the RPM that contains the FOB overlays and character sets (raster pattern memory)
TRANSMISSION	Format of the transfer protocol
FONT-TYPE	Specifies whether fonts with 7-bit or 8-bit format are used
FACE-PROCESSING	Specifies whether the printer is able to lay the paper “print image up” or “print image down” as required: YES/NO
MAX-INPUT-TRAY	Maximum number of input trays
MONJV	Determines whether a monitor job variable is created to control the sequence of the asynchronous part of the START-PRINTER-OUTPUT command (only from SPOOL V4.1A)
NOTIFICATION	Specifies whether notification processing is possible: YES/NO
ENCRYPTION	Specifies whether encrypted print files can be processed: YES/NO
UNICODE	Specifies whether Unicode is supported: YES/NO
SUPP-FORMAT-NAMES	Document format that the printer can print
ADMINISTRATOR	
USER-IDENTIFICATION	• If the S-S-D statement was issued under TSOS or under an RSO device administrator, up to 8 user IDs which have been defined as RSO device administrators. • If no RSO device administrator was defined (i.e. for public devices), the value *NONE is obtained under TSOS. • If the S-S-D is issued by a nonprivileged user ID, blanks are output.
IDENTIFICATION	Character string of up to 16 characters. Facilitates the contact to the RSO device administrator; the string should, therefore, include, for example, the administrator's telephone number (string freely definable by system administrator in A-S-D).

PROCESSOR-NAME	Processor name as part of the RSO device administrator address
STATION-NAME	Station name as part of the RSO device administrator address
SPOOLOUT-CONTROL	
SHIFT	Default value for SHIFT if the LEFT-MARGIN operand is not specified in the PRINT-DOCUMENT command (0...31)
LINE-FEED-COMPRESS	Conversion of line feed control characters into the corresponding printer control characters: YES/NO
BLANK-COMPRESSION	Conversion of a sequence of blanks into specific printer control characters: *YES/*NO
START-FORM-FEED	Automatic page feed at the start of each spoolout: YES/NO
FORM-FEED	Paper feed: continuous forms or single-sheet feed
DEFAULT-TRAY-NUMBER	Number of the paper feed tray from which the paper is to be taken on single-sheet printers
OUTPUT-TRAY-NUMBER	Number of the paper output tray
SKIP-TO-CHANNEL	Behaviour in the case of two skips to the vertical tabulator character “channel 1”, one after the other
SKIP-TO-NEXT-PAGE	Page feed is activated • BY-FORM-FEED: via the corresponding control character • BY-LINES: by counting down the line feeds
ESCAPE-VALUE	Escape character identifying the printer commands contained in a print file (for printer types 9025 and 9026-RENO)
PROCESSING-CONTROL	
CONTROLLER-RESERVED	One controller is reserved exclusively to support this printer: *YES/*NO
FORM-NAME	Forms which are assigned to the printer by FORM-NAME = *STD
DISCONNECTION	The DCAM connection to this printer will be cleared if there are no further print requests for it: YES/NO/FORCE
BUFFER-SIZE	Maximum buffer size (in bytes) of the blocks sent to the printer via DCAM
RESET	The printer switches are to be reset before each file is printed: YES/NO
REPEAT-MESSAGE	
TYPE	Type of error response

	• SYS: page feed and output of message SRO1001 • DUM: page feed and possible repeat of last page
LIMIT	Specifies whether the error response is executed and, if so, how often
RETRY-TIME	Waiting time (in seconds) between two attempts to print the file
RESTART-ACTION	
LIMIT	Specifies whether SPOOL attempts to set up the connection and, if so, how often
RETRY-TIME	Waiting time (in seconds) between two attempts to set up the connection
SYNCHRONIZATION	Printing is synchronized after every transferred buffer • PRINTER: with the printer acknowledgment • NETWORK: with the network acknowledgment
TIMEOUT-MAX	Maximum time allowed for a buffer transfer
PAGE-EJECT-TIMEOUT	Determines the maximum time (in minutes) during which the printer is inactive before the pages still in the printer are automatically ejected into the stacker.
BAND-IDENTIFICATION	Identifier for the type band of a 9645, LP or LP48 printer
LOAD	An RSO printer equipped with a loadable VFB (loop) can be operated with this function: YES/NO
MODULO2	A second buffer is sent to the printer while the first buffer is being printed: YES /NO
RECOVERY-RULES	Logical name of the recovery rules file: *STD/SYSTEM/1..16
POLLING	Printer status inquiry possible:YES/NO
PRINTER-PARAM-FILE	Suffix for printer parameter file
RESOURCE-FILE-PREFIX	Prefix for files PROLOG/EPILOG/DIA/MEMBER
CONTROLLER-START	Time and mode for start of RSO controller
CHARACTER-SET-POS	
POSITION-1... POSITION-16	Hardware position of character sets in the character set memory of the printer with printer types 9001-31, 9001, 9012, 9013, 9014
MISCELLANEOUS	
REDIRECTION	Specifies whether RSO jobs for the device are to be automatically redirected and, if so, to where.

LANGUAGE-EXT-TYPE	Output only supported for reasons of compatibility
LINE-SIZE	Maximum number of characters that can be printed in one line on the specified device (see description under A-S-D)
CHARACTER-IMAGE	Character conversion tables

Table 153: Output fields of the SHOW-SPOOL-DEVICES command

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following values are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL	1
INFORMATION = *SUMMARY	2
INFORMATION = *DEVICE-ACCESS	3
INFORMATION = *TWIN-DEVICE-DEF	4
INFORMATION = *DEVICE-INFORMATION	5
INFORMATION = *ADMINISTRATOR	6
INFORMATION = *SPOOLOUT-CONTROL	7
INFORMATION = *PROCESSING-CONTROL	8
INFORMATION = *CHARACTER-SET-POSITION	9

Output information	Name of the S variable	T	Contents	Condition
Printer interface type	var(*LIST).ACCESS	S	*APPLICATION *BUS-TYPE-1 *CHAN-TYPE-2 *DIRECT *HARDCOPY *HARDCOPY-9751 *HDLC *IPP *PC *TACLAN	1, 3
Identifier (such as the name or telephone number) of the RSO device administrator	var(*LIST).ADM.ID	S	<user-id> *ANY *NONE	
Name of the processor to which the terminal is assigned in the network; this is the terminal where the RSO device administrator works	var(*LIST).ADM.PROCESSOR-NAME	S	' ' <proc-name>	1, 6
Name of the station (terminal) where the RSO device administrator works	var(*LIST).ADM.STATION-NAME	S	' ' <stat-name>	1, 6
User ID of the RSO device administrator	var(*LIST).ADM.USER-ID(*LIST)	S	' ' <user-id> *ANY	1, 6
Name of the type band used for printing	var(*LIST).BAND-ID	S	*NONE <band-id>	1, 8
Blank compression active	var(*LIST).BLANK-COMPRESSION	S	' ' *NO *YES	1, 7
Maximum buffer size (in bytes) for data blocks sent to the printer using DCAM	var(*LIST).BUF-SIZE	S	0 256..32767	1, 8
Name of the printer's translation table (*NONE = no translation table is used)	var(*LIST).CHAR-IMAGE(*LIST)	S	*NONE <char-image>	1
Number of character sets that can be downloaded to the printer	var(*LIST).CHAR-SET	S	0,1,4,6,23,36,46,64	1, 5

Hardware position of the character set in the character set memory	var(*LIST).CHAR-SET-POS(*LIST)	S	*COURIER *DATA *FONT-1 *FONT-2 *FONT-3 *FONT-4 *FONT-5 *FONT-6 *FONT-7 *FONT-8 *FONT-9 *FONT-10 *FONT-11 *FONT-12 *FONT-13 *FONT-14 *FONT-15 *GOTHIC *GRAPHIC *NONE *NOT-USABLE *OCR-A *OCR-B	1, 9
Controller is reserved to support the specified printer	var(*LIST).CONTR-RESOURCE	S	' ' *NO *YES	1, 8
Start of the RSO controller: when and how is it started?	var(*LIST).CONTROLLER-START	S	*AT-PRINTER-START *AT-JOB-START	1, 8
Device name	var(*LIST).DEV-NAME	S	' ' <dev-name>	
Device type	var(*LIST).DEV-TYPE	S	' ' <dev-type>	
Type of printer access	var(*LIST).DEVICE-ACCESS	S	*NEA-ACCESS *TCP-ACCESS *LOCAL-ACCESS *SCSI-ACCESS	1, 3
The DCAM connection is cleared down if there are no more print requests outstanding	var(*LIST).DISCONN	S	' ' *FORCE *NO *YES	1, 8
Duplex (double-sided) printing supported	var(*LIST).DUPLEX-PROCESS	S	' ' *NO *YES	1, 5

Output information	Name of the S variable	T	Contents	Condition
Processing of encrypted print files is possible	var(*LIST).ENCRYPTION	S	*YES *NO	1,5
ESCAPE character	var(*LIST).ESCAPE	S	' ' *NONE <escape-value>	1, 7
ESD size of the twinned printer	var(*LIST).ESD-SIZE	S	0..128	1, 4
Pages are stacked face up or face down	var(*LIST).FACE-PROCESS	S	*NO *YES	1, 5
Size of the forms overlay buffer processed on the device	var(*LIST).FOB	S	*NO 0..32767	1, 5
Character set type	var(*LIST).FONT-TYPE	S	' ' *7BIT *8BIT *IGNORE	1, 5
Number of the input tray	var(*LIST).FORM-FEED.IN-TRAY	S	1..99 *IGNORE	1, 7
Number of the output tray	var(*LIST).FORM-FEED.OUT-TRAY	S	0..99 *IGNORE	1, 7
Printer form feed type (continuous or single-sheet)	var(*LIST).FORM-FEED.TYPE	S	*LIST *SINGLE-SHEET	1, 7
Form name	var(*LIST).FORM-NAME(*LIST)	S	<form-name>	1, 8
Film overlay processing supported on this device	var(*LIST).FORM-OVERLAY	S	' ' *NO *YES	1, 5
Minimum value for LOCAL-PORT-NUMBER	var(*LIST).FROM-PORT-NUMBER	S	0..1024	1, 3
Internet address of the IPP or the LAN controller card	var(*LIST).INTERNET-ADDR	S	' ' *NONE <internet-add>	1, 3
Output only supported for reasons of compatibility	var(*LIST).LANG-EXT-TYPE	S	*NONE *SYSTEM <lang. ext.-type>	1
Time stamp	var(*LIST).LAST-ACCESS	S	*NONE <yyyy-mm-dd>	

Output information	Name of the S variable	T	Contents	Condition
Line feed compression active	var(*LIST).LINE-FEED-COMPRESS	S	' ' *NO *YES	1, 7
Maximum number of character per line	var(*LIST).LINE-SIZE	S	*IGNORE 0 3..255	1
LOOP record for RSO printers	var(*LIST).LOAD	S	' ' *NO *YES	1, 8
Printer accessed via a BSD line printer daemon	var(*LIST).LPD-PRINTER-NAME	S	' ' <lpd-name>	1, 3
Maximum number of input trays	var(*LIST).MAX-INPUT-TRAY	S	0..99	1, 5
Device mnemonic for the twinned printer or for the master device of the twinned printer in the case of a local host	var(*LIST).MNEM-NAME	S	' ' <mnemo-name>	1, 3
Load a second buffer while the first is being printed	var(*LIST).MODULO	S	' ' *NO *YES	1, 8
Generate a monitoring job variable to control the asynchronous part of the START-PRINTER-OUTPUT command	var(*LIST).MONJV	S	*YES *NO	1, 5
Notification processing is possible	var(*LIST).NOTIFICATION	S	*YES *NO	1,5
Maximum time for which the printer is inactive	var(*LIST).PAGE-EJECT-TIMEOUT	S	' ' *NO 1..255	1, 8
Printer status/malfunction polling by RSO	var(*LIST).POLLING	S	' ' *NO *YES	1, 8
Port name of the controller card	var(*LIST).PORT-NAME	S	' ' <port-name>	1, 3
Name of the printer parameter file (suffix)	var(*LIST).PRINTER-PARAM-FILE	S	*SYSTEM <pr-param-filename>	1, 8

Output information	Name of the S variable	T	Contents	Condition
Processor name	var(*LIST).PROCESSOR-NAME	S	*NONE <proc-name>	1, 3
Name of the procedure assigned to the virtual device	var(*LIST).PROGRAM-NAME	S	' ' *NONE <filename>	1, 3
Size of the raster pattern memory	var(*LIST).RAST-PAT-MEM	S	' ' 4096..65535	1, 5
Recovery rules	var(*LIST).REC-RULE	S	' ' *SYSTEM <rec-rules>	1, 8
Redirected RSO jobs	var(*LIST).REDIRECT	S	' ' *NONE <redir-name>	1
Maximum number of message repeats following errors (printer failure, paper out, etc.)	var(*LIST).REPEAT-MSG.LIM	S	*NO 0..255	1, 8
Delay (in seconds) between attempts to print the file (printer failure, paper out, etc.)	var(*LIST).REPEAT-MSG.RETRY-TIME	S	*GLOBAL 0..600	1, 8
Execute form feed (*DUMMY, *SYSTEM) and print message SRO1001 (*SYSTEM) following error (printer failure, paper out, etc.)	var(*LIST).REPEAT-MSG.TYPE	S	' ' *DUMMY *NO *SYSTEM	1, 8
Reset printer switches before printing each file	var(*LIST).RESET	S	' ' *NO *YES	1, 8
File name prefix for the PROLOG/EPILOG/DIA/ MEMBER files used for the printer	var(*LIST).RESOURCES-PREFIX	S	' ' *SYSTEM <prefix-filenames>	1, 8
Number of attempts to rebuild the connection (following connection setup problems and/or printer faults)	var(*LIST).RESTART-ACTION.LIM	S	*NO 0..255	1, 8

Output information	Name of the S variable	T	Contents	Condition
Delay (in seconds) between attempts to rebuild the connection (following connection setup problems and/or printer faults)	var(*LIST).RESTART-ACTION. RETRY-TIME	S	*GLOBAL 0..600	1, 8
Page rotation module function supported by the printer	var(*LIST).ROT	S	' ' *NO *YES	1, 5
Number of columns by which the output text is indented	var(*LIST).SHIFT	S	0..31	1, 7
Behavior in the event of repeated skip to channel 1	var(*LIST).SKIP-TO-CHAN	S	*NORMAL *OPTIM	1, 7
Form feed initiation	var(*LIST).SKIP-TO-NEXT	S	' ' *BY-FORM-FEED *BY-LINE	1, 7
Slave device mnemonic	var(*LIST).SLAVE-MN	S	' ' *NONE <mnemo-name>	1, 4
Automatic form feed at the start of a spoolout job	var(*LIST).START-FORM-FEED	S	' ' *NO *YES	1, 7
Station name	var(*LIST).STATION-NAME	S	' ' <stat-name>	1, 3
Format name supported	var(*LIST).SUPP-FORMAT-NAME	S	<form-name>	1, 5
Synchronize printing with the printer acknowledgment (*PRINTER) the network acknowledgment (*NETWORK)	var(*LIST).SYNCH	S	' ' *NETWORK *PRINTER	1, 8
Maximum printing time (in minutes) for each buffer transmitted	var(*LIST).TIMEOUT-MAX	S	0 2..30	1, 8
Maximum value for LOCAL-PORT-NUMBER	var(*LIST).TO-PORT-NUMBER	S	0..1024	1, 3
Code translation table	var(*LIST).TRANS	S		1, 5

			, , *7BIT *8BIT *IGNORE	

Output information	Name of the S variable	T	Contents	Condition
Unicode processing is possible	var(*LIST).UNICODE	S	*YES *NO	1,5

7.15 SHOW-SPOOL-FILTERS

Show filter definitions

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	HARDWARE-MAINTENANCE PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION STD-PROCESSING

Function

The SHOW-SPOOL-FILTERS command requests information on the filter definitions from the SPOOL parameter file.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SPOOL-FILTERS

```
SELECT = *ALL / *PARAMETERS(...)

    *PARAMETERS(...)

        |   FILTER-NAME = *ALL / *STD / <alphanum-name 1..8 with-wild(24)> /
        |                             list-poss(255):<alphanum-name 1..8>
        |   ,FILTER-LOCATION = *ALL / <composed-name 1..50 with-wild(24)> /
        |                                 list-poss(255): *SYSTEM / <composed-name 1..50>
        |   ,INPUT-FORMAT-NAME = *ALL / list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT /
        |                                     <c-string 1..63 with-low>
        |   ,OUTPUT-FORMAT-NAME = *ALL / list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT /
        |                                     <c-string 1..63 with-low>
        |   ,REDIRECTION = *ALL / *NO / *REMOTE(...)
        |         *REMOTE(...)
        |               |     DEVICE-NAME = *ALL / <alphanum-name 1..8 >
```

| ,**OBJECT-NAME** = ***ALL** / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>

| ,**ACCESS-DATE**= ***ANY / *TODAY / *INTERVAL(...)**

| ***INTERVAL(...)**

| | **FROM** = **1950-01-01** / <date with-compl>

| | **,TO** = ***TODAY** / <date with-compl>

,**EXCEPT** = ***NONE** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **FILTER-NAME** = ***NONE** / <alphanum-name 1..8 with-wild(24)> /

| list-poss(255): <alphanum-name 1..8>

| ,**FILTER-LOCATION** = ***NONE** / <composed-name 1..50 with-wild(24)> /

| list-poss(255): ***SYSTEM** / <composed-name 1..50>

| ,**INPUT-FORMAT-NAME** = ***NONE** / list-poss(16): ***TEXT** / ***HP** / ***SPDS** / ***PCL** / ***PLAIN-TEXT** /

| <c-string 1..63 with-low>

| ,**OUTPUT-FORMAT-NAME** = ***NONE** / list-poss(16): ***TEXT** / ***HP** / ***SPDS** / ***PCL** / ***PLAIN-TEXT** /

| <c-string 1..63 with-low>

| ,**REDIRECTION** = ***NONE** / ***NO** / ***REMOTE**(...)

| ***REMOTE**(...)

| | **DEV**ICE-**NAME** = ***NONE** / <alphanum-name 1..8>

| ,**OBJECT-NAME** = ***NONE** / <alphanum-name 1..8 with-wild(24)> /

| list-poss(255):<alphanum-name 1..8>

,**CLUSTER-NAME** = ***STD** / ***LOCAL-CLUSTER** / <alphanum-name 1..8>

,**SERVER-NAME** = ***STD** / ***HOME** / <alphanum-name 1..8>

,**INF**ORMATION = ***SUMMARY** / ***ALL**

Operands

SELECT = *ALL / *PARAMETERS(...)
Specifies according to which criteria the filters are to be selected for which information is requested. If *ALL (default) is specified, information is displayed on all the filters entered.

SELECT = *PARAMETERS(...)
Starts a list of selection criteria.

FILTER-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(255): <alphanum-name 1..8>
The symbolic name of the filter is the selection criterion.

FILTER-LOCATION = *ALL / <composed-name 1..50 with-wild(24)> / list-poss(255): *SYSTEM / <composed-name 1..50>
The object module of the filter is the selection criterion.

INPUT-FORMAT-NAME = *ALL / list-poss(16): *TEXT / *HP / *SPDS / *PCL /*PLAIN-TEXT / <c-string 1..63 with-low>
The input format, i.e. the document format converted by the filter is the selection criterion.

OUTPUT-FORMAT-NAME = *ALL / list-poss(16): *TEXT / *HP / *SPDS / *PCL /*PLAIN-TEXT / <c-string 1..63 with-low>
The output format, i.e. the document format into which the filter converts the data is the selection criterion.

REDIRECTION = *ALL / *NO / *REMOTE(...)
The remote printer to which the SPOOLOUT jobs that use the filter have to be diverted is the selection criterion.

DEVICE-NAME = *ALL / <alphanum-name 1..8>
Name of the printer.

OBJECT-NAME = *ALL / <alphanum-name 1..8 with-wild(24)> / <alphanum-name 1..8>
The filter object module name (type R library element) is the selection criterion.

ACCESS-DATE = *ANY / *TODAY / *INTERVAL(...)
The selection criterion is the date of the last change or the last utilization within a print process. This date may be required as an additional criterion for the output of the form entry. It can be a specific date or a date range.

ACCESS-DATE = *TODAY
The last modification or change was performed on the current date.

ACCESS-DATE = *INTERVAL(...)
Specifies a date range.

FROM = 1950-01-01 / <date with-compl>
Earliest date in the date range.

TO = *TODAY / <date with-compl>
Latest date in the date range. The current date is set by default.

EXCEPT = *NONE / *PARAMETERS(...)
Specifies which filter entries are to be excluded from the selection (negative list).

EXCEPT = *NONE
None of the filter entries are excluded from the selection.

EXCEPT = *PARAMETERS(...)
Introduces a list of exclusion criteria.

FILTER-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(255): <alphanum-name 1..8>
Filter entries with the specified symbolic name are excluded.

FILTER-LOCATION = *NONE / <composed-name 1..50 with-wild(24)> / list-poss(255): *SYSTEM / <composed-name 1..50>
Filter entries with the specified object module are excluded.

INPUT-FORMAT-NAME = *NONE / list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
Filter entries with the specified input format are excluded.

OUTPUT-FORMAT-NAME = *NONE / list-poss(16): *TEXT / *HP / *SPDS / *PCL / *PLAIN-TEXT / <c-string 1..63 with-low>
Filter entries with the specified output format are excluded.

REDIRECTION = *NONE / *NO / *REMOTE(...)
Filter entries whose SPOOLOUT jobs have to be diverted to the specified remote printers are excluded.

DEVICE-NAME = *NONE / <alphanum-name 1..8>
Specifies the name of the printer.

OBJECT-NAME = *NONE / <alphanum-name 1..8 with-wild(24)> / <alphanum-name 1..8>
Filter entries with the specified filter object module names (type R library element) are excluded.

CLUSTER-NAME = *STD / *LOCAL-CLUSTER / <alphanum-name 1..8>
Specifies the cluster for which information is to be issued.
*LOCAL-CLUSTER is presumed for *STD (see SERVER-NAME for further details).

SERVER-NAME = *STD / *HOME / <alphanum-name 1..8>
Specifies the servers for which information is to be issued.
*HOME is presumed for *STD.
*STD has been introduced for reasons of compatibility. The default source parameter file for this command depends on the work mode (static, dynamic, on-configuration or command).
If a SPOOL parameter file is specified (mode: static or dynamic), that is the default source parameter file. If no parameter files are specified (mode: on-configuration or command) the default source parameter file is the home system spool parameter file.

INFORMATION = *SUMMARY / *ALL
Specifies the information to be issued.

INFORMATION = *SUMMARY
Only the first line is output for each element.

INFORMATION = *ALL
All lines are output for each element.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SPM0412	No filter exists
2	0	SPM0518	User is not authorized
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for this command

Output formats

(1) INFORMATION = *SUMMARY

```
FILTER-NAME  FILTER-LOCATION
@@@@@@@@     @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

(2) INFORMATION = *ALL

```
FILTER-NAME  FILTER-LOCATION
@@@@@@@@     @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
ACCESS-DATE : @@@@-@@-@@
INPUT-FORMAT-NAMES
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
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OUTPUT-FORMAT-NAME
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
REDIRECTION = @@@@@@@   (DEVICE-NAME = @@@@@@@@)
OBJECT-NAME = @@@@@@@@
```

Meaning of the output fields

Output field	Contents
ACCESS-DATE	Date of the last modification or utilization
FILTER-LOCATION	Library in which the filter and the SDF-P-LOGON procedure allowing the filter to be loaded and executed are stored.
FILTER-NAME	Symbolic filter name.
INPUT-FORMAT-NAMES	Name of the lists of input formats.
OUTPUT-FORMAT-NAME	Output formats.
REDIRECTION	Option allowing SPOOL jobs to be redirected to remote printers.
DEVICE-NAME	Remote printer name
OBJECT-NAME	Object module name

Output in S variables

The command's INFORMATION operand identifies the S variables which are to be created. The possible values for INFORMATION are *ALL and *SUMMARY.

Output information	Name of the S variable	T	Contents	Condition
Name of the remote printer	var(*LIST).DEVICE-NAME	S	' ' <device-name>	INF=*ALL
Library in which the filter and the LOGON procedure which permits it to be loaded and executed is stored	var(*LIST).FILTER-LOCATION	S	*SYSTEM <filter-location>	INF=*ALL/*SUM
Symbolic name of filter	var(*LIST).FILTER-NAME	S	' ' <filter-name>	INF=*ALL/*SUM
Name of the list of input formats	var(*LIST).INPUT-FORMAT-NAME(*LIST)	S	' ' <input-format-name>	INF=*ALL
Time stamp	var(*LIST).LAST-ACCESS	S	*NONE <yyyy-mm-dd>	INF=*ALL
Name of the object module	var(*LIST).OBJECT-NAME	S	' ' <object-name>	INF=*ALL
Output formats	var(*LIST).OUTPUT-FORMAT-NAME	S	' ' <output-formatname>	INF=*ALL
Option to redirect SPOOL jobs to remote printers	var(*LIST).REDIRECTION	S	*REMOTE *YES	INF=*ALL

7.16 SHOW-SPOOL-FORMS

Request information on form entries

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$

Function

The SHOW-SPOOL-FORMS command provides information on data from the form entry for the specified form or the form assigned to the specified type of printer. When a form and a printer type are specified the information is output in full, otherwise only the important data is selected, sorted by form name. The number of forms listed can be freely limited by selection criteria. Those forms are selected whose form entry includes the values specified for the respective operands (logical ANDing).

The SHOW-SPOOL-FORMS operands have the same names and meanings as the operands of the SPSERVE statement ADD-SPOOL-FORM. The operand value *ALL (usually the default) means that the respective operand will not be used as a selection criterion.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SPOOL-FORMS

,**SEL**ECT = ***ALL** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **FORM-NAME** = ***ALL** / list-poss(255): ***STD** / <alphanum-name 1..6 with-wild(24)>

| ,**DEV**ICE**-TYPE** = ***ALL** / <filename 1..16 without-cat-user-gen-vers> /

| list-poss(51):***ALL-LOC**AL**-PRINT**ERS / ***ALL-REM**OTE**-PRINT**ERS /

| ***HP-PRINT**ER / ***HP90-PRINT**ER / ***LP-PRINT**ER /

| ***LP-EMUL**ATED**-PRINT**ER / ***LP48-PRINT**ER / ***LP65-PRINT**ER / ***VIRTUAL** /

| ***2050-APA**-PRINTER / ***2090-APA**-PRINTER / ***PCL-PRINT**ER /

| ***2090-TWIN**-PRINTER / ***DJET-REM**OTE**-PRINT**ER /

| ***2030**-PCL-PRINTER / ***4011**-REMOTE-PRINTER /

| ***4812**-REMOTE-PRINTER / ***4813**-REMOTE-PRINTER /

| ***4818**-PCL-REMOTE-PRINTER / ***4821**-PCL-REMOTE-PRINTER /

| ***4822**-PCL-REMOTE-PRINTER / ***4824**-PCL-REMOTE-PRINTER /

| ***4825**-PCL-REMOTE-PRINTER / ***8121**-REMOTE-PRINTER /

| ***9000-EPFX**-REMOTE-PRINTER / ***9000-EPLQ**-REMOTE-PRINTER /

| ***9000-EPSQ**-REMOTE-PRINTER / ***9000-PCL**-REMOTE-PRINTER /

| ***9000-PRO**-REMOTE-PRINTER / ***9000-PS**-REMOTE-PRINTER /

| ***9000**-REMOTE-PRINTER / ***9001**-REMOTE-PRINTER /

| ***9001-31**-REMOTE-PRINTER / ***9002**-REMOTE-PRINTER /

| ***9003**-REMOTE-PRINTER / ***9004**-REMOTE-PRINTER /

| ***9011**-REMOTE-PRINTER / ***9012**-REMOTE-PRINTER /

| ***9013**-REMOTE-PRINTER / ***9014**-REMOTE-PRINTER /

| ***9015**-REMOTE-PRINTER / ***9021**-REMOTE-PRINTER /

| ***9022**-REMOTE-PRINTER / ***9022-200**-REMOTE-PRINTER /

| ***9025**-REMOTE-PRINTER / ***9026-PCL**-REMOTE-PRINTER /

| ***9026-RENO**-REMOTE-PRINTER / ***9045**-ANSI-REMOTE-PRINTER /

| ***9046**-REMOTE-PRINTER / ***9097**-REMOTE-PRINTER /

| ***9645**-REMOTE-PRINTER

```
|       ,OWNER = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
|       ,ACCESS-DATE= *ANY / *TODAY / *INTERVAL(...)
|           *INTERVAL(...)
|               |       FROM = 1950-01-01 / <date with-compl>
|               |       ,TO = *TODAY / <date with-compl>
|       ,LINE-SIZE = *ALL / <integer 30..180> / *RANGE(...)
|           *RANGE(...)
|               |       LOW = <integer 30..180>
|               |       ,HIGH = <integer 30..180>
|       ,PAGE-SIZE = *ALL / <integer 1..250> / *RANGE(...)
|           *RANGE(...)
|               |       LOW = <integer 1..250>
|               |       ,HIGH = <integer 1..250>
|       ,HEADER-PAGE = *ALL / list-poss(4): *YES / *NO / *RESPOOL / *ONE
|       ,TRAILER-PAGE = *ALL / list-poss(3): *YES / *NO / *INFO
|       ,VERTICAL-CONTROL = *ALL / *LOOP(...) / *SPACING(...) / *NONE
|           *LOOP(...)
|               |       LOOP-NAME = *ALL / <alphanum-name 1..3 with-wild(24)> /
|               |                       list-poss(16): <alphanum-name 1..3>
|           *SPACING(...)
|               |       LINES-PER-INCH = *ALL / *DENSITY(...) / list-poss(8): 3 / 4 / 6 / 8 / 10 / 12 / 15 / 20
|               |           *DENSITY(...)
|               |                   |       LINES = <integer 1..999>
|               |                   |       ,INCHES = <integer 1..999>
|               |       ,CHANNEL1-POSITION = *ALL / <integer 1..255> / *RANGE(...)
|               |           *RANGE(...)
|               |                   |       LOW = <integer 1..255>
|               |                   |       ,HIGH = <integer 1..255>
|       ,ROTATION-CONTROL = *ALL / *LOOP(...) / *SPACING(...) / *NONE
|           *LOOP(...)
|               |       LOOP-NAME = *ALL / <alphanum-name 1..3 with-wild(24)> /
```

```
|       |                    list-poss(16): <alphanum-name 1..3>
|     *SPACING(...)
|       |     LINES-PER-INCH = *ALL / *DENSITY(...) / list-poss(8): 3 / 4 / 6 / 8 / 10 / 12 / 15 / 20
|       |         *DENSITY(...)
|       |             |     LINES = <integer 1..999>
|       |             |     ,INCHES = <integer 1..999>
|       |     ,CHANNEL1-POSITION = *ALL / <integer 1..255> / *RANGE(...)
|       |         *RANGE(...)
|       |             |     LOW = <integer 1..255>
|       |             |     ,HIGH = <integer 1..255>
|     ,CHARACTER-SET = *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *NONE /
|                      <alphanum-name 1..3>
|     ,ROTATION-CHARACT-SET = *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *NONE /
|                             <alphanum-name 1..3>
|     ,BAND-IDENTIFICATION = *ALL / <alphanum-name 1..4 with-wild(24)> / list-poss(16): *NONE /
|                            <alphanum-name 4..4>
|     ,PREFORM = *ALL / <alphanum-name 1..4 with-wild(24)> / list-poss(16): *NONE /
|                <alphanum-name 1..4>
|     ,CHARACTER-IMAGE = *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *NONE /
|                        <alphanum-name 1..3>
|     ,TWO-UP-PROCESSING = *ALL / list-poss(3): *NO / *MODE-1 / *MODE-2
|     ,DIA-PROCESSING = *ALL / *PARAMETERS(...)
|       *PARAMETERS(...)
|       |     FORMS-OVERLAY = *ALL /<alphanum-name 1..2 with-wild(24)> / list-poss(16):
|       |     *NONE /
|       |                    <alphanum-name 2..2>
|       |     ,FORMS-OVERLAY-BUFFER = *ALL / <alphanum-name 1..4 with-wild(24)> /
|       |                             list-poss(16): <alphanum-name 1..4>
|     ,PRINTER-RESOURCES = *ALL / *NONE / *LP65(...) / *APA(...)
|       *LP65(...)
|       |     PAGE-DEFINITION = *ALL / <integer 1..50000> / *RANGE(...)
|       |         *RANGE(...)
```

| | | | LOW = <integer 1..50000>
| | | | ,HIGH = <integer 1..50000>
| | | ,STACKER-OFFSET = ***ALL** / *YES / *NO
| | | ,SEPARATOR-PAGE-TRAY = ***ALL** / *NONE / <integer 1..3> / *RANGE(...)
| | | *RANGE(...)
| | | | LOW = <integer 1..3>
| | | | ,HIGH = <integer 1..3>
| *APA(...)
| | FORM-DEFINITION = ***ALL** / <alphanum-name 1..8 with-wild(24)> /
| | list-poss(16): <alphanum-name 1..8>
| | ,PAGE-DEFINITION = ***ALL** / <alphanum-name 1..8 with-wild(24)> /
| | list-poss(16): <alphanum-name 1..8>

,EXCEPT = ***NONE** / *PARAMETERS(...)

*PARAMETERS(...)

| FORM-NAME = ***NONE** / <alphanum-name 1..6 with-wild(24)> / list-poss(16): *STD /
| <alphanum-name 1..6>
| ,OWNER = ***NONE** / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
| ,VERTICAL-CONTROL = *NONE / *LOOP(...)
| *LOOP(...)
| | LOOP-NAME = <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
| ,ROTATION-CONTROL = ***NONE** / *LOOP(...)
| *LOOP(...)
| | LOOP-NAME = <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
| ,CHARACTER-SET = ***NONE** / <alphanum-name 1..3 with-wild(24)> /
| list-poss(16): <alphanum-name 1..3>
| ,ROTATION-CHARACT-SET = ***NONE** / <alphanum-name 1..3 with-wild(24)> /
| list-poss(16): <alphanum-name 1..3>
| ,BAND-IDENTIFICATION = ***NONE** / <alphanum-name 1..4 with-wild(24)> /
| list-poss(16): <alphanum-name 4..4>
| ,PREFORM = ***NONE** / <alphanum-name 1..4 with-wild(24)> / list-poss(16): <alphanum-name 1..4>

```
|       ,CHARACTER-IMAGE = *NONE / <alphanum-name 1..3 with-wild(24)> /
|                                  list-poss(16): <alphanum-name 1..3>
|       ,DIA-PROCESSING = *NONE / *PARAMETERS(...)
|           *PARAMETERS(...)
|               |       FORMS-OVERLAY = *NONE /<alphanum-name 1..2 with-wild(24)> /
|               |                               list-poss(16): <alphanum-name 2..2>
|               |       ,FORMS-OVERLAY-BUFFER = *NONE / <alphanum-name 1..4 with-wild(24)> /
|               |                                       list-poss(16): <alphanum-name 1..4>
|       ,PRINTER-RESOURCES = *NONE / *APA(...)
|           *APA(...)
|               |       FORM-DEFINITION = *NONE / <alphanum-name 1..8 with-wild(24)> /
|               |                               list-poss(16): <alphanum-name 1..8>
|               |       ,PAGE-DEFINITION = *NONE / <alphanum-name 1..8 with-wild(24)> /
|               |                               list-poss(16):<alphanum-name 1..8>
,SERVER-NAME = *HOME / <alphanum-name 1..8>
,CLUSTER-NAME = *LOCAL-CLUSTER / <alphanum-name 1..8>
,INFORMATION = *SUMMARY / *ALL
```

Operands

SELECT = *ALL / *PARAMETERS(...)
Specifies the criteria to be used for selecting the forms about which information is to be output. Specifying *ALL (default value) causes information about all forms entered to be output.

SELECT = *PARAMETERS(...)
Initiates a list of selection criteria.

FORM-NAME = *ALL / list-poss(255): *STD / <alphanum-name 1..6 with-wild(24)>
The selection criterion is the form name. Wildcards may not be specified within a list.

DEVICE-TYPE = *ALL / ....
The selection criterion is the type of printer (see syntax format).

OWNER = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
The selection criterion is the user ID of the user who created the form entry. Nonprivileged users may only specify *ALL or *OWN.

ACCESS-DATE = *ANY / *TODAY / *INTERVAL(...)
The selection criterion is the date of the last change or the last utilization within a print process. This date may be required as an additional criterion for the output of the form entry. It can be a specific date or a date range.

ACCESS-DATE = *TODAY
The last modification or change was performed on the current date.

ACCESS-DATE = *INTERVAL(...)
Specifies a date range.

FROM = 1950-01-01 / <date with-compl>
Earliest date in the date range.

TO = *TODAY / <date with-compl>
Latest date in the date range. The current date is set by default.

LINE-SIZE = *ALL / <integer 30..180> / *RANGE(...)
The selection criterion is the maximum form width (in 1/10 of an inch).

LINE-SIZE = *RANGE(...)
Specification of a range of values that contains the maximum form width.

LOW = <integer 30..180>
Lower range limit.

HIGH = <integer 30..180>
Upper range limit.

PAGE-SIZE = *ALL / <integer 1..250> / *RANGE(...)
The selection criterion is the height of the form (in 1/10 of an inch).

PAGE-SIZE = *RANGE(...)
Specification of a range of values that includes the maximum form height.

LOW = <integer 1..250>
Lower range limit.

HIGH = <integer 1..250>
Upper range limit.

HEADER-PAGE = *ALL / list-poss(4): *YES / *NO / *RESPOOL / *ONE
The selection criterion is the entry specifying whether a header page is to be printed.

TRAILER-PAGE = *ALL / list-poss(3): *YES / *NO / *INFO
The selection criterion is the entry specifying whether a trailer page is to be printed.

VERTICAL-CONTROL = *ALL / *NONE / *LOOP(...) / *SPACING(...)
The selection criterion is the entry specifying the type of feed control.

VERTICAL-CONTROL = *LOOP(...)
Feed control via loop record.

LOOP-NAME = *ALL / <alphanum-name 1..3 with-wild(24)> /list-poss(16): <alphanum-name 1..3>
Name of the loop record.

VERTICAL-CONTROL = *SPACING(...)
Initiates a list of selection criteria.

LINES-PER-INCH = *ALL / *DENSITY(...) / list-poss(8): 3 / 4 / 6 / 8 / 10 / 12 / 15 / 20
The selection criterion is the line density (number of lines per inch).

LINES-PER-INCH = *DENSITY(...)
The selection criterion is the line density, specified by the number of lines (LINES) and the form length (INCHES).

LINES = <integer 1..999>
Number of lines.

INCHES = <integer 1..999>
Form length in inches.

CHANNEL1-POSITION = *ALL / <integer 1..255> / *RANGE(...)
The selection criterion is the position of the line (loop record) on which “channel 1” is located.

CHANNEL1-POSITION = *RANGE(...)
Specification of a range of values for the position.

LOW = <integer 1..255>
Lower range limit.

HIGH = <integer 1..255>
Upper range limit.

ROTATION-CONTROL = *ALL / *NONE / *LOOP(...) / *SPACING(...)
The selection criterion is whether rotated page feed is controlled by a loop record or an additional line feed controller.

ROTATION-CONTROL = *LOOP(...)
Feed is controlled by a loop record.

LOOP-NAME - *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Name of the loop record.

ROTATION-CONTROL = *SPACING(...)
Feed is controlled by an additional line feed controller.

LINES-PER-INCH = *ALL / *DENSITY(...) / list-poss(8): 3 / 4 / 6 / 8 / 10 / 12 / 15 / 20
The selection criterion is the line density (number of lines per inch).

LINES-PER-INCH = *DENSITY(...)
The selection criterion is the line density, specified by the number of lines (LINES) and the length of the form (INCHES).

LINES = <integer 1..999>
Number of lines.

INCHES = <integer 1..999>
Form length in inches.

CHANNEL1-POSITION = *ALL / <integer 1..255> / *RANGE(...)
The selection criterion is the line number in the simulated loop on which the “channel 1” vertical tabulator is defined.

CHANNEL1-POSITION = *RANGE(...)
Specification of a range of values for the line number.

LOW = <integer 1..255>
Lower range limit.

HIGH = <integer 1..255>
Upper range limit.

CHARACTER-SET = *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *NONE / <alphanum-name 1..3>
The selection criterion is the name of the character set.

ROTATION-CHARACT-SET = *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *NONE / <alphanum-name 1..3>
The selection criterion is the name of the character set used for rotated pages.

BAND-IDENTIFICATION = *ALL / <alphanum-name 1..4 with-wild(24)> / list-poss(16): *NONE / <alphanum-name 4..4>
The selection criterion is the name of the type band.

PREFORM = *ALL / <alphanum-name 1..24 with-wild> / list-poss(16): *NONE / <alphanum-name 1..4>
The selection criterion is the entry specifying the printer control character sequence that must be sent at the start of a job. Only for LP-EMULATED-PRINTER.

CHARACTER-IMAGE = *ALL / <alphanum-name 1..3 with-wild(24)> / list-poss(16): *NONE / <alphanum-name 1..3>
The selection criterion is the name of the conversion table.

TWO-UP-PROCESSING = *ALL / list-poss(3): *NO / *MODE-1 / *MODE-2
The selection criterion is the entry specifying whether and which two-up mode is to be used for printing. (Only for HP90 printers.)

DIA-PROCESSING = *ALL / *PARAMETERS(...)
The selection criteria are the default settings for forms when using overlays.

DIA-PROCESSING = *PARAMETERS(...)
Specifies the settings for EFO and FOB data overlays.

FORMS-OVERLAY = *ALL /<alphanum-name 1..2 with-wild(24)> / list-poss(16): <alphanum-name 2..2>
The selection criterion is the description of the EFO data overlay.

FORMS-OVERLAY-BUFFER = *ALL / <alphanum-name 1..4 with-wild(24)> / list-poss(16): <alphanum-name 1..4>
The selection criterion is the description of the FOB data overlay.

PRINTER-RESOURCES = *ALL / *NONE / *LP65(...) / *APA(...)
The selection criterion is the entry specifying whether particular printer functions are to be used.

PRINTER-RESOURCES = *LP65(...)
Designates the printer functions for LP65 printers.

PAGE-DEFINITION = *ALL / <integer 1..50000> / *RANGE(...)
The selection criterion is the number of the default PCL file.

PAGE-DEFINITION = *RANGE(...)
Specification of a range of values that contains the number.

LOW = <integer 1..50000>
Lower range limit.

HIGH = <integer 1..50000>
Upper range limit

STACKER-OFFSET = *ALL / *YES / *NO
The selection criterion is the agreement whether the individual spoolout jobs are to be separated by offset stacking.

SEPARATOR-PAGE-TRAY = *ALL / <integer 1..3> / *RANGE(...)
The selection criterion is the number of blank pages between the individual spoolout jobs.

SEPARATOR-PAGE-TRAY = *RANGE(...)
Specification of a range of values for the number of blank pages.

LOW = <integer 1..3>
Lower range limit.

HIGH = <integer 1..3>
Upper range limit.

PRINTER-RESOURCES = *APA(...)
The selection criteria are the names of the form and page definitions for APA printers.

FORM-DEFINITION = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
The selection criterion is the name of the form definition.

PAGE-DEFINITION = *ALL / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
The selection criterion is the name of the page definition.

EXCEPT = *NONE / *PARAMETERS(...)
Names of the forms entries to be excluded from the selection (negative list). If *NONE is specified, no forms are excluded from the selection.

EXCEPT = *PARAMETERS(...)
Initiates a list of selection criteria.

FORM-NAME = *NONE / <alphanum-name 1..6 with-wild(24)> / list-poss(16): <alphanum-name 1..6> / *STD
The forms with the specified names are not to be taken into account. If *NONE is specified (the default), the operand is ignored.

OWNER = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): *OWN / <name 1..8>
Forms entries created by users with the specified user ID are not taken into account. If *NONE is specified (the default) the operand is ignored.

Nonprivileged users can only specify values other than *NONE if they have specified SELECT=*PARAMETERS(OWNER=*OWN) above.

VERTICAL-CONTROL = *NONE / *LOOP(...)
Forms entries with the specified loop record are not taken into account. If *NONE is specified (the default), the operand is ignored.

LOOP-NAME = <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Name of the loop record. If *NONE is specified (this is the default), the operand has no effect.

ROTATION-CONTROL = *NONE / *LOOP(...)
Forms entries with the specified loop record for rotation are not taken into account. If *NONE is specified (the default), the operand is ignored.

LOOP-NAME = <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Name of the loop record. If *NONE is specified (the default), the operand is ignored.

CHARACTER-SET =*NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Forms entries with the specified character set are not taken into account. If *NONE is specified (the default), the operand is ignored.

ROTATION-CHARACT-SET = *NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Forms entries with the specified character set for pages to be printed rotated are not taken into account. If *NONE is specified (the default), the operand is ignored.

BAND-IDENTIFICATION = *NONE / <alphanum-name 1..4 with-wild(24)> / list-poss(16): <alphanum-name 4..4>
Forms entries with the specified type band are not taken into account. If *NONE is specified (the default), the operand is ignored.

PREFORM = *NONE / <alphanum-name 1..4 with-wild(24)> / list-poss(16): <alphanum-name 1..4>
Forms entries with the specified printer control character sequence are not taken into account. Only for LP-EMULATED-PRINTER. If *NONE is specified (the default), the operand is ignored.

CHARACTER-IMAGE = *NONE / <alphanum-name 1..3 with-wild(24)> / list-poss(16): <alphanum-name 1..3>
Forms entries with the specified conversion table are not taken into account. If *NONE is specified (the default), the operand is ignored.

DIA-PROCESSING = *NONE / *PARAMETERS(...)
The specified settings for forms when using overlays are ignored.

DIA-PROCESSING = *PARAMETERS(...)
Specifies the settings for EFO and FOB data overlays to be ignored.

FORMS-OVERLAY = *NONE / <alphanum-name 1..2 with-wild(24)> / list-poss(16): <alphanum-name 2..2>
The specified description of the EFO data overlay is ignored.

FORMS-OVERLAY-BUFFER = *NONE / <alphanum-name 1..4 with-wild(24)> / list-poss(16): <alphanum-name 1..4>
The specified description of the FOB data overlay is ignored.

PRINTER-RESOURCES = *NONE / *APA(...)
Forms entries with the specified printer attributes are not taken into account. For APA printers only.
If *NONE is specified (the default), the operand is ignored.

PRINTER-RESOURCES = *APA(...)

FORM-DEFINITION = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
Name of the FORMDEF. If *NONE is specified (the default), the operand is ignored.

PAGE-DEFINITION = *NONE / <alphanum-name 1..8 with-wild(24)> / list-poss(16): <alphanum-name 1..8>
Name of the PAGEDEF. If *NONE is specified (the default), the operand is ignored.

CLUSTER-NAME = *LOCAL-CLUSTER / <alphanum-name 1..8>
Specifies the cluster for which the information is to be output. Only BS2000 clusters can be specified.

SERVER-NAME = *HOME / <alphanum-name 1..8>
Specifies the servers for which information is to be output.

INFORMATION = *SUMMARY / *ALL
Specifies which information is output. The output format depends on the contents of the VERTICAL-CONTROL and ROTATION-CONTROL fields.

INFORMATION = *SUMMARY
Only the first line of each element is output.

INFORMATION = *ALL
All the lines of each element are output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SPM0412	No form present
2	0	SPM0518	No authorization
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command

Outputs

The output format varies depending on the device type and the values for VERTICAL-CONTROL and ROTATION-CONTROL. The formats shown below are output when INFORMATION=*ALL is specified. When INFORMATION=*SUMMARY is specified, only the first line appears in each case.

Output when line densities are not defined for either VERTICAL-CONTROL or ROTATION-CONTROL

```
FORM-NAM DEV-TYPE  LI-S PA-S H-P T-P   VERT-CONTROL    ROT-CONTROL    OWNER
                                      L-N/LPI/C-P/C-S L-N/LPI/C-P/C-S
@@@@@@   ####@@@@@  ###  ### @@@ @@@  @@@ ### ### @@@ @@@ ### ### @@@ @@@@@@@
BAND-ID  PREFORM PAGE-DEF FORM-DEF S-O S-P-T  T-UP-P  CH-IM F-OV  F-O-B
@@@@     @@@@    @@@@@@@@ @@@@@@@@ @@@     #  @@@@@@  @@@@@ @@@@@ @@@@@
ACCESS-DATE : @@@@-@@-@@
```

Output when line densities are defined for VERTICAL-CONTROL and ROTATION-CONTROL

```
FORM-NAM DEV-TYPE  LI-S PA-S H-P T-P   VERT-CONTROL    ROT-CONTROL    OWNER
                                       L-P-I /C-P/C-S  L-P-I /C-P/C-S
@@@@@@   ####@@@@@  ###  ### @@@ @@@  ###/### ### @@@ ###/### ### @@@ @@@@@@@@
BAND-ID  PREFORM PAGE-DEF FORM-DEF S-O S-P-T  T-UP-P  CH-IM F-OV  F-O-B
@@@@     @@@@    @@@@@@@@ @@@@@@@@ @@@     #  @@@@@@  @@@@@ @@@@@ @@@@@
ACCESS-DATE : @@@@-@@-@@
```

Output when line densities are only defined for VERTICAL-CONTROL

```
FORM-NAM DEV-TYPE  LI-S PA-S H-P T-P   VERT-CONTROL    ROT-CONTROL    OWNER
                                      L-N/LPI/C-P/C-S  L-P-I /C-P/C-S
@@@@@@   ####@@@@@  ###  ### @@@ @@@  @@@ ### ### @@@ ###/### ### @@@ @@@@@@@@
BAND-ID  PREFORM PAGE-DEF FORM-DEF S-O S-P-T  T-UP-P  CH-IM F-OV  F-O-B
@@@@     @@@@    @@@@@@@@ @@@@@@@@ @@@     #  @@@@@@  @@@@@ @@@@@ @@@@@
ACCESS-DATE : @@@@-@@-@@
```

Output when line densities are only defined for ROTATION-CONTROL

```
FORM-NAM DEV-TYPE  LI-S PA-S H-P T-P   VERT-CONTROL    ROT-CONTROL    OWNER
                                      L-N/LPI/C-P/C-S  L-P-I /C-P/C-S
@@@@@@   ####@@@@@  ###  ### @@@ @@@  @@@ ### ### @@@ ###/### ### @@@ @@@@@@@@
BAND-ID  PREFORM PAGE-DEF FORM-DEF S-O S-P-T  T-UP-P  CH-IM F-OV  F-O-B
@@@@     @@@@    @@@@@@@@ @@@@@@@@ @@@     #  @@@@@@  @@@@@ @@@@@ @@@@@
ACCESS-DATE : @@@@-@@-@@
```

Note the following points concerning the values for line density:

- The asterisk (*) before the value in the LPI field indicates that it is the calculated value for line density and not a defined value (DENSITY(...) operand for ADD-/MODIFY-SPOOL-FORM).
- If the field is labeled L-P-I (instead of LPI), the line density has been defined by means of the DENSITY(...) operand and is displayed in the form lines/inches. The loop name (L-N field) is not displayed.

Meanings of the fields

The name in parentheses is the corresponding operand for the SPSERVE statement ADD-SPOOL-FORM. The fields L-N (LOOP-NAME) and LPI are mutually exclusive; in other words, one of the two is always empty.

Output field	Meaning / Contents
ACCESS-DATE	Date of the last modification or utilization
BAND-ID	Name of the BAND-ID (type band)
CH-IM (CHARACTER-IMAGE)	Specifies whether a CHARACTER-IMAGE table has been defined for a specific device type
DEV-TYPE (DEVICE-TYPE)	Device type: only one device type is output per group; In the case of groups #### stands for: • LP-PRINT (3337, 3338, 3339) • HP-PRINT (3351, 3353) • HP90-PR (2090, 2140) • LP65-PR (3365) • LP48-PR (3348, 3349) The remaining devices are not combined into groups
FORM-DEF	Standard form definition for APA printers
FORM-NAM (FORM-NAME)	Form name
H-P (HEADER-PAGE)	SPOOL header page: 2 header pages (YES), no header page (NO), 1 header page (ONE), 2 header pages after a restart (RESPOOL)
LI-S (LINE-SIZE)	Line length in 1/10 of an inch
OWNER	Under TSOS: User ID of the form owner, i.e. the RSO device administrator or system administration that created the form; For nonprivileged users, the output field is always blank
PAGE-DEF (PAGE-DEFINITION)	Standard PCL file for controlling print output to the APA printers;
PA-S (PAGE-SIZE)	Page size in 1/10 of an inch
PREFORM	Control character sequence for LP-EMULATED-PRINTER

ROT-CONTROL (ROTATION-CONTROL):	Page feed for rotated pages for HP laser printers and RSO printers 9021, 9022, 9022-200, 9025, 9026-RENO, 9026-LJ and LJII:
L-N (LOOP-NAME)	Name of the rotation loop assigned to the form by default;
LPI (LINES-PER-INCH)	Line spacing (RSO mode only);
L-P-I (LINES-PER-INCH)	Line spacing, specified as break (lines/inch)
C-P (CHANNEL1-POSITION)	Line number of the simulated rotation loop on which the “channel 1” vertical tabulator is defined;
C-S (CHARACTER-SET)	Name of the character set to be used by default for printout of rotated pages on this form.
S-O (STACKER-OFFSET)	Separation of the jobs by offset output of the paper stacks on the stacker (single page printers)
S-P-T (SEPARATOR-PAGE-TRAY)	Additional blank page between spoolout jobs; addition blank page between copies of the same job if a header page is printed before each copy
T-P (TRAILER-PAGE)	SPOOL trailer page: Of the three parts of the trailer page either 2 (YES) or 3 (INFO) are printed, or no trailer page is printed (NO)
T-UP-P (TWO-UP-PROCESSING)	Output of two pages side by side on HP90 laser printers and APA printers
VERT-CONTROL (VERTICAL-CONTROL):	Page feed:
L-N (LOOP-NAME)	Name of the loop assigned to the form by default;
LPI (LINES-PER-INCH)	Line spacing (RSO mode only);
L-P-I (LINES-PER-INCH)	Line spacing specified as break (lines/inch)
C-P (CHANNEL1-POSITION)	Line number of the simulated loop on which the “channel 1” vertical tabulator is defined;
C-S (CHARACTER-SET)	Name of the character set assigned to the form by default

Table 154: SHOW-SPOOL-FORMS output fields

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The possible values of INFORMATION are *ALL and *SUMMARY.

Output information	Name of the S variable	T	Contents	Condition
Type band ID	var(*LIST).BAND-ID	S	*NONE <band-id>	INF=*ALL
Name of the character image table	var(*LIST).CHAR-IMAGE	S	*NONE <char-image>	INF=*ALL
Character set name	var(*LIST).CHAR-SET	S	' ' <char-set-name>	INF=*ALL/ *SUM
Device type	var(*LIST).DEV-TYPE	S	' ' <dev-type>	INF=*ALL/ *SUM
Forms overlay buffer	var(*LIST).FOB	S	*NONE <fob>	INF=*ALL
Default form definition for APA printers	var(*LIST).FORM-DEF	S	*NONE <form-def>	INF=*ALL
Form name	var(*LIST).FORM-NAME	S	' ' <form-name>	INF=*ALL/ *SUM
Forms overlay	var(*LIST).FORM-OVERLAY	S	*NONE <form-overlay>	INF=*ALL
Print a header page *NO: no header page *ONE: 1 header page *RESPOOL: 2 header pages following RESPOOL *YES: 2 header pages	var(*LIST).HEAD-PAGE	S	*NO *ONE *RESPOOL *YES	INF=*ALL/ *SUM
Time stamp	var(*LIST).LAST-ACCESS	S	*NONE <yyyy-mm-dd>	INF=*ALL
Line length in 1/10"	var(*LIST).LINE-SIZE	S	30..180	INF=*ALL /*SUM
User ID of the form owner	var(*LIST).OWNER	S	' ' *NONE <user-id>	INF=*ALL/ *SUM
Number of the default PCL print output control file	var(*LIST).PAGE-DEF	S	*NONE 0..50000 <page-def>	INF=*ALL

Page size in 1/10"	var(*LIST).PAGE-SIZE	S	1..250	INF=*ALL/ *SUM
Control character sequence for LP-EMULATED-PRINTER	var(*LIST).PREFORM	S	*NONE <preform>	INF=*ALL
Character set used for rotated pages	var(*LIST).ROT-CHAR-SET	S	' ' <char-set-name>	INF=*ALL/ *SUM
Line number of the simulated ROTATION loop on which channel 1 is defined (selection criterion for form feed on rotated pages)	var(*LIST).ROT-CONTR.CHAN-1-POS	S	0..255	INF=*ALL/ *SUM
Form length in inches (selection criterion for form feed on rotated pages)	var(*LIST).ROT-CONTR.INCHES	S	0..999	INF=*ALL/ *SUM
Number of lines (selection criterion for form feed on rotated pages)	var(*LIST).ROT-CONTR.LINES	S	0..999	INF=*ALL/ *SUM
Line spacing, number of lines per inch (selection criterion for form feed on rotated pages)	var(*LIST).ROT-CONTR.LPI	S	0..999	INF=*ALL/ *SUM
Name of the ROTATION loop (selection criterion for form feed on rotated pages)	var(*LIST).ROT-CONTR.LOOP	S	' ' <loop-name>	INF=*ALL/ *SUM
Number of blank pages between spoolout jobs	var(*LIST).SEPAR-PAGE-TRAY	S	*NONE 1..3	INF=*ALL
Offset stacking of spoolout jobs	var(*LIST).STACKER-OFFSET	S	*NO *YES	INF=*ALL
Trailer page printing: *INFO: print 3 trailer pages *NO: no trailer pages *YES: print 2 trailer pages	var(*LIST).TRAIL-PAGE	S	*INFO *NO *YES	INF=*ALL/ *SUM
Print two pages side by side	var(*LIST).TWO-UP-PROCESS	S	*MODE-1 *MODE-2 *NO	INF=*ALL
Form feed controlled by LOOP record (position of the line on which channel 1 is located)	var(*LIST).VERT-CONTR.CHAN-1-POS	S	0..255	INF=*ALL/ *SUM

Form length in inches (form feed selection criterion)	var(*LIST).VERT-CONTR.INCHES	S	0..999	INF=*ALL/ *SUM
Number of lines (form feed selection criterion)	var(*LIST).VERT-CONTR.LINES	S	0..999	INF=*ALL/ *SUM
Name of the LOOP record (form feed selection criterion)	var(*LIST).VERT-CONTR.LOOP	S	' ' <loop-name>	INF=*ALL/ *SUM
Line spacing, lines per inch (form feed selection criterion)	var(*LIST).VERT-CONTR.LPI	S	0..999	INF=*ALL/ *SUM

7.17 SHOW-SPOOL-PARAMETERS

Request information on global SPOOL parameters

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION SPOOL-PRINT-SERVICES
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$

Function

The SHOW-SPOOL-PARAMETERS command requests the values of the global SPOOL parameters and scheduling criteria for local SPOOL and RSO from the current SPOOL parameter file; the values are output to SYSOUT.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SPOOL-PARAMETERS

CLUSTER-NAME = ***LOCAL-CLUSTER** / <alphanum-name 1..8>

,**SERVER-NAME** = ***HOME** / <alphanum-name 1..8>

,**INF**ORMATION = ***ALL** / list-poss(11): ***VERSIONS** / ***HEADER-PAGE** / ***PRINT-CMD-DEFAULTS** /
***SPOOLOUT-OPTIONS** / ***SPOOLOUT-SIZE** / ***SPOOLIN-OPTIONS** / ***RSO-OPTIONS** /
***OLTP-OPTIONS** / ***DPRINT-OPTIONS** / ***CENTRAL-SCHEDULING** / ***RSO-SCHEDULING**

Operands

CLUSTER-NAME = *LOCAL-CLUSTER / <alphanum-name 1..8>
Specifies the cluster for which information is to be output. Only BS2000 clusters can be specified.

SERVER-NAME = *HOME / <alphanum-name 1..8>
Specifies the servers for which information is to be output.

INFORMATION =
Specifies which information is to be output.

INFORMATION = *ALL
Outputs all information.

INFORMATION = list-poss(11): *VERSIONS / *HEADER-PAGE / *PRINT-CMD-DEFAULTS / *SPOOLOUT-OPTIONS / *SPOOLOUT-SIZE / *SPOOLIN-OPTIONS / *RSO-OPTIONS / *OLTP-OPTIONS / *DPRINT-OPTIONS / *CENTRAL-SCHEDULING / *RSO-SCHEDULING
Specifies which information is to be output. The fields displayed for each INFORMATION value correspond to the operands of the related structure of the MODIFY-SPOOL-PARAMETERS statement.

Notes

- If *VERSIONS has been requested in the INFORMATION operand when working with SPSERVE on a user spool parameters file, the statement is rejected with the SRV0004 message. Indeed, INFORMATION=*VERSIONS provides the caller with the versions of the different Spool&Print subsystems.
- The specification INFORMATION=*SPOOLIN-OPTIONS is only still accepted for reasons of compatibility. Information on this is no longer output.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SPM0431	Conversion in progress
	32	SCP0974	System error. Command rejected

Output

*Output format when INFORMATION = *VERSIONS is specified*

```
------------------------------ VERSIONS --------------------------------
SPOOL                : @@@@@@@
RSO                  : @@@@@@@@@@@@@
SPS                  : @@@@@@@@@@@@@
DPRINTCM             : @@@@@@@@@@@@@
DPRINTCL             : @@@@@@@@@@@@@
DPRINTSV             : @@@@@@@@@@@@@
SCSIPCL              : @@@@@@@@@@@@@
IDOM                 : @@@@@@@@@@@@@
SPCONV               : @@@@@@@@@@@@@
```

*Output format when INFORMATION = *HEADER-PAGE is specified*

```
---------------------------- HEADER-PAGE ----------------------------
SPACE-AFTER-HEADER  : @@@
FAMILY-MEMBER-HEADER: @@@
COPY-HEADER         : @@@
CHARACTER-SET:      : @@@@@@@
PRINT-ACCOUNT-NUMBER: @@@
```

*Output format when INFORMATION = *PRINT-CMD-DEFAULTS is specified*

```
------------------------------ PRINT-CMD-DEFAULTS ----------------------
LINE-SIZE           : ###
LOCK-FILE           : @@@
LEFT-MARGIN         : ##
DESTINATION         : @@@@@@@
                      DEVICE-NAME             : @@@@@@@@
                      POOL-NAME               : @@@@@@@@
DPRINT-DESTINATION  : @@@@@@@@@@@@
                      POOL-NAME               : @@@@@@@@
FAMILY-PROCESSING   : LOCAL                   : @@@
                      REMOTE                  : @@@
ACCEPT-EMPTY-FILE   : @@@
ERROR-PROCESSING    : TRUNCATION              : @@@@@@@@@@
RESOURCES-LOCATION  : @@@@@@@
```

*Output format when INFORMATION = *SPOOLOUT-OPTIONS is specified*

```
------------------------------ SPOOLOUT-OPTIONS ------------------------
REMOTE-BUFFER-SIZE  : ##
REMOTE-DEVICE-LIMIT : ####
RBP-STATION-LIMIT   : 0
MAX-MSG-TASK-NUMBER : ###
START-SPOOL-LOW-VAL : ###
FORM-NAME-LENGTH    : #
SECTION-TASK-LIMIT  : ###
DEFAULT-SYSLST-FORM : @@@@@@
DEFAULT-SYSOUT-FORM : @@@@@@
REC-RULES-PREFIX    : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
PRINTER-PARAM-PREF  : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
FILTER-TASK-LIMIT   : ##
PRIORITY            : REPLAY-SESSION       : ###
                      FROM-POSITIONING     : ###
                      SECTION-POSITIONING  : ###
CHECKPOINT-INTERVAL : LINE-PRINTERS        : #####
                      PAGE-PRINTERS        : #####
                      REMOTE-PRINTERS      : #####
DEVICE-TYPE         : ND-PRINTER           : NO
                      LP-PRINTER           : @@@
                      HP-PRINTER           : @@@
                           FORMS-OVERLAY-BUFFER: ####
                           CHARACTER-SET-NUMBER: ##
                           ROTATION            : @@@
                      LP65-PRINTER         : @@@
                      HP90-PRINTER         : @@@
                           FORMS-OVERLAY-BUFFER: ####
                           CHARACTER-SET-NUMBER: ##
                           FORMS-OVERLAY       : @@@
                           RASTER-PATTERN-MEM  : #####
                           ROTATION            : @@@
                      APA-PRINTER          : @@@
                      TWIN-PRINTER         : @@@
                      VIRTUAL-PRINTER      : @@@@@@@@@@@@
                      PCL-PRINTER          : @@@
```

*Output format when INFORMATION = *SPOOLOUT-SIZE is specified*

```
------------------------------ SPOOLOUT-SIZE ---------------------------
UNIT                : @@@@
LINES-FACTOR        : ###
MIN-LINES-PER-PAGE  : #### (@@@@)
```

*Output format when INFORMATION = *RSO-OPTIONS is specified*

```
------------------------------ RSO-OPTIONS -----------------------------
CONTROLLER-LIMIT    : ###
CONTROLLER-DEV-LIMIT: ####
JOB-CONTROLLER-LIMIT: ###
CHECK-PRINTER-TIME  : ##
RETRY-TIME          : ###
RELEASE-MEMORY      : @@@
```

*Output format when INFORMATION = *OLTP-OPTIONS is specified*

```
------------------------------ OLTP-OPTIONS ----------------------------
TASK-LIMIT          : ###
TASK-DEVICE-LIMIT   : ####
```

*Output format when INFORMATION = *DPRINT-OPTIONS is specified*

```
------------------------------ DPRINT-OPTIONS --------------------------
SERVER-TASK-LIMIT   : ###
RESOURCES-TASK-LIMIT: ##
REMOTE-JOB-PRIORITY : ###
CONNECTION-TIMEOUT  : #####
DFTM-WAITING-TIME   : ####
```

*Output format when INFORMATION = *CENTRAL-SCHEDULING is specified*

```
------------------------------ CENTRAL-SCHEDULING -----------------------
CURRENT-SCHEDULING
DEVICE-WEIGHT        : ACCOUNT              : ###
                       CHARACTER-SET-NUMBER: ###
                       CLASS                : ###
                       FOB-SIZE             : ###
                       FORM                 : ###
                       FORMS-OVERLAY        : ###
                       PRIORITY             : ###
                       ROTATION             : ###
                       SPOOLOUT-NAME        : ###
                       USER-IDENTIFICATION  : ###
JOB-SEQUENCE         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
JOB-PRIORITY         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
------------------------------------------------------------------------

NEXT-SCHEDULING
DEVICE-WEIGHT        : ACCOUNT              : ###
                       CHARACTER-SET-NUMBER: ###
                       CLASS                : ###
                       FOB-SIZE             : ###
                       FORM                 : ###
                       FORMS-OVERLAY        : ###
                       PRIORITY             : ###
                       ROTATION             : ###
                       SPOOLOUT-NAME        : ###
                       USER-IDENTIFICATION  : ###
JOB-SEQUENCE         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
JOB-PRIORITY         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

*Output format when INFORMATION = *RSO-SCHEDULING is specified*

```
------------------------------ RSO-SCHEDULING ---------------------------
CURRENT-SCHEDULING
DEVICE-WEIGHT        : ACCOUNT              : ###
                       CLASS                : ###
                       FORM                 : ###
                       PRIORITY             : ###
                       SPOOLOUT-NAME        : ###
                       USER-IDENTIFICATION  : ###
JOB-SEQUENCE         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
JOB-PRIORITY         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
------------------------------------------------------------------------
NEXT-SCHEDULING
DEVICE-WEIGHT        : ACCOUNT              : ###
                       CLASS                : ###
                       FORM                 : ###
                       PRIORITY             : ###
                       SPOOLOUT-NAME        : ###
                       USER-IDENTIFICATION  : ###
JOB-SEQUENCE         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
JOB-PRIORITY         : @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

*Output format when INFORMATION = *ALL is specified*

For compatibility reasons, *ALL is the default value.

The concatenation of all preceding INFORMATION types is displayed.

Meanings of the fields

Output field	Contents
VERSIONS:	Versions of the various Spool&Print subsystems
SPOOL	SPOOL version used in the current session
RSO	RSO version used in the current session
SPS	SPS version used in the current session
DPRINTCM	DPRINTCM version used in the current session
DPRINTCL	DPRINTCL version used in the current session
DPRINTSV	DPRINTSV version used in the current session
SCSIPCL	SCSIPCL version used in the current session
IDOM	IDOM version used in the current session
SPCONV	SPCONV version used in the current session
HEADER-PAGE:	Criteria for output of header pages
SPACE-AFTER-HEADER	Skip to channel 1 after output of the header page (YES/NO).
FAMILY-MEMBER-HEADER	Header page for each spoolout of a (partially qualified) spoolout group (YES /NO).
COPY-HEADER	Header page for each print copy of a spoolout job (YES/NO).
CHARACTER-SET	Character set to be used for printing header and trailer pages.
PRINT-ACCOUNT-NUMBER	Account number on HEADER-PAGE (YES/NO)
PRINT-CMD-DEFAULTS:	Default values for PRINT-DOCUMENT (PRNTDOC macro)
LINE-SIZE	Number of characters after which a print line is to be truncated (132,136).
LOCK-FILE	The file to be printed is locked until printing is completed (YES/NO). Tape files are never locked.

Output field	Contents
LEFT-MARGIN	For local SPOOL only. Default value for the SHIFT operand in the PRNTDOC macro or LEFT-MARGIN in the PRINT-DOCUMENT command (0...30).
DESTINATION	Default destination of the spoolout job: • *CENTRAL: pool of all devices administered from the local server. • *REMOTE: specified nondistributed device. • *POOL: specified nondistributed device pool.
DEVICE-NAME	Name of the nondistributed printer.
POOL-NAME	Name of the nondistributed printer pool.
DPRINT-DESTINATION	Default destination for Distributed Print Services: • *DESTINATION: local DESTINATION is used. • *CENTRAL: pool of all distributed printers. • *POOL: specified distributed printer pool.
POOL-NAME	Name of the distributed pool
FAMILY-PROCESSING	Default value of the FAMILY-PROCESSING operand in PRINT-DOCUMENT for local and RSO jobs
LOCAL	Default value of the FAMILY-PROCESSING operand in the PRINT-DOCUMENT command for local spoolout jobs
REMOTE	Default value of the FAMILY-PROCESSING operand in the PRINT-DOCUMENT command for RSO jobs
ACCEPT-EMPTY-FILES	Behavior after the PRINT-DOCUMENT command in the event of empty SAM files being specified for printing.
ERROR-PROCESSING: TRUNCATION	Behavior with regard to a file to be deleted after printing (DELETE-AFTER-PRINT), in which lines are truncated during processing of the SPOOL job.
RESOURCES-LOCATION	Specification of the host whose print resources are to be used: *HOME: the host on which the command was issued. *SERVER: the host on which the print job is processed.
SPOOLOUT-OPTIONS:	Spoolout control criteria
REMOTE-BUFFER-SIZE	Buffer size available to the RSO printer (in Kbytes).
REMOTE-DEVICE-LIMIT	Maximum number of RSO printers (PRIVATE DEVICES) that can be active at the same time (0...9999).

MAX-MSG-TASK-NUMBER	Maximum number of message tasks that may be active concurrently (0...200).
START-SPOOL-LOW-VAL	Smallest value that the user may specify for the START-PROCESSING=n operand of the PRINT-DOCUMENT command/PRNTDOC macro (1...32767).
FORM-NAME-LENGTH	Number of characters of the form name interpreted by SPOOL for scheduling purposes.
SECTION-TASK-LIMIT	Maximum number of pseudo-controllers for SECTION-PRINT jobs that can be active at the same time.
DEFAULT-SYSLST-FORM	Default form for SYSLST output if the user does not make any specification.
DEFAULT-SYSOUT-FORM	Default form for SYSOUT output if the user does not make any specification.
REC-RULES-PREFIX	Prefix part of recovery rules files
PRINTER-PARAM-PREFIX	Prefix part of the individual printer parameter files
FILTER-TASK-LIMIT	Number of possible filter tasks
PRIORITY:	
REPLAY-SESSION	For local SPOOL only: Task priority for outputs to replay tapes (60...200).
FROM-POSITIONING	For local SPOOL only:Number of pages or lines before the current position at which the job is to resume on restarting (60...200).
SECTION-POSITIONING	Number of sections (SECTIONs) before the current position in the file at which the job is to resume on restarting (60...200)
CHECKPOINT-INTERVAL:	
LINE-PRINTERS	Interval between spoolout checkpoints for line printers and printers with a loadable VFB (1..32767).
PAGE-PRINTERS	Interval between spoolout checkpoints for laser printers (page printers) (1..32767).
REMOTE-PRINTERS	Interval between spoolout checkpoints for remote printers (1..32767).
DEVICE-TYPE:	
LP-PRINTER	Output on LP printers possible, PRFILE present (YES/NO).
HP-PRINTER	Output on HP printers possible, PRFILE present (YES/NO).
FORMS-OVERLAY-BUFFER	Output can be directed to HP printers with a graphics buffer (max. no. of sublines: 672).
CHARACTER-SET-NUMBER	Spoolouts can be directed to HP printers with a character memory capable of accommodating up to 64 character sets, or to HP90 printers with a character memory capable of accommodating 46 character sets.

ROTATION	Spoolouts can be directed to HP printers with/without a page rotation module (YES/NO).
LP65-PRINTER	Output on LP65 printers possible, PRFILE present (YES/NO).
HP90-PRINTER	Output on HP90 printers possible, PRFILE present (YES/NO).
FORMS-OVERLAY-BUFFER	Maximum size of the overlay that can be loaded into the buffer of the HP90 printer.
CHARACTER-SET-NUMBER	Number of character sets for HP90 printer
FORMS-OVERLAY	EFO for HP90 printer (YES/NO)
RASTER-PATTERN-MEM	Size of the shared HP90 memory area for character sets and FOB data overlays
ROTATION	Specifies whether page rotation is permitted for HP90 printer (YES/NO).
APA-PRINTER	Output on APA printers possible; (YES/NO).
TWIN-PRINTER	Output on twin printers possible; (YES/NO)
VIRTUAL-PRINTER	Output on VIRT-PRINTER possible; (*ALLOWED/*NOT-ALLOWED).
PCL-PRINTER	Output on PCL printer possible; (YES/NO)
SPOOLOUT-SIZE:	
UNIT	Specifies the form of output for SHOW-JOB-STATUS: the scope of the spoolout is output in PAM pages or lines.
LINES-FACTOR	If LINES is specified: average number of data records in a PAM page (8..100).
MIN-LINES-PER-PAGE	Smallest value specified for the PAGE-SIZE operand of the *STD standard forms present, multiplied by 6/10. SPOOL computes the value at startup. If *STD is given in parentheses in the output field after the value, the value was calculated by SPOOL and was not specified by systems support or the operator.
RSO-OPTIONS:	Default values for RSO operation.
CONTROLLER-LIMIT	Maximum number of RSO controllers allowed during a system session (1..200).
CONTROLLER-DEV-LIMIT	Maximum number of printers to be served by one controller (1..1024).
JOB-CONTROLLER-LIMIT	Maximum number of job RSO controllers permissible during an RSO run (1..200)
CHECK-PRINTER-TIME	Intervals (in minutes) at which printers are to be checked for the TIMEOUT error condition (2..10).
RETRY-TIME	

	Interval (in seconds) between two attempts to send a new message to the printer following certain errors (1..600).

Output field	Contents
RELEASE-MEMORY	DMS I/O areas are to be released if no more jobs are pending for the output device (YES) or only if STOP-PRINTER-OUTPUT is specified (NO).
OLTP-OPTIONS:	Defaults for OLTP operation
TASK-LIMIT	Maximum number of OLTP tasks permitted during a session (1..200).
TASK-DEVICE-LIMIT	Maximum number of printers that can be operated during an OLTP task (1.. 1024).
DPRINT-OPTIONS:	Default value for Distributed Print Services
SERVER-TASK-LIMIT	Maximum number of tasks that process remote requests
RESOURCES-TASK-LIMIT	Maximum number of tasks that administer resource containers
REMOTE-JOB-PRIORITY	Maximum priority for remote jobs
CONNECTION-TIMEOUT	Maximum time for setting up a connection to the remote processor
DFTM-WAITING-TIME	Waiting time for the DFTM task check loop
[NEXT-]CENTRAL-SCHEDULING / NEXT-]RSO-SCHEDULING:	Scheduling criteria, defined separately for local SPOOL and RSO and additionally differentiated according to whether they are to come into effect in the current or the following SPOOL or RSO run.
DEVICE-WEIGHT	“Weight” defined for each scheduling criterion for the current SPOOL run and which can be assigned by means of START-... to the SPOOL devices in order to control device selection through different weights. Possible values:0 / 1 / 2 / 4 / 8 / 16 / 32 / 64 / 128
ACCOUNT CHARACTER-SET-NUMBER CLASS FORMS-OVERLAY-BUFFER FORM-NAME FORMS-OVERLAY PRIORITY ROTATION SPOOLOUT-NAME USER-IDENTIFICATION	Weight for the ACCOUNT parameter Weight for the CHARACTER-SET-NUMBER parameter Weight for the SPOOLOUT-CLASS parameter Weight for the FORMS-OVERLAY-BUFFER parameter Weight for the FORM-NAME parameter Weight for the FORMS-OVERLAY parameter Weight for the PRIORITY parameter Weight for the ROTATION parameter Weight for the SPOOLOUT-NAME operand Weight for the USER-IDENTIFICATION operand
JOB-SEQUENCE	Fields according to which the various waiting and active jobs are to be sorted.
JOB-PRIORITY	Order in which equivalent jobs are to be processed (waiting time of the spoolout job).

Table 155: Output fields of the SHOW-SPOOL-PARAMETERS command

Output in S variables

The INFORMATION operand is used to define which S variables are to be created. The following can be specified for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL	1
INFORMATION = *VERSIONS	2
INFORMATION = *HEADER-PAGE	3
INFORMATION = *PRINT-CMD-DEFAULT	4
INFORMATION = *SPOOLOUT-OPTIONS	5
INFORMATION = *SPOOLOUT-SIZE	6
INFORMATION = *SPOOLIN-OPTIONS	7
INFORMATION = *RSO-OPTIONS	8
INFORMATION = *OLTP-OPTIONS	9
INFORMATION = *DPRINT-OPTIONS	10
INFORMATION = *CENTRAL-SCHEDULING	11
INFORMATION = *RSO-SCHEDULING	12

Output information	Name of the S variable	T	Contents	Condition
Weighting of the ACCOUNT scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.ACCOUNT	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the CHAR-SET-NUM scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.CHAR-SET-NUM	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the FORMS-OVERLAY-BUFFER scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.FOB-SIZE	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the FORM-NAME scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.FORM-NAME	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the FORMS-OVERLAY scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.FORM-OVERLAY	S	0,1,2,4,8,16,32,64,128	1, 11
Order in which equivalent jobs are processed (for the current SPOOL session)	var(*LIST).CURR-SCHED.JOB-PRIO	S	*AGE *PRIO	1, 11
Fields by which the various waiting and active jobs are sorted (for the current SPOOL session)	var(*LIST).CURR-SCHED.JOB-SEQ	S	*ACCOUNT *CHAR-SET *CLASS *FOB-NAME *FORM *FORM-OVERLAY *NONE *SPOOLOUT-NAME *SEQUENCE *USER-ID	1, 11
Weighting of the PRINT-JOB-CLASS scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.PRINT-JOB-CLASS	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the PRINT-JOB-NAME scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.PRINT-JOB-NAME	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the PRINT-JOB-PRIO scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.PRINT-JOB-PRIO	S	0,1,2,4,8,16,32,64,128	1, 11

Output information	Name of the S variable	T	Contents	Condition
Weighting of the ROTATION scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.ROT	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the USER-ID scheduling parameter (for the current SPOOL session)	var(*LIST).CURR-SCHED.USER-ID	S	0,1,2,4,8,16,32,64,128	1, 11
Maximum time (in minutes) for connection setup to the partner system (Distributed Print Services condition)	var(*LIST).DPRINT-OPT.CONN-TIME	S	1..255	1, 10
Maximum time the DFTM task is to wait for the loop check	var(*LIST).DPRINT-OPT.DFTM-WAITING-T	S	20..1800	1, 10
Maximum priority for a remote print job (Distributed Print Services condition)	var(*LIST).DPRINT-OPT.REM-JOB-PRIO	S	30..255	1, 10
Maximum number of jobs for resource container management (Distributed Print Services condition)	var(*LIST).DPRINT-OPT.RESOURCE-TASK-LIM	S	1..32	1, 10
Maximum number of job for remote request processing (Distributed Print Services condition)	var(*LIST).DPRINT-OPT.SERVER-TASK-LIM	S	1..255	1, 10
Character set used to print the header page	var(*LIST).HEAD-PAGE.CHAR-SET	S	*DEFAULT *FILE	1, 3
Header page for each copy of a spoolout job	var(*LIST).HEAD-PAGE.COP-HEAD	S	*NO *YES	1, 3
Header page for each spoolout in a spoolout group	var(*LIST).HEAD-PAGE.FAM-MEMB-HEAD	S	*NO *YES	1, 3
Account number printed on the header page	var(*LIST).HEAD-PAGE.PRINT-ACCOUNT-NUM	S	*NO *YES	1, 3
Skip to channel 1 after header page output	var(*LIST).HEAD-PAGE.SPACE-AFTER-HEAD	S	*NO *YES	1, 3
Weighting of the ACCOUNT scheduling parameter (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.ACCOUNT	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the FORM-NAME scheduling parameter (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.FORM-NAME	S	0,1,2,4,8,16,32,64,128	1, 12

Output information	Name of the S variable	T	Contents	Condition
Order in which equivalent RSO jobs are processed (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.JOB-PRIO	S	*AGE *PRIO	1, 12
Fields by which the various waiting and active RSO jobs are sorted (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.JOB-SEQ	S	*ACCOUNT *CLASS *FORM *SPOOLOUT-NAME *USER-ID	1, 12
Weighting of the PRINT-JOB-CLASS scheduling parameter (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.PRINT-JOB-CLASS	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the PRINT-JOB-NAME scheduling parameter (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.PRINT-JOB-NAME	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the PRINT-JOB-PRIORITY scheduling parameter (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.PRINT-JOB-PRIO	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the USER-ID scheduling parameter (for the next RSO job)	var(*LIST).NEXT-RSO-SCHED.USER-ID	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the ACCOUNT scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.ACCOUNT	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the CHAR-SET-NUM scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.CHAR-SET-NUM	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the FORMS-OVERLAY-BUFFER scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.FOB-SIZE	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the FORM-NAME scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.FORM-NAME	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the FORMS-OVERLAY scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.FORM-OVERLAY	S	0,1,2,4,8,16,32,64,128	1, 11
Order in which equivalent jobs are processed (for the next SPOOL session)	var(*LIST).NEXT-SCHED.JOB-PRIO	S	*AGE *PRIO	1, 11
		S		1, 11

Fields by which the various waiting and active jobs are sorted (for the next SPOOL session)	var(*LIST).NEXT-SCHED.JOB-SEQ		*ACCOUNT *CHAR-SET *CLASS *FOB-NAME *FORM *FORM-OVERLAY *NONE *SPOOLOUT-NAME *SEQUENCE *USER-ID	
Weighting of the PRINT-JOB-CLASS scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.PRINT-JOB-CLASS	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the PRINT-JOB-NAME scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.PRINT-JOB-NAME	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the PRINT-JOB-PRIO scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.PRINT-JOB-PRIO	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the ROTATION scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.ROT	S	0,1,2,4,8,16,32,64,128	1, 11
Weighting of the USER-ID scheduling parameter (for the next SPOOL session)	var(*LIST).NEXT-SCHED.USER-ID	S	0,1,2,4,8,16,32,64,128	1, 11
Maximum number of printers served during an OLTP task	var(*LIST).OLTP-OPT.TASK-DEV-LIMIT	S	1..1024	1, 9
Maximum number of OLTP tasks permitted during the session	var(*LIST).OLTP-OPT.TASK-LIMIT	S	1..200	1, 9
Empty SAM files accepted (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.ACCEPT-EMPTY-F	S	*NO *YES	1, 4
Spoolout job destination (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.DEST	S	*CENTRAL *POOL *REMOTE	1, 4
Name of the RSO printer (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.DEV-NAME	S	' ' <dev-name>	1, 4
Distributed Print Services destination (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.DPRINT-DEST	S	*CENTRAL *DEST *POOL	1, 4
	var(*LIST).PRINT-CMD-DEF.DPRINT-POOL-NAME	S	' ' <pool-name>	1, 4

Distributed Print Services pool name (default for PRINT-DOCUMENT commands)				

Output information	Name of the S variable	T	Contents	Condition
Error handling (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.ERROR-HAND	S	*IGNORE *KEEP-FILE	1, 4
Common TSN allocated for spoolout jobs (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.FAM-PROCESS.LOC	S	*NO *YES	1, 4
Common TSN allocated for RSO jobs (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.FAM-PROCESS.REM	S	*NO *YES	1, 4
Number of columns by which the output text is indented (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.LEFT-MARGIN	S	0..31	1, 4
Number of characters after which the print line is truncated (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.LINE-SIZE	S	132,136	1, 4
File being printed is locked until printing is complete (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.LOCK-F	S	*NO *YES	1, 4
Pool name (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.POOL-NAME	S	' ' <pool-name>	1, 4
Client or server resources used to print the document (default for PRINT-DOCUMENT commands)	var(*LIST).PRINT-CMD-DEF.RESOURCE-LOC	S	' ' *HOME *SERVER	1, 4
Period (in minutes) between printer timeout checks (default for PRINT-DOCUMENT commands)	var(*LIST).RSO-OPT.CHECK-PRINT-TIME	S	2..10	1, 8
Maximum number of printers running on a single controller (default for RSO operation)	var(*LIST).RSO-OPT.CONTR-DEV-LIM	S	1..1024	1, 8
Maximum number of RSO controllers allowed during a system session (default for RSO operation)	var(*LIST).RSO-OPT.CONTR-LIM	S	1..200	1, 8
Maximum number of job RSO controllers permitted during the session	var(*LIST).RSO-OPT.JOB-CONT-LIM	S	1..200	1, 8
DMS I/O areas released if there are no more jobs outstanding for the output device (default for RSO operation)	var(*LIST).RSO-OPT.REL-MEM	S	*NO *YES	1, 8

Output information	Name of the S variable	T	Contents	Condition
Period (in seconds) between attempts to send a new message to the printer (default for RSO operation)	var(*LIST).RSO-OPT. RETRY-TIME	S	1..600	1, 8
Weighting of the ACCOUNT scheduling parameter (for the current RSO job)	var(*LIST).RSO-SCHED. ACCOUNT	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the FORM-NAME scheduling parameter (for the current RSO job)	var(*LIST).RSO-SCHED. FORM-NAME	S	0,1,2,4,8,16,32,64,128	1, 12
Order in which equivalent RSO jobs are processed (for the current RSO job)	var(*LIST).RSO-SCHED. JOB-PRIO	S	*AGE *PRIO	1, 12
Fields by which the various waiting and active jobs are sorted (for the current RSO job)	var(*LIST).RSO-SCHED. JOB-SEQ	S	*ACCOUNT *CLASS *FORM *SPOOLOUT-NAME *USER-ID	1, 12
Weighting of the PRINT-JOB-CLASS scheduling parameter (for the current RSO job)	var(*LIST).RSO-SCHED. PRINT-JOB-CLASS	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the PRINT-JOB-NAME scheduling parameter (for the current RSO job)	var(*LIST).RSO-SCHED. PRINT-JOB-NAME	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the PRINT-JOB-PRIORITY scheduling parameter (for the current RSO job)	var(*LIST).RSO-SCHED. PRINT-JOB-PRIO	S	0,1,2,4,8,16,32,64,128	1, 12
Weighting of the USER-ID scheduling parameter (for the current RSO job)	var(*LIST).RSO-SCHED. USER-ID	S	0,1,2,4,8,16,32,64,128	1, 12
Indicator showing whether the minimum number of lines per printed page is set by SPOOL (*STD) or by the SPOOL administrator	var(*LIST).SPOOL-SIZE. INDICATOR	S	' ' *STD	1, 6
Average number of records per PAM page	var(*LIST).SPOOL-SIZE. LINE-FACT	S	0..100	1, 6
Minimum number of lines per page	var(*LIST).SPOOL-SIZE. MIN-LPP	S	0..32767	1, 6
Unit of spoolout size (PAM pages or lines)	var(*LIST).SPOOL-SIZE. UNIT	S	*LINE *PAM	1, 6

Spoolin job log generated	var(*LIST).SPOOLIN-OPT. LOG-DISK	S	*NO *YES	1, 7
Output on APA printers possible (spoolout control criterion)	var(*LIST).SPOOLOUT- OPT.APA-PRINTER	S	*NO *YES	1, 5
Maximum number of filter tasks	var(*LIST).SPOOLOUT- OPT.CHECK. FILTER- TASK-LIMIT	S	1.32	1, 5
Spoolout checkpoint spacing for line printers and printers with loadable VFB	var(*LIST).SPOOLOUT- OPT.CHECK.LINE-PRINT	S	0..32767	1, 5
Spoolout checkpoint spacing for page printers (laser printers)	var(*LIST).SPOOLOUT- OPT.CHECK.PAGE-PRINT	S	0..32767	1, 5
Spoolout checkpoint spacing for remote printers	var(*LIST).SPOOLOUT- OPT.CHECK.REM-PRINT	S	0..32767	1, 5
Name of the default form for output to SYSLST	var(*LIST).SPOOLOUT- OPT.DEF-SYSLST-FORM	S	' ' <form-name>	1, 5
Name of the default form for output to SYSOUT	var(*LIST).SPOOLOUT- OPT.DEF-SYSOUT-FORM	S	' ' <form-name>	1, 5
Displayed only for reasons of compatibility	var(*LIST).SPOOLOUT- OPT.ERASE-DISKETTE	S	*NO *YES	
Number of characters in the form name that SPOOL evaluates for scheduling purposes	var(*LIST).SPOOLOUT- OPT.FORM-NAME-LEN	S	1..6	1, 5
Output on HP printers possible	var(*LIST).SPOOLOUT- OPT.HP-PRINTER	S	*NO *YES	1, 5
Number of character sets in the printer's memory (for HP printer output)	var(*LIST).SPOOLOUT- OPT.HP-PRINT. CHAR-SET	S	1..64	1, 5
Maximum FOB size that can be downloaded to the HP printer's buffer	var(*LIST).SPOOLOUT- OPT.HP-PRINT.FOB	S	0..4032	1, 5
Print output can go to an HP printer with a page rotation module	var(*LIST).SPOOLOUT- OPT.HP-PRINT.ROT	S	*NO *YES	1, 5
Output on HP90 printers possible	var(*LIST).SPOOLOUT- OPT.HP90-PRINTER	S	*NO *YES	1, 5
Number of character sets in the printer's memory (for HP90 printer output)	var(*LIST).SPOOLOUT- OPT.HP90-PRINT. CHAR-SET	S	1..64	1, 5

Output information	Name of the S variable	T	Contents	Condition
Maximum FOB size that can be downloaded to the HP90 printer's buffer	var(*LIST).SPOOLOUT-OPT. HP90-PRINT. FOB	S	0..4032	1, 5
EFO for HP90 printers	var(*LIST).SPOOLOUT-OPT. HP90-PRINT.FORM- OVERLAY	S	*NO *YES	1, 5
Size of the common HP90 memory area for character sets and FOB overlay resources	var(*LIST).SPOOLOUT-OPT. HP90-PRINT.RAST-PAT-MEM	S	*NONE 1536 2048 3072 4096 8192 12288 16384	1, 5
Output can go to an HP90 printer with a page rotation module	var(*LIST).SPOOLOUT-OPT. HP90-PRINT. ROT	S	*NO *YES	1, 5
Output on LP printers possible	var(*LIST).SPOOLOUT-OPT. LP-PRINTER	S	*NO *YES	1, 5
Output on LP65 printers possible	var(*LIST).SPOOLOUT-OPT. LP65-PRINTER	S	*NO *YES	1, 5
Maximum number of message tasks that can be active at one time	var(*LIST).SPOOLOUT-OPT. MAX-MSG-TASK	S	0..200	1, 5
Output on ND printers possible	var(*LIST).SPOOLOUT-OPT. ND-PRINTER	S	*NO *YES	1, 5
Output on PLC printers possible	var(*LIST).SPOOLOUT-OPT. PCL-PRINTER	S	*NO *YES	1, 5
Prefix part of the printer parameter files	var(*LIST).SPOOLOUT-OPT. PRINTER-PARAM-PREFIX	S	' ' <printer-par.-prefix>	1, 5
Number of pages or lines to go back when restarting a job (for local SPOOL)	var(*LIST).SPOOLOUT-OPT. PRIO.FROM-POS	S	60..200	1, 5
Task priority for output to replay tapes	var(*LIST).SPOOLOUT-OPT. PRIO.REPLAY-SESSION	S	60..200	1, 5
Number of sections to go back in the file when restarting a job	var(*LIST).SPOOLOUT-OPT. PRIO.SECT-POS	S	60..200	1, 5

Output information	Name of the S variable	T	Contents	Condition
Maximum number of RBP tasks	var(*LIST).SPOOLOUT-OPT.RBP-STAT-LIM	S	0..255	1, 5
Prefix component of the recovery rule files	var(*LIST).SPOOLOUT-OPT.REC-RULES-PR	S	' ' <rec-rules-pr>	1, 5
Size of the buffer available to the RSO printer (in kilobytes)	var(*LIST).SPOOLOUT-OPT.REM-BUF-SIZE	S	4,8,16	1, 5
Maximum number of concurrently active RSO printers	var(*LIST).SPOOLOUT-OPT.REM-DEV-LIM	S	0..9999	1, 5
Maximum number of concurrently active dummy controllers for SECTION-PRINT jobs	var(*LIST).SPOOLOUT-OPT.SECT-TASK-LIM	S	1..255	1, 5
Lowest number of logical pages after which system file spoolout is started automatically	var(*LIST).SPOOLOUT-OPT.START-SPOOL-LOW-VAL	S	1..32767	1, 5
Output on TWIN printer possible	var(*LIST).SPOOLOUT-OPT.TWIN-PRINTER	S	*NO *YES	1, 5
Output on VIRTUAL printer possible	var(*LIST).SPOOLOUT-OPT.VIRTUAL-PRINTER	S	*ALLOWED *NOT-ALLOWED	1, 5
Version of the DPRINTCL subsystem	var(*LIST).VERSION.DPRINT-CLI	S	<version> *NOT-LOADED	1, 2
Version of the DPRINTCM subsystem	var(*LIST).VERSION.DPRINT-COMM	S	<version> *NOT-LOADED	1, 2
Version of the DPRINTSV subsystem	var(*LIST).VERSION.DPRINT-SERVER	S	<version> *NOT-LOADED	1, 2
Version of the IDOM subsystem	var(*LIST).VERSION.IDOM	S	<version> *NOT-LOADED	1, 2
RSO version of the current system session	var(*LIST).VERSION.RSO	S	<version> *NOT-LOADED	1, 2
Version of the SCSIPCL subsystem	var(*LIST).VERSION.SCSIPCL	S	<version> *NOT-LOADED	1, 2
Version of the SPCONV subsystem	var(*LIST).VERSION.SPCONV	S	<version> *NOT-LOADED	1, 2
SPOOL version of the current system session	var(*LIST).VERSION.SPOOL	S	<version> *NOT-LOADED	1, 2
	var(*LIST).VERSION.SPS	S		1, 2

SPS version of the current system session			<version> *NOT-LOADED	

7.18 SHOW-STORAGE-CLASS

Show storage class definitions

Component:	BS2000
Functional area:	File processing Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS STD-PROCESSING

Function

The SHOW-STORAGE-CLASS command outputs the definitions of the storage classes of a system-managed (SM) pubset. If the definitions of more than one storage classes are requested, the set of storage classes to be output can be restricted by means of the SELECT operand to storage classes with specific attributes. Output can be directed either to SYSOUT or to SYSLST.

Storage classes protected by a guard are shown only to users who are authorized to use them.
The user can either request just general information on the storage class or also view the file attributes and the brief description for the storage class.

The SM pubset must have been imported to the local system (in exclusive or shared mode).

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Systems support staff (TSOS privilege) can request information on all storage classes. They can use INFORMATION=*VOLUME-SET-LIST to find out about the volume set list assigned to a storage class. If they request all information with INFORMATION=*ALL, in addition to the file attributes and the brief description they are shown information on the protection attributes of a storage class and on the assigned volume set list.

Format

SHOW-STORAGE**-CLASS**

STORAGE**-CLASS-NAME** = ***ALL** / <composed-name 1..8 with-wild>

,**PUBSET** = <cat-id 1..4>

,**INF**ORMATION = ***SUMM**ARY / ***VOLUME-SET-LIST** / ***ALL**

,**SEL**ECT = ***ALL** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **FILE-ATTR**IBUTES = ***ANY** / ***PAR**AMETERS(...)

| ***PAR**AMETERS(...)

| | **IO-ATTR**IBUTES = ***ANY** / ***PAR**AMETERS(...)

| | ***PAR**AMETERS(...)

| | | **PERFORMANCE** = ***ANY** / list-poss(3): ***STD** / ***HIGH** / ***VERY-HIGH**

| | | ,**USAGE** = ***ANY** / list-poss(3): ***READ-WRITE** / ***WR**ITE / ***READ**

| | ,**DISK-WRITE** = ***ANY** / list-poss(3): ***STD** / ***IMMED**IATE / ***BY-CLOSE**

| | ,**AVAIL**ABILITY = ***ANY** / list-poss(2): ***STD** / ***HIGH**

| | ,**FILE-PREFORMAT** = ***ANY** / list-poss(4): ***BY-PUB**SET**-DEF**AULT / ***K** / ***NK2** / ***NK4**

| | ,**WORK-FILE** = ***ANY** / list-poss(2): ***NO** / ***Y**ES

| ,**VOL**UME**-SET-LIST** = ***ANY** / ***NONE** / <composed-name 1..8>

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = ***STD** / <integer 1..99>

Operands

STORAGE-CLASS-NAME = *ALL / <composed-name 1..8 with-wild>
Specifies the storage classes for which information is required.

STORAGE-CLASS-NAME = *ALL
Information is required for all storage classes which are assigned to the pubset specified in the PUBSET operand and also meet the selection criteria given in the SELECT operand.

STORAGE-CLASS-NAME = <composed-name 1..8 with-wild>
Name of the storage class for which information is required. Wildcards can be used to identify more than one storage class.

PUBSET = <cat-id 1..4>
Identifies the associated SM pubset. The pubset must have been imported to the local system (in exclusive or shared mode).

INFORMATION = *SUMMARY / *VOLUME-SET-LIST / *ALL
Specifies how much of the available information is to be output for each selected storage class.

INFORMATION = *SUMMARY
Only the name of the storage class and the catalog ID of the assigned pubset are output.

INFORMATION = *VOLUME-SET-LIST
Only allowed for users with TSOS privilege.
Output is as for INFORMATION=*SUMMARY, with the addition of the name of the assigned volume set list.

INFORMATION = *ALL
Output is as for INFORMATION=*SUMMARY, with the addition of the file attributes defined for the storage class and the brief description.
Users with TSOS privilege are also shown information on the protection attributes of the storage class and the name of the volume set list assigned to it.

SELECT = *ALL / *PARAMETERS(...)
Specifies whether the set of storage classes identified in the STORAGE-CLASS-NAME operand is to be restricted by selection criteria.

SELECT = *ALL
There is no restriction on the set of storage classes identified in the STORAGE-CLASS-NAME operand.

SELECT = *PARAMETERS(...)
Defines selection criteria restricting the set of storage classes identified in the STORAGE-CLASS-NAME operand. Only those storage classes which possess all the attributes specified next are to be output.
The default value, *ANY, means that the attribute in question is not a selection criterion.

FILE-ATTRIBUTES = *ANY / *PARAMETERS(...)
Specifies whether the selection of storage classes to be output is to be based on the file attributes defined in them.

FILE-ATTRIBUTES = *ANY
The file attributes are not a selection criterion.

FILE-ATTRIBUTES = *PARAMETERS(...)
The storage classes which are to be output are selected on the basis of the file attributes specified next.

IO-ATTRIBUTES = *ANY / *PARAMETERS(...)
Specifies whether the performance attributes are to be a selection criterion.

IO-ATTRIBUTES = *PARAMETERS(...)
The storage classes which are to be output must have definitions containing the performance attributes specified next.

PERFORMANCE = *ANY / list-poss(3): *STD / *HIGH / *VERY-HIGH
Selects all storage classes which possess one of the specified performance attributes.

PERFORMANCE = *ANY
The performance attribute is not a selection criterion.

PERFORMANCE = *STD
Selects only those storage classes which have their performance attribute set to *STD (no special performance requirement).

PERFORMANCE = *HIGH
Selects only those storage classes which have their performance attribute set to *HIGH (high performance requirement).

PERFORMANCE = *VERY-HIGH
Selects only those storage classes which have their performance attribute set to *VERY-HIGH (very high performance requirement).

USAGE = *ANY / list-poss(3): *READ-WRITE / *WRITE / *READ
Selects all storage classes which have the performance attribute set for one of the specified I/O operations.

USAGE = *ANY
The I/O operation mode is not a selection criterion.

USAGE = *READ-WRITE
Selects only those storage classes which have the performance attribute for read/write operations set.

USAGE = *WRITE
Selects only those storage classes which have the performance attribute for write operations set.

USAGE = *READ
Selects only those storage classes which have the performance attribute for read operations set.

DISK-WRITE = *ANY / list-poss(3): *STD / *IMMEDIATE / *BY-CLOSE
Specifies whether the attribute governing the time when data consistency is required after write operations is to be a selection criterion.

DISK-WRITE = *ANY
The point at which data consistency is required is not a selection criterion.

DISK-WRITE =*STD
Selects only those storage classes which have their consistency point defined as DISK-WRITE=*STD.

DISK-WRITE = *IMMEDIATE
Selects only those storage classes which have their consistency point defined as immediately after completion of write operations.

DISK-WRITE = *BY-CLOSE
Selects only those storage classes which have their consistency point defined as only after CLOSE processing.

AVAILABILITY = *ANY / list-poss(2): *STD / *HIGH
Specifies whether the availability attribute is to be a selection criterion.

AVAILABILITY = *ANY
The required availability is not to be a selection criterion.

AVAILABILITY = *STD
Selects only those storage classes for which no special availability requirements are defined.

AVAILABILITY = *HIGH
Selects only those storage classes for which high availability requirements are defined.

FILE-PREFORMAT = *ANY / list-poss(4): *BY-PUBSET-DEFAULT / *K / *NK2 / *NK4
Specifies whether the attribute for preferred file format is to be a selection criterion.

FILE-PREFORMAT = *ANY
The preferred file format is not to be a selection criterion.

FILE-PREFORMAT = *BY-PUBSET-DEFAULT
Selects only those storage classes for which the preferred file format is defined as the pubset-global default.

FILE-PREFORMAT = *K
Selects only those storage classes in which files are set to be created as K files.

FILE-PREFORMAT = *NK2
Selects only those storage classes in which files are set to be created as NK2 files.

FILE-PREFORMAT = *NK4
Selects only those storage classes in which files are set to be created as NK4 files.

WORK-FILE = *ANY / list-poss(2): *NO / *YES
Specifies whether the work file attribute is to be a selection criterion.

WORK-FILE = *ANY
The work file attribute is not to be a selection criterion.

WORK-FILE = *NO
Selects only those storage classes in which files are created as normal files.

WORK-FILE = *YES
Selects only those storage classes in which files are created as work files.

VOLUME-SET-LIST = *ANY / *NONE / <composed-name 1..8>
Specifies whether the storage classes are to be selected on the basis of volume set list assignment.

VOLUME-SET-LIST = *ANY
Volume set list assignment is not to be a selection criterion.

VOLUME-SET-LIST = *NONE
Selects only those storage classes to which no volume set list is assigned.

VOLUME-SET-LIST = <composed-name 1..8>
Selects only those storage classes to which the specified volume set list is assigned.

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The information is output to the system file SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to the system file SYSLST.

SYSLST-NUMBER = *STD / <integer 1..99>
Specifies whether the information is to be output to the system file SYSLST or to a SYSLST file from the set SYSLST01 through SYSLST99.
The default is *STD, i.e. output is directed to the system file SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	64	CMD0216	No authorization for some command parameters
	64	DMS1481	Error accessing storage class catalog
	64	DMS1483	Storage class catalog invalid
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS148A	Storage class not defined
	64	DMS1490	Storage class management not available for this pubset
	64	DMS149A	No storage classes meet the selection criteria
	64	DMS149C	No storage class exists for the specified pubset
	64	DMS149F	No access right for storage class
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS148F	GCF subsystem not ready
	129	DMS1498	GUARDS subsystem not ready
	129	DMS149E	Output error: SYSLST file cannot be extended

Output format

The output information for each storage class selected breaks down into the following five blocks:

1. General information on the storage class
2. File attributes defined in the storage class
3. Protection attributes of the storage class (for privileged users only)
4. Information on the assigned volume set list (for privileged users only)
5. Brief description of the storage class

Information blocks 3 and 4 are shown to privileged users only.

Which information blocks are output is governed by the privilege that the calling user has and by the value of the INFORMATION operand. The following table shows which information blocks (identified by number) are output and the order in which they appear.

Value of INFORMATION operand	Privilege	
	TSOS	STD-PROCESSING
*SUMMARY	1	1
*VOLUME-SET-LIST	1 + 4	Combination not allowed
*ALL	1 + 2 + 3 + 4 + 5	1 + 2 + 5

Table 156: Scope of SHOW-STORAGE-CLASS command output

General information on the storage class

The following line of general information is output:

```
NAME: <scname>      PUBSET: <catid>
```

Key:

<scname>	Name of the storage class
<catid>	ID of the SM pubset for which the storage class is defined

File attributes of the storage class

The information block begins with the header line “FILE-ATTRIBUTES” and has the following layout:

```
---------------------- FILE-ATTRIBUTES -------------------------
  PERFORMANCE:       USAGE:             DISK-WRITE:
    <perf>             <usage>            <diskw>
  AVAILABILITY:      FILE-PREFORMAT:    WORK-FILE:
    <avail>            <format>           <work>
```

The output fields and the values shown correspond to the file attributes selected for the storage class definition in the CREATE-STORAGE-CLASS command.

Output field	Values	Meaning
PERFORMANCE		Performance attribute:
	STANDARD	no special performance requirement
	HIGH	high performance priority
	VERY-HIGH	very high performance priority
USAGE		I/O operation mode in conjunction with performance requirement:
	READ-WRITE	read and write operations
	WRITE	write operations only
	READ	read operations only
DISK-WRITE		Time when data consistency is required
	STANDARD	For permanent files = IMMEDIATE, for temporary files = BY-CLOSE.
	IMMEDIATE	The file is to be in a consistent state immediately after write operations.
	BY-CLOSE	The file does not need to be in a consistent state until after CLOSE processing.
AVAILABILITY		Availability:
	STANDARD	no special availability requirements
	HIGH	high availability
FILE-PREFORMAT		Preferred file format:
	BY-PUBSET-DEFAULT	the pubset-global default applies.
	K-FORMAT	files are to be created as K files.
	NK2-FORMAT	files are to be created as NK2 files.
	NK4-FORMAT	files are to be created as NK4 files.
WORK-FILE		Work file attribute:
	NO	normal files are created.
	YES	only work files are created.

Table 157: Output fields for file attributes with the SHOW-STORAGE-CLASS command

Protection attributes of the storage class (for privileged users only)

The information block begins with the header line “PROTECTION” and has the following layout:

```
------------------------ PROTECTION --------------------------
*NONE
```

or

```
GUARD-NAME: <profile>
```

If the storage class is not protected by a guard, *NONE is output on the value line. If it is, the value line shows the name of the guard in place of <profile>.

Information on the assigned volume set list (for privileged users only)

The information block begins with the header line “ASSIGNED VOLUME-SET-LIST” and has the following layout:

```
------------------ ASSIGNED VOLUME-SET-LIST --------------------
*NONE
```

or

```
<list>
```

If the storage class is not assigned a volume set list, *NONE is output on the value line. If it is, the value line shows the name of the volume set list in place of <list>.

Brief description of the storage class

The information block begins with the header line “STORAGE-CLASS-INFO” and has the following layout:

```
---------------------- STORAGE-CLASS-INFO ----------------------
*NONE
```

or

```
<text>
```

If no brief description has been defined for the storage class, *NONE is output on the value line.
If there is a brief description, the value line shows the defined text in place of <text>. The line holds a maximum of 74 characters. If the text is longer, it is split across the appropriate number of lines (no more than 10).

Output in S variables

The INFORMATION operand identifies the variables which are to be created. The following values are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL	1
INFORMATION = *SUMMARY	2
INFORMATION = *VOLUME-SET-LIST (only for privileged users)	3

Output information	Name of the S variable	T	Contents	Condition
Requirements with regard to failsafe capability *STD=no particular requirements *HIGH=increased failsafe capability required	var(*LIST).F-ATTR.AVAIL	S	*STD *HIGH	1
Requested file consistency time *STD=permanent files: as with *IMMED; temporary files: as with *BY-CLOSE *IMMED=immediately after terminating the write operation *BY-CLOSE=after CLOSE processing	var(*LIST).F-ATTR.DISK-WRITE	S	*STD *IMMED *BY-CLOSE	1
Intended file format for initial allocation *BY-PUBSET-DEF=default format of the pubset *K=K format *NK2=NK2 format *NK4=NK4 format	var(*LIST).F-ATTR.F-PREFORM	S	*BY-PUBSET-DEF *K *NK2 *NK4	1
Performance requirements *STD=no particular requirements *HIGH=high performance requirements *VERY-HIGH=very high performance requirements	var(*LIST).F-ATTR.IO-ATTR.PERF	S	*STD *HIGH *VERY-HIGH	1
Type of file accesses for which the performance requirement *HIGH or *VERY-HIGH applies *READ-WRITE=for read and write operations *WRITE=for write operations only *READ=for read operations only	var(*LIST).F-ATTR.IO-ATTR.USAGE	S	*READ-WRITE *WRITE *READ	1

Output information	Name of the S variable	T	Contents	Condition
Indicator relating to work files *NO=storage class for normal files *YES=storage class for work files	var(*LIST).F-ATTR. WORK-F	S	*NO *YES	1
GUARDS protection for the storage class (privileged users only) *NONE=no protection <profile>=name of a GUARDS profile	var(*LIST).PROT-GUARD	S	*NONE <filename 1..18>	1
Catalog ID of the pubset for which the storage class is defined	var(*LIST).PUBSET	S	<cat-id>	1,2,3
Name of the storage class	var(*LIST).STOR-CLASS	S	<comp.-name 1..8>	1,2,3
Free text selected by the system administrator	var(*LIST).STOR-CLASS-INFO	S	'' <c-string 1..720>	1
Name of the volume set list assigned to this storage class (for privileged users only)	var(*LIST).VOL-SET-LIST	S	<comp.-name 1..8> *NONE	1,3

Example

```
/show-storage-class storage-class-name = stc1,
                    pubset = abcd,
                    information = *all
```

```
NAME: STC1          PUBSET: ABCD

---------------------- FILE-ATTRIBUTES -------------------------

  PERFORMANCE:       USAGE:             DISK-WRITE:
    VERY-HIGH          READ-WRITE         IMMEDIATE
  AVAILABILITY:      FILE-PREFORMAT:    WORK-FILE:
    STANDARD           BY-PUBSET-DEFAULT  NO

------------------------ PROTECTION --------------------------

GUARD-NAME: $TSOS.STC.GUARD

------------------ ASSIGNED VOLUME-SET-LIST --------------------

VSL1

---------------------- STORAGE-CLASS-INFO ----------------------

      Apart from the pubset service requirements that can be
      represented in the form of attributes, the following
      additional requirement is defined for this storage class:
      Files are to be stored on an SSD volume set.
```

In this case, systems support used the SHOW-STORAGE-CLASS command to request all the available information about storage class STC1, which has been defined for SM pubset ABCD.

7.19 SHOW-SUBSYSTEM-ATTRIBUTES

Show information on the subsystem attributes

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	STD-PROCESSING SUBSYSTEM-MANAGEMENT

Function

The SHOW-SUBSYSTEM-ATTRIBUTES command informs the user of the attributes of subsystems.

The command supports structured output in S variables (see "Output in S variables").

Privileged Function

The subsystem administrator receives information on both not privileged and privileged subsystems.

Format

SHOW-SUBSYSTEM-ATTRIBUTES

```
SUBSYSTEM-NAME = *ALL / <structured-name 1..8>

,VERSION = *ALL / <product-version mandatory-man-corr> / <product-version without-man-corr>

,INFORMATION = *MINIMUM / *ALL-ATTRIBUTES / *PARAMETERS(...)

      *PARAMETERS(...)

            |     GENERAL-ATTRIBUTES = *NO / *YES

            |     ,INTERNAL-ENTRIES = *NO / *YES

            |     ,MEMORY-ATTRIBUTES = *NO / *YES

            |     ,RELATED-FILES = *NO / *YES

            |     ,LINK-ATTRIBUTES = *NO / *YES

            |     ,REFERENCE-RELATION = *NO / *YES

            |     ,DEPENDENCE-RELATION = *NO / *YES

            |     ,HOLDER-TASK-INFO = *NO / *YES

            |     ,SUBSYSTEM-ENTRIES = *NO / *YES

,OUTPUT = *SYSOUT / *SYSLST(...) / *NONE

      *SYSLST(...)
```

```
|     SYSLST-NUMBER = *STD / <integer 1..99>
|     ,LINES-PER-PAGE = <integer 1..99>
```

Operands

SUBSYSTEM-NAME= *ALL / <structured-name 1..8>
Specifies the subsystems on which information is requested.

SUBSYSTEM-NAME = *ALL
It is not possible to specify a version explicitly in the VERSION operand here.
Information is to be issued for all subsystems in the catalog (depending on the privileges of the user).

SUBSYSTEM-NAME= <structured-name 1..8>
Name of the subsystem on which SSCM will provide information from the catalog.

VERSION = *ALL / <product-version mandatory-man-corr> / <product-version without-man-corr>
Specifies the version of the selected subsystem.

VERSION = *ALL
Default: all versions of the subsystem contained in the catalog are to be included in the information output.

VERSION = <product-version mandatory-man-corr> / <product-version without-man-corr>
*It is not possible to specify a version with SUBSYSTEM-NAME=*ALL here.*
Version of the subsystem or a version of the SDF-A operand value PRODUCT-VERSION. Format: “mm.n” or “mm.naso”, where

mm =	main version (numeric)
n =	revision version (numeric)
aso =	update version (a= letter, release level; so=numeric, correction level)

INFORMATION = *MINIMUM / *ALL-ATTRIBUTES / *PARAMETERS(...)
Specifies the scope of the information output.

INFORMATION = *MINIMUM
Default.
Only the name, version and status of the subsystem are output.

INFORMATION = *ALL-ATTRIBUTES
All information on the subsystem is output.

INFORMATION = *PARAMETERS(...)Specifies which information is wanted.

GENERAL-ATTRIBUTES = *NO / *YES
Specifies whether the following general attributes of the subsystems named are to be read from the catalog (*YES) or not (*NO):

- When is the subsystem to be started after the system has been started? (CREATION-TIME)
- In which load mode is the subsystem to be loaded? (SUBSYSTEM-LOAD-MODE)
- Is the subsystem to be unloaded automatically at shutdown? (STOP-AT-SHUTDOWN)
- May the loaded subsystem be stopped or unloaded? (SUBSYSTEM-HOLD)
- May the subsystem control commands be used? (STATE-CHANGE-CMDS)

- Is the FORCE option allowed? (FORCED-STATE-CHANGE)
- Is the RESET option allowed? (RESET)
- Does the subsystem have to be restarted when the holder task was terminated abnormally? (RESTART-REQUIRED)
- May more than one version of the subsystem be active at the same time? (VERSION-COEXISTENCE)
- May two versions of a subsystem be exchanged dynamically? (VERSION-EXCHANGE)
- What is the name of the subsystem's INSTALLATION-UNIT? (INSTALLATION-UNIT)
- What is the subsystem's copyright (text and date)? (COPYRIGHT)

The following information is also output:

- Year from the copyright information
- Status of the subsystem
- Name of the monitoring job variable if this was specified when the subsystem was activated (MONJV operand in the START-SUBSYSTEM command).

INTERNAL-ENTRIES = *NO / *YES
Specifies whether the following information on the entry points of the subsystem is to be supplied by SSCM (*YES) or not (*NO):

- the names of the entry points for the subsystem routines INIT-/STOPCOM-/DEINIT- and CLOSE-CRTL-ROUTINE
- the name of the entry point used for dynamic identity checking (DYNAMIC-CHECK-ENTRY)
- the name of the interface version for calling the INIT-/STOPCOM-/DEINIT-/CLOSE-CTRL routines (INTERFACE-VERSION)

MEMORY-ATTRIBUTES = *NO / *YES
Specifies whether the following information pertaining to the storage contained in the catalog is to be output (*YES) or not (*NO):

Specifies whether the storage attributes of the subsystem are to be output. These are:

- memory class (MEMORY-CLASS)
- size of the address area needed (SIZE)
- start address of the subsystem code (START-ADDRESS)
- privileges and access authorization for the address area (SUBSYSTEM-ACCESS)

RELATED-FILES = *NO / *YES
Specifies whether information on the subsystem's subcomponents are to be supplied (*YES) or not (*NO). The output comprises information on whether a REP file is mandatory for the subsystem (REP-FILE-MANDATORY) and under which user ID the subcomponents are cataloged (INSTALLATION-USERID).

The term subcomponent comprises:

- the subsystem's object module file (LIBRARY)
- the message file (MESSAGE-FILE)
- the syntax file (SYNTAX-FILE)

- the subsystem information file (SUBSYSTEM-INFO-FILE)
- the REP file (REP-FILE)

LINK-ATTRIBUTES = *NO / *YES
Specifies whether the information is to be read from the catalog (*YES) or not (*NO), which is stored there on linking and loading the subsystem:

- the name of the link module required /ENTRY/CSECT (LINK-ENTRY)
- inclusion of the autolink function (AUTOLINK)
- information on the behavior regarding unresolvable external references (UNRESOLVED)
- inclusion of a check run for reference subsystems (CHECK-REFERENCE)

REFERENCE-RELATION = *NO / *YES
Specifies whether the list of subsystems to which there are address references are to be included in the catalog information output (*YES) or not (*NO).

DEPENDENCE-RELATION = *NO / *YES
Specifies whether the list of subsystems to which there are dependencies are to be included in the catalog information output (*YES) or not (*NO).

HOLDER-TASK-INFO = *NO / *YES
Specifies whether the identification of the holder task and the list of subsystems contained in a common holder task are to be included in the catalog information output (*YES) or not (*NO).

SUBSYSTEM-ENTRIES = *NO / *YES
Specifies whether the list of job entries specified when the subsystem was defined and the attributes listed below are to be read from the catalog (*YES) or not (*NO):

- type of specified job entry (MODE)
- routine number (for *SVC or *SYSTEM-EXIT) (NUMBER)
- function number of the starting point (FUNCTION-NUMBER)
- version of the function number (FUNCTION-VERSION)
- information on calls by system exit routines (CALL-BY-SYSTEM-EXIT)
- privileges and access authorizations regarding entry points (CONNECTION-ACCESS and CONNECTION-SCOPE)

OUTPUT = *SYSOUT / *SYSLST(...) / *NONE
Specifies the system file into which the information is to be directed.

OUTPUT = *SYSOUT
Default. The information is output to SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to SYSLST.

SYSLST-NUMBER = *STD / <integer 1..99>
The number of the SYSLST file into which the information is to be output.

LINES-PER-PAGE = <integer 1..99>
The number of lines of a SYSLST page.

OUTPUT = *NONE

The information is not output to SYSOUT or SYSLST. The system merely generates S variables (see below). See section "Working with S variables" for details on S variables.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	ESM0414	Syntax error: invalid version
	32	CMD2009	System error: when writing S variable range
	32	ESM0360	System error: XVT or TCB not accessible
	32	ESM0602	System error: problems with storage administration
	32	ESM0611	System error: connection tables for this task do not exist
	32	ESM0671	System error: while writing to SYSOUT
	64	ESM0600	Operand error: no version with *ALL
	64	ESM0601	Specified system not found
	64	ESM0608	Subsystem version not found
	64	OPS0002	Command canceled
	144	OPS0001	Command cannot be executed due to lack of storage space: repeat command later

Notes

1. If the user only has the *STD-PROCESSING privilege, he receives the attributes of nonprivileged subsystems (i. e. subsystems for which SUBSYSTEM-ACCESS is not *SYSTEM).
2. If an error occurs while the information is being written to SYSOUT or SYSLST (ESM0671) the generation of the S variable continues normally.
3. If an error occurs while the S variable is being written (OPS0001 or CMD2009) writing the information to SYSOUT or SYSLST is continued normally.
4. If the cancel key [K2] is pressed when the input prompt is issued ('PLEASE ACKNOWLEDGE') both output to SYSOUT and to the S variable is canceled immediately. Return code OPS0002 is set.
5. It can only be guaranteed that the output to SYSOUT/SYSLST is fully identical if the procedure issuing the command prohibits the output being interrupted with INTERRUPTION-ALLOWED=*NO.

Output in S variables

The information output in the S variables matches the output from SYSOUT and SYSLST (see the description of these operands above). The following table groups the S variables according to their assignment to the suboperands of INFORMATION=*PARAMETERS(...).

Notation used in command	Abbreviated form used in table
INFORMATION=*PARAMETERS(GENERAL-ATTRIBUTES=*NO/*YES)	GEN-ATT
INFORMATION=*PARAMETERS(INTERNAL-ENTRIES=*NO/*YES)	INT-ENT
INFORMATION=*PARAMETERS(MEMORY-ATTRIBUTES=*NO/*YES)	MEM-ATT
INFORMATION=*PARAMETERS(RELATED-FILES=*NO/*YES)	REL-FIL
INFORMATION=*PARAMETERS(LINK-ATTRIBUTES=*NO/*YES)	LINK-ATT
INFORMATION=*PARAMETERS(REFERENCE-RELATION=*NO/*YES)	REF-REL
INFORMATION=*PARAMETERS(DEPENDENCE-RELATION=*NO/*YES)	DEP-REL
INFORMATION=*PARAMETERS(HOLDER-TASK-INFO=*NO/*YES)	HOL-TASK
INFORMATION=*PARAMETERS(SUBSYSTEM-ENTRIES=*NO/*YES)	SUB-ENT

Output information	Name of the S variable	T	Contents	Condition
Integration of the Autolink function	var(*LIST).AUTOLINK	S	*ALLOW *FORBID	LINK-ENT
Integration of the check run for reference subsystems	var(*LIST).CHECK-REF	S	*YES *NO	LINK-ENT
Address of the name of the entry point for the subsystem routine CLOSE-CTRL-ROUTINE (if CRE)	var(*LIST).CLOSE-CTRL-ROUT.ADDR	S	<text 1..8>	INT-ENT
Name of the entry point for the subsystem routine CLOSE-CTRL-ROUTINE	var(*LIST).CLOSE-CTRL-ROUT.NAME	S	<text 1..8> *NO *DYN	INT-ENT
Copyright (text and date) of the subsystem	var(*LIST).COPYRIGHT	S	<string 1..54> *NONE	GEN-ATT
Start time of the subsystem following system initialization	var(*LIST).CRE-TIME	S	*BEFORE-DSSM-LOAD *AT-DSSM-LOAD *MANDATORY-AT-STARTUP *BEFORE-SYS-READY *AFTER-SYS-READY	GEN-ATT

			*AT-CRE-REQ *AT-SUBSYS-CALL	
Name of the subsystem	var(*LIST).DATA(*LIST). SUBSYS-NAME	S	<structured-name 1..8>	
Version of the subsystem	var(*LIST).DATA(*LIST). SUBSYS-VERSION	S	<product-version>	
Address of the name of the entry point for the subsystem routine DEINIT (if CRE)	var(*LIST).DEINIT-ROUT.ADDR	S	<text 1..8>	INT-ENT
Name of the entry point for the subsystem routine DEINIT	var(*LIST).DEINIT-ROUT.NAME	S	<text 1..8> *NO *DYN	INT-ENT
Address of the name of the entry point used for dynamic identity checks (if CRE)	var(*LIST).DYN-CHECK-ENTRY-NAME.ADDR	S	<text 1..8>	INT-ENT
Name of the entry point used for dynamic identity checks	var(*LIST).DYN-CHECK-ENTRY-NAME. NAME	S	<text 1..8> *NO	INT-ENT
Permission to use FORCE option	var(*LIST).FORCED-STATE-CHA	S	*ALLOW *FORBID	GEN-ATT
Subsystem name in the shared holder task	var(*LIST).HOLDER-TASK. SHARED-WITH-SUBSYS(*LIST). SUBSYS-NAME	S	<structured-name 1..8> *WORK-TASK	HOL-TASK
Product version of the subsystem in the shared holder task	var(*LIST).HOLDER-TASK. SHARED-WITH-SUBSYS(*LIST). SUBSYS-VERSION	S	<product-version>	HOL-TASK
TID of the holder task(if CREATED)	var(*LIST).HOLDER-TASK.TID	S	<text 8>	HOL-TASK
TSN of the holder task	var(*LIST).HOLDER-TASK.TSN	S	<text 4>	HOL-TASK
Address of the name of the entry point for the subsystem routine INIT (if CRE)	var(*LIST).INIT-ROUT.ADDR	S	<text 1..8>	INT-ENT
Name of the entry point for the subsystem routine INIT	var(*LIST).INIT-ROUT.NAME	S	<text 1..8> *NO	INT-ENT
Name of the subsystem’s INSTALLATION-UNIT	var(*LIST).INSTALL-UNIT	S	<text 1..30> *NONE	GEN-ATT
User ID under which the related components are cataloged	var(*LIST).INSTALL-USERID	S	<name 1..8> *NONE *DEF	REL-FIL

Address of the name of the interface version used to call the routines INIT-/STOPCOM-/DEINIT-/CLOSE-CTRL (if CRE)	var(*LIST).INTERF-VERSION.ADDR	S	<text 1..8>	INT-ENT
Name of the interface version used to call the routines INIT-/STOPCOM-/DEINIT-/CLOSE-CTRL	var(*LIST).INTERF-VERSION.NAME	S	<text 1..8> *NO	INT-ENT
Address of the name of the object module /ENTRY /CSECT required for loading (if CRE)	var(*LIST).LINK-ENTRY.ADDR	S	<text 1..8>	LINK-ENT
Name of the object module /ENTRY/CSECT required for loading	var(*LIST).LINK-ENTRY.NAME	S	<text 1..8>	LINK-ENT
Memory class	var(*LIST).MEM-CLASS	S	*SYS-GBL *LOC-PRIVIL *LOC-UNPRIVIL *BY-SLICE	MEM-ATT
Monitoring job variable	var(*LIST).MONJV	S	*YES *NO	GEN-ATT
Default name of the message file (for *INSTALL)	var(*LIST).MSG-F.DEF-NAME	S	<filename 1..54> *NONE	REL-FIL
Logic ID of the message file (for *INSTALL)	var(*LIST).MSG-F.LOGIC-ID	S	<filename 1..30>	REL-FIL
Name of the message file	var(*LIST).MSG-F.NAME	S	<filename 1..54> *INSTALL *NO	REL-FIL
Criterion for automatic loading if CREATION-TIME=*AT-SUBS-CALL is set at start time: on the first call to an associated SVC, ISL or another interface	var(*LIST).ON-ACTION	S	*STD *ISL-CALL *ANY	GEN-ATT
Product version of the subsystem for which address references exist (*HIGH=highest product version)	var(*LIST).REF-SUBSYS(*LIST).HIGH-VERSION	S	<product-version> *HIGH	REF-REL

Output information	Name of the S variable	T	Contents	Condition
Product version of the subsystem for which address references exist (*LOW=lowest product version)	var(*LIST).REF-SUBSYS(*LIST).LOW-VERSION	S	<product-version> *LOW	REF-REL
Name of the subsystem for which address references exist	var(*LIST).REF-SUBSYS(*LIST).SUBSYS-NAME	S	<structured-name 1..8>	REF-REL
Product version of the subsystem for which dependence relations exist (*HIGH=highest product version)	var(*LIST).RELATED-SUBSYS(*LIST).HIGH-VERSION	S	<product-version> *HIGH	DEP-REL
Product version of the subsystem for which dependence relations exist (*LOW=lowest product version)	var(*LIST).RELATED-SUBSYS(*LIST).LOW-VERSION	S	<product-version> *LOW	DEP-REL
Name of the subsystem for which dependence relations exist	var(*LIST).RELATED-SUBSYS(*LIST).SUBSYS-NAME	S	<structured-name 1..8>	DEP-REL
Default name of the REP file (for *INSTALL)	var(*LIST).REP-F.DEF-NAME	S	<filename 1..54> *NONE	REL-FIL
Logic ID of the REP file(for *INSTALL)	var(*LIST).REP-F.LOGIC-ID	S	<filename 1..30>	REL-FIL
Use of a REP file is mandatory for this subsystem	var(*LIST).REP-F.MANDATORY	S	*YES *NO	REL-FIL
Name of the REP file	var(*LIST).REP-F.NAME	S	<filename 1..54> *INSTALL *NO	REL-FIL
Permit RESET option	var(*LIST).RESET	S	*ALLOW *FORBID	GEN-ATT
Repeat initialization routine on abnormal termination of the holder task	var(*LIST).RESTART-REQ	S	*YES *NO	GEN-ATT
Size of the required address space (for *LOC-PRIVIL and *BY-SLICE)	var(*LIST).SIZE	I	<integer 1..32767>	MEM-ATT

Start address of subsystem code (for *LOC-UNPRIVIL)	var(*LIST).START-ADDR	S	<text 1..8>	MEM-ATT
Use of subsystem control commands	var(*LIST).STATE-CHA-CMDS	S	*ALLOW *FORBID *BY-ADM-ONLY	GEN-ATT
Should the subsystem be automatically unloaded on shutdown?	var(*LIST).STOP-AT-SHUTDOWN	S	*YES *NO	GEN-ATT
Address of the name of the entry point for the subsystem routine STOPCOM (if CRE)	var(*LIST).STOPCOM-ROUT.ADDR	S	<text 1..8>	INT-ENT
Name of the entry point for the subsystem routine STOPCOM	var(*LIST).STOPCOM-ROUT.NAME	S	<text 1..8> *NO *DYN	INT-ENT
Privileges and access authorizations relating to the address space (for *SYS-GBL and *LOC-UNPRIVIL)	var(*LIST).SUBSYS-ACCESS	S	*LOW *SYS *HIGH	MEM-ATT
Addresses of the entry points (if CREATED)	var(*LIST).SUBSYS-ENTRIES(*LIST).ADDR	S	<text 1..8>	SUB-ENT
Privileges relating to the entry points	var(*LIST).SUBSYS-ENTRIES(*LIST).CONN-ACCESS	S	*ALL *SYS *SIH	SUB-ENT
Access authorizations relating to the entry points	var(*LIST).SUBSYS-ENTRIES(*LIST).CONN-SCOPE	S	*TASK *PROG *FREE *CALL *OPTIM	SUB-ENT
Permit entry points on initial connection	var(*LIST).SUBSYS-ENTRIES(*LIST).FIRST-CONN	S	*ALLOW *FORBID	SUB-ENT
Function number of entry point (for ISL or SVC)	var(*LIST).SUBSYS-ENTRIES(*LIST).FUNC-NUM	I	<integer 0..255>	SUB-ENT
Version of the function number (for ISL or SVC)	var(*LIST).SUBSYS-ENTRIES(*LIST).FUNC-VERSION	I	<integer 1..255>	SUB-ENT
Type of specified incoming job	var(*LIST).SUBSYS-ENTRIES(*LIST).MODE	S	*LINK *ISL *SVC *SYS-EXIT	SUB-ENT
Name of entry point	var(*LIST).SUBSYS-ENTRIES(*LIST).NAME	S	<text 1..8>	SUB-ENT

Stop or unload the loaded subsystem	var(*LIST).SUBSYS-HOLD	S	*ALLOW *FORBID	GEN-ATT
Default name of the subsystem's information file (for *INSTALL)	var(*LIST).SUBSYS-INFO-F.DEF-NAME	S	<filename 1..54> *NONE	REL-FIL
Logic ID of the subsystem's information file (for *INSTALL)	var(*LIST).SUBSYS-INFO-F.LOGIC-ID	S	<filename 1..30>	REL-FIL
Name of the subsystem's information file	var(*LIST).SUBSYS-INFO-F.NAME	S	<filename 1..54> *INSTALL *NO	REL-FIL
Internal status	var(*LIST).SUBSYS-INT-STA	S	INSTALLED INITIALIZED CONNECTABLE WAIT-CLS-CTRL WAIT-DISCON WAIT-DEINIT WAIT-STOP-COM	GEN-ATT
Default name of the subsystem's object module file (for *INSTALL)	var(*LIST).SUBSYS-LIB.DEF-NAME	S	<filename 1..54>	REL-FIL
Logic ID of the subsystem's object module file (for *INSTALL)	var(*LIST).SUBSYS-LIB.LOGIC-ID	S	<filename 1..30>	REL-FIL
Name of the subsystem's object module file	var(*LIST).SUBSYS-LIB.NAME	S	<filename 1..54> *INSTALL *CPLINK	REL-FIL
Load mode in which the subsystem is loaded	var(*LIST).SUBSYS-LOAD-MODE	S	*STD *ADV *ANY	GEN-ATT
Status of the subsystem	var(*LIST).SUBSYS-STA	S	*NOT-CRE *IN-CRE *IN-HOLD *IN-DEL *IN-RESUME *NOT-RESUMED *CRE *LOCK	GEN-ATT
Default name of the syntax file (for *INSTALL)	var(*LIST).SYNTAX-F.DEF-NAME	S	<filename 1..54> *NONE	REL-FIL
Logic ID of the syntax file(for *INSTALL)	var(*LIST).SYNTAX-F.LOGIC-ID	S	<filename 1..30>	REL-FIL

Output information	Name of the S variable	T	Contents	Condition
Name of the syntax file	var(*LIST).SYNTAX-F.NAME	S	<filename 1..54> *INSTALL *NO	REL-FIL
Information on behavior in the event of unresolved external references	var(*LIST).UNRESOLVED-EXTERNAL	S	*ALLOW *FORBID	LINK-ENT
More than one version of the subsystem active simultaneously	var(*LIST).VERSION-COEXIST	S	*ALLOW *FORBID	GEN-ATT
Dynamic exchange of two versions of the subsystem	var(*LIST).VERSION-EXCHA	S	*ALLOW *FORBID	GEN-ATT
Year specification(if COPYRIGHT)	var(*LIST).YEAR	S	<string 4>	GEN-ATT

Example

Output of the attributes of nonprivileged subsystems (users with the privilege *STD-PROCESSING))

/show-subsystem-attributes subsystem-name=*all

```
%*********************************************************************
%*    4 * SUBSYSTEM NAME:      FHS      VERSION:    08.3            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
%*********************************************************************
%*    5 * SUBSYSTEM NAME:   FHS-DM      VERSION:    08.3            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
%*********************************************************************
%*    7 * SUBSYSTEM NAME:     PLI1      VERSION:    04.2            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
 .
 .
 .
 .
%*********************************************************************
%*  256 * SUBSYSTEM NAME: GET-TIME      VERSION:    20.0            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : CONNECTABLE
%*********************************************************************
%*  257 * SUBSYSTEM NAME: GET-TIMX      VERSION:    20.0            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : CONNECTABLE
%*********************************************************************
%*  267 * SUBSYSTEM NAME:  LMSCONV      VERSION:    03.5            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
%*********************************************************************
%*  277 * SUBSYSTEM NAME:  PAMCONV      VERSION:    12.1            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
%*********************************************************************
%*  287 * SUBSYSTEM NAME: SMPGEN-U      VERSION:    20.0            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
%*********************************************************************
%*  294 * SUBSYSTEM NAME:    TULAM      VERSION:    20.0            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : NOT CREATED
%*********************************************************************
%*  297 * SUBSYSTEM NAME: CRTEBASY      VERSION:    11.0            *
%*********************************************************************
% STATUS OF THE SUBSYSTEM : CONNECTABLE
```

7.20 SHOW-SUBSYSTEM-INFO

Request information on current subsystem configuration

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

The SHOW-SUBSYSTEM-INFO command allows systems support staff to request information relating to the current subsystem configuration. The output, which is to SYSLST only, comprises the complete description of all known subsystems, including the following dynamic aspects:

- the current status
- the load address of started subsystems
- the number of connections registered since startup.
- size of the subsystem (size of storage area required, including subsystem code and metadata).

Format

SHOW-SUBSYSTEM-**INFO**
SUBSYSTEM-NAME = ***ALL**

Operands

SUBSYSTEM-NAME = *ALL
Output is to SYSLST and comprises the entire dynamic subsystem configuration.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
	32	ESM0288	Problems with bourse communications
	32	ESM0298	Problems with memory management
	32	ESM0350	Internal DSSM problem during processing
	32	ESM0670	Error during writing to the SYSLST file

Example

/show-subsys-info

```
% ESM0254 COMMAND 'SHOW-SUBSYSTEM-INFO' COMPLETELY PROCESSED
```

Output is directed to SYSLST ready for printing (the example is only an excerpt):

```
A
A  Fujitsu Technology Solutions 2009          DYNAMIC SUBSYSTEM MANAGEMENT          DATE: 2012-06-22   TIME: 15-12-24     PAGE:    1

  CATALOG-LAYOUT       : VERSION 309                                        PRINT-LAYOUT          : VERSION 03.6

  STARTUP CATALOG-NAME : :4V08:$TSOS.SYS.SSD.CAT.X                          FORCED GENERATION     : NO

  CATALOG HISTORIC     :

                         :4V08:$TSOS.CAT.SHC-OSD.100                        FORCED GENERATION     : YES

  DSSM BOURSE ID       : 80A60034

  CATALOG ADDRESS IN CLASS 4            : X'7F85F060'                       CATALOG ADDRESS IN CLASS 5 : X'70900060'

  ADDRESS-STRIPE FOR LOCAL-PRIVILEGED SS : X'00000000' BYTES LENGTH         START ADDRESS              : X'FFFFFFFF'
  ADDRESS-STRIPE FOR PRIVATE SLICES OF SS: X'02200000' BYTES LENGTH         START ADDRESS              : X'6ED00000'

A  Fujitsu Technology Solutions 2009          DYNAMIC SUBSYSTEM MANAGEMENT          DATE: 2012-06-22   TIME: 15-12-24     PAGE:    2

                                |          GENERAL ATTRIBUTES                    |  INTERNAL ENTRIES    | SUBSYST | MEMORY |  RELATED FILES  |
                                | C  S                                           |    C            D    | ENTRIES |        |                 |  I  H
                                | R  H       C              C  C  X  R           |    L  S         Y    |         |        | M  R  S  N      |  O  L
                                | E  U       O  F        H  O  C  E           |    O  T  D  N        |         |    A   | S  E  Y  F      |  L  D
 NR  SS-NAME  VERSION STD       | A  T       M  O  R     K  E  H  S           |    S  O  E  C        |      S  | C  C   | G  P  N  O      |  D  E
                                | T  D  H    M  R  E     L  X  A  T           | I  E  P  I  H        |      Y  | L  C   | F  F  F  F      |  E  R
                                | I  O  O    A  C  S     I  I  N  A           | N  C  C  N  E        | S    S  | A  E   | I  I  I  I      |  R  I
                                | M  W  L    N  E  E     N  S  G  R           | I  T  O  I  C        | V    E  | S  S   | L  L  L  L      |  I  D
 ------------------------------ | E  N  D    D  D  T     K  T  E  T           | T  L  M  T  K        | C    X  | S  S   | E  E  E  E      |  D
    1 CP                        |                                            |                      |         |        |                 |
    2 ACS       18.0    YES     | ACR YES YES YES NO  NO  YES NO  NO  NO     | YES NO  YES YES YES  | NO  NO  | S SYS  | NO  IMO IMO NO  |  38
    3 ADAM      18.0A00 YES     | ASC YES YES YES NO  NO  YES NO  YES NO     | YES NO  NO  YES YES  | YES NO  | S SYS  | NO  IMO NO  NO  |  38
    4 AID       03.4    YES     | ACR NO  YES YES NO  NO  YES NO  NO  NO     | YES NO  NO  YES NO   | NO  NO  | S SYS  | NO  IMO NO  NO  |  38
    5 SMI       01.0    YES     | ASR NO  YES YES NO  NO  YES NO  YES NO     | NO  NO  NO  NO       | NO  NO  | S SYS  | NO  NO  NO  NO  |  38
    6 LLMAID    01.1    YES     | ASR NO  YES YES YES NO  YES YES YES NO     | NO  NO  NO  NO  NO   | NO  NO  | S SYS  | NO  IMO NO  NO  |  38
    7 AIDSYS    18.0    YES     | ASC NO  YES YES NO  NO  YES NO  NO  NO     | NO  NO  NO  NO  NO   | NO  NO  | S SYS  | NO  IMO NO  NO  |  38
    8 AIDSYSA   18.0    YES     | MAS NO  NO  NO  NO  NO  YES NO  NO  NO     | YES NO  NO  YES NO   | YES NO  | S SYS  | NO  IMO NO  NO  |  38
  .
  .
  .
  .
  .
  161 SOC-TP    02.6    YES     | ASR NO  YES YES NO  NO  YES NO  NO  NO     | NO  NO  NO  NO  NO   | NO  NO  | S SYS  | NO  NO  NO  NO  |  38
  162 VM2-MON   09.0    YES     | ACR NO  NO  NO  NO  NO  NO  NO  NO  NO     | YES NO  NO  NO  YES  | NO  NO  | S SYS  | IMO IMO IMO NO  |  38
  163 VM2-MON   09.5    NO      | ACR NO  NO  NO  NO  NO  NO  NO  NO  NO     | YES NO  NO  NO  YES  | NO  NO  | S SYS  | IMO IMO IMO IMO |  38
  164 VM2-MON   10.0    NO      | ACR NO  NO  NO  NO  NO  NO  NO  NO  NO     | YES NO  NO  NO  YES  | NO  NO  | S SYS  | IMO IMO IMO IMO |  38
  165 SHC-OSD   10.0    YES     | ACR YES YES YES YES YES YES YES NO  YES    | YES DYN DYN DYN NO   | NO  NO  | S SYS  | NO  IMO NO  NO  |  43
A  Fujitsu Technology Solutions 2009          DYNAMIC SUBSYSTEM MANAGEMENT          DATE: 2012-06-22   TIME: 15-12-24     PAGE:    6

    1          SS NAME  : CP                                                    STATUS: CREATED

A  Fujitsu Technology Solutions 2009          DYNAMIC SUBSYSTEM MANAGEMENT          DATE: 2012-06-22   TIME: 15-12-24     PAGE:    7

    2          SS NAME  : ACS          VERSION: 18.0        STANDARD VERSION: YES      STATUS: NOT CREATED

     LINK ENTRY NAME /@: DACSUB   / X'7FFFFFFF'          LIBRARY DEFAULT      : $TSOS.SYSLNK.ACS.180
     INSTALLATION UNIT : ACS                            LIBRARY LOGID        : SYSLNK

     INTERFACE ENTRY   : DACDSMV                        REP FILE DEFAULT     : $TSOS.SYSREP.ACS.180
                                                        REP FILE LOGID       : SYSREP
                                                        USED REP FILE NAME   : *NO

     CHECK ID NAME   /@: DACDSMC  / X'7FFFFFFF'         REP FILE MANDATORY   : *NO                SUBSYSTEM LOAD MODE: *ADVANCED

     CREATION TIME     : AT CREATION REQUEST            MESSAGE FILE NAME    : *NO

     AUTO LINK         : YES                            INFO FILE NAME       : *NO

     CONTINUE (IGNORE UNRESOLVED EXTERNALS) : NO        SYNTAX FILE DEFAULT  : $TSOS.SYSSDF.ACS.180
                                                        SYNTAX FILE LOGID    : SYSSDF

      ROUTINES :                        NAME       TYPE     ADDRESS
                 INITIALISATION   :  DACDSMI    BLS      X'7FFFFFFF'
                 CLOSE CONTROL    :  *NO        NONE       --
                 STOP COMMISSION  :  DACDSMS    BLS      X'7FFFFFFF'
```

```
                DEINITIALISATION :  DACDSMD    BLS      X'63E2D6E2'

     CALL ENTRIES:  INDEX   NAME       TYPE    NUMBER  FNUMBER  FVERS  ACCESS  CONNECTION SCOPE     ADDRESS   A-MODE FIRST CONNECT
                        1   DACSUB     ISL        -       -       -     SYS          TASK             --        -    *ALLOWED
                        2   DACCMD     ISL        -       -       -     SYS          TASK             --        -    *ALLOWED
                        3   DACDSMI    BLS        -       -       -     SYS          TASK             --        -    *ALLOWED
                        4   DACDSMD    BLS        -       -       -     SYS          TASK             --        -    *ALLOWED
                        5   DACDSMS    BLS        -       -       -     SYS          TASK             --        -    *ALLOWED
                        6   DACDSMV    BLS        -       -       -     SYS          TASK             --        -    *ALLOWED
                        7   DACDSMC    BLS        -       -       -     SYS          TASK             --        -    *ALLOWED

     SUBSYSTEM RELATIONSHIPS :
                REFERENCED SUBSYSTEM(S):     1
                RELATED    SUBSYSTEM(S):  NONE
                DISJOINTED SUBSYSTEM(S):  NONE

     ADDRESS SPACE :
                ACCESS        : SYS
                MEMORY CLASS  : 3/4
                MEMORY POOL   : NO
                MEMORY SIZE   :

    HOLDERTASK IDENTIFICATION :   38    TSN : HT26
A  Fujitsu Technology Solutions 2009          DYNAMIC SUBSYSTEM MANAGEMENT          DATE: 2012-06-22   TIME: 15-12-24     PAGE:    8

   3          SS NAME  : ADAM          VERSION: 18.0A00      STANDARD VERSION: YES      STATUS: NOT CREATED

     LINK ENTRY NAME /@: NDACTL   / X'7FFFFFFF'          LIBRARY DEFAULT      : $TSOS.SYSLNK.ADAM.180
     INSTALLATION UNIT : ADAM                            LIBRARY LOGID        : SYSLNK

     INTERFACE ENTRY   : NDAESM                          REP FILE DEFAULT     : $TSOS.SYSREP.ADAM.180
                                                         REP FILE LOGID       : SYSREP
                                                         USED REP FILE NAME   : *NO

     CHECK ID NAME   /@: NDAISNAM / X'7FFFFFFF'          REP FILE MANDATORY   : *NO                  SUBSYSTEM LOAD MODE: *ADVANCED

     CREATION TIME     : AT SUBSYSTEM CALL               MESSAGE FILE NAME    : *NO
     ON_ACTION         : *STD

     AUTO LINK         : YES                             INFO FILE NAME       : *NO

     CONTINUE (IGNORE UNRESOLVED EXTERNALS) : YES        SYNTAX FILE NAME     : *NO

      ROUTINES :                          NAME       TYPE     ADDRESS
                INITIALISATION   :  NDAINIT    BLS      X'7FFFFFFF'
                CLOSE CONTROL    :  *NO        NONE       --
                STOP COMMISSION  :  *NO        NONE       --
                DEINITIALISATION :  NDADEIN    BLS      X'40404040'

      CALL ENTRIES:  INDEX   NAME       TYPE    NUMBER  FNUMBER  FVERS  ACCESS  CONNECTION SCOPE     ADDRESS   A-MODE FIRST CONNECT
                        8   ENSVC46    SVC        46       -       -     SYS          PROGRAM          --        -    *ALLOWED
                        9   ENSV115    SVC       115       -       -     SYS          PROGRAM          --        -    *ALLOWED
                       10   NDAMAIN    ISL        -       -       -     SYS          PROGRAM          --        -    *ALLOWED
                       11   NDATERM    ISL        -       -       -     SYS          PROGRAM          --        -    *ALLOWED
                       12   NDACKPT    ISL        -       -       -     SYS          PROGRAM          --        -    *ALLOWED

      SUBSYSTEM RELATIONSHIPS :
                REFERENCED SUBSYSTEM(S):     1
                RELATED    SUBSYSTEM(S):  NONE
                DISJOINTED SUBSYSTEM(S):  NONE

  .
  .
  .
  .
  .
```

7.21 SHOW-SUBSYSTEM-STATUS

Request information on status of subsystems

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	STD-PROCESSING OPERATING SUBSYSTEM-MANAGEMENT
Routing code:	R

Function

The SHOW-SUBSYSTEM-STATUS command provides users with information on the status of global subsystems made available to all users in class 5 memory (nonprivileged subsystems) and on the status of their local subsystems if they have loaded a local subsystem catalog.
Errors occurring while the SHOW-SUBSYSTEM-STATUS is executing do not trigger the spin-off mechanism (see the SET-JOB-STEP command).
The output is sorted according to subsystem names in ascending alphabetical order. Multiple versions of a subsystem are sorted in ascending order of the versions.

During command execution further tasks may set up or clear down connections to the subsystem; as a result, the list of tasks displayed by this command may not reflect the current situation.

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Systems support can use the command to request information on the status of global subsystems. It then shows:

- which tasks have a connection to the specified subsystem (TSN and TID)
- the status of the specified subsystems or their versions
- the number of connections to a specified subsystem since startup
- “Class 5” for all the subsystems loaded into this memory class

Format

SHOW-SUBSYSTEM-**STA**TUS
SUBSYSTEM-NAME = ***ALL** / ***NON-PRIVIL**EGED-**CLASS-5** / <structured-name 1..8 with-wild(24)> ,**VERSION** = ***STD** / ***ALL** / <product-version mandatory-man-corr> / <product-version without-man-corr>

Operands

SUBSYSTEM-NAME =
Specifies the name of the subsystem on which information is desired.

SUBSYSTEM-NAME = *ALL
Displays information on all subsystems.
A version specification in the VERSION operand is not permitted.

SUBSYSTEM-NAME = *NON-PRIVILEGED-CLASS-5
Displays information on all subsystems which do not occupy nonprivileged class 5 memory pages (subsystems with the attribute MEMORY-CLASS=*LOCAL-PRIVILEGED).

SUBSYSTEM-NAME = <structured-name 1..8 with-wild(24)>
Name of the subsystem on which information is desired.
Wildcards can be used, in which case an asterisk “*” must be specified twice at the start of the line if no further wildcards are used.
A version cannot be specified in the VERSION operand when wildcards are used.

VERSION =
Defines the version.

VERSION = *STD
If the version is not specified, or if *STD is explicitly defined, the assignment is subject to the following order:

1. The information is prepared by the subsystem that deviates from the status NOT CREATED.
2. If a number of versions are in a status other than NOT CREATED, the output text takes all these into account.

VERSION = *ALL
Information is to be provided on all available versions of the subsystem in question.

VERSION = <product-version mandatory-man-corr> / <product-version without-man-corr>
Specifies the version.
If a version is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also section "SDF syntax representation").

A version specification is not permitted in combination with the operand SUBSYSTEM-NAME=*ALL.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	ESM0414	Syntax error: invalid version specified
	32	CMD2009	System error: when writing to S variable area
	32	ESM0360	System error: XVT or TCB not reachable
	32	ESM0602	System error: problems with memory management
	32	ESM0611	System error: connection table for this task does not exist
	32	ESM0671	System error: when writing to SYSOUT
	64	ESM0600	Operand error: no version with *ALL
	64	ESM0601	Specified subsystem not found
	64	ESM0603	Operand error: No version when wildcards are specified in the subsystem name
	64	ESM0604	Operand error: no version with *NON-PRIV-CLASS-5
	64	ESM0608	Subsystem version not found
	64	ESM0610	No subsystem with *NON-PRIV-CLASS-5
	64	OPS0002	Command interrupted
	130	OPS0001	Command not executed for lack of storage space: try again later!

Notes

- The combination of the operands SUBSYSTEM-NAME=*ALL and VERSION=*ALL provides the same scope of information as SUBSYSTEM-NAME=*ALL and VERSION=*STD.
- The combination of the operands SUBSYSTEM-NAME=<subsystem with-wild> and VERSION=*ALL supplies the same volume of information as SUBSYSTEM-NAME=<subsystem with-wild> and VERSION=*STD.
- SHOW-SUBSYSTEM-STATUS does not provide any information for subsystems declared with the attributes CONNECTION-SCOPE=*FREE and MEMORY-CLASS= *SYSTEM-GLOBAL.
  On the other hand, subsystems with the attributes CONNECTION-SCOPE=*FREE and MEMORY-CLASS=*LOCAL-PRIVILEGED or *LOCAL-UNPRIVILEGED are included in the output.
- If there are various versions of a subsystem loaded (as a result of repeated loading in coexistence or exchange mode), privileged users issuing SHOW-SUBSYSTEM-STATUS without specifying a version (VERSION=*STD /*ALL) will be shown status information for all the versions of the subsystem which are currently in any state other than NOT-CREATED.
- Tasks connected to a global subsystem with CONNECTION-SCOPE=*OPTIMAL are included in the total of all connected tasks but are not explicitly listed with their TID and TSN.

- If an error occurs on output to SYSOUT (message ESM0671), output in S variables continues as normal if it has been requested.
  If an error occurs on output in S variables (message ESM0672 or CMD2009), output to SYSOUT continues as normal.
- Interrupting command processing by pressing the [K2] key causes both output to SYSOUT and output in S variables to be interrupted. Return code OPS0002 is generated.
- If the [K2] interrupt key is pressed at a request for acknowledgment (“PLEASE ACKNOWLEDGE”), output to SYSOUT aborts immediately. Output in S variables continues as normal if it has been requested. No message is issued.
- Output to SYSOUT and in S variables cannot be guaranteed to match in full unless the procedure issuing the command has forbidden output interruption by means of the operand INTERRUPTION-ALLOWED=*NO.
- If a privileged user requires information about a specific subsystem (SUBSYSTEM-NAME=<structured-name 1...8>) and wants output in S variables, the USED-TASK-LIST field may be empty even though it has been generated.
  The SDF-P builtin function SIZE() can be used to define the number of list elements.
- If the subsystem is in a transient state the following information on the current processing status will be issued (substatus).

Status	Substatus	Meaning
IN CREATE / IN RESUME	*INSTALLED	The subsystem is loaded.
	*INITIALIZED	The ‘init’ routine was executed.
	*CONNECTABLE	The subsystem is ready.
IN DELETE / IN HOLD	WAIT-CLS-CTRL	The ‘close control’ routine was called. DSSM is waiting for it to be concluded.
	WAIT-DISCON	DSSM is waiting for the last disconnection (forced delete possible).
	WAIT-STOP-COM	No further task is connected, and DSSM is waiting for the ‘stop commission’ routine to be finished.
	WAIT-DEINIT	No further task is connected, the ‘deinit’ routine was called, and DSSM is waiting for it to finish.
	INSTALLED	The subsystem is loaded but not initialized.
NOT CREATED / NOT RESUMED / LOCKED / CREATED	*NONE	The subsystem is in the status displayed. This is not a transient state, so there is no further information.

Table 158: Information on the SHOW-SUBSYSTEM-STATUS command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Number of connected tasks since starting the subsystem	var(*LIST).CONN-NUM-SINCE-START	I	<integer 0..2^{31}-1>	
Information on the user address space for nonprivileged subsystems *RESERVED=the subsystem is in class 5 memory *UNRESERVED=a privileged user has called the RELEASE-SUBSYSTEM-SPACE command	var(*LIST).SUBSYS-ADDR-SPACE	S	*RESERVED *UNRESERVED	
Internal status; see table on the dependencies	var(*LIST).SUBSYS-INT-STA	S	INSTALLED INITIALIZED CONNECTABLE WAIT-CLS-CTRL WAIT-DISCON WAIT-DEINIT WAIT-STOP-COM NONE	
Name of the subsystem	var(*LIST).SUBSYS-NAME	S	<struc.-name 1..8>	
Status of the subsystem	var(*LIST).SUBSYS-STA	S	*CREATED *IN-CREATE *IN-DELETE *IN-HOLD *IN-RESUME *LOCKED *NOT-CREATED *NOT-RESUMED	
Displayed only for reasons of compatibility	var(*LIST).SUBSYS-TYPE	S	*GLB	
Version of the subsystem	var(*LIST).SUBSYS-VERSION	S	<product-version>	
TID of the task currently connected to the subsystem	var(*LIST).USED-TASK-LIST(*LIST).TID	S	<text 8>	
TSN of the task currently connected to the subsystem	var(*LIST).USED-TASK-LIST(*LIST).TSN	S	<text 4>	

The content of the S variable var(*LIST).SUBSYS-IN T-STA depends on the status of the subsystem (S variable var (*LIST).SUBSYS-STA):

var(*LIST).SUBSYS-STA	var(*LIST).SUBSYS-INT-STA	Meaning
*IN-CREATE / *IN-RESUME	INSTALLED	The subsystem is loaded.
	INITIALIZED	The ‘Init’ routine was executed.
	CONNECTABLE	The subsystem is ready.
*IN-DELETE / *IN-HOLD	WAIT-CLS-CTRL	The ‘Close Control’ routine was called. DSSM is waiting for it to end.
	WAIT-DISCON	DSSM is waiting for final disconnection (forced deletion possible).
	WAIT-STOP-COM	No tasks remain connected and DSSM is waiting for the ‘Stop Commission’ routine to end.
	WAIT-DEINIT	No tasks remain connected, the ‘Deinit’ routine was called and DSSM is waiting for it to end.
	INSTALLED	The subsystem is loaded but not initialized.
*CREATED *LOCKED *NOT-CREATED *NOT-RESUMED	NONE	The subsystem is in the displayed state. Since this is not a transition state, there is no further information.

Example

```
/show-subsystem-status subsystem=edt ————————————————————————————— (1)
```

```
% SUBSYSTEM EDT     /V17.0    IS USED BY    1 TASKS ————————————————  (2)
%  TSN          0AKV
%         7 CONNECTIONS SINCE STARTUP
```

(1) SYSOUT output of information on the subsystem EDT without specification of a version. Only privileged users receive the information reproduced above. Nonprivileged users receive only the following output line:

```
%SUBSYSTEM EDT /V17.0 IS CREATED
```

```
%SUBSYSTEM EDT /V17.0 IS IN DELETE / WAIT-DISCON
```

(2) The output in the example indicates that the EDT subsystem V17.0 is active.

7.22 SHOW-SYNTAX-VERSIONS

Display syntax file versions

Component:	SDF
Functional area:	SDF control
Domain:	SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-SYNTAX-VERSIONS command outputs to SYSOUT information on the system, subsystem and group syntax files currently activated for the task. This information includes the names and version statuses of all currently valid syntax descriptions of the software units and components used.
This information can also be requested for a specific software unit or component or a list of them.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-SYNTAX**-VERS**IONS
SOFTWARE-UNIT-NAME = ***ALL** / list-poss(2000): <structured-name 1..16>

Operands

SOFTWARE-UNIT-NAME = *ALL / list-poss(2000): <structured-name 1..16>
Specifies the names of the software units on which information is to be output.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	Command executed without errors
1	32	CMD0500	Syntax description in current syntax file invalid
1	64	CMD0811	Command execution not successful. Guaranteed messages: CMD0300, CMD0500, CMD0811

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Syntax file path name	var(*LIST).F-NAME	S	<filename 1..54>	
Software component name	var(*LIST).SW-UNIT(*LIST). COMPONENT(*LIST).NAME	S	<struc.-name 1..15> <struc.-name 16..16>	
Software component version	var(*LIST).SW-UNIT(*LIST). COMPONENT(*LIST).VERSION	S	<product-version> <text 8..8>	
Software unit name	var(*LIST).SW-UNIT(*LIST).NAME	S	<struc.-name 1..15> <struc.-name 16..16>	
Software unit version	var(*LIST).SW-UNIT(*LIST). VERSION	S	<product-version> <text 7..8>	
Syntax file type; no distinction is made between system and subsystem syntax files	var(*LIST).TYPE	S	*GROUP *SYS	

Examples

Output to SYSOUT

/show-syntax-versions software-unit=(lms,sdf-p)

```
SYNTAX VERSION OF LMS              :
FOR SYSTEM SYNTAX FILE :
:SQGB:$TSOS.SYSSDF.LMS.035
-----------------------------------------------------
 LMS               = 03.5B00
                     LMS               = 035
SYNTAX VERSION OF SDF-P            :
FOR SYSTEM SYNTAX FILE :
:SQGB:$TSOS.SYSSDF.SDF-P.025
-----------------------------------------------------
 SDF-P             = 02.5F10
                     SDP               = 025
/
```

Output in S variable

```
/declare-var var-name=out(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-syntax-versions software-unit=(lms,sdf-p)),
          text-output=*none,structure-output=out
/show-var out,inf=*par(list-index=*yes)
```

```
OUT#1.F-NAME = :SQGB:$TSOS.SYSSDF.LMS.035
OUT#1.TYPE = *SYS
OUT#1.SW-UNIT#1.NAME = LMS
OUT#1.SW-UNIT#1.VERSION = 03.5B00
OUT#1.SW-UNIT#1.COMPONENT#1.NAME = LMS
OUT#1.SW-UNIT#1.COMPONENT#1.VERSION = 035
OUT#2.F-NAME = :SQGB:$TSOS.SYSSDF.SDF-P.025
OUT#2.TYPE = *SYS
OUT#2.SW-UNIT#1.NAME = SDF-P
OUT#2.SW-UNIT#1.VERSION = 02.5F10
OUT#2.SW-UNIT#1.COMPONENT#1.NAME = SDP
OUT#2.SW-UNIT#1.COMPONENT#1.VERSION = 025
/
```

7.23 SHOW-SYSEVENT-LOG

Show contents of event stream

Component:	BS2000
Functional area:	Job processingg Operator terminal control
Domain:	CONSOLE-MANAGEMENT JOB
Privileges:	STD-PROCESSING OPERATING

Function

The SHOW-SYSEVENT-LOG command enables an interactive task to call or start the presentation function of the Event Stream Service (ESS). The presentation function features two presentation modes:

- Static mode
  Static mode allows selections to be made within the event stream being viewed. In this mode, events which have already been recorded can be represented, but new events cannot be shown immediately. In static mode, interactive output control can be exercised with the aid of a menu, by direct input on the command line or using function keys.
  The presentation function always starts up in static mode. The presentation window then shows the current end of the event stream. In the case of active event streams, it is possible to switch instantly to dynamic mode using the [F6] key or the menu.
- Dynamic mode
  In dynamic mode, new events are represented immediately. The current end of the event stream is always shown. Each time a new event occurs, the screen is updated. Consequently, dynamic mode is only useful and selectable for active event streams. Event streams which have finished, with logging completed, can only be represented in static mode.
  As the presentation function in dynamic mode is always ready to show new output, interactive operation is not possible. The [K2] key switches from dynamic mode to static.

The event stream is displayed in a full-screen presentation window, in either English or German depending on the task-local setting of the MIP message language (see the MODIFY-MSG-ATTRIBUTES command). The windows are drawn by FHS. In interaction with the presentation function, the full FHS functionality is available (control statements, help system, etc.).

It is not possible to issue system commands from within the presentation function.

Privileged functions

Systems support staff (OPERATING privilege) can have the contents of system event streams output. Furthermore, they can have the system messages directed to the operating staff via the routing code displayed at a data display terminal. It is not necessary to allocate an event stream to a user task (LOG-ID=*SYSTEM-MSG-ONLY).

Format

SHOW-SYSEVENT-LOG

LOG-ID = ***ACTIVE** / <alphanum-name 1..4>(...) / ***SYS**TEM**-MSG-ONLY**

<alphanum-name 1..4>(...)

| TYPE = ***SYS**TEM**-LOG** / ***USER-LOG**

Operands

LOG-ID = *ACTIVE / <alphanum-name 1..4>(...) / *SYSTEM-MSG-ONLY
Selects which event stream to show.

LOG-ID = *ACTIVE
The event stream which is currently assigned to the user's own task and is active is to be shown.

LOG-ID = <alphanum-name 1..4>(...)
The event stream with the specified name is to be shown. The name may also begin with numeric characters (if LOG-ID was set to *OWN-TSN when the stream was assigned).

TYPE = *SYSTEM-LOG / *USER-LOG
This operand is reserved for users with OPERATING privilege.
Defines the type of event stream which is to be shown (system event stream or user event stream).

LOG-ID = *SYSTEM-MSG-ONLY
This operand is reserved for users with OPERATING privilege.
System messages directed by routing code to operating personnel are to be output on a terminal without previous assignment of an event stream to a user task. That means that there is no representation of synchronous or asynchronous messages which are addressed to a specific user task (i.e. no interactive elements). Selection of the messages which are represented is based solely on the settings defined for OPERATOR-ROLES, MSG-SUPPRESSION, MSG-SUBSCRIPTION, and CONSOLE-FILTER.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
	1	CMD0202	Syntax error
	32	NBR3115	FHS-TPR subsystem not available
	32	NBR3199	Internal error on command server
	64	CMD0216	User does not have required privilege
	64	NBR3103	No event stream assigned
	64	NBR3104	No event stream matches selection criteria
	64	NBR3105	No event stream being managed
	64	NBR3114	Associated event stream file not cataloged

Output form in static mode

If the task-local MIP message language is English, the following presentation window is displayed when the presentation function is started or when static mode is activated for the referenced event stream (the presentation window shows the current end of the event stream for the setting LOG-ID=*SYSTEM-MSG-ONLY):

```
 File   Edit   View                                                    Help
--------------------------------------------------------------------------------
                             EVENT STREAM SERVICE
 Log-Id: 0KUC      User-Id: USER1         Owner-TSN: 0KUC          Mode: Static
--------------------------------------------------------------------------------
 Date: 2012-06-29   Time: 15:07:16                            Status:  Active
                                            Lines     1 thru     4 of     4
                                                                  More:
MESS %  FTR0014 FT-BS2000: CMD REJECTED. ERROR IN TRANSFER-ADMISSION.
TRANSFER-ID 43058448                                 :15:07:06 :2012-06-29181
MESS %  FTR0014 FT-BS2000: CMD REJECTED. ERROR IN TRANSFER-ADMISSION.
TRANSFER-ID 41092378                                 :15:07:16 :2012-06-29181
                * * *  End of actual presentation range  * * *




 Command ===>
 F1=Help  F3=Exit  F6=Dynamic  F7=Backward  F8=Forward  F10=Menu  F11=Index ...
```

If the task-local message language is German, the above presentation window appears in German.

Menu bar

```
     File      Edit      View                                                Help
------------------------------------------------------------------------------
```

On the menu bar, you can select the various menu items (objects) both with the cursor and directly with the [F10] key. You move the cursor to the required position and then press the [DUE] (send) or [ENTER] key.
Some menu items activate pull-down menus. If you select one of these items, a submenu opens, offering various options. Selecting one of these options may, in turn, open a dialog box. Once the necessary choices have been made in the dialog box, you can start the desired operation by pressing [DUE] or [ENTER].
To close a pull-down menu without selecting an option, you press the [F12] key.
Many of the options offered on pull-down menus can also be activated with the aid of F keys (see the table "Function keys and commands").

The items on the menu bar are as follows:

Menu item	Option	Function
File	Exit	Quit presentation function
Edit	Find	Call search function Selecting the *Find* option opens a dialog box in which you can enter a search pattern up to 32 characters long. You can also select a starting point for the search function and the search direction (see "Find function")
	Reply	Call reply function (only for system event stream) Selecting the *Reply* option opens a dialog box which allows you to answer a question asked by the system (see "Reply function")
View	Dynamic Mode	Switch to dynamic mode (see "Dynamic Mode function")
	Display	Define whether presentation is to be with or without header. This option is applicable to the system event stream only (see "Display... function")
	Top Range	Position presentation area at start of event stream. The presentation area of an event stream consists of a fixed number of display lines (max. 1000) within which it is possible to move by scrolling (see "Top Range function")
	Bottom Range	Update event stream Positions the presentation area at the current end of the event steam (cf. “Top Range” option).(see "Bottom Range function")
	Previous Range	Scroll backwards through presentation area The presentation function moves back by one full presentation range (see "Previous Range function")
	Next Range	Scroll forwards through presentation area The presentation function moves forwards by one full presentation range (see "Next Range function")

Help		Switch to help system

If conflicting selections are made, the menu bar selection has top priority. The function keys (F keys) have a lower priority, and the commands have the lowest priority.

Status area

```
                          EVENT STREAM SERVICE
  Log-Id: @@@@      User-Id: @@@@@@@@      Owner-TSN: @@@@      Mode: Static
------------------------------------------------------------------------------
```

The status area beneath the menu bar consists of the title line plus the following information about the displayed event stream:

Log-Id	Name (ID) of the displayed event stream. If the presentation function was started with SHOW-SYSEVENT-LOG LOG-ID= *SYSTEM-MSG-ONLY, meaning that only system messages distributed by routing code are to be displayed, the value in the Log-Id field is “*SYS”
User-Id	User ID of the task under which the event stream was started. If the presentation function was started with SHOW-SYSEVENT-LOG LOG-ID= *SYSTEM-MSG-ONLY, meaning that only system messages distributed by routing code are to be displayed, the value in the User-Id field is “*NONE”
Owner-TSN	TSN of the task under which the event stream was started and to which the event stream is consequently assigned. If the presentation function was started with SHOW-SYSEVENT-LOG LOG-ID= *SYSTEM-MSG-ONLY, meaning that only system messages distributed by routing code are to be displayed, the value in the Owner-TSN field is “*NO”
Mode	Display mode of the presentation function (static or dynamic)

Work area

```
Date: @@@@@@@@@@    Time: @@@@@@@@                          Status: @@@@@
```

The work area below the status area contains the following information, updated each time the screen is redrawn:

Date	Date when the last message in the current area was generated. The field is overwritable and can thus be used as a means of positioning directly within the displayed event stream (functionality not available on menu).
Time	Time when the last message in the current area was generated. The field is overwritable and can thus be used as a means of positioning directly within the displayed event stream (functionality not available on menu).
Status	Indicates whether the displayed event stream is active or inactive (closed).

Presentation window

```
                                          Lines @@@@  thru @@@@  of  @@@@
                                                              More: + -
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
  .
  .
  .
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

The presentation window below the work area takes the form of a list. Its first two lines are an indication of which lines of the full list are on the current screen (line 7) and a prompt showing possible positioning (scrolling) commands (line 8). The next 14 lines are available for the presentation function. The events are displayed here, and the lines can be marked (selected).
Owing to the variable length of the events, line breaks may be inserted when they are presented. This feature cannot be deactivated. Line breaks make allowance both for word boundaries and for format control characters included in the messages (newline = X'15'). If a message which extends over a number of lines is displayed and needs to be selected so that a reply to it can be sent, only one line of the message (any line) should be marked. Multiple selections are rejected.

Command area

```
Command ===>
F1=Help F3=Exit F6=Dynamic F7=Backward F8=Forward F10=Menu F11=Index ...
```

The command area (command line) is immediately below the presentation window. Direct input to the presentation function can be entered on the command line, primarily positioning (scrolling) commands, but also all the commands supported by FHS-DM (except for the SYS command) plus the strings which are the written equivalents of the ESS-specific

F keys (e.g. [F10], [F13]; see also table 159 below). The latter option is typically useful on terminals which only have keys [F1] through [F3]. As a rule, the command line is preset to show the positioning (scrolling) command “-” or “+”.

Function keys

The penultimate line of the window (line 24) displays a selection of the principal function keys (F keys). The following table lists all the available function keys and indicates what they do and the commands which are equivalent to them:

F key	Command	Meaning
[F1]	HELP	Call help system
[F3]	EXIT	Quit presentation function
[F5]	RESHOW	Reshow last output
[F6]	F6	Switch to dynamic display mode
[F7]	-	Scroll up
[F8]	+	Scroll down
[F10]	MENUE	Switch to menu bar
[F12]	CANCEL	Cancel (e.g. selected menu item)
[F13]	F13	Position to start
[F14]	F14	Position to end
[F15]	F15	Call search function
[F16] *)	F16*)	Mark (select)
[F18]	F18	Call reply function
[F21]	F21	Previous range
[F22]	F22	Next range
[F24]	F24	Switch to with header or without header

*) For terminals which do not have a [MAR] key

Table 159: Function keys and commands for controlling the ESS presentation function

If conflicting selections are made, the menu bar selection has top priority. The function keys (F keys) have a lower priority, and the commands have the lowest priority.

Message area

The bottom line of the window (line 25) displays system messages.
Messages generated by the presentation function are output in nonmodal message boxes.

Functions

Find function

If you select “Edit” from the menu bar, a pull-down menu opens. If you select “Find” from this menu, a dialog box (with “Find” on its title bar) opens in the bottom right-hand corner of the screen, prompting you to enter a search pattern up to 32 characters long. You can also call the Find function directly using function key [F15].
The characters you enter are interpreted as “character”-type characters, and C‘...’ will be interpreted as a search pattern. The dialog box also lets you define the position to start from (current presentation window, beginning, end) and the direction to search in (forward, backward). The dialog box remains open until the search function is terminated.
When the Find function is called, the dialog box has the “Start from” position preset to “Current Screen” and the search direction preset to “Backward”. If you change this default setting, the new setting is retained as the default for any subsequent search. Pointless combinations (such as Start from =Top, Direction = Backward) are rejected.
To start searching you press [DUE] (send key) or [ENTER].
If the search finds a match, the message containing the matching string is displayed in the presentation window, beginning on the first line. The reopened dialog box continues to show the search pattern. If you want to continue searching for the next match, you simply need to press [F13]. To start a new search for a different pattern, you replace the old pattern with a new one of your choice and then press [F13]. To cancel the Find function you press [F12]. If you press [F12] and a match has been found, the presentation window will be positioned to the last match. If no match has been found, a message to that effect is issued, and the presentation window is not repositioned but stays where it was when the unsuccessful search began. The following function keys control the Find function:

F key	Command	Meaning
[F1]	HELP	Call help system
[F3]	EXIT	Quit Find function
[F12]	CANCEL	Cancel Find function
[F13]	F13	Find next match

If conflicting selections are made, the menu bar selection has top priority. The function keys (F keys) have a lower priority, and the commands have the lowest priority.

Reply function

The Reply function is available only for system event stream presentations. With user event streams the function is marked “*” on the menu to show that it is disabled.

If you select “Edit” from the menu bar, a pull-down menu opens. If you select “Reply” from this menu, a dialog box (with “Reply to pending message” on its title bar) opens in the middle of the output form’s work area, prompting you to enter a reply.
You can, however, also call the Reply function directly using function key [F18]. If you mark a system message in the work area before you call the function, the “Sender” field will be preset to the TSN of the task which sent the message or to the device mnemonic of the operator terminal (console) which sent the message, and the “Message Identifier” field will already contain the three-character message identifier. In such cases all you need to enter is the reply text (up to 80 characters, case-sensitive). The message identifier entry box ends with a dot as part of the reply format known from the operator terminal. If you do not mark a system message in the work area before you call the function, you will have to fill out the dialog box in full.
To start the Reply function, i.e. to send the reply to the system, you press [DUE] (send key) or [ENTER]. A final message indicates whether the function was successful.
To cancel the function you press [F12].
The dialog box supports the [F1] key (which calls the help function).

Dynamic Mode function

If you select “View” from the menu bar, a pull-down menu opens. If you select “Dynamic Mode” from this menu, you switch to dynamic mode. You can also call the function directly using function key [F6].
The dynamic mode can only be called for active event streams. Closed event streams can only be displayed in static mode. With a closed event stream, the Dynamic Mode function is marked “*” on the menu to show that it is disabled.

Display... function

The Display... function is available only for system event stream presentations. With user event streams the function is marked with an asterisk to show that it is disabled.

If you select “View” from the menu bar, a pull-down menu opens. If you select “Display...” from this menu, a further menu opens. Here you can decide whether to have the event stream displayed in the presentation window with or without a header. Depending on the current setting, there will either be “/” or a blank in the marker field. The characters you are allowed to choose are “/”, “x” and “X”.
You can also call the function directly using function key [F24].
The Header option only makes sense with system event streams, because it is only there that system messages which have a header and are distributed via UCON are logged. The header is in the same format as is used for logging on the operator terminal (console) and in the Conslog file.
If output with header is selected as the output form, system messages which have been given a header are output along with their header. Line breaks are inserted in messages which are over 80 characters long or include suitable control characters, and all lines after the first line of the message are then indented by the length of the header (17 characters). Other messages (those which have no header) are output flush with the left-hand margin of the presentation window, without blank padding to allow for the header or indentation following line breaks.

Top Range function

If you select “View” from the menu bar, a pull-down menu opens. If you select “Top Range” from this menu, a new presentation range starting at the beginning of the selected event stream is displayed. The presentation window is positioned at the start of the new presentation range. The top end of the range is the first message in the stream, the bottom end is aligned on the message boundary.
You can also call the function directly using function key [F13].

Bottom Range function

If you select “View” from the menu bar, a pull-down menu opens. If you select “Bottom Range” from this menu, a new presentation range finishing at the end of the selected event stream is displayed. The presentation window is positioned at the end of the new presentation range. The top end of the range is aligned on message boundary, the bottom end is the last message in the stream. When active event streams are presented in static mode, this function allows you to update the output without switching to dynamic mode, provided that extra events have been recorded in the meantime.
You can also call the function directly using function key [F14].

Previous Range function

If you select “View” from the menu bar, a pull-down menu opens. If you select “Previous Range” from this menu, you are taken back to the previous range. A new presentation range is displayed, containing the events which precede those of the current presentation range. The presentation window is positioned at the bottom end of the new presentation range. Scrolling can be performed within the newly displayed range just as in the old one. When this function is executed, the boundaries between the presentation ranges are always aligned on the end of a message. This ensures that the full text of a multiline message is always included in a presentation range.
You can also call the function directly using function key [F21].

Next Range function

If you select “View” from the menu bar, a pull-down menu opens. If you select “Next Range” from this menu, you are taken forward to the next range. A new presentation range is displayed, containing the events which come after those of the current presentation range. The presentation window is positioned at the start of the new presentation range. Scrolling can be performed within the newly displayed range just as in the old one.
The information on presentation range boundaries given under “Previous Range” applies *mutatis mutandis*.
You can also call the function directly using function key [F22].

Help function

A complete FHS-DM-supported help system is offered for the presentation function. Function keys [F1] and [F2] call up help screens for keywords and individual fields.
You can activate the help function from a pull-down menu under “Help” on the menu bar. If the help function is active, a form containing general information on ESS and a reference to the INDEX command is displayed. The [F2] key and the INDEX command both take you straight from this form to the help system.

Output form in dynamic mode

The output form for dynamic mode differs from that for static mode in that it has no menu bar and no command line. The only function key it supports is [K2] for switching to static mode.
Under OMNIS, a change into static mode is effected with the [DUE] or with any F or K key with the exception of the key that functions as the BREAK-KEY in OMNIS (default: [K2]).

Instead of the input capabilities provided in static mode, dynamic mode offers a presentation function with dynamically changing output; interactive operation is not possible.

If the task-local MIP message language is English, the following presentation window is displayed when the presentation function is started or when dynamic mode is activated for the referenced event stream. The presentation window always shows the current end of the event stream:

```
 EVENT-STREAM-SERVICE
 Log-Id: 0KUC      User-Id: USER1         Owner-TSN: 0KUC         Mode: Dynamic
------------------------------------------------------------------------------
 Date: 2012-06-29   Time: 15:07:16
MESS %  FTR0014 FT-BS2000: CMD REJECTED. ERROR IN TRANSFER-ADMISSION.
TRANSFER-ID 43058448                                :15:07:06 :2012-06-29181
MESS %  FTR0014 FT-BS2000: CMD REJECTED. ERROR IN TRANSFER-ADMISSION.
TRANSFER-ID 41092378                                :15:07:16 :2012-06-29181




 K2=Static Mode
```

Status area

The status area consists of the title line plus the following information about the displayed event stream:

Log-Id	Name (ID) of the displayed event stream. If the presentation function was started with SHOW-SYSEVENT-LOG LOG-ID=*SYSTEM-MSG-ONLY, meaning that only system messages distributed by routing code are to be displayed, the value in the Log-Id field is “*SYS”
User-Id	User ID of the task under which the event stream was started. If the presentation function was started with SHOW-SYSEVENT-LOG LOG-ID=*SYSTEM-MSG-ONLY, meaning that only system messages distributed by routing code are to be displayed, the value in the User-Id field is “*NONE”
Owner-TSN	TSN of the task under which the event stream was started and to which the event stream is consequently assigned. If the presentation function was started with SHOW-SYSEVENT-LOG LOG-ID=*SYSTEM-MSG-ONLY, meaning that only system messages distributed by routing code are to be displayed, the value in the Owner-TSN field is “*NO”
Mode	Display mode of the presentation function (static or dynamic)

Work area

The work area below the status area contains the following information, updated each time the screen is redrawn:

Date	Date when the last message displayed was generated.
Time	Time when the last message displayed was generated.

Presentation window

The presentation window below the work area covers lines 5 through 23. This is where the events are displayed; the lines cannot be marked.
For system event streams, the output by default includes the header specific to the operator terminal (console). The only way to change this default setting is to switch to the static mode and make the modification there; thereafter the new setting applies to both modes until it is changed again. This configuration option is not provided for user event streams as there is no need for it in such cases.
Owing to the variable length of the messages, the command server may insert line breaks. The maximum line length of 80 characters as defined in the output form is fully utilized.

7.24 SHOW-SYSEVENT-LOG-ATTRIBUTES

Show event stream attributes

Component:	BS2000
Functional area:	Job processing Operator terminal control
Domain:	CONSOLE-MANAGEMENT JOB
Privileges:	STD-PROCESSING OPERATING

Function

The SHOW-SYSEVENT-LOG-ATTRIBUTES command shows which event streams can be represented under the user's own ID and their current attributes. Event streams which are already closed (inactive) can be displayed only if they were not deleted upon termination (see the ASSIGN-SYSEVENT-STREAM, CLOSE-MODE operand).

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

Systems support staff (OPERATING privilege) can obtain information on all existing system event streams (operands LOG-ID=*ALL-ACCESSIBLE and TYPE=*ANY/*SYSTEM-LOG).

Format

SHOW-SYSEVENT-LOG-ATTRIBUTES

LOG-ID = **<u>*BY-OWN-TASK</u>** / ***ALL-ACCESS**IBLE / <alphanum-name 1..4>

,**SEL**ECT = **<u>*ALL</u>** / ***BY-ATTR**IBUTES(...)

***BY-ATTR**IBUTES(...)

| **STA**TUS = **<u>*ANY</u>** / ***ACTIVE** / ***CLOSED**

| ,**TYPE** = **<u>*ANY</u>** / ***USER-LOG** / ***SYS**TEM-**LOG**

Operands

LOG-ID = <u>*BY-OWN-TASK</u> / *ALL-ACCESSIBLE / <alphanum-name 1..4>
Identifies the event streams for which information is required.

LOG-ID = <u>*BY-OWN-TASK</u>
Displays the attributes of all event streams which are assigned to the user task and can still be represented.

LOG-ID = *ALL-ACCESSIBLE
Displays the attributes of all event streams for which the user's own task has access authorization. These are all the event streams which are assigned to the user's own task and to tasks with the same user ID.

Only for users with OPERATING privilege:
If this value is specified in combination with TYPE=*SYSTEM-LOG or *ANY (default), information is supplied for all existing system event streams, regardless of user ID.

LOG-ID = <alphanum-name 1..4>
Supplies information on the event stream with the specified name. The name may also begin with numeric characters (if LOG-ID was set to *OWN-TSN when the stream was assigned).

SELECT = *ALL / *BY-ATTRIBUTES(...)
Governs whether the set of event streams selected by the LOG-ID operand is to be restricted by applying further selection criteria.

SELECT = *ALL
Information is required for all the event streams selected by the LOG-ID operand.

SELECT = *BY-ATTRIBUTES(...)
Information is required only for those event streams which meet the following selection criteria.

STATUS = *ANY / *ACTIVE / *CLOSED
Supplies information on event streams which are in the specified status.

STATUS = *ANY
Information is required for all event streams, regardless of status.

STATUS = *ACTIVE
Information is required for all active event streams (currently assigned and not closed).

STATUS = *CLOSED
Information is required for all closed event streams.

TYPE = *ANY / *USER-LOG / *SYSTEM-LOG
Reserved for users with OPERATING privilege.
Supplies information on the specified type of event stream.

TYPE = *ANY
Information is required for all event streams, regardless of type.

TYPE = *USER-LOG
Information is required for user event streams only.

TYPE = *SYSTEM-LOG
Information is required for system event streams only.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	NBR3104	No event stream matches selection criteria
1	0	NBR3105	No event stream being managed
2	0	OPS0002	Interrupt (e.g. K2 key) during S variable generation
	1	CMD0202	Syntax error
	32	NBR3199	Internal error on command server
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	64	CMD0216	User does not have required privilege

Output formats

Information on event streams is output in a fixed format. The output includes the name of the event stream (Log-Id), the user ID and TSN of the user task, the current status and the type and setting of the event stream being logged. If a number of event streams match the selection criteria, the attributes of that number of event streams are displayed. The output format shown below is output for each matching event stream.
Attribute output for multiple event streams can be aborted with the [K2] key.

Example: Output format for an active system event stream

```
SHOW-SYSEVENT-LOG-ATTRIBUTES                                2012-06-29 16:04:34
------------------------------------------------------------------------------
LOG-ID: 0LSI                        USER-ID:    USERXY01
TYPE:   USER                        OWNER-TSN:  0LSI
STATUS: ACTIVE                      CLOSE-MODE: DELETE-EVENTS
SYNCHRONOUS-EVENTS LOGGED:
   SYSOUT-MSG:  NO             CMD:  NO             STMT:  NO
------------------------------------------------------------------------------
SHOW-SYSEVENT-LOG-ATTRIBUTES                                  END OF DISPLAY
```

Output in S variables

If different operands are specified, the results of the command differ in the number of event streams on which information is output. A set of S variables is supplied with values for each event stream.

Output information	Name of the S variable	T	Contents	Condition
The event stream is deleted after canceling the assignment *DELETE-EVENTS=ES entry and logged events are deleted *KEEP-EVENTS=ES entry and logged events are not deleted	var(*LIST).CLOSE-MODE	S	*DELETE-EVENTS *KEEP-EVENTS	
The command inputs from the user task executed via SDF are logged	var(*LIST).CMD	S	*NO *YES	
Name of the event stream	var(*LIST).LOG-ID	S	<alphan.-name 1..4>	
Status of the event stream	var(*LIST).STA	S	*ACTIVE *CLOSED	
The command inputs from statements within a user program in the user task which are executed via SDF are logged	var(*LIST).STMT	S	*NO *YES	
The messages from command servers and user programs sent to SYSOUT are logged	var(*LIST).SYSOUT-MSG	S	*NO *YES	
TSN of the dialog task	var(*LIST).TSN	S	<alphan.-name 1..4>	
Type of the event stream which is assigned to the user task *SYS-LOG=system event stream (associated events are logged in the system ESF) *USER-LOG=user event stream (associated events are logged in the user ESF)	var(*LIST).TYPE	S	*SYS-LOG *USER-LOG	
User ID of the dialog task	var(*LIST).USER-ID	S	<name 1..8>	

7.25 SHOW-SYSTEM-FILE-ASSIGNMENTS

Display information on system files

Component:	SYSFILE
Functional area:	Job processing File processing
Domain:	JOB PROGRAM FILE PROCEDURE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-SYSTEM-FILE-ASSIGNMENTS command displays the current assignments of the system files and of the module file TASKLIB for the user's own task. Optionally a nonprivileged user can request this information for every task which executes under his/her user ID (JOB-IDENTIFICATION=*TSN operand).

The assignments refer to the procedure level on which the command is entered (see "Output Format").

The command supports structured output in S variables (see "Output in S Variable").

Privileged functions

The command supplies the systems support staff (privilege TSOS) with all information about a single job started under any user ID.

Format

SHOW-SYSTEM-**FILE**-ASSIGNMENTS Alias: **SHSFA**

SYSTEM-**FILE** = **<u>*ALL</u>** / ***SYSLST-NUM**BER(...) /

list-poss(5): ***SYSCMD** / ***SYSDTA** / ***SYSLST** / ***SYSOUT** / ***TASKLIB**

***SYSLST-NUM**BER(...)

| **NUM**BER = <integer 1..99>

,**JOB-ID**ENTIFICATION = **<u>*OWN</u>** / <alphanum-name 1..4> / ***TSN**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4>

Operands

SYSTEM-FILE = *ALL / *SYSLST-NUMBER(...) / list-poss(5): *SYSCMD / *SYSDTA / *SYSLST / *SYSOUT / *TASKLIB
Name of the desired system file.

SYSTEM-FILE = *ALL
All system files.

SYSTEM-FILE = *SYSLST-NUMBER(...)
SYSLST files from the series SYSLST01 to SYSLST99.

> **NUMBER = <integer 1..99>**
> Number of the SYSLST file.

JOB-IDENTIFICATION = *OWN / <alphanum-name 1..4>
Specifies the task for which the current assignment of the system files is to be displayed.

JOB-IDENTIFICATION = *OWN
Displays the current assignment for the user’s own task.

JOB-IDENTIFICATION = <alphanum-name 1..4>
TSN of the task for which the current assignment is to be displayed (see also JOB-IDENTIFICATION=*TSN). The nonprivileged caller can only specify tasks which run under his/her own user ID.

JOB-IDENTIFICATION = *TSN(...)
The job is identified by its task serial number (TSN). The command is rejected if the TSN does not exist or if a job from a foreign user ID is involved.

> **TSN = <alphanum-name 1..4>**
> TSN of the task for which the current assignment is to be specified. Leading zeros may be omitted The nonprivileged caller can only specify tasks which run under his/her own user ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	SSM2036	Syntax error
	1	SSM1206	TSN not found or command processing illegal
	1	SSM1013	System error
	1	CMD0216	Requested privilege missing
	64	SSM1209	Wait time expired (if JOB-ID not equal *OWN)

Output format

The user receives the following display:

```
PROCEDURE LEVEL NUMBER i
TSN             :  tsn
system file 1   :  assignment
   .                .
   .                .
   .                .
system file n   : assignment
```

where:

i=	current level number of the (nested) procedure; i=0 means: primary command input (no procedure)
tsn	TSN of the task for which the information in the JOB-IDENTIFICATION operand was requested explicitly. This information line is omitted in the case of JOB-ID=*OWN.
system file 1,... system file n	system files corresponding to the operand specifications
assignment	current assignment at the specified procedure level (i=0 indicates primary command input)

The following assignments may be output:

System file	Possible assignment and explanation
SYSCMD	(PRIMARY) Primary assignment, see section "System files" *PRIMARY (DIALOG-BLOCK) Input is effected from a dialog block (see the “SDF-P” manual [34]) filename Path name for the procedure file of the called non-S procedure; if called with ENTER-PROCEDURE, path name of the S.PROC. file filename (PROCEDURE) Path name for the procedure file of the S procedure called by CALL-PROCEDURE; if called with ENTER-PROCEDURE, path name of the S.PROC. file filename (INCLUDE) Path name for the procedure file of the S procedure called by INCLUDE-PROCEDURE *VAR(s-variable) (PROCEDURE) Name of an S variable of the list type in which the S procedure called by CALL-PROCEDURE is stored *VAR(s-variable) (INCLUDE) Name of an S variable of the list type in which the S procedure called by INCLUDE-PROCEDURE is stored *LIB-ELEM(library,element(version)) (PROCEDURE) Name of the PLAM library and the element containing the S procedure called by CALL-PROCEDURE *LIB-ELEM(library,element(version)) (INCLUDE) Name of the PLAM library and the element containing the S procedure called by INCLUDE-PROCEDURE
SYSDTA	(PRIMARY) Primary assignment, see section "System files" (SYSCMD) The SYSCMD system file assignment applies. filename Path name of the assigned file

SYSIPT	This system file is still available for reasons of compatibility, but it is not described.
SYSOUT	(PRIMARY) Primary assignment, see section "System files" *DUMMY A dummy file is assigned (see ADD-FILE-LINK command) filename Path name of the assigned file *VAR(s-variable) An S variable (list type) is assigned *LIB-ELEM(library,element(version),type) A PLAM library element is assigned. Library name, element name, version and element type are displayed
SYSLST	(PRIMARY) Primary assignment, see section "System files" *DUMMY A dummy file is assigned (see ADD-FILE-LINK command) filename Path name of the assigned file *VAR(s-variable) An S variable (list type) is assigned *LIB-ELEM(library,element(version),type) A PLAM library element is assigned. Library name, element name, version and element type are displayed
SYSLSTnn	*SYSLSTmm A system file SYSLSTmm is assigned, where mm not equal nn. *DUMMY A dummy file is assigned (see ADD-FILE-LINK command) filename Path name of the assigned file *VAR(s-variable) An S variable (list type) is assigned
SYSOPT	This system file is still available for reasons of compatibility, but it is not described.

TASKLIB	filename Path name of the assigned object module library

Output in S variables

The command's SYSTEM-FILE operand identifies the S variables which are to be created. The following specifications are possible for SYSTEM-FILE:

Notation used in command	Abbreviated form used in table
SYSTEM-FILE=*ALL	1
SYSTEM-FILE=*SYSCMD	2
SYSTEM-FILE=*SYSDTA	3
SYSTEM-FILE=*SYSLST	4
SYSTEM-FILE=*SYSOUT	5
SYSTEM-FILE=*TASKLIB	6
SYSTEM-FILE=*SYSLST-NUMBER(xy) with xy=01..99	7
SYSTEM-FILE=*ALL and the assignment of SYSLSTxy is not *PRIMARY	8

There is a supplementary condition set by the var(*LIST).SYSxxx.ASS-TYPE S variable. Only for particular contents of this S variable are S variables generated in the same structure (e.g. var(*LIST).SYSxxx.ELEM or var(*LIST).SYSxxx.F-NAME).

Supplementary conditions:

Notation used in command	Abbreviated form used in table
var(*LIST).SYSxxx.ASS-TYPE=*LIB-ELEM	a
var(*LIST).SYSxxx.ASS-TYPE=*FILE	b
var(*LIST).SYSxxx.ASS-TYPE=*VAR	c
var(*LIST).SYSLSTnn.ASS-TYPE=*SYSLST	d

Output information	Name of the S variable	T	Contents	Condition
Current level number of the (nested) procedure	var(*LIST).PROC-LEV-NUM	I	<integer 0..nn>	
Current assignment of the SYSCMD system file	var(*LIST).SYSCMD.ASS-TYPE	S	*DIALOG-BLOCK *FILE *LIB-ELEM *PRIMARY *VAR	1,2
Name of the element assigned to SYSCMD	var(*LIST).SYSCMD.ELEM	S	<comp.-name 1..64>	1,2 a
Type of element assigned to SYSCMD	var(*LIST).SYSCMD.ELEM-TYPE	S	<alphan.-name 1..8>	1,2 a
Version of the element assigned to SYSCMD	var(*LIST).SYSCMD.ELEM-VERSION	S	<comp.-name 1..24>	1,2 a
Path name of the file assigned to SYSCMD	var(*LIST).SYSCMD.F-NAME	S	<filename 1..54>	1,2 b
Name of the PLAM library assigned to SYSCMD	var(*LIST).SYSCMD.LIB	S	<filename 1..54>	1,2 a
Name of the S variable assigned to SYSCMD	var(*LIST).SYSCMD.VAR-NAME	S	<comp.-name 1..255>	1,2 c
Current assignment of the SYSDTA system file	var(*LIST).SYSDTA.ASS-TYPE	S	*FILE *LIB-ELEM *PRIMARY *SYSCMD *VAR	1,3
Name of the element assigned to SYSDTA	var(*LIST).SYSDTA.ELEM	S	<comp.-name 1..64>	1,3 a
Type of element assigned to SYSDTA	var(*LIST).SYSDTA.ELEM-TYPE	S	<alphan.-name 1..8>	1,3 a
Version of the element assigned to SYSDTA	var(*LIST).SYSDTA.ELEM-VERSION	S	<comp.-name 1..24>	1,3 a
Path name of the file assigned to SYSDTA	var(*LIST).SYSDTA.F-NAME	S	<filename 1..54>	1,3 b
Name of the PLAM library assigned to SYSDTA	var(*LIST).SYSDTA.LIB	S	<filename 1..54>	1,3 a
Name of the S variable assigned to SYSDTA	var(*LIST).SYSDTA.VAR-NAME	S	<comp.-name 1..255>	1,3 c

Output only for reasons of compatibility	var(*LIST).SYSIPT.ASS-TYPE	S	*FILE *NOT-ASS *SYSCMD	1
Output only for reasons of compatibility	var(*LIST).SYSIPT.F-NAME	S	<filename 1..54>	1b
Current assignment of the SYSLST system file	var(*LIST).SYSLST.ASS-TYPE	S	*DUMMY *FILE *LIB-ELEM *PRIMARY *VAR	1,4
Name of the element assigned to SYSLST	var(*LIST).SYSLST.ELEM	S	<comp.-name 1..64>	1,4 a
Type of element assigned to SYSLST	var(*LIST).SYSLST.ELEM-TYPE	S	<alphan.-name 1..8>	1,4 a
Version of the element assigned to SYSLST	var(*LIST).SYSLST.ELEM-VERSION	S	<comp.-name 1..24>	1,4 a
Path name of the file assigned to SYSLST	var(*LIST).SYSLST.F-NAME	S	<filename 1..54>	1,4 b
Name of the PLAM library assigned to SYSLST	var(*LIST).SYSLST.LIB	S	<filename 1..54>	1,4 a
Name of the S variable assigned to SYSLST	var(*LIST).SYSLST.VAR-NAME	S	<comp.-name 1..255>	1,4 c
Current assignment of system file SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.ASS-TYPE	S	*DUMMY *FILE *LIB-ELEM *PRIMARY *SYSLST *VAR	7,8
Name of the element assigned to SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.ELEM	S	<comp.-name 1..64>	1,7 a
Type of element assigned to SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.ELEM-TYPE	S	<alphan.-name 1..8>	1,7 a
Version of the element assigned to SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.ELEM-VERSION	S	<comp.-name 1..24>	1,7 a
Path name of the file assigned to SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.F-NAME	S	<filename 1..54>	1,7 b

Name of the PLAM library assigned to SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.LIB	S	<filename 1..54>	1,7 a
Number of the SYSLST file which is assigned to SYSLSTnn (when nn = 01...99, but is not equal to the number)	var(*LIST).SYSLSTnn.SYSLST-NUM	S	<integer 0..99>	1,7 d
Name of the S variable assigned to SYSLSTnn (where nn = 01...99)	var(*LIST).SYSLSTnn.VAR-NAME	S	<comp.-name 1..255>	1,7c
Output only for reasons of compatibility	var(*LIST).SYSOPT.ASS-TYPE	S	*DUMMY *FILE *PRIMARY	1
Output only for reasons of compatibility	var(*LIST).SYSOPT.F-NAME	S	<filename 1..54>	1 b
Current assignment of the SYSOUT system file	var(*LIST).SYSOUT.ASS-TYPE	S	*DUMMY *FILE *LIB-ELEM *PRIMARY *VAR	1,5
Name of the element assigned to SYSOUT	var(*LIST).SYSOUT.ELEM	S	<comp.-name 1..64>	1,5 a
Type of element assigned to SYSOUT	var(*LIST).SYSOUT.ELEM-TYPE	S	<alphan.-name 1..8>	1,5 a
Version of the element assigned to SYSOUT	var(*LIST).SYSOUT.ELEM-VERSION	S	<comp.-name 1..24>	1,5 a
Path name of the file assigned to SYSOUT	var(*LIST).SYSOUT.F-NAME	S	<filename 1..54>	1,5 b
Name of the PLAM library assigned to SYSOUT	var(*LIST).SYSOUT.LIB	S	<filename 1..54>	1,5 a
Name of the S variable assigned to SYSOUT	var(*LIST).SYSOUT.VAR-NAME	S	<comp.-name 1..255>	1,5 c
Current assignment of the TASKLIB object module file	var(*LIST).TASKLIB.ASS-TYPE	S	*FILE *PRIMARY	1,6
Path name of the object module file assigned to TASKLIB	var(*LIST).TASKLIB.F-NAME	S	<filename 1..54>	1,6 b

Examples

Output in S variables

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/assign-syslst to=*var(library=plamlib1,element=lst.file.1)
/exec-cmd (show-system-file-ass system-file=*syslst),
          text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal)
```

```
VAR#1.PROC-LEV-NUM = 0
VAR#1.SYSLST.ASS-TYPE = '*LIB-ELEM'
VAR#1.SYSLST.LIB = ':2OSG:$USER1.PLAMLIB1'
VAR#1.SYSLST.ELEM = 'LST.FILE.1'
VAR#1.SYSLST.ELEM-VERSION = '*UPPER-LIMIT'
VAR#1.SYSLST.ELEM-TYPE = 'P'
*END-OF-VAR
```

Output to SYSOUT

/show-sys-file ——————————————————————————————————— (1)

```
%PROCEDURE LEVEL NUMBER 0
%SYSCMD  : (PRIMARY)
%SYSDTA  : (PRIMARY)
%SYSIPT  : NOT ASSIGNED
%SYSOUT  : (PRIMARY)
%SYSLST  : (PRIMARY)
%SYSOPT  : (PRIMARY)
%TASKLIB : (PRIMARY)
```

/call-proc proc.test1 ——————————————————————————————————— (2)

```
.
.
. [K2]
.
.
%  CMD0170 DO YOU WANT TO INSERT COMMANDS? REPLY (Y=YES; N=NO)?y
%  SSM2014 TASK IN ESCAPE MODE AT LEVEL NUMBER '1'
```

/show-sys-file ——————————————————————————————————— (3)

```
%PROCEDURE LEVEL NUMBER 1
%SYSCMD  : :N:$USERXY01.PROC.TEST1 (PROCEDURE)
%SYSDTA  : (SYSCMD)
%SYSIPT  : NOT ASSIGNED
%SYSOUT  : (PRIMARY)
%SYSLST  : (PRIMARY)
%SYSOPT  : (PRIMARY)
%TASKLIB : (PRIMARY)
```

(1) Information on the assignment of system files for the dialog task.

(2) Calling procedure *PROC.TEST1*. Interrupting procedure execution with [K2].

(3) Information on the assignment of system files for the dialog task on procedure level 1. The system file SYSCMD is assigned to procedure file *PROC.TEST1*.

7.26 SHOW-SYSTEM-INFORMATION

Show information on current system

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING
Privileges:	all privileges
Routing code:	@

Function

The SHOW-SYSTEM-INFORMATION command allows the user to obtain information about data relating to the system currently running.
If a live migration has taken place, the live migration counter displays a value > 0. The SERVER-UNIT operand controls whether the information on the current system or on the IPL system is output.

The user can request all system information or individual parts of that information. This information can be output to SYSOUT or SYSLST.
The following items of system information can be requested:

- machine designation (type and model details)
- Information about whether and to where live migration took place
- identification of the available CPUs
- information about the hardware/software interface (HSI)
- size of the usable physical main memory
- smallest size of main memory which can be used for software
- identification of the operating system running
- identification of the BS2000 input/output configuration
- time of system initialization for the current session
- information about the current system configuration (Sysid, home pubset, host name, possibly the VM identification under VM2000, system name and origin of the system parameters upon system initialization)
- in VM2000 mode, the VM2000 version
- in VM2000 mode, information about the Monitor System (BS2000 version and host name)
- information about the system time setting (time zone, changeover time, synchronization and TODR epoch)

The command supports structured output in S variables (see "Output in S variable").

Restrictions

If the command is issued from a console, only OUTPUT=*SYSOUT is allowed.

Format

SHOW-SYSTEM-**INF**ORMATION

INFORMATION = ***ALL** / ***CONF**IGURATION / ***CPU-ID-LIST** / ***HSI-ATTR**IBUTES / ***MEMORY-SIZE** /
***MINIMAL-MEMORY-SIZE** / ***BS2000-ID**ENTIFICATION / ***IOCONF-ID**ENTIFICATION /
***IPL-TIME** / ***SYS**TEM-**CONF**IGURATION / ***VM2000-VERS**ION /
***VM2000-MON**ITOR-**SYS**TEM / ***SYS**TEM-**TIME-PAR**AMETER

,**OUTPUT** = ***SYSOUT** / ***SYSLST**

,**SERVER-UNIT** = ***STD** / ***INITIAL** / ***CURRENT**

Operands

INFORMATION =
Specifies which system information is to be output.

INFORMATION = *ALL
All the information described in the following is to be output.

INFORMATION = *CONFIGURATION
Provides information about the machine designation as follows:

```
CONFIGURATION                    = <id-of-actual-machine>
```

After live migration the original system name is output.

Meaning of the output values of <id-of-actual-machine>:

Machine type (model range) in the new extended format (21 bytes), e.g. for an SU710 system:

```
'390SU- 710-160       '
```

If the machine type is not entered into the system, `'7.500-7000'` followed by 11 blanks is output. The machine designation is subdivided into the four following sections:

Section	Byte	Meaning
1	0-4	Base type (e.g. 390SU, X86SU, 7.500)
2	6-10	Model range
3	12-15	Model identifier
4	17-20	Special model features (e.g. vector processor)

Bytes 5, 11 and 16 act as section separators and always contain the character ‘-’ (hyphen). If no information is available for section 4, bytes 16-20 contain blanks.

INFORMATION = *CPU-ID-LIST

Provides information about identifications of the CPUs available at startup as follows:

```
CPU-ID-LIST :    ADR   0          = <cpu-id_0>
                 .
                 .
                 ADR   n          = <cpu-id_n>
```

Meaning of the output values:

<cpu-id_i> Identification of the i-th CPU. The information output is the internal form (8 bytes) as supplied by the hardware, in printable form (i.e. 16 characters). As many identifications are output as there exist CPUs. However, the output does not indicate how many CPUs are actually online.

INFORMATION = *HSI-ATTRIBUTES

Provides information about the hardware/software interface (HSI) as follows:

```
HSI-ATT :        TYPE             = IX / KM / UD
                 ASF              = NO / YES
                 OPERATION-MODE   = NATIVE / VM2000
```

Meaning of the output values:

TYPE Information about the HSI type:

=IX: The HSI type for /390 architecture (SU /390).

=KM The HSI type for x86 architecture (SU x86).

=UD: The HSI type is not defined.

ASF Information about address space extension:

=NO: No extended address space is available.

=YES: The operating system is running on a machine whose virtual address space is capable of extension (advanced address space facility). Optional access to program space and two or more data spaces is thus possible. An additional set of registers (access registers) is available for this purpose.

OPERATION-MODE:

Information about the use of VM2000:

=NATIVE: The operating system is running on a real machine.

=VM2000: The operating system is running on a virtual machine in VM2000 operation mode.

INFORMATION = *MEMORY-SIZE

Provides information about the size of the usable physical main memory as follows:

```
MEMORY-SIZE                        = <memory-size> <unit>
```

Meaning of the output values:

<memory-size>	Size of main memory as a decimal number. Leading zeros are truncated. The output is left-justified. Value range: 1 <= <memory-size> <= 2,147,483,647
<unit>	unit type (KByte / MByte / GByte)

INFORMATION = *MINIMAL-MEMORY-SIZE

Returns information on the smallest size of main memory which can be used for software in the form:

```
MINIMAL-MEMORY-SIZE                = <min-memory-size> <unit>
```

Meaning of the output values:

<min-memory-size>	Smallest size of main memory which can be used for software in nbytes; a decimal number. Leading zeros are truncated. The output is left-justified. Value range: 1 <= <min-memory-size> <= 2.147.483.647
<unit>	unit type (KByte / MByte / GByte)

INFORMATION = *BS2000-IDENTIFICATION

Provides information about the identification of the operating system running as follows:

```
BS2000-ID :       NAME             = <bs2-name>
                  VERSION          = <bs2-version>
                  SERVICE-PACK     = <sp-name>
                  UGEN-TIME        = <bs2-gen-date>,<bs2-gen-time>
```

Meaning of the output values:

<bs2-name>	Program name (8 bytes, left-justified), e.g. ‘BS2V210''
<bs2-version>	Version in DOD format, e.g. 'V21.0A00pp'; during the pilot test phase, pp equals the PVLU information, otherwise pp=00.
<sp-name>	Service pack name in format 'SP yy.n' (yy = release year, n = sequence number) e.g. 'SP 21.1'
<bs2-gen-date>	Date of generation of the operating system in ISO4 format: yyyymm-dd
<bs2-gen-time>	Time of generation of the operating system in ISO4 format: hh:mm:ss

INFORMATION = *IOCONF-IDENTIFICATION

Provides information about the identification of the BS2000 input/output configuration as follows:

```
IOCONF-ID :      NAME              = <iocf-name>
                 VERSION           = <iocf-version>
                 CREATED           = <iocf-gen-date>,<iocf-gen-time>
                 FORMAT            = <iocf-format>
```

Meaning of the output values:

<iocf-name>	IOCF name (8 bytes, left-justified, blanks are output) e.g. ‘BS2V210’ The first 8 bytes of the ID block (NAME operand of IOGEN generation) of the current IOCF are output. In the case of Server Units x86, the value `'*NONE  '` is output.
<iocf-version>	Input of the version from the current IOCF (10 bytes, left-justified, blanks are output), e.g. 'V21.0A00'
<iocf-gen-time>	Time of generation of the I/O configuration in ISO4 format: hh:mm:ss In the case of Server Units x86, only blanks are output.
<iocf-format>	IOCF format (7 bytes, for diagnostic purposes only)

INFORMATION = *IPL-TIME

Provides information about the time of system initialization for the current session as follows:

```
IPL-TIME                         = <ipl-date>,<ipl-time>
```

Meaning of the output values:

<ipl-date>	Date of startup of the current session in ISO4 format: yyyy-mm-dd
<ipl-time>	Time of startup of the current session in ISO4 format: hh:mm:ss

INFORMATION = *SYSTEM-CONFIGURATION

Provides information about the configuration of the BS2000 system in the form:

```
SYSTEM-CONF:     SYSID              = <sysid>
                 HOME-PUBSET        = <cat-id>
                 HOST-NAME          = <host-name>
                 VM-INDEX           = <vm-index>
                 VM-NAME            = <vm-name>
                 SYSTEM-NAME        = <sys-name>
                 SYSPAR-BS2-SEL     = *STD / *BY-VM-NAME / *BY-IOCONF-ID-NAME /
                                      *BY-SYSTEM-NAME / *BY-DIALOG
                 LIVE-MIG-COUNT     = <lm-counter>
```

Meaning of the output values:

<sysid>	System ID (3 characters)
<cat-id>	Catalog ID of the home pubset in the format <cat-id 1..4>
<host-name>	BCAM name of the local system (8 characters), e.g. ‘D027ZE01'
<vm-index>	In VM2000 mode, the VM index in the format <integer 1..99>; in native mode the value 0 (for the operating modes, see OPERATION-MODE)
<vm-name>	In VM2000 mode, the VM name in the format <name 1..8>; in native mode *NONE (for the operating modes, see OPERATION-MODE)
<sys-name>	System name in the format <name 1..8> if available, otherwise *NONE
SYSPAR-BS2-SEL	The value displayed in this field provides information on the origin of the system parameters at system startup (for automatic selection of the parameter file, see also the “Introduction to System Administration” [14] manual).
*STD	From the parameter file SYSPAR.BS2.vvv vvv corresponds to the BS2000 version without a period (displayed in the output of <bs2-version> in "INFORMATION = *BS2000-IDENTIFICATION") e. g. SYSPAR.BS2.210
*BY-SYSTEM-NAME	From the parameter file SYSPAR.BS2.vvv.<sys-name> vvv corresponds to the BS2000 version without a period (see *STD); <sys-name> corresponds to the system name (see above)
*BY-VM-NAME	From the parameter file SYSPAR.BS2.vvv.<vm-name> vvv corresponds to the BS2000 version without a period (see *STD); <sys-name> corresponds to the VM name (see above)

*BY-IOCONF-ID-NAME	From the parameter file SYSPAR.BS2.vvv.<iocf-name> vvv corresponds to the BS2000 version without a period (see *STD); <iocf-name> corresponds to the IOCF name (displayed in NAME with "INFORMATION = *IOCONF-IDENTIFICATION")
*BY-DIALOG	The system parameters were entered fully or partially via the parameter files specified in the dialog or directly on the console.
<lm-counter>	Number of live migrations which have taken place The display has the format <integer 0..99999999>; the value 0 means that no live migration has taken place.

INFORMATION = *VM2000-VERSION

In VM2000 mode (see OPERATION-MODE) provides information about the VM2000 version:

```
VM2000-VERSION      = <vm2000-version>
```

Meaning of the output values:

<vm2000-version>	Version specification in DOD format, e.g. 'V12.0A'

INFORMATION = *VM2000-MONITOR-SYSTEM

In VM2000 mode (see OPERATION-MODE) provides information about the Monitor System:

```
VM2000-MONITOR-  BS2000-VERSION    = <bs2-version>
    SYSTEM:       SERVICE-PACK     = <sp-name>
                  HOST-NAME        = <host-name>
```

<bs2-version>	Version specification in DOD format, e.g. 'V21.0A0000'
<sp-name>	Service pack name, e.g. 'SP 26.1' (see <sp-name> in *BS2000-ID)
<host-name>	BCAM name of the Monitor System e.g. 'D027ZE01'

INFORMATION = *SYSTEM-TIME-PARAMETER

Provides information about the BS2000 system time settings in the form:

```
SYSTEM-TIME-    ZONE              = <zone-time-diff>
   PARAMETER:   SEASON            = <actual-season>
                SEASON-DIFFERENCE = <season-time-diff>
                PREV-CHANGE-DATE  = <prev-change-date>,<prev-change-time>
                NEXT-CHANGE-DATE  = <next-change-date>,<next-change-time>
                SYNCHRONISATION   = <synch-value>
                EPOCH             = <epoch-value>
```

Meaning of the output values:

<zone-time-diff>	Time difference between the local time zone and UTC time in the format: +hh:mm or -hh:mm
<actual-season>	Current season in the local time zone; possible values: W (winter time corresponds to normal time) / S (summer time)
<season-time-diff>	Time difference in the local time zone between summer time and normal time in the format: hh:mm
<prev-change-date>	Date of the last time changeover in ISO4 format: yyyy-mm-dd
<prev-change-time>	Time of the last time changeover in ISO4 format: hh:mm:ss
<next-change-date>	Date of the next time changeover in ISO4 format: yyyy-mm-dd
<next-change-time>	Time of the next time changeover in ISO4 format: hh:mm:ss
<synch-value>	Source of external time synchronization. The table below shows the possible values for the various server types in ascending order of priority of the synchronization types. If more than one timer exists, the highest-priority synchronization is shown.
<epoch-value>	TODR epoch

<synch-value>	SU /390 (or S server)	SU x86
*NONE	Loading errors: SVP clock currently not available or difference between system time and timer too large for a synchronization!	Loading errors: SVP clock currently not available or difference between system time and timer too large for a synchronization!
X2000	has been omitted	Without external synchronization (default)
SKP-X	Without external synchronization (default)	has been omitted
DCE/NTP	Synchronization by NTP network (in BS2000)	Synchronization by NTP network (in BS2000)
XCS	Synchronization by XCS network	Synchronization by XCS network
SERVER-CONN-EXT-REF	External timer connected via MU or (for VM2000 guest systems) connected in the monitor system	External timer connected via MU or (for VM2000 guest systems) connected in the monitor system
BS2-CONN-EXT-REF	External timer connected via NTP (BS2000)	External timer connected via NTP (BS2000)

Table 161: Time synchronization displays (SHOW-SYSTEM-INFORMATION)

OUTPUT = *SYSOUT / *SYSLST
Specifies whether output is to be to SYSOUT (default) or SYSLST. Output to SYSLST is not possible on the console.

SERVER-UNIT = *STD / *INITIAL / *CURRENT
Specifies the Server Unit whose data is to be displayed. The setting is only relevant when a live migration has taken place and the value requested using the INFORMATION operand can change as a result of migration.

SERVER-UNIT = *STD
The currently valid setting from the MIGHOST system parameter should be used.
The system parameter MIGHOST can be modified dynamically with the MODIFY-SYSTEM-PARAMETERS command.

When a live migration has taken place and the value *ALL, *CONFIGURATION, *CPU-ID-LIST, *IOCONF-IDENTIFICATION, *SYSTEM-CONFIGURATION, *VM2000-VERSION or *VM2000-MONITOR-SYSTEM is specified for INFORMATION, message NSI6231 or NSI6232 shows what the output will look like before the data is output.

SERVER-UNIT = *INITIAL
The data of the Server Unit on which IPL was performed (IPL system) is displayed.

SERVER-UNIT = *CURRENT
The data of the Server Unit on which the BS2000 session is currently running is displayed (possibly after a live migration).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	Command output interrupted
2	0	NBR1099	Output to SYSLST not allowed
	32	CMD2009	Internal error during S variable generation
	64	OPS0002	Command interrupted during generation of S variables
	130	OPS0001	Not enough memory to generate S variables

Output in S variable

The INFORMATION operand identifies the S variables which are to be created. All variables are output with INFORMATION=*ALL.

Notation used in command	Abbreviated form used in table
INFORMATION = *CONFIGURATION	1
INFORMATION = *CPU-ID-LIST	2
INFORMATION = *HSI-ATTRIBUTES	3
INFORMATION = *MEMORY-SIZE	4
INFORMATION = *MINIMAL-MEMORY-SIZE	5
INFORMATION = *BS2000-IDENTIFICATION	6
INFORMATION = *IOCONF-IDENTIFICATION	7
INFORMATION = *IPL-TIME	8
INFORMATION = *SYSTEM-CONFIGURATION	9
INFORMATION = *VM2000-VERSION	10
INFORMATION = *VM2000-MONITOR-SYSTEM	11
INFORMATION = *SYSTEM-TIME-PARAMETER	12

Output information	Name of the S variable	T	Contents	Condition
BS2000 program name	var(*LIST).BS2000-ID.NAME	S	<c-string 8..8>	6
Version specification (OSD-BC) for BS2000 (deprecated naming convention)	var(*LIST).BS2000-ID.OSD-BC-VERSION	S	<c-string 10..10>	6
Service pack name	var(*LIST).BS2000-ID.SERVICE-PACK	S	<c-string 7..7>	6
BS2000 generation date	var(*LIST).BS2000-ID.UGEN-DATE	S	<yyyy-mm-dd>	6

Output information	Name of the S variable	T	Contents	Condition
BS2000 generation time	var(*LIST).BS2000-ID.UGEN-TIME	S	<hh:mm:ss>	6
Version specification for BS2000	var(*LIST).BS2000-ID.VERSION	S	<c-string 10..10>	6
Machine designation Bytes 0-4: base type Bytes 6-10: model range Bytes 12-15: model identifier Bytes 17-20: special model features	var(*LIST).CONF	S	<c-string 21..21>	1
CPU identifier	var(*LIST).CPU-ID(*LIST)	S	<c-string 16..16>	2
Address space extension supported	var(*LIST).HSI-ATTR.ASF	T	FALSE TRUE	3
Operating mode of the operating system	var(*LIST).HSI-ATTR.OPERATION-MODE	S	NATIVE VM2000	3
CPU type	var(*LIST).HSI-ATTR.TYPE	S	IX KM UD	3
IOCF format (only for debugging)	var(*LIST).IOCONF-ID.FORMAT	S	<c-string 7..7>	7
First 8 bytes of the current IOCF's ID block; for SU x86 the value *NONE	var(*LIST).IOCONF-ID.NAME	S	<c-string 8..8> *NONE	7
Generation date of the BS2000 I/O configuration or blanks in the case of SU x86	var(*LIST).IOCONF-ID.UGEN-DATE	S	<yyyy-mm-dd>	7
Generation time of the BS2000 I/O configuration or blanks in the case of SU x86	var(*LIST).IOCONF-ID.UGEN-TIME	S	<hh:mm:ss>	7

Output information	Name of the S variable	T	Contents	Condition
Version specification of the BS2000 I/O configuration or blanks in the case of SU x86	var(*LIST).IOCONF-ID.VERSION	S	<c-string 10..10>	7
Startup date	var(*LIST).IPL.DATE	S	<yyyy-mm-dd>	8
Startup time	var(*LIST).IPL.TIME	S	<hh:mm:ss>	8
Unit of measurement for the main memory size	var(*LIST).MEM-SIZE.DIM	S	GB KB MB	4
Size of main memory	var(*LIST).MEM-SIZE.VAL	I	<integer 1..2147483647>	4
Smallest unit of size of the main memory which is usable for software	var(*LIST).MIN-MEM-SIZE.DIM	S	GB KB MB	5
Smallest size of main memory usable for software	var(*LIST).MIN-MEM-SIZE.VAL	I	<integer 1..2147483647>	5
catalog ID of the home pubset	var(*LIST).SYS-CONF.HOME-PUBSET	S	<cat-id 4..4>	9
Host name	var(*LIST).SYS-CONF.HOST-NAME	S	<c-string 8..8>	9
Number of live migrations which have taken place	var(*LIST).SYS-CONF.LIVE-MIG-COUNT	I	<integer 0..99999999>	9
System ID	var(*LIST).SYS-CONF.SYSID	S	<c-string 3..3>	9
System name; if not available, the value *NONE	var(*LIST).SYS-CONF.SYS-NAME	S	<c-string 8..8> *NONE	9
Origin of the system parameters	var(*LIST).SYS-CONF.SYSPAR-BS2-SEL	S	*STD *BY-DIALOG *BY-SYS-NAME *BY-VM-NAME *BY-IOCONF-ID-NAME	9
VM index (in VM2000 mode, otherwise 0)	var(*LIST).SYS-CONF.VM-INDEX	I	<integer 0..99>	9
VM name (in VM2000 mode, otherwise *NONE)	var(*LIST).SYS-CONF.VM-NAME	S	<c-string 1..8> *NONE	9

Output information	Name of the S variable	T	Contents	Condition
Epoch	var(*LIST).SYS-TIME.EPOCH	S	00..FF	12
Source of external time synchronization; for meaning of values see table "Time synchronization displays"	var(*LIST).SYS-TIME. EXTERNAL-SYNCH	S	<c-string 20..20> with one of the following values and filled with blanks: X2000 SKP-X DCE/NTP XCS SERVER-CONN-EXT-REF BS2-CONN-EXT-REF	12
Date of the next time change	var(*LIST).SYS-TIME.NEXT-CHA-DATE	S	<yyyy-mm-dd>	12
Time of the next time change	var(*LIST).SYS-TIME.NEXT-CHA-TIME	S	<hh:mm:ss>	12
Date of the most recent time change	var(*LIST).SYS-TIME. PREVIOUS-CHA-DATE	S	<yyyy-mm-dd>	12
Time of the most recent time change	var(*LIST).SYS-TIME. PREVIOUS-CHA-TIME	S	<hh:mm:ss>	12
Current season in the local time zone; possible values: W=winter or normal time S=summertime	var(*LIST).SYS-TIME. SEASON	S	W S	12
Difference between summer and normal time	var(*LIST).SYS-TIME. SEASON-DIFFERENCE	S	<hh:mm>	12
Time zone of the local system (difference from UTC time)	var(*LIST).SYS-TIME.ZONE	S	+<hh:mm> -<hh:mm>	12
VM2000 version for VM2000 operation, otherwise *NONE	var(*LIST).VM2000-VERSION	S	<c-string 6..6> *NONE	10
BS2000 version of the monitor system (for VM2000 operation), otherwise *NONE	var(*LIST).VM-MONITOR. BS2000-VERSION	S	<c-string 10..10> *NONE	11
Service pack name of the monitor system (for VM2000 operation), otherwise *NONE	var(*LIST).VM-MONITOR. SERVICE-PACK	S	<c-string 7..7> *NONE	11
Host name of the monitor system (for VM2000 operation), otherwise *NONE	var(*LIST).VM-MONITOR. HOST-NAME	S	<c-string 8..8> *NONE	11

Output information	Name of the S variable	T	Contents	Condition
BS2000 OSD/BC version of the monitor system (for VM2000 operation), otherwise *NONE (deprecated naming convention)	var(*LIST).VM-MONITOR. OSD-BC-VERSION	S	<c-string 10..10> *NONE	11

For reasons of compatibility the S variable var(*LIST).CURRENT-CONF is generated when INFORMATION=*ALL and SERVER-UNIT=*STD.

Example

Output on the VM on an SU x86 of an SE server

```
/SHOW-SYS-INF
%CONFIGURATION                      = X86SU- 300B-160F
%CPU-ID-LIST :    ADR   0           = 78C0896080340000
%                 ADR   1           = 78C0896180340000
%                 ADR   2           = 78C0896280340000
%                 ADR   3           = 78C0896380340000
%                 ADR   4           = 78C0896480340000
%                 ADR   5           = 78C0896580340000
%HSI-ATT :        TYPE              = KM
%                 ASF               = YES
%                 OPERATION-MODE    = VM2000
%MEMORY-SIZE                        = 4600 MB
%MINIMAL-MEMORY-SIZE                = 504 MB
%BS2000-ID :      NAME              = P10BSK
%                 VERSION           = V21.0A00P1
%                 SERVICE-PACK      = SP 20.0
%                 CREATED           = 2020-08-13,13:15:14
%IOCONF-ID :      NAME              = *NONE
%                 VERSION           =
%                 CREATED           =
%                 FORMAT            = *NONE
%IPL-TIME                           = 2020-09-22,08:20:36
%SYSTEM-CONF :    SYSID             = 181
%                 HOME-PUBSET       = 4V07
%                 HOST-NAME         = C3POVM02
%                 VM-INDEX          = 2
%                 VM-NAME           = C3POVM02
%                 SYSTEM-NAME       = C3POVM02
%                 SYSPAR-BS2-SEL    = *BY-VM-NAME
%                 LIVE-MIG-COUNT    = 0
%VM2000-VERSION                     = V11.5A
%VM2000-MONITOR-  BS2000-VERSION    = V21.0C0000
%   SYSTEM:       SERVICE-PACK      = SP26.1
%                 HOST-NAME         = C3POVM01
%SYSTEM-TIME-     ZONE              = +01:00
%   PARAMETER:    SEASON            = S
%                 SEASON-DIFFERENCE = 01:00
%                 PREV-CHANGE-DATE  = 2020-03-29,02:00:00
%                 NEXT-CHANGE-DATE  = 2020-10-25,03:00:00
%                 SYNCHRONIZATION   = SERVER-CONN-EXT-REF
%                 EPOCH             = 08
```

7.27 SHOW-SYSTEM-PARAMETERS

Output system parameters

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-TUNING
Privileges:	all privileges
Routing code:	@

Function

The SHOW-SYSTEM-PARAMETERS command allows the user to obtain information about important options in the BS2000 system (system parameters). System parameters are generated with default settings and can be modified by systems support by means of the parameter service during system initialization or during system operation using the MODIFY-SYSTEM-PARAMETERS command. The system parameters define the character of the BS2000 system. The nonprivileged user only receives information about the nonprivileged system parameters.
A detailed description of the system parameters can be found in the section "Alphabetical list of system parameters".
The information is output to SYSOUT or to SYSLST.

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Privileged users are shown information about all system parameters currently defined.

Restrictions

The OUTPUT operand is not available if the command is issued at the console.

Format

SHOW-SYSTEM-**PAR**AMETERS
PARAMETER = ***ALL** / list-poss(2000): <name 1..8> , **OUTPUT** = ***SYSOUT** / ***SYSLST**

Operands

PARAMETER = *ALL / list-poss(2000): <name 1..8>
Specifies which system parameters the user wishes to obtain information about. The default value is *ALL, i.e. nonprivileged users receive information about all nonprivileged system parameters.
The user can specify the names of those system parameters about which he wishes to receive information in a list.

OUTPUT = *SYSOUT / *SYSLST
This operand is not available if the command is issued at the console.
Specifies whether output is to be to SYSOUT (default) or SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	Command output interrupted
2	0	NSI6250	System parameter does not exist or privilege is inadequate
	32	CMD2009	Internal error during S variable generation
2	0	NBR1099	Output to SYSLST not allowed
	64	OPS0002	Command interrupted during generation of S variables
	130	OPS0001	Not enough memory to generate S variables

Output in S variable

Output information	Name of the S variable	T	Contents	Condition
Output format of the system parameter	var(*LIST).SYS-PAR(*LIST).FORM	S	*CHAR *HEX-VAL *INTEGER-VAL *PAR-NOT-ACCESS *PAR-NOT-DEFI	
Name of the system parameter	var(*LIST).SYS-PAR(*LIST).NAME	S	<c-string 1..8>	
Value of the system parameter	var(*LIST).SYS-PAR(*LIST).VAL	S	<c-string 1..4096>	

Example (Output of the nonprivileged system parameters)

/show-sys-par

```
%ASRSW1   : 0
%ASRSW2   : 1
%AUDALLOW : C'YES'
%BLKCTRL  : C'PAMKEY'
%BLSCOPYN : C'FUJITSU TECHNOLOGY SOLUTIONS GMBH                              '
%BLSCOPYR : C'            '
%BLSLDPXS : X'10000000'
%CMDFILE  : C'CMDFILE                                                '
%DEFLUID  : C'$TSOS          '
%DIATTL   : C'N'
%DMCMAXP  : 512
%DUMPCL5P : X'00'
%DUMPSEPA : 1
%ENCRYPT  : C'Y'
%FILECRYP : C'AES '
%FMTYFNLG : C'2'
%FREFCRYP : C'ENCRYPTO'
%FST32GB  : 0
%HOSTCODE : C'EDF03IRV'
%ISBLKCTL : C'NONKEY'
%MIGHOST  : X'00'
%MSGDEST  : C'<*  '
%NBACODE  : C'E'
%NBESSIZE : 40.000
%NBLOGENF : C'E'
%NBMESLG  : C'L'
%NBMSGCSD : C'Y'
%NBOPTINT : 120
%NBRCILU  : 5.000
%NBRCSCK  : 10
%NBRCSCKN : 10
%NBRUNSP  : C'N'
%NBRUNWT  : 180
%NETCODE  : C'*ISO    '
%NUMBACK  : 4
%RDTESTPR : 9
%SDPINTLN : 32
%SECSTART : C'N'
%SECSTENF : C'N'
%SHUTARCH : C'N'
%SHUTPROC : C'BY-SHUTDOWN-CMD'
%SSMLGOF1 : C'NO-SPOOL '
%SSMLGOF2 : C'NO   '
%SSMOUT   : C'MAIL '
%SVC79    : 0
%TEMPFILE : C'# '
%WRTESTPR : 9
```

Alphabetical list of system parameters

The following overview lists all system parameters in alphabetical order. In the bracket after the name, the following properties are listed:

- Output to all users (“nonprivileged”) or only to privileged users (“privileged”)
- Specification “dynamically changeable”, if the system parameter can be modified during operation, by using the MODIFY-SYSTEM-PARAMETERS command
- Specification <type>/<length> of the system parameter. This information is needed for output of the system parameter in a program with the NSIOPT macro.

  where:

<type>	A: Arithmetic value C: Character string X: Hexadecimal value
<length>	Length specification for the system parameter in bytes

Default values for a system parameter are underlined.

ASRSW1 (nonprivileged, A/1)

Subconsoles are allowed to run the ASR command with the ADD operand as long as the command affects the status of the issuing subconsole.

0 Execution allowed at subconsoles.

1 Execution permissible for main consoles only.

ASRSW2 (nonprivileged, A/1)

Applications which function as virtual consoles have the same authorizations in respect of the ASR command as:

0 a subsidiary console.

1 the main console.

AUDALLOW (nonprivileged, C/3)

Specifies whether the AUDIT function (hardware and linkage AUDIT) should be available on a system-wide basis in the current session.

YES AUDIT is available system-wide

NO AUDIT is not available. A linkage AUDIT which has been started will be completed if required.

BACKUP (privileged, C/1)

Defines the standard backup level for files (for ARCHIVE save runs).

Values: A / B / C / D / E

BLKCTRL (nonprivileged, C/6)

Recommendation for the file attribute BLOCK-CONTROL-INFO, dependent on the PAMKEY characteristic of a disk (K or NK disk). For example, BLKCTRL is evaluated by LMS, LMSCONV, and PERCON. The following values are possible:

PAMKEY (compatible mode)

On K disks the default value BLOCK-CONTROL-INFO=PAMKEY applies to all files. On NK disks the default value BLOCK-CONTROL-INFO=DATA applies to SAM and ISAM files, BLOCK-CONTROL-INFO=NO applies to UPAM files.

NONKEY (migration mode)

On K and NK disks the default value BLOCK-CONTROL-INFO=DATA applies to SAM and ISAM files, BLOCK-CONTROL-INFO=NO applies to UPAM files.

BLSCOPYN (nonprivileged, dynamically changeable, C/63)

Value for the copyright text used by the BINDER if SYSTEM-DEFAULT is specified for the COPYRIGHT operand in the START-LLM-CREATION and MODIFY-LLM-ATTRIBUTES statements.

Values: alphanumeric; max. 63 characters; the default value is a blank but this must not be part of the value.

BLSCOPYR (nonprivileged, dynamically changeable, C/12)

Value for the copyright text used by TSOSLINK if no value is specified for the COPYRIGHT operand in the PROGRAM statement.

Values: alphanumeric; max. 12 characters; the default value is a blank but this must not be part of the value.

BLSLDPXS (nonprivileged, dynamically changeable, X/4)

Program load address value used by TSOSLNK if the operand LOADPT=*XS is specified in the OVERLAY or PROGRAM statement.

Values: X'10000000', hexadecimal, 4 bytes

BLSOPENX (privileged, dynamically changeable, C/1)

Defines the open mode for program libraries and elements opened by the BIND and LINK macros.

Y open mode EXEC

N open mode INPUT

BLSUSLIM (privileged, A/2)

Specifies the maximum number of class 4 memory pages which can be assigned to the BLS metadata at the same time.
The BLS metadata belongs to the shared code of the user and is loaded into the Common Memory Pool with the ASHARE macro of DBL. If the value is set to 0, the user’s shared code cannot be loaded with the ASHARE macro.

Values: 0 ... 100 ... 8192

BMTNUM (privileged, A/1)

Specifies the number of I/O buffers for catalog management. The higher the value, the higher the throughput of the catalog management.
For all Net-Storage volumes and private disks the specified number of buffers is created for a long period. The size of one buffer is 2 KB.

The following applies to every pubset:

- BMTNUM is only valid if neither in MRSCAT, nor in the IMPORT-PUBSET command is entered a specified value.
- The buffer size is 4 KB.
- The buffers are set during importing and released during exporting.
- Even if smaller values are input, at least 32 buffers are set.

Values: 0 ... 32 ... 255

> The value 0 of BMTNUM is prohibited for private disks or Net-Storage volumes which are to be supported

CATBUFR (privileged, C/1)

Specifies whether the I/O buffers of the catalog management (see BMTNUM parameter) are to be in class 3 memory (i.e. resident). For pubsets in MRSCAT or in the IMPORT-PUBSET command can be specified different values.

N	not resident
Y	resident

CMDFILE (nonprivileged, C/54)

Specifies whether a command file is to be automatically processed immediately at system initialization.

CMDFILE / name	File name of the command file; max. 44 characters
blank	no command file

CONSDDE7 (privileged, dynamically changeable, C/1)

The message `DMS0DE7 SAM FILE CLOSED` is to be output to console and / or SYSOUT.

N	output to SYSOUT
Y	output to console and SYSOUT

DEFLUID (nonprivileged, C/15)

On system start this value is overwritten with the default value $TSOS .

Defines the system's default user ID which can be referenced with the abbreviation $. In addition, the START-EXECUTABLE-PROGRAM, CALL-PROCEDURE, ENTER-JOB, ENTER-PROCEDURE commands and certain utility routines search under this user ID if the user has not specified a user ID and the file is not cataloged under his/her own user ID (Secondary Read).

Values: $TSOS / :catid:$userid, max. 15 characters

DESTLEV (privileged, A/1)

Defines whether disk storage space is to be overwritten by the system upon release. DESTLEV is valid for DELETE-FILE, MODIFY-FILE-ATTRIBUTES (with SPACE= RELEASE), for reconstructing F5 labels and when deleting members of a PLAM library.

0 Released extents are overwritten with binary zeros only in the case of files cataloged with DESTROY-BY-DELETE=YES or deleted with OPTION=DESTROY-ALL.

1 All system files for job control (S.IN, SPOOL) are created with DESTROY-BY-DELETE=YES.

4 Before being released, all extents are overwritten with zeros, regardless of the "DESTROY" value used to catalog or delete the file.

5 In addition to the actions performed for 4, the F5 labels are restored. To ensure that no undeleted free areas exist even after a system crash, all free pages are set to zero during F5 label reconstruction.

6 In addition to the actions performed for 5, the extents assigned to a file are overwritten with binary zeros when the file is logically created. I.e. at OPEN OUTPUT/OUTIN time all PAM pages in this file are set to zero. If the file contains PAM keys, they are set to an invalid CFID.

DIATTL (nonprivileged, dynamically changeable, C/1)

Limits the amount of time available to a interactive task.

N The interactive task is not terminated at `task time runout`.

Y The interactive task is terminated at `task time runout`.

Q Like Y. In addition, in all tasks, i.e. Including batch tasks, the message `EXC0070` is no longer issued when the CPU limit is reached. Subsequently, all additional times (e.g. for the STXIT contingency for the time runout event) are limited to one second.

DMCMAXP (nonprivileged, A/4)

Defines the maximum number of entries in the MRSCAT of the home pubset. No more entries may be created once this number has been reached unless others are deleted first. The maximum value may be exceeded during startup, as it is ignored in any case.
Values which do not correspond to a power of two are rounded up to the maximum value or the next power of two (128, 256, 512), but at least to 128.

Values: 1 ... 128 ... 4095

DMMAXSC (privileged, A/1)

Maximum value (in PAM blocks) to which the secondary allocation can be doubled when extending a file. The value must be at least as large as DMSCALL.
The value applies to all private disks. For a pubset, the value is only valid if none was specifically defined via the ADD- / MODIFY-MASTER-CATALOG-ENTRY command.

Values: 3 ... 48 ... 65535 *2Kbyte*

DMPRALL (privileged, A/4)

Primary allocation for files in PAM blocks as a default value for the SPACE operand in the CREATE-FILE command (in pages).
The value applies to all private disks. For a pubset, the value is only valid if none was specifically defined via the ADD- / MODIFY-MASTER-CATALOG-ENTRY command.

Values: 3 ... 65535

DMSCALL (privileged, A/4)

Secondary allocation for files in PAM blocks as a default value for SECONDARY-ALLOCATION in the SPACE operand of the CREATE-FILE command.
From there on, for each extension of the file, the number of PAM blocks currently entered in the catalog entry will be assigned and then doubled. It will not be doubled if that would lead to DMMAXSC being exceeded.
The value applies to all private disks. For a pubset, the value is only valid if none was specifically defined via the ADD- / MODIFY-MASTER-CATALOG-ENTRY command.

Values: 3 ... 65535

DUMPCL5P (nonprivileged, dynamically changeable, X/1)

Controls in CDUMP whether the privileged class 5 memory is to be contained in the user dump or the area dump.

X'00' Class 5 memory is contained in the dump in its entirety.

X'01' The privileged class 5 memory is suppressed when outputting user and area dumps.

DUMPCTRL (privileged, dynamically changeable, X/1)

Activates dynamic dump attributes. The following settings are possible:

Bit 2^0 set:

Duplicate recognition activated; Duplicates are suppressed. Instead of a dump, message `IDA0N56` is output.

Bit 2^1 set:

Unattended operation switched on; question `IDA0N52` is suppressed. This value has no effect on user and area dumps.

Bit 2^2 set:

The question `IDA0N52` is suppressed if the error caused by the dump refers to a system task.

Bit 2^3 set:

If the dump terminates abnormally, the question `IDA0N99` is output with system dumps.

Bit 2^4 set:

During the FILE call for the output file of the dump the parameters IOPERF=HIGH and IOUSAGE=WRITE are not used. This causes the dump file to always be stored on the default storage class when SMS is used. This value only makes sense when using SMS.

If DUMPCTRL=X'00' is specified, all functions described above are deactivated.

Values: X'00' ... X'1F'

DUMPSD# (privileged, dynamically changeable, X/1)

Defines the number of system dumps output “automatically” (without any operator dialog) for each session. The parameter has no effect on user/area dumps.

X'00' An operator dialog is effected at the very first system dump.

Values: X'00' ... X'FF'

DUMPSEPA (nonprivileged, dynamically changeable, A/4)

Defines the output of secret pages for user and system dumps.

1 The output of secret pages is not suppressed.

2 The output of secret pages of class 6 memory is suppressed. The output of secret pages of class 1/2/3/4/5 memory is not suppressed.

3 The output of secret pages of class 1/2/3/4/5 memory is suppressed. The output of secret pages of class 6 memory is not suppressed.

4 The output of all secret pages is suppressed.

DUMPSREF (privileged, dynamically changeable, X/1)

Controls the output of the class 6 memory pages during a system dump.

X'00' Output of referenced class 6 memory pages

X'01' Output of all class 6 memory pages

X'02' No output of class 6 memory pages

X'03' Output of class 6 memory pages without write-protected pages

EACTETYP (privileged, dynamically changeable, A/1)

Defines which of the following messages are to be output via the console: `BLS0500, BLS0517, BLS0519, BLS0524, BLS0526, BLS0539, BLS0551` and `BLS0552`

0 none

1 only `BLS0519`

2 all

3 all except BLS0519

EAMMEM (privileged, A/2)

Defines the size of class 4 memory used for EAM. In this case, only MVCs are performed for EAM calls, instead of I/Os on the disk.
This parameter is only valid for the home pubset.

Values: 0 ... 2730

EAMMIN (privileged, A/2)

Defines the maximum size of the file SYSEAM in units.
1 unit = 3 PAM pages on pubsets with an allocation unit (AU) of 3 PAM pages1 unit = 4 PAM pages on all other pubsets

If, with the first EAM access, it is recognized that the SYSEAM file is smaller than EAMMIN, it is expanded to the same size or created with the same size.
EAMMIN should be selected so that no secondary allocations are required, if possible, during normal operations. Recommendation: EAMMIN = 4500
With extended support for EAM on shared pubsets (see EAMSPVS), each system which imports a shared pubset works with its own EAMMIN value.

Values: 4 ... 3000 ... 64512

EAMSEC (privileged, A/2)

Defines the secondary allocation for the SYSEAM file (in units, see EAMMIN).
EAMSEC should be selected so that the maximum size of a SYSEAM file is reached with about 150 extents. The value should be a multiple of 8.
Recommendation: EAMSEC = 600
With extended support for EAM on shared pubsets (see EAMSPVS), each system which imports a shared pubset works with its own EAMSEC value.

Values: 1 ... 200 ... 64512

EAMSIZ (privileged, A/2)

Defines the size of the SYSEAM file (in units, see EAMMIN) which is available to a single user.
Recommendation: EAMSIZ= 20000.
This allows a user to utilize the maximum size of an EAM file (65,536 PAM pages), yet prevents the system from becoming overloaded by one user alone.
The value EAMSIZ = 64512 (which corresponds to the maximum size of a pubset's SYSEAM file) enables an individual user to occupy all the SYSEAM storage space on the pubset.
With extended support for EAM on shared pubsets (see EAMSPVS), each system which imports a shared pubset works with its own EAMSIZ value.

Values: 4 ... 64512

EAMSPVS (privileged, X/1)

Controls the treatment of the SYSEAM file on a shared pubset (SPVS).

X'00' Only the master of an SPVS can set up a SYSEAM file on this SPVS (file name: :<SPVS-id>:$TSOS.SYSEAM)

X'01' Any system with access to the SPVS can set up a SYSEAM file for it (file name: :<SPVS-id>:$TSOS.SYSEAM.<sysid>)

ENCRYPT (nonprivileged, C/1)

Controls the decryption of file and user passwords.

N Passwords are stored in unencrypted form.

Y Passwords are stored in encrypted form.

ERECRYPT (privileged, X/8)

Input parameter for CHECKPOINT / RESTART for calculating a check number for the checkpoint.

X'00'	No check number is calculated for the checkpoint
X'aaaabbbbcccccccc'	Parameters which are factors in the calculation of the check number; every parameter should be nonzero

EREPASSW (privileged, C/1)

Controls the checkpoint / RESTART functionality.

N The full functional range of checkpoint/restart is permitted; the checkpoint files are not protected by a random password.

Y Checkpoints can only be created by means of the WRCPT macro. CHKPT is only permitted if the associated FCB belongs to a *DUMMY file. Check-points cannot be written at the end of the tape in the case of VLTFs (Very Large Tape Files). In addition, checkpoint files protected by a random password are protected (in the same way as S.IN files).

ETMFXLOW (privileged, A/2)

Tasks with an external priority which is worse (i.e. greater than) or equal to ETMFXLOW are not given an aging tag in TU. Any increase in priority in TPR is loss with the transfer to TU.

Values: 127 ... 256

FARMTSAV (privileged, X/1)

Defines that a file is included in the incremental save with ARCHIVE if its contents or catalog entry are changed.

X'00 The file is saved if its contents were changed.

X'01' The file is also saved if only its catalog entry was changed.

FILECRYP (nonprivileged, dynamically changeable, C/4)

Determines the encryption method for conversion into an encrypted file. The encryption methods supported are AES (default) and DES.

With ENCRYPT-FILE the current value of the system parameter FILECRYP is taken over into the file's encryption attributes.
When a file that has already been encrypted is accessed, the encryption method is taken over from the file's catalog entry.

A change to the system parameter FILECRYP only becomes effective for a file that was already encrypted at the time of the change when the file is decrypted and then encrypted again.

Values: AES / DES

FMTYFNLG (nonprivileged, C/1)

Specifies how the file names of various logging files (CONSLOG, ACCOUNT) are to be formed with respect to the date.

2 The file name contains a 2-digit year value: <prefix>.yy.mm.dd.<suffix>

4 The file name contains a 4-digit year value: <prefix>.yyyy-mm-dd.<suffix>

FREFCRYP (nonprivileged, C/8)

If not empty, it contains a selected user ID. It is then only possible for files from this ID to be converted into encrypted files (ENCRYPT-FILE command) with a free definition of the crypto password.

To convert files from other user IDs, a reference file which is already encrypted must be specified.

The set of crypto passwords used is thus limited to that of the encrypted files from the selected user ID.

Value: blank / name, max. 8 characters

FSHARING (privileged, A/1)

Specifies whether the pubset access restrictions defined in the user catalog are effective.

Access to a pubset on the local system

0 Users may only access a pubset if they have an entry in the user catalog on this pubset.

1 Any user can access any pubset.

Access to a pubset on a remote system

0 Users may only access a pubset on the remote system if they have an entry in the user catalog on this pubset and in the user catalog of the home pubset of the remote system.

1 Any user can access any pubset.

This applies only to the standard case of a computer connection, i.e. the CCS (closely coupled system).

For reasons of compatibility the LCS (loosely coupled system) is still supported. FSHARING has no meaning in the LCS, i.e. it is not evaluated. The following access conditions apply, depending on the type of pubset:

Access to a remote SF pubset

Only users with an entry in the user catalog in this pubset can access a pubset on the remote system. The password in this entry must match the logon password on the home pubset of the local system.

Access to a remote SM pubset

Only users with an entry in the user catalog of such a pubset and an entry in the user catalog on the home pubset of the remote system can access this pubset. The password in the home pubset of the remote system must match the logon password on the home pubset of the local system.

FST32GB (nonprivileged, dynamically changeable, A/1)

Specifies the scope with files >= 32 GB.

0 All FSTAT interfaces with version=0 or version=1 (corresponds to Version=710 or Version=800) for which the FNAM operand is not specified are rejected with return code `0576` if a file >= 32 GB is contained in the hit list.

1 (ignore the 3 byte data field overflow)
If there is a file >= 32 GB found in the hit list, no error is displayed. The data fields which cannot be displayed are assigned the value X'FFFFFF'.

HOSTCODE (nonprivileged, C/8)

Specifies the “coded character set” which is to be used as the system’s default character set.

Values: EDF03IRV / name (up to 8 characters) of the coded character set.

ISBLKCTL (nonprivileged, dynamically changeable, C/6)

Assigns the file attribute BLKCTRL for ISAM files on K disks. On NK disks, only the file attribute DATA can be assigned.

NONKEY Irrespective of the disk type the file attribute DATA will be assigned

PAMKEY (compatible mode)
If the file resides on a K disk, it is given the attribute BLKCTRL=PAMKEY.
If the file resides on a NK disk, it is given the attribute BLKCTRL=DATA.

ISBLKVAL (privileged, dynamically changeable, X/1)

Controls the validation of blocks of an NK-ISAM file during read access.

X'00' Validation is deactivated.

X'01' Validation is activated.

ISPLDEFC (privileged, X/1)

Defines the pubset used by ISAM if no catalog ID is specified when ISAM pools are processed.

X'00' ISAM selects the DEFAULT-PUBSET specified in the user's user catalog entry.

X'01' ISAM selects the home pubset.

JTABSMEM (privileged, dynamically changeable, A/4)

On SUs x86 specifies the maximum CISCFW storage space - totaled for all active programs - on the entire system (in MB). When the default is 0 the JITSYS subsystem calculates the value itself (JIT = Just-in-time).

Values: 0 ... 1000000

JTMAXMEM (privileged, dynamically changeable, A/4)

On SUs x86 specifies the maximum value for the size of the CISCFW work area per task (in MB). This value is the maximum value that can be set for the WORKSPACE parameter in the command MODIFY-DBL-DEFAULTS *CMD-CALL(CISC-COMPILATION=YES(WORKSPACE=n)).

> CISCFW only obtains as must space as is required to execute the current /390 program. When JTMAXMEM=0 the programs only run in the slow interpreter mode.

Values: 0 ... 128 ... 65535

JTSHMEM (privileged, dynamically changeable, A/2)

On SUs x86 specifies how much storage space JITSYS is to use for storing shared compiled code (in MB).

Shared compiled code is created when emulating subsystems loaded in class 4 memory. If no such subsystems exist or these are not to be compiled as "shared", the creation of shared combined code can be prevented with JTSHMEM = 0. The JTSHMEM value should be adjusted to the total amount of class 3 memory available.

The storage size specified with JTSHMEM is allocated immediately when JITSYS is initialized. Modification of the value during ongoing operation will until further notice is given, only be supported when the value is increased. The value can only be modified in steps of 4; other values are rounded up to the next multiple of 4.

Values: 0 ... 64 ... 256

JTSTDMEM (privileged, dynamically changeable, A/4)

On SUs x86 specifies the default value for the size of the CISCFW work area per task (in MB). This value is the default value of the WORKSPACE parameter in the MODIFY-DBL-DEFAULTS *CMD-CALL(CISC-COMPILATION= YES(WORKSPACE=*STD)) command.

This parameter can only be specified in steps of 4 MB. JITSYS rounds up to the next 4-MB limit. JITSYS only obtains as must space as is required to execute the current /390 program.

Values: 0 ... 16 ... 65535

L4MSG (privileged, A/1)

Controls output of question `EXC044E: 'ACCEPT ALLOCATION-REQUEST...'`

0 Question is not output

1 Question is output
Exception: The request comes from the slave of a shared pubset.

L4SPDEF (privileged, A/4)

Presetting for saturation level 4 of the pubset storage space.
The saturation level 4 for a pubset is reached if fewer free PAM blocks are available than specified in the parameter.
For a pubset, the value is only valid if none was specifically defined via the ADD- / MODIFY-MASTER-CATALOG-ENTRY command.

Values: 66 ... 2500 ... 50,000,000

MCXSPXCS (privileged, C/1)

Defines whether the computer is XCS-compatible or not.

N the computer is not XCS-compatible
No XCS name may be specified in the MSCF configuration file. The computer becomes a CCS computer and only SPVS functionality is available.

V the computer is XCS-compatible
Depending on what is specified for the XCS name in the MSCF configuration file, the computer becomes an XCS computer in the XCS network (it either creates this network or joins it) or a CCS server (SPVS functionality only). In CCS mode, requests for global XCS resources are rejected and the XCS functionality is not available, but MSCF can be started later in XCS mode.

Y the computer is XCS-compatible
Depending on what is specified for the XCS name in the MSCF configuration file, the computer becomes an XCS computer in the XCS network (it either creates this network or joins it) or a CCS server (SPVS functionality only). In CCS mode, requests for global XCS resources are satisfied by global system resources. As a result, the XCS functionality is available on the local system, but it is not possible to start MSCF in XCS mode in this system session.

MIGHOST (nonprivileged, dynamically changeable, X/1)

Global Server Unit settings for live migration

Bit 2^0: Setting for Server Unit selection with SHOW-SYSTEM-INFORMATION command

Bit 2^1: setting for Insert &00 (server type) in LOGON message `JMS0150`

The following applies:

0: server on which IPL was executed (compatible behavior as without live migration)

1: Current Server Unit to which migration took place (recommended value)

Values: X'00' ... X'03'

MSGCENTL (privileged, A/2)

Defines the length of an entry in high-speed memory for message processing (in bytes). The value must be a multiple of 4. This part of class 4 memory is used to buffer the last and most frequently used messages in order to reduce the number of file accesses.

Values: 36 ... 200 ... 2500

MSGCENTN (privileged, A/2)

Defines the number of entries in high-speed memory (see above) for message processing.

> The total size of high-speed memory can be calculated by multiplying the values for MSGCENTL and MSGCENTN.

Values: 0 ... 32 ... 32767

MSGDEST (nonprivileged, C/4)

If no destination is specified when texts are output at the console by a INFORM-OPERATOR command or a macro (MSG7X, TYPIO, ...), the destination defaults to the destination specified here.

Default value: '<* '

Values:	'<x '	x must be a valid routing code A..Z, 0..9, @, $, # or *
	'nnnn'	nnnn must be the name of an authorized user program
	'(mn)' '(mn)'	mn must be the mnemonic name of a console

If an invalid destination is specified, the default value is used.

MSGDLAM (privileged, A/1)

Number of message files to be processed via DLAM.

Values: 0 ... 99

MSGFIL01, MSGFIL02, ..., MSGFIL15 (privileged, C/51)

File names of message files that should be activated in the startup even before MIP is commonly available. Of the file names listed here, as many are evaluated as are specified in the MSGNOFL parameter. The default settings apply MSGFIL01=SYSMES.BS2CP.<ver>, MSGFIL02=SYSMES.EKP.01.
There are no standard names for the parameters MSGFIL03 to MSGFIL15.

Values:	filename file name must be fully qualified. Only the user ID TSOS is possible. If no user ID is specified, “filename” may be up to 41 characters in length.

MSGLPRI (privileged, C/2)

Language for message output.

ED	English, German

DE German, English

English=default; if there is no English entry, German message text is output (priority). Other languages can be specified if they are entered to the message work files.

MSGNOFL (privileged, A/1)

Number of message files specified by means of the MSGFILxx parameter.

=0 At least one name for a message file is requested via the console.

>0 File names are requested via the console when the file name specified in the MSGFILxx parameter is invalid.

Values: 0 ... 2 ... 15

NBACODE (nonprivileged, C/1)

Defines the default routing code for when new operator commands are entered (dynamic setting).

Values: A ... E ... Z / 0 ... 9 / $ / * / @ / #

NBBAPRIV (privileged, C/1)

A more stringent access protection for $CONSOLE can be activated.

N Any applications can be connected to $CONSOLE provided the requisite password is also specified. Local applications beginning with a dollar sign can be connected to $CONSOLE without specifying a password.

Y Only local applications beginning with a dollar sign may be connected to $CONSOLE; such applications may only be opened under TSOS. In other words, the connection request is rejected if the processor name of the application is not the name of the home processor or if the application does not begin with a dollar sign.

NBCONOPI (privileged, C/1)

Sets the mode of operation on physical consoles and in $CONSOLE applications with dynamic authorization names.

N Operator logon is deactivated

Y Operator logon is activated

NBESSIZE (nonprivileged, A/4)

Defines the maximum size in PAM pages of the central system event stream file $SYSAUDIT.SYSLOG.ESS.SYSTEM. When the specified maximum size is reached, the oldest logged events are deleted and the storage space gained is used for the new data to be recorded.
The precise specification of the values set depends on the secondary allocation for this file. If the size is 0 then the file is not created. The system event-stream services are not available.

Values: 0 / 10000 ... 40000 ... 200000

NBIMPRCA (privileged, C/1)

Defines whether the implicit authorizations are only effective until “System ready” and after SHUTDOWN END or whether they are to be managed during the entire session, i.e. assigned to the relevant main console.

N The implicit authorizations are only effective on the main console until “System ready” and after SHUTDOWN END.

Y The implicit authorizations are effective during the entire system run.

This system parameter is not evaluated when NBCONOPI=N applies.

NBKESNR (privileged, A/1)

Controls the formation of the name and the ID under which the SYS.CONSLOG files are written. For example, NBKESNR=3 leads to the fully qualified file name $TSOS.SYS.CONSLOG.yyyy-mm-dd.sss.nn. Missing specification or NBKESNR=0 leads to the file name $SYSAUDIT.SYS.CONSLOG.yyyy-mm-dd.sss.nnn.

0 SYSAUDIT ID and 3-digit serial number

1 TSOS ID and 3-digit serial number

2 SYSAUDIT ID and 2-digit serial number

3 TSOS ID and 2-digit serial number

NBLOGENF (nonprivileged, C/1)

Defines whether CONSLOG can be reactivated using the CHANGE-CONSLOG command following an unrecoverable `DMS054D` error.

E When SYS.CONSLOG is opened, an additional file is set up as a dummy. If this is not possible, the operator is sent a warning. If message `DMS054D` still appears, message `NBR0953` is sent to prompt the operator to resume console logging once space has been created (reply “R”) or to abort the system session (reply “H”).

N Following message `DMS054D` the message `EXC0991 CONSLOG INACTIVE` appears. Once the space problems have been eliminated, the CHANGE-CONSLOG command can be used to open a new logging file. The serial number of SYS.CONSLOG incremented by two in order to log the failure.

If the maximum CONSLOG serial number defined by NBKESNR has already been reached, the CHANGE-CONSLOG command is rejected (NBLOGENF=E) or the current logging file is closed and console logging is deactivated (NBLOGENF=N).

NBLOGT0 (privileged, dynamically changeable, C/1)

Defines whether the TSNs of user tasks are displayed with all leading zeros in the CONSLOG file.

N Leading zeros in TSNs can be replaced by blanks

Y All leading zeros in TSNs appear in the CONSLOG file

NBMESLG (nonprivileged, C/1)

Specifies the output of messages sent via the INFORM-JOB or INFORM-ALL-JOBS commands.

L Output with full length

S Output in max. one line

NBMSGCSD (nonprivileged, dynamically changeable, C/1)

Governs whether system messages generated when all (physical) consoles are defective are to be held to have been output even if they have not been displayed at a physical console.

N All messages with a physical console as authorized recipient are buffered in system storage until output on a physical console is possible.

Y The messages are released once they have been distributed to other recipients (such as CONSLOG). This avoids problems with space shortfall on the system.

NBOPTINT (nonprivileged, A/1)

Interval in minutes after which message `NBR0750` (containing the date) is to be output to all physical consoles. The routing code for this message is “E”.

0 Message `NBR0750` is not output.

Values: 0 ... 255

NBRCILU (nonprivileged, A/4)

Specifies the time unit in milliseconds by which the interval in the command (CLI = communication interval limit) is multiplied to specify the effective operator task holding time.
If message `NBR0974` occurs frequently, this unit should be increased.

Values: 1 ... 10 ... 255

NBRCSCK (nonprivileged, X/1)

Specifies the time in minutes after which the connection between a privileged, authorized user task (not a TSOS application on the home system) and the UCON task ($CONSOLE) is severed if no more messages are fetched by the user process.

Values: 1 ... 10 ... 255

NBRCSCKN (nonprivileged, X/1)

Specifies the time in minutes after which the connection between a nonprivileged, authorized user task (not a TSOS application on the home system) and the UCON task ($CONSOLE) is severed if no more messages are fetched by the user process.

Values: 1 ... 10 ... 255

NBREPLY (privileged, C/1)

Specifies whether the authorization code * is to be linked to the authorization to answer all (normal) open operator questions in the system.
Exception: emergency questions and requests for additional command information from user tasks with the OPERATING privilege.

N The authorization is not linked to the AC * .

Y The authorization is linked to the AC * .

NBRUNSP (nonprivileged, C/1)

Specifies whether commands from RUN sequences are to be output on the console on which the RUN command was entered.

Values: N / Y

NBRUNUID (privileged, C/9)

Specifies under which user ID a RUN file (CMDFILE) is to be looked for if no explicit specification was given. If the first character is not “$”, the specification is ignored. The search takes place under the user ID TSOS.

Values: C' ' / $userid, userid max. 8 characters

NBRUNWT (nonprivileged, A/4)

Specifies how long (in seconds) the system is to wait for AGOGO commands after ASTOP commands in RUN sequences.

Values: 10 ... 180 ... 255

NBSILND (privileged, C/1)

Specifies whether in a startup mode not equal DIALOG the output of the messages distributed via routing codes to all consoles until “System ready” is to be suppressed. The suppressed messages are logged in the SYS.CONSLOG file (*Exception:* questions)

N These messages are output.

Y Output of these messages is suppressed.

NETCODE (nonprivileged, dynamically changeable, C/8)

Specifies the default setting for the net coded character set when creating user entries, see the “Introductory Guide to DVS” manual [13]). When creating node files, the resulting net coded character set is determined in accordance with the coded character set and based on the net coded character set in the user entry.

*ISO When copying EBCDIC encoded files in SAM node files a code conversion into an ISO8859-x character set is carried out. If ISO converted data are copied, no conversion takes place.

*NO-CONV

When copying the data in SAM node files, no code conversion takes place. Only the character for the line feed, matching the specified coded character set, is inserted between the file records.

name — CCSN of the standard character set for SAM-node files on Net-Storage. The character set must be known when the SAM node file is opened in XHCS. Any name with a maximum of 8 characters.

NRTKILL (privileged, dynamically changeable, C/1)

Specifies whether the operator command FORCE-JOB-CANCEL is forbidden or permitted. System administration is always allowed to issue this command, regardless of the value set here.

Y Command is forbidden, message `EXC0705` is output

N Command is allowed

NTPSHIGH (privileged, C/1)

Defines how the time server “NETWORK TIME PROTOCOL” (NTP) is handled if no information about its quality (*stratum*) is available in BS2000.

N If no *stratum* is available, it is handled like a *stratum* > 4, i.e. NTP retains its regular, low priority.

Y If no *stratum* is available, it is handled like a *stratum* <= 4, i.e. NTP is the time source with the highest priority.

This parameter is obsolete. The current BS2000 NTP always supplies a *stratum*.

NUMBACK (nonprivileged, A/1)

Default value for the operand NUM-OF-BACKUP-VERS in the commands CREATE-FILE; defines the maximal number of file versions in the version backup archive.

n=0 Ignored by version backup

n>0 Maximal number of file versions saved in the version backup archive

Values: 0 ... 32

PWACTIVE (privileged, dynamically changeable, A/4)

Maximum number of passwords in the password list of a job (evaluated separately according to file and crypto passwords).
If the threshold value is reached, message `DMS0691` is issued and no further file or crypto password can be entered for the current task before at least one of the crypto passwords in the crypto password table has been removed.

Values: 0 ... 15,728,639

PWENTERD (privileged, dynamically changeable, A/4)

Maximum permitted number of ADD-PASSWORD- and ADD-CRYPTO-PASSWORD commands per task (evaluated separately according to file and crypto passwords).
If the threshold value is reached, message DMS0692 is issued and no further file or crypto password can be entered for the current task.

Values: 0 ... 2,147,483,647

PWERRORS (privileged, dynamically changeable, A/4)

Maximum permitted number of invalid attempts to check the password per task (evaluated separately according to file and crypto passwords).
If the threshold value is reached, a SAT entry may be written, a message DMS0693 issued on the console and the task terminated abnormally.

Values: 0 ... 15,728,639

PWPENTI (privileged, dynamically changeable, A/1)

Specifies whether the detection of an invalid password entry results in a penalty (with the duration of the penalty being specified in seconds). PWPENTI is used when checking file, job variable and crypto passwords; in the case of file accesses and crypto passwords, the number of invalid entries is also of importance.

The following penalties are imposed in the event of invalid password entries:

Crypto: (PWPENTI) * number of invalid attempts (seconds)

Files: (PWPENTI) * number of invalid attempts (seconds)

JV's: (PWPENTI) (in seconds)

If the default value 0 is specified, no penalty is imposed.

Values: 0 ... 60

RDTESTPR (nonprivileged, dynamically changeable, A/1)

Limits the read test privileges on a global basis. This maximum value must be observed in addition to the user ID-specific test values.

Values: 0 ... 9

RECONUC (privileged, C/1)

Specifies the systems support default value for the reconstruction request to the user catalog.
In the case of a FAST or AUTOMATIC startup, reconstruction is performed automatically, i.e. without operator intervention. In the case of a DIALOG startup, the default value can be changed by the operator (message NSI6010).
TSOS can inquire which type of reconstruction is to be performed by issuing the command /SHOW-SYSTEM-PARAMETERS PAR=RECONUC after “System ready”.

N The user catalog remains unchanged.

B

The user catalog is reconstructed. A new user catalog is created based on the contents of the $TSOS.SYSSRPM.BACKUP file.

T The user catalog is reconstructed. A new user catalog is generated, containing only those users who also have an entry in the $TSOS.TSOSCAT file. If there are also user attributes for these users in the $TSOS.SYSSRPM.BACKUP file, these are added to the new entries.

A The user catalog is reconstructed. A new user catalog is created based on the contents of the $TSOS.SYSSRPM.BACKUP and $TSOS.TSOSCAT files. It contains entries for all users who are recorded in at least one of the two files. If they exist, the user attributes are taken from the $TSOS.SYSSRPM.BACKUP file, otherwise a default user entry is created and the affected IDs are locked.

R The user catalog is reset. A new user catalog is created containing only those users entered to the $TSOS.TSOSCAT file. All users contain default attributes, and all IDs except for TSOS are locked.

SDPINTLN (nonprivileged, dynamically changeable, A/1)

Reserved system parameter for future functions.

SECSTART (nonprivileged, C/1)

Activates or deactivates the secure system start. If it is activated, the session-specific logging files SYSAUDIT.SYS.REPLOG... from the previous sessions are not deleted automatically. If there is a message buffer overflow, system initialization is aborted. Outputs to consoles, if issued by system components, are identified by # in front of the time-of-day display.

Values: N / Y

SECSTENF (nonprivileged, C/1)

System initialization is aborted if REPs cannot be logged completely. (SECSTENF: SECSTART ENFORCEMENT)

Values: N / Y

SHUTARCH (nonprivileged, dynamically changeable, C/1)

After entry of the SHUTDOWN command, a check is to be carried out as to whether the ARCHIVE subsystem is still in use.

N No check is carried out, and SHUTDOWN is initiated immediately.

Y A check is carried out; if ARCHIVE is still in use, the operator is asked whether SHUTDOWN should nevertheless be executed.

The VM2000 command SHUTDOWN-VM ignores this parameter. SHUTARCH=N applies here for the monitor system and all guest systems.

SHUTCTL (privileged, dynamically changeable, A/1)

Specifies the maximum wait time in minutes that the system is to wait after entry of the SHUTDOWN command for the termination of user jobs. Jobs which cannot be terminated within this period, are ended by means of the FORCE-JOB-CANCEL command.

0 The wait time is a maximum of 30 seconds.

n The wait time is a maximum of n minutes (1 <= n <= 60).

The actual time required to terminate the jobs is system-specific and depends on the following factors:

- Hardware configuration (e.g. number and performance of CPUs and IOPs, performance of the periphery and bus system)
- Software configuration (e.g. CPU quota for guest systems in VM2000 operation, active subsystems at shutdown time, use of HIPLEX MSCF and number of clusters)
- Customer-specific factors (e.g. number and context of the user task at shutdown time)

SHUTPROC (nonprivileged, dynamically changeable, C/15)

Defines the procedure in the event of a shutdown on request by the SE manager on SE servers.

BY-SHUTDOWN-CMD	System shutdown is initiated immediately.
BY-ENTER-JOB	The system is shut down by the enter job `$TSOS.SYSENT.SHUTDOWN`.

SNAPTIME (privileged, dynamically changeable, A/2)

Specifies the maximum duration of the interruption of BS2000 by the SNAP dump function (in seconds).

Values: 8 ... 24

SSMAPRI (privileged, dynamically changeable, A/4)

Primary allocation in PAM blocks for the system files S.OUT.tsn.yyyy-mm-dd.hhmmss.cnt and S.LST.tsn.yyyy-mm-dd.hhmmss.cnt (cnt: 4-digit counter) and for reassigned system files if the file concerned was created by means of an ASSIGN-<sysfile> command.

Values: 3 ... 24 ... 65535

SSMASEC (privileged, dynamically changeable, A/4)

Secondary allocation in PAM blocks for the system files S.OUT.tsn.yyyy-mmdd.hhmmss.cnt and S.LST.tsn.yyyy-mm-dd.hhmmss.cnt (cnt: 4-digit counter) and for reassigned system files if the file concerned was created by means of an ASSIGN-<sysfile> command.

Values: 3 ... 24 ... 65535

SSMCOPT (privileged, dynamically changeable, C/1)

The continuation character “-” (hyphen) for commands can be given in columns 2-72.

Y The continuation character can be entered in columns 2-72.

N The continuation character must be entered in column 72.

SSMLGOF1 (nonprivileged, C/9)

Determines how SPOOLOUT jobs from SYSOUT or SYSLST files are treated at LOGOFF, depending on the SPOOL status.

REQ-SPOOL	SPOOLOUT jobs from system files are always accepted. If SPOOL is not loaded, the jobs wait until SPOOL READY.
NO-SPOOL	In batch mode LOGOFF NOSPOOL is always simulated, i.e. no SPOOLOUT jobs are accepted. In interactive mode, the value of SSMLGOF2 is checked, see SSMLGOF2.
STA-SPOOL	If SPOOL is loaded, the SPOOLOUT jobs are accepted. If SPOOL is not loaded, batch mode is simulated in LOGOFF NOSPOOL. In interactive mode, the value of SSMLGOF2 is checked, see SSMLGOF2.

SSMLGOF2 (nonprivileged, C/5)

In the case of LOGOFF in interactive mode, defines how the SPOOLOUT job is handled for SYSLST when SSMLGOF1=NO-SPOOL / STA-SPOOL.

NO	The SPOOLOUT job is ignored.
YES	Depending on the SPOOL status, the interactive user receives one of the following messages from SPOOL: • SPOOL is not loaded: `SSM2066` The interactive user can specify whether to wail until SPOOL is loaded or whether the SPOOLOUT request is to be ignored. • SPOOL is loaded: `SSM2075` The interactive user can specify whether the SPOOLOUT job is to be executed or ignored.
SPOOL	If SPOOL is loaded, the SPOOLOUT job is accepted. If SPOOL is not loaded, the interactive user receives message `SSM2066` and can specify whether to wait until SPOOL is loaded or whether the SPOOLOUT request is to be ignored.

SSMMILOG (privileged, dynamically changeable, C/1)

Specifies whether the output records are additionally written into a file when SYSLST or SYSOUT is assigned to a PLAM library element.

N	Output records are not copied.
Y	In each assignment of SYSLST or SYSOUT to a PLAM library element, a file is generated as a copy and each output record is also written into that file. The copy is assigned the name `S.LST.lib.elem.tsn.counter` or `S.OUT.lib.elem.tsn.counter` lib: die ersten 7 Zeichen der PLAM-Bibliothek elem: die ersten 7 Zeichen des Elements tsn: TSN der Task, 4 Zeichen counter: Zähler, 4-stellig

SSMOUT (nonprivileged, dynamically changeable, C/5)

Specifies the default value of the system output for the ENTER-PROCEDURE, EXIT-JOB, LOGOFF and CANCEL-JOB commands. In a computer network SSMOUT is evaluated on the target computer.

PRINT System output is processed via SPOOL.

MAIL System output is sent by email to the recipient addresses (EMAIL-ADDRESS) entered in the user ID's user entry. If they cannot be sent, the same procedure is used as for PRINT.

SSMPNOQ (privileged, dynamically changeable, C/3)

Specifies whether primary SYSFILE files are not to be counted toward the user quota for temporary files (TEMP-SPACE-LIMIT).

YES Primary SYSFILE files are not counted toward the user quota (compatible mode).

NO Primary SYSFILE files are treated as temporary files and the pubset limit of the user is checked. If the limit has been reached, further proceeding follows the settings in the SSMSDEVB and SSMSDEVD system parameters.

SSMSDEVB (privileged, dynamically changeable, C/8)

Defines the device type when switching from disk to tape for a batch task.

*DUMMY Proceed without logging.

Value: TAPE / *DUMMY / tape device type (depending on installation), max. 8 characters

SSMSDEVD (privileged, dynamically changeable, C/8)

Defines the device type when switching from disk to tape when M=mtc is entered in response to messages SSM2035, SSM2078 or SSM3060 (insufficient disk space).

Value: TAPE-C4 / tape device type (depending on installation), max. 8 characters

STUPTYPE (privileged, C/1)

Specifies the systems support default value for the reconstruction request to the user catalog.
In the case of a FAST or AUTOMATIC startup, the corresponding system startup is performed automatically, i. e. only STUPTYPE=S requires operator intervention.
In the case of a DIALOG startup, the default value can be changed by the operator (message NSI6005).
The operator can inquire which type of reconstruction has been performed by issuing the /SHOW-SYSTEM-PARAMETERS PAR=STUPTYPE command.

W Warm start

C Cold start

J First start with resetting of the user catalog. The user catalog, JMS job queue and TSN file are all reset.

S Selective startup

T First start with resetting of the TSN file The JMS job queue and TSN file are all reset.

Z Zip start

SVC79 (nonprivileged, A/4)

The applicability of SVC79 (switch from the user status to the privileged system status) can be restricted.

0 SVC79 may only be performed by tasks running under the user ID TSOS or SERVICE. The first SVC79 of a program is indicated by an appropriate message on the console.

1 The operator must confirm the switch for the first SVC79 of a program. Furthermore, only TSOS tasks and SERVICE tasks may issue this SVC.

2 SVC79 can only be used by tasks running under the SERVICE user ID. In addition, the operator has to confirm the switch.

3 It is not possible to switch from the user status to the privileged system status.

SYSGBSIZ (privileged, A/4)

Buffer size for terminals (in bytes).

> The buffer size can be defined individually for each terminal by means of the SETBF macro.

Values: 256 ... 2048

SYSGJASL (privileged, dynamically changeable, A/4)

Default value for the ADDRESS-SPACE-LIMIT operand in the ADD-USER command (user space for a task under this user ID).

Values: 1 ... 16 ... 2147483647 *Mbyte*

SYSGJCLA (privileged, A/2)

Specifies the default value for the SPOOLOUT-CLASS operand in the ADD-USER command (SPOOLOUT class).

0 No spoolout class for this user ID / account number.

1 ... 255 The specified spoolout class is assigned to the user ID / account number.

SYSGJCPU (privileged, dynamically changeable, A/4)

Default value for the CPU-LIMIT operand in the ADD-USER command (total runtime for user ID / account number).

Values: 0 ... 65535 ... 2147483647 *seconds*

SYSGJPRI (privileged, dynamically changeable, A/2)

Default value for the MAXIMUM-RUN-PRIORITY operand in the ADD-USER command.

Values: 1 ... 255

SYSTHOOK (privileged, C/3)

NO	The Systemhook commands ADD-SYSTEM-HOOK and MODIFY-SYSTEM-HOOK-PROCESSING are forbidden; all others are permitted.
YES	All Systemhook commands are permitted.

SYSVECT (privileged, A/2)

Size of system vector in pages (global storage area for system exit routines).

Values: 0 ... 15

TASKVECT (privileged, A/2)

Size of task vector in pages (local storage area for system exit routines).

Values: 0 ... 15

TCHOFLO (privileged, dynamically changeable, C/5)

Default value for the type of overflow control for terminals (corresponds to the MODIFY-TERMINAL-OPTIONS command)

ACK (=USER-ACKNOWLEDGE)	Overflow control by user acknowledgment.
TIMER (=TIMEOUT)	Overflow control by timer (6 seconds)
NO (=NO-CONTROL)	No overflow control.

TCHREAD (privileged, dynamically changeable, C/5)

Default value for the operating mode for terminals, corresponding to the command MODIFY-TERMINAL-OPTIONS, operand WRITE-READ-MODE= ... .

MODIF (=MODIFIED-FIELDS)	Reads modified fields.
UNPRO (=NO-FIELDS)	Reads unprotected fields.

TCHTACK (privileged, dynamically changeable, C/3)

Default value for the acknowledgment procedure for outputs to terminals, corresponding to the command MODIFY-TERMINAL-OPTIONS, operand ACKNOWLEDGE-OUTPUT= ... .

NO	Acknowledgment procedure switched off.
YES	Acknowledgment procedure switched on.

TEMPFILE (nonprivileged, C/2)

On system start this value is overwritten with the default value # .

Special character which must be added as a prefix to the file or job variable name in temporary files and job variables.

special character (# or @)	Files and JVs generated with the prefixed special character are temporary and are given the name: S.sysid.nnnn.filename or S.sysid.nnnn.jvname (sysid = SYS-ID of the home pubset nnnn = TSN of the generating job). They are deleted automatically when the LOGOFF command is issued.
NO	The system functions without temporary files and job variables.

> The temporary file names may change in a subsequent BS2000 version. They do not represent a system interface.

VMGIORAL (privileged, dynamically changeable, C/3)

Specifies if a VM2000 global detach device command (DETACH-DEVICE or REMOVE-DEVICE-CONNECTION command with SCOPE=*VM2000-GLOBAL) can be executed in the guest system.

YES	Detach command may be executed.
NO	Detach command may not be executed

VSEQPRI (privileged, C/1)

When tapes are requested the specification of the file name/file section number has priority over the VSN specification.

0	VSN specification has priority.
1	File name / file section number has priority. If VSEQPRI has the value 1, the VSN can be omitted when importing a tape file (FILE macro with STATE=FOREIGN) and a different VSN from the one entered in the file catalog can be assigned (e.g. the VSN of the backup copy) when processing a cataloged tape file.

WRTESTPR (nonprivileged, dynamically changeable, A/1)

Limits the write test privilege on a global basis. This maximum value must be observed in addition to the user ID-specific test values.

Values: 0 ... 9

7.28 SHOW-SYSTEM-STATUS

Output system status information

Component:	STATUS
Functional area:	Job processing
Domain:	JOB
Privileges:	all privileges
Routing code:	E

Function

The SHOW-SYSTEM-STATUS command provides information on the processing status in the system. The following information can be requested (by specifying the appropriate value in the INFORMATION operand):

- *SUMMARY (default):
  Actual number of jobs, according to job type.
- *SYSTEM-PARAMETERS:
  Maximum permitted number of resident main memory pages
- *CATEGORY:
  Maximum number and actual number of active jobs, according to category (system, interactive, batch, transaction jobs).
- *REMOTE:
  Information on RSO printers, e.g. name, status display, station and processor name, user ID and TSN of jobs.
- *SATURATION-QUEUE (privileged):
  Information on saturation queues, such as the hold queue for a paging device, prereservation of paging areas and main memory.
- *WHEN-QUEUE (privileged):
  Information on jobs in the WHEN queue, such as TSN, user ID, time of entry in the queue and maximum dwell time.
- *REPLAY-QUEUE (privileged):
  Information on jobs in the REPLAY queue, such as TSN, user ID, volume ID, form, output device.
- *JOB-CLASS:
  Information on job classes, such as name, maximum number of jobs, weight, status, name of responsible job stream.
- *JOB-STREAM (privileged):
  Information on job streams, such as name, status, number of waiting jobs, start time and stop time.

The command supports structured output in S variables (see "Output in S variables").

Privileged functions

System support staff are shown all the available information on the processing status in the system. Among other things they can request information relating to the saturation, WHEN and REPLAY queues and to job streams.

Format

SHOW-SYSTEM-**STAT**US Alias: **SHSS**

INFORMATION = ***SUMM**ARY(...) / ***SYS**TEM-**PAR**AMETERS / ***CATEG**ORY / ***REMOTE**(...) /
***SAT**URATION-**QUEUE**(...) / ***WHEN-QUEUE**(...) / ***REPL**AY-**QUEUE**(...) /
***JOB-CLASS**(...) / ***JOB-STR**EAM(...)

***SUMM**ARY(...)

| **SEL**ECT = ***ALL** / ***JOBS** / ***SP**OOLOUT / ***REM**OTE-**SP**OOLOUT

| ,**USER-ID**ENTIFICATION = ***STD** / ***ALL** / <name 1..8> / ***OWN**

***REMOTE**(...)

| **DEV**ICE = ***MANAG**ED-**DEV**ICES / ***ALL** / <alphanum-name 1..8 with-wild>

***SAT**URATION-**QUEUE**(...)

| **OUT**PUT-**INF**ORMATION = ***USER-ID**ENTIFICATION / ***NAME** / ***NONE**

***WHEN-QUEUE**(...)

| **OUT**PUT-**INF**ORMATION = ***USER-ID**ENTIFICATION / ***NAME** / ***NONE**

***REPL**AY-**QUEUE**(...)

| **OUT**PUT-**INF**ORMATION = ***USER-ID**ENTIFICATION / ***NAME** / ***NONE**

***JOB-CLASS**(...)

| **STATE** = ***ALL** / ***ACT** / ***INACT** / ***HOLD** / ***DEL**

***JOB-STR**EAM(...)

| **STATE** = ***ALL** / ***ACT** / ***INACT** / ***HOLD**

Operands

INFORMATION =
Type of information to be output:
number of jobs / system utilization / categories / saturation, WHEN and REPLAY queues / job classes / job streams.

INFORMATION = *SUMMARY(...)
Outputs the actual number of jobs, according to job type (job types T4 through T8 are only included if SPOOL is loaded).

Job type		Meaning
T1		Waiting batch jobs
	(DO)	Dormant: the responsible job scheduler is not yet active; or job run J(i) (where i >= 1) of a repeat job.
	(WT)	Waiting: the job is waiting to be started by the system.
	(HO)	*HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources
	(HOP)	*HELD-BY-PUBSET*: job waiting for pubset import
	(HOT)	*HELD-BY-TSN*: job waiting for TSN release
	(HOC)	*HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
T2		Batch jobs in progress
T3		Interactive jobs in progress
T4		Spoolout jobs waiting for:
	(PR)	printer
	(TP)	tape
T5		Spoolout jobs in progress, in state:
	(AC)	active
	(KP)	suspended; on explicit request from the operator, these jobs are returned to the job queue (T4).
T7		RSO spoolout jobs in state:
	(WT)	waiting
	(AC)	active
	(KP)	suspended
T8		RSO devices

SELECT =
Job types on which information is required.

SELECT = *ALL
Outputs all job types (T1 through T8); T1 and T7 are output without status information.

SELECT = *JOBS
Outputs job types T1 through T3.

SELECT = *SPOOLOUT
Outputs job types T4 through T8.

SELECT = *REMOTE-SPOOLOUT
Outputs job types T7 and T8.

USER-IDENTIFICATION = *STD / *ALL / <name 1..8> / *OWN
Specifies the user ID of the jobs for which information is to be output. By default, all user IDs are included. Nonprivileged users are only provided with information relating to jobs running under their own user ID.

USER-IDENTIFICATION = <name 1..8>
Only the jobs of the user ID specified here are to be included in the overview.

USER-IDENTIFICATION = *OWN
Only the user's own jobs are included. The output also includes information about devices managed by the user. USER-IDENTIFICATION=*OWN is not allowed at consoles.

INFORMATION = *SYSTEM-PARAMETERS
Outputs the maximum permitted number of resident main memory pages under "CORE".

INFORMATION = *CATEGORY
Outputs the maximum permitted and the actual number of active jobs, according to category.
The following table lists the output fields and their meaning:

Field	Meaning / contents
CATEGORY NAME	Name of the category, e.g.: • SYS: System jobs • DIALOG:Interactive jobs • BATCH: Batch jobs • TP: Transaction jobs
MINMPL	Minimum number of active jobs.
MAXMPL	Maximum permitted number of active jobs.
WEIGHT	Value for calculating the index for this category. This determines the activation sequence.
#EXISTING	Number of existing jobs.
#ACTIVE	Number of active jobs.
#READY INACT	Number of inactive jobs that are ready for activation.
#RDY NOT ADMITTED	Number of inactive jobs that are ready to run but that are not permitted in this category (this column is only relevant if the software product PCS is used).
IO-PRIO	I/O priority of the category

INFORMATION = *REMOTE(...)

DEVICE = *MANAGED-DEVICES / *ALL / <alphanum-name 1..8 with-wild>
Specifies the device name of an RSO printer about which information is required. The device name can also be specified using wildcards. The default value *MANAGED-DEVICES supplies information about all printers for which the user is defined as device manager.

Field	Meaning / contents
DEVICE	Name of printer
A	Status display for RSO printers: • “A”: printer attached but not active • “D”: no virtual connection (detached) • “I”: no spoolout jobs available • “M”: a message is outstanding at the console for this device • “R”: output of a spoolout job • “S”: printer stopped due to error • “W”: 9025 or 9645 printer currently inaccessible, since it is being used by the SPSERVE program
STA/PORT	Station name of an RSO printer which is not connected to TACLAN, or port name of an RSO printer on TACLAN.
PROC/ INTERNET@	Name of processor if the relevant RSO printer is not connected to TACLAN, or Internet address if the printer is on TACLAN. **Note:** If the Internet address is more than 16 bytes long, the first 15 bytes are displayed, followed by an asterisk.
USERID	For privileged users only: User ID of the RSO job.
TSN	For privileged users only: TSN of the spoolout job to be output.
ERCOD	Return information from DCAM or printer.
ERMSG	Message number of error (HELP-MSG-INF).
E	For privileged users only: Exit routine activated, “Y” or “N”.
CTRL TSK	TSN of the RSO control task for the device. Output only if a device name has been specified.

INFORMATION = *SATURATION-QUEUE(...)
Only privileged users are allowed to select this value.
Outputs information on the saturation queue.
The information specified in the OUTPUT-INFORMATION operand is output for each queue. If a queue does not contain any tasks, `NO TASK ON QUEUE` is output for the queue involved.

PD HOLD :	Hold queue for a paging device
PD PRERESERVE :	Queue for prereservation of a paging area
CORE PRERESERVE :	Queue for prereservation of main memory

OUTPUT-INFORMATION = *USER-IDENTIFICATION / *NAME / *NONE
Specifies whether the name or user ID of the jobs in the saturation queue is to be output in addition to the TSN.

OUTPUT-INFORMATION = *USER-IDENTIFICATION
Outputs the user ID.

OUTPUT-INFORMATION = *NAME
Outputs the job name, as specified in the SET-LOGON-PARAMETERS or PRINT-DOCUMENT command.

INFORMATION = *WHEN-QUEUE(...)
Only privileged users are allowed to select this value. Outputs information on the WHEN queue.
If the queue is empty, message EXC0354 is output.

Field	Meaning / contents
TSN	TSN of the jobs waiting for a condition to become true.
NAME	User ID, job name or blanks, depending on the specification made in the OUTPUT-INFORMATION operand.
IN QUEUE SINCE	Date and time at which the job was entered in the WHEN queue
MINLIMIT	Maximum number of minutes the job may remain in the queue or SHUTDWN.

OUTPUT-INFORMATION = *USER-IDENTIFICATION / *NAME / *NONE
Specifies whether the name or user ID of the jobs in the WHEN queue is to be output in addition to the TSN.

OUTPUT-INFORMATION = *USER-IDENTIFICATION
Outputs the user ID.

OUTPUT-INFORMATION = *NAME
Outputs the job name, as specified in the SET-LOGON-PARAMETERS or PRINT-DOCUMENT command.

INFORMATION = *REPLAY-QUEUE(...)
Only privileged users are allowed to select this value.
Outputs information on the REPLAY queue.
If the queue is empty, the message “NO TASK ON REPLAY QUEUE” is output.

Field	Meaning / contents
NAME	User ID, job name or blanks, depending on the specification made in the OUTPUT-INFORMATION operand.
TSN	Task serial number.
SESSID	VSN of the first replay tape.
CLASS	Spoolout class according to entry in user catalog.
FORM	Form name.
DIA	Form overlay name.
SIZE	Size of original file written to tape, specified in PAM blocks.
DEV	The desired output device: • SD: Printer with loadable VFB (3341, 3342, 3343) • SD7: Printer with loadable VFB(3337, 3338, 3339, 3348, 3349, 3365, 9xxx) • NSD: Printer with loadable VFB or ND Laser Printer • HP: HP/SD/SD7 Printer or devices which are no longer supported • NHS: HP Laser Printer or printer with loadable VFB • NHP: HP Laser Printer or devices which are no longer supported • HSD: HP/SD/SD7 Printer

OUTPUT-INFORMATION = *USER-IDENTIFICATION / *NAME / *NONE
Specifies whether the name or user ID of the jobs in the REPLAY queue is to be output in addition to the TSN.

OUTPUT-INFORMATION = *USER-IDENTIFICATION
Outputs the user ID.

OUTPUT-INFORMATION = *NAME
Outputs the job name, as specified in the SET-LOGON-PARAMETERS or PRINT-DOCUMENT command.

INFORMATION = *JOB-CLASS(...)
Outputs information on job classes.
The following table lists the output fields and their meaning:

Field	Meaning / contents
JCLASS	Name of job class.
CLIM	Maximum number of jobs that can run at the same time in the job class; further batch jobs are not started and they wait in type 1.
OPTM	Optimum number of jobs that should run at the same time in the job class.
W	Weight (urgency) of the job class.
STATE	State of the job class (ACT/INACT/HOLD/DEL) • ACT: Job class active • HOLD: Job class in the “hold” state; waiting jobs are no longer started and new jobs are placed in the queue (T1). • INACT: The relevant job scheduler is inactive; waiting jobs are not started and new jobs are placed in the queue (T1). • DEL: Job class is in the in “delete” state.
JSTREAM	Name of the responsible job scheduler (job stream).
The following outputs DORM, ANCD, WAIT, STRT, and HOLD apply to the relevant job class.	
DORM	Number of jobs waiting because the responsible job scheduler is not yet active; or *i*th job run of a repeat job (i >= 1) that has not yet been started.
ANCD	Number of jobs administered by the job scheduler.
WAIT	Number of jobs waiting to be started.
STRT	Number of started jobs.
HOLD	Number of suspended jobs

STATE =
Selects the job classes according to their state.

STATE = *ALL
Outputs information on all job classes.

STATE = *ACT
Outputs information on active job classes.

STATE = *INACT
Outputs information on inactive job classes.

STATE = *HOLD
Outputs information on job classes in the “hold” state.

STATE = *DEL
Outputs information on job classes in the “in delete” state.

INFORMATION = *JOB-STREAM(...)
Only privileged users are allowed to select this value.
Outputs information on job streams.
If a user job was started with the REPEAT option, this is displayed in the “DORM” column.
The relevant job scheduler is active. The following table lists the output fields and their meaning:

Field	Meaning / contents
JSTREAM	Name of the job stream.
STATE	State of the job stream (ACT/INACT/HOLD)
The following outputs apply to the relevant job stream:	
DORM	Number of jobs waiting because the responsible job scheduler is not yet active.
ANCD	Total number of existing jobs.
WAIT	Number of waiting jobs.
STRT	Number of started jobs
HOLD	Number of suspended jobs.
START	Start time of the job stream: ATSHUTD during system initialization BYOPER started by the operator or system administration using the START-JOB-STREAM command hh:mm at a specified time (JMU statement DEFINE-JOB-STREAM)
STOP	Time at which the job stream is terminated: ATSHUTD during system shutdown BYOPER terminated by the operator or system administration using the STOP-JOB-STREAM command hh:mm at a specified time (JMU statement DEFINE-JOB-STREAM)
LIFETIME	In conjunction with the contents of the STOP column, this means that the job stream is terminated once the specified time has elapsed.

STATE =
Selects the job stream according to its state.

STATE = *ALL
Outputs information on all job streams.

STATE = *ACT
Outputs information on active job streams.

STATE = *INACT
Outputs information on inactive job streams.

STATE = *HOLD
Outputs information on suspended job streams.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	An attempt was made to create S variables for job types TYPE4 through TYPE8
2	0	EXC0152	Requested information does not exist
2	0	SCP1095	DPRINT does not run
2	0	SPA0003	RSO subsystem not loaded
2	0	SPS0266	Bourse of the ADM task destroyed
2	0	SPS0420	RSO subsystem not loaded
2	0	SPS0242	No job in the replay queue
2	0	SRO0373	Selected RSO printer not active
2	0	SRO0374	No RSO printers managed by the caller active
	1	CMD0202	Syntax or semantic error
	32	CMD2009	Error during generation of S variables
	64	EXC0252	Specified user ID does not exist
	64	EXC0153	No authorization for command

Output in S variables

The INFORMATION operand identifies the S variables which are to be assigned values. If there is no current value to pass to an S variable, a null string (type S) or the number 0 (type I) is assigned instead. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *SUMMARY	1
INFORMATION = *SYSTEM-PARAMETERS	2
INFORMATION = *CATEGORY	3
INFORMATION = *JOB-CLASS	4
INFORMATION = *SATURATION-QUEUE	5
INFORMATION = *WHEN-QUEUE	6
INFORMATION = *JOB-STREAM	7

Output information	Name of the S variable	T	Contents	Condition
Number of active jobs	var(*LIST).ACTIVE	I	<integer>	3
Number of jobs managed by the job scheduler	var(*LIST).ANNOUNCED	I	<integer>	4, 7
Name of the category	var(*LIST).CATEG	S	<name 1..8>	3
Maximum permitted number of resident main memory pages	var(*LIST).CORE	I	<integer>	2
Names of the jobs in the queue for main memory prereservation	var(*LIST).CORE-PRERES(*LIST).JOB-NAME	S	'' <name 1..8>	5
TSNs of the jobs in the queue for main memory prereservation	var(*LIST).CORE-PRERES(*LIST).TSN	S	<alphan.-name 4..4>	5
User IDs of the jobs in the queue for main memory prereservation	var(*LIST).CORE-PRERES(*LIST).USER-ID	S	'' <alphan.-name 1..8>	5
Date on which the job was entered in the condition queue	var(*LIST).DATE	S	<yyyy-mm-dd>	6
Number of jobs waiting because the job scheduler is not yet active, or n-th job run of a repeat job not yet started	var(*LIST).DORMANT	I	<integer>	4, 7
Number of existing jobs	var(*LIST).EXIST	I	<integer>	3
Number of jobs on hold	var(*LIST).HOLD	I	<integer>	4, 7
I/O priority of the category	var(*LIST).IO-PRIO	S	*NONE / *LOW *MEDIUM / *HIGH	3
Name of the job class	var(*LIST).JOB-CLASS	S	<name 1..8>	4
Job name in the condition queue; empty string if OUPUT-INF not equal *NAME	var(*LIST).JOB-NAME	S	'' <name 1..8>	6
Name of the job stream	var(*LIST).JOB-STREAM	S	<name 1..8>	4, 7
Time after which the job stream is terminated	var(*LIST).LIFE-TIME	S	'' <hh:mm:00>	7

Output information	Name of the S variable	T	Contents	Condition
Maximum number of jobs that can run concurrently in the job class	var(*LIST).LIM	I	<integer>	4
Specification in minutes as to how long the job may remain in the queue	var(*LIST).LIM	S	SHUTDWN <integer>	6
Maximum number of jobs that may be active	var(*LIST).MAXMPL	I	<integer>	3
Minimum number of jobs that should be active	var(*LIST).MINMPL	I	<integer>	3
Ideal number of jobs that should run concurrently in the job class	var(*LIST).OPTIMUM	I	<integer>	4
Names of the jobs in the HOLD queue	var(*LIST).PAGING-DEV-HOLD (*LIST). JOB-NAME	S	'' <name 1..8>	5
TSNs of the jobs in the HOLD queue	var(*LIST).PAGING-DEV-HOLD (*LIST).TSN	S	<alphan.-name 4..4>	5
User IDs of the jobs in the HOLD queue	var(*LIST).PAGING-DEV-HOLD (*LIST).USER-ID	S	'' <alphan.-name 1..8>	5
Names of the jobs in the queue for paging area prereservation	var(*LIST).PAGING-DEV-PRERES (*LIST).JOB-NAME	S	'' <name 1..8>	5
TSNs of the jobs in the queue for paging area prereservation	var(*LIST).PAGING-DEV-PRERES (*LIST).TSN	S	<alphan.-name 4..4>	5
User IDs of the jobs in the queue for paging area prereservation	var(*LIST).PAGING-DEV-PRERES (*LIST).USER-ID	S	'' <alphan.-name 1..8>	5
Number of inactive jobs ready for activation	var(*LIST).READY-INACTIVE	I	<integer>	3
Number of ready, inactive but not admitted tasks in this category	var(*LIST).READY-NOT-ADMITTED	I	<integer>	3
Number of jobs started in the job class/job stream	var(*LIST).START	I	<integer>	4, 7
Starting time of the job stream	var(*LIST).START-TIME	S		7

			ATLOAD BYOPER <hh:mm:00>	
State of the job class/job stream	var(*LIST).STATE	S	ACT DEL HOLD INACT	4, 7
Stop time of the job stream	var(*LIST).STOP-TIME	S	'' ATSHUTD BYOPER <hh:mm:00>	7
Number of waiting batch jobs	var(*LIST).T1	I	<integer>	1
Number of batch jobs waiting because the job scheduler is not yet active, or n-th job run of a repeat job	var(*LIST).T1-DO	I	<integer>	1
Number of batch jobs waiting because they were placed on hold	var(*LIST).T1-HO	I	<integer>	1
Number of batch jobs waiting to be started by the system	var(*LIST).T1-WT	I	<integer>	1
Number of running batch jobs	var(*LIST).T2	I	<integer>	1
Number of running interactive jobs	var(*LIST).T3	I	<integer>	1
Time at which the job was entered in the condition queue	var(*LIST).TIME	S	<hh:mm:ss>	6
TSNs of the jobs waiting for the condition to be fulfilled	var(*LIST).TSN	S	<alphan.-name 4..4>	6
User IDs of the jobs waiting for the condition to be fulfilled; empty string if OUPUT-INF not equal *USER-ID	var(*LIST).USER-ID	S	'' <name 1..8>	6
Number of jobs waiting for start	var(*LIST).WAIT	I	<integer>	4, 7
Weighting (urgency) of the category or job class	var(*LIST).WEIGHT	I	<integer>	3, 4

7.29 SHOW-TAPE-STATUS

Display information on tapes and assigned devices

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT TAPE-ADMINISTRATION
Routing code:	E

Function

The SHOW-TAPE-STATUS command provides information about tapes reserved for a user’s job. The VSN of the tape may also be specified using a wildcard character. The result is written to SYSOUT.
The information shown on online reserved tapes includes volume serial numbers, assigned device and the status of device monitoring (not with ATTRIBUTE=*UNMONITORED).
The output for offline reserved tapes (without monitoring and device assignment) shows the volume serial numbers not with ATTRIBUTE=*MONITORED.

The various output fields and their functions are described in section "Information services of device management: Meanings of the output values of SHOW commands".

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-TAPE**-STA**TUS

UNIT = ***SEL**ECT (...) / ***VOL**UME(...) / list-poss(26): <alphanum-name 2..2 with-wild(20)> /

<alphanum-name 4..4 with-wild(20)>

***SEL**ECT(...)

| ATTRIBUTE = ***ALL** / ***FREE** / ***EXCL**USIVE / ***MON**ITORED / ***UNMON**ITORED / ***WORK** /

| ***ONLINE** / ***PREM**OUNT / ***MOUNT**ING / ***IN-USE** / ***CAN**CELLED / ***NO-DEV**ICE /

| ***RECOVER** / ***DMS** / ***SPECIAL** / ***DISMOUNT** / ***POS**ITION / ***STD** / ***NON-STD** /

| ***TAPE-MARK**

***VOL**UME(...)

| VOLUME = list-poss(10): <vsn 1..6> / <filename 1..6 with-wild(30)>

,**INF**ORMATION = ***STD** / ***CARTRIDGE-LOADER**

Operands

UNIT =
Specifies the tape devices for which information is to be output.

UNIT = *SELECT(...) / *VOLUME(...) /list-poss(26): <alphanum-name 2..2 with-wild(20)> / <alphanum-name 4..4 with-wild(20)>
The tapes about which information is desired may be selected by specifying a specific attribute (*SELECT), specific volume serial numbers (*VOLUME) or the mnemonic device names (two or four characters) of the devices on which the tapes are mounted. A maximum of 26 mnemonic device names may be specified. Mnemonic device names that cannot be generated are handled like nongenerated devices.

UNIT = *SELECT(...)
Selection of tapes via particular attributes.

ATTRIBUTE = *ALL / *FREE / *EXCLUSIVE / *MONITORED / *UNMONITORED /*WORK / *ONLINE / *PREMOUNT / *MOUNTING / *IN-USE / *CANCELLED / *NO-DEVICE / *RECOVER / *DMS / *SPECIAL / *DISMOUNT / *POSITION / *STD /*NON-STD / *TAPE-MARK
Attribute. Information is supplied for all tapes with the specified attribute.

Operand value (attribute)	Meaning
*ALL	any attribute
	volume-allocation-state
*FREE	free tape (see Note)

*EXCLUSIVE	exclusively reserved (see Note)
	volume-phase
*MONITORED	device is subject to monitoring (see Note)
*UNMONITORED	device is not subject to monitoring (see Note)
*ONLINE	free mounted tape
*PREMOUNT	tape assigned
*MOUNTING	tape assigned, must still be mounted
*IN-USE	tape assigned for use
	action-state
*CANCELLED	tape locked
*NO-DEVICE	no device assignment present
*RECOVER	interrupt handling taking place
*DISMOUNT	REMOUNT or MOUNT message still pending
*POSITION	tape being positioned
	use-mode
*DMS	occupied by DMS application
*SPECIAL	occupied by special application
*WORK	work tape
	label-type
*STD	tape has standard labels
*NON-STD	tape has nonstandard labels
*TAPE-MARK	tape begins with tape mark

Notes on the output when ATTRIBUTE is specified:

*FREE:	All tape devices on which tapes are mounted but not in use are listed.
*MONITORED:	All tapes subject to volume monitoring are listed.
*UNMONITORED:	All tapes which have been reserved offline are listed.
*EXCLUSIVE:	All tapes which are in use or which have been reserved are listed.
The output is grouped according to the following: • all tapes monitored by NDM • all tapes reserved offline	

UNIT = *VOLUME(...)
Specifies the volume serial numbers of the tapes about which information is to be output.

VOLUME = list-poss(10): <vsn 1..6> / <alphanum-name 1..6 with-wild(30)>
Specifies the volume serial numbers (VSN, max. 6 characters) of the tapes about which information is to be output. Up to 10 VSNs can be specified.

INFORMATION =
Amount of information to be displayed

INFORMATION = *STD
A standard output record is generated for each device with the selected attributes.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NKD0005	Warning: information incomplete
2	0	NKD0030	Warning: INFORMATION parameter changed
2	0	NKD0035	Warning: no information on remaining VSNs
	1	NKD0001	Syntax error in input; correct the command parameter to eliminate the error
4	1	NKD0001	Syntax error in subprocedure
	32	CMD2009	Error on output to S variable (e.g. subsystem not available)
	64	NKD0002	No information available
	64	NKD0006	Internal error during initialization of the command server
	64	NKD0025	No information on MN list and INF parameter
	64	NKD0032	No information available on attribute
	64	NKD0033	No information on VSN and INFORMATION parameter
	64	OPS0002	Interrupt (e.g. by K2 key) during S variable generation
8	130	NKD0010	Tape monitor temporarily unavailable; command could not be processed
	130	OPS0001	SDF-P reporting space problems(possible response: FREE-VARIABLE and repeat command)

Output format

A header line is displayed along with one values line for each tape device specified. For the meaning of the output columns and possible values, see section "Information services of device management: Meanings of the output values of SHOW commands".

Header line for tapes reserved online:

```
MNEM  VSN    USE     LABEL    DEV-A        VOL-A         PHASE     ACTION   CAR
```

Values

```
mn    vsn    use     label  device       volume       volume   action  cartr.
             mode    type   allocation   allocation   phase    state   loader
                            state        state                         state
```

Header line for tapes reserved offline:

```
DMS RESERVED UNMONITORED TAPES
```

Values:

`( <vsn>,<tsn> ) ...` a maximum of 4 value pairs are output per line

Notes

In response to a UNIT-related request, two output lines may be provided if a volume is online on a device and another volume is to be mounted on the same device.

In response to a VSN-related request, two output records may likewise be provided if the VSN is ambiguous or if the tape is mounted on one device but is to be made available on some other device.

Output in S variables

The INFORMATION and SELECT operands identify the S variables which are to be created. The following specifications are possible:

Notation used in command	Abbreviated form used in table
INFORMATION = *STD	INF=STD
UNIT = *SELECT(ATTRIBUTE=*UNIMONITORED)	UNIT=SEL(ATTR=UNMONI)

Output information	Name of the S variable	T	Contents	Condition
(Re)mount operation being performed for the volume by the volume monitoring system	var(*LIST).ACTION	S	" *CANCEL *DISMOUNT INOP *MOUNT NO-ACTION NO-DEV POS *PREMOUNT *RECOVER REMOUNT SNATCHED WP-MISSING	INF=STD
Cartridge loader operating mode	var(*LIST).CARTRIDGE	S	" OFF ON	INF=STD
Device allocation mode: *DMS: allocated for DMS application *FREE: free device	var(*LIST).DEV-ALLOC	S	" *DMS *FREE	INF=STD
A MOUNT or DISMOUNT message is pending on this device for the DISMOUNT volume	var(*LIST).DISMOUNT-ACTION	S	" *DISMOUNT	INF=STD
DISMOUNT volume	var(*LIST).DISMOUNT-VOL	S	" <vsn>	INF=STD
Device’s volume label type	var(*LIST).LABEL	S	" *NON-STD *STD *TAPE-MARK	INF=STD
Tape monitoring mode	var(*LIST).PHASE	S	" *IN-USE *MOUNT *ONLINE *PREMOUNT	INF=STD
Tape device mnemonic	var(*LIST).UNIT	S	" <mnemo-name>	INF=STD
TSN for reserved offline tape	var(*LIST).UNMON.TSN	S	" <tsn>	UNIT=SEL (ATTR = UNMONI)
VSN for reserved offline tape	var(*LIST).UNMON.VOL	S	" <vsn>	UNIT=SEL (ATTR= UNMONI)

Usage mode of the mounted volume	var(*LIST).USE	S	" *DMS *SPECIAL *WORK	INF=STD
Volume serial number	var(*LIST).VOL	S	" <vsn>	INF=STD
Usage mode of the mounted tape	var(*LIST).VOL-ALLOC	S	" *EXCL *FREE	INF=STD

Example

Reserving one MTC device and several magnetic tape cartridges

```
/sec-res tape=((vol=m5658k,type=tape-c4),
         (vol=m5660k,type=tape-c4,mount=*no),
         (vol=m5661k,type=tape-c4,mount=*no)),wait=*par(time=300) ———— (1)
/show-res-alloc   ———————————————————————————————————————————— (2)
```

```
%  MNEM  TYPE     VSN     VOL-A  TSN  NAME/ID    PHASE    ACTION
%  EO   TAPE-C4  M5658K    EXCL  2DR5 ULF      PREMOUNT  NO ACTION
%       LOCATION : ROBOTER2
%               M5660K    EXCL  2DR5 ULF               NO ACTION
%               M5661K    EXCL  2DR5 ULF               NO ACTION
```

```
/show-tape-sta ———————————————————————————————————————————— (3)
```

```
%  MNEM  VSN    USE     LABEL    DEV-A  VOL-A    PHASE    ACTION   CAR
%  EO   M5658K  DMS              2DR5   EXCL  PREMOUNT NO ACTION  OFF
%  DMS RESERVED UNMONITORED TAPES
%   (M5660K,2DR5 M5661K,2DR5)
```

(1) The SECURE-RESOURCE-ALLOCATION command reserves several magnetic tape cartridges of volume type *TAPE-C4*. An MTC device is simultaneously reserved for the magnetic tape cartridge *M5658K* (premount request). No device is yet to be made available for magnetic tape cartridges *M5660K* and *M5661K* .

(2) The reserved volumes and devices are displayed by means of the SHOW-RESOURCE-ALLOCATION command.

(3) The SHOW-TAPE-STATUS command shows the user which tapes (or tape cartridges and associated devices his task is occupying.

7.30 SHOW-TERMINAL-ATTRIBUTES

Show terminal attributes

Component:	TIAM
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-TERMINAL-ATTRIBUTES command allows the user to have the entire range of attributes of his or her terminal output to SYSOUT. The command is not allowed in batch operation.

By default, the logical attributes of the terminal are shown which are defined in the system through system parameters at the time of system generation, when the terminal was generated, by the terminal itself and through the VTSU operating parameters. These values apply at the beginning of the dialog task, but the user can modify them in the course of the task using the MODIFY-TERMINAL-OPTIONS command. The output is the same as the output for the SHOW-TERMINAL-OPTIONS command.

Furthermore, the user can obtain information on the terminal's hardware attributes and connection.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-TERMINAL**-ATTR**IBUTES
INFORMATION = ***OPT**IONS / ***IDENT**IFICATION / ***DIM**ENSION / ***CAP**ABILITIES / ***ALL**

Operands

INFORMATION = *OPTIONS / *IDENTIFICATION / *DIMENSION / *CAPABILITIES / *ALL
Specifies the attributes that are displayed.

INFORMATION = *OPTIONS
The terminal's logical attributes which can be modified with the MODIFY-TERMINAL-OPTIONS command are displayed. Output is the same as for the SHOW-TERMINAL-OPTIONS command.

INFORMATION = *IDENTIFICATION
All attributes identify the terminal uniquely are displayed:

- terminal type
- partner type
- station name
- processor name
- hardcopy device available
- ID card reader available
- chipcard reader available

INFORMATION = *DIMENSION
The attributes concerning the presentation dimensions are displayed:

- supports 24 lines and 80 columns
- supports 32 lines and 80 columns
- supports 43 lines and 80 columns
- supports 27 lines and 132 columns
- maximum number of lines
- maximum number of columns
- screen buffer size

INFORMATION = *CAPABILITIES
Other attributes are displayed:

- number of colors supported
- hardware information line
- line mode supported
- extended line mode supported
- physical mode supported
- form mode supported
- protocol type (810 or 3270 protocol)
- extended field attributes supported
- status query
- encryption
- Number of 8-bit and Unicode character sets supported
- CCS displayed

INFORMATION = *ALL
All the terminal’s attributes are displayed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
2	0	TIA0200	Information on terminal attributes not available
	1	CMD0202	Syntax error (command not allowed in batch mode)
	32	CMD2009	Error during generation of S variables
	64	CMD0216	Privilege error

Output format

*Output fields with INFORMATION = *OPTIONS*

The output fields and their possible values correspond to the operands and operand values of the MODIFY-TERMINAL-OPTIONS command.

Output field	Possible values	Meaning
ACKNOWLEGE-OUTPUT	YES / NO	Acknowledgment procedure
APL-CHARACTER-SET	YES / NO	APL character set used
CODED-CHARACTER-SET	7-BIT / 8-BIT-DEFAULT / <name 1..8>	Coding table
GRAPHICS	YES / NO	Graphics used
HARDCOPY	NO / LOCAL / CENTRAL	Hardcopy printer supported
LINE-END-CHARACTER	(<x-string 2..2>)	Line end character
LINE-LENGTH	<integer 10..255>	Length of output line
LOWER-CASE	YES / NO	Uppercase/lowercase
MAXIMUM-LINES	<integer 3..255>	Number of lines to screen overflow
OVERFLOW-CONTROL	USER-ACKNOWLEDGE / NO-CONTROL / TIME(TIMEOUT=<integer 0..60>)	Control type for screen overflow
WRITE-READ-MODE	MODIFIED-FIELDS / NO-FIELDS	Output presentation control and type of input
SUBSTITUTE-CHARACTER	(<x-string 2..2>)	Substitute characters for nonpresentable characters
SYSTEM-PROMPT	Slash (/) or <c-string 1..32 with-low>	System input prompt
PROGRAM-PROMPT	Asterisk (*) or <c-string 1..32 with-low>	Program input prompt (read with RDATA)
ROLL-UP	*YES *NO	Terminal roll-up mode

Table 162: Output fields for SHOW-TERMINAL-ATTRIBUTES, INF=*OPTIONS

*Output fields for INFORMATION = *IDENTIFICATION*

Output field	Possible values	Meaning
TERMINAL-TYPE	<text 1..8>	Terminal type
PARTNER-TYPE	TERMINAL / APPL	Partner type
STATION-NAME	<text 1..8>	Station name
PROCESSOR-NAME	<text 1..8>	Processor name
LOCAL-HARDCOPY	*YES / *NO	Hardcopy devices
ID-CARD-READER	*YES / *NO	ID card reader
CHIP-CARD-READER	*YES / *NO	Chipcard reader
HOST-NAME	<text 1..8>	Host name (real or virtual host)

Table 163: Output fields for SHOW-TERMINAL-ATTRIBUTES, INF=*IDENTIFICATION

*Output fields for INFORMATION = *DIMENSION*

Output field	Possible values	Meaning
DIM-24-80-SUPPORT	*YES / *NO	Support of 24 lines and 80 columns
DIM-32-80-SUPPORT	*YES / *NO	Support of 32 lines and 80 columns
DIM-43-80-SUPPORT	*YES / *NO	Support of 43 lines and 80 columns
DIM-27-132-SUPPORT	*YES / *NO	Support of 27 lines and 132 columns
PHYSICAL-MAX-LINES	<integer 1..32767>	Maximum number of lines
PHYSICAL-LINE-LENGTH	<integer 1..32767>	Maximum number of columns
PHYSICAL-MAX-BUFFER	<integer 1..32767>	Size of screen buffer

Table 164: Output fields for SHOW-TERMINAL-ATTRIBUTES, INF=*DIMENSION

*Output fields for INFORMATION = *CAPABILITIES*

Output field	Possible values	Meaning
COLOUR-SUPPORT	*NO / 4 / 8	Number of colors supported
HARDWARE-INFOLINE	*YES / *NO	Hardware information line
LINE-MODE	*YES / *NO	Line mode supported
EXTENDED-LINE-MODE	*YES / *NO	Extended line mode supported
PHYSICAL-MODE	*YES / *NO	Physical mode supported
FORM-MODE	*YES / *NO	Form mode supported
PROTOCOL-TYPE	810 / 3270	Protocol type (810 or 3270 protocol)
EXTEND-FIELD-ATTRIB	*YES / *NO	Extended field attributes supported
STATUS-REQUEST	*YES / *NO	Status request
ENCRYPTION-SUPPORT	*YES / *NO	Encryption
DOORS-SUPPORT	*YES / *NO	Output only supported for reasons of compatibility
DESK2000-SUPPORT	*YES / *NO	Output only supported for reasons of compatibility
NUMBER-OF-8-BIT-CHARACTER-SET-SUPPORTED	<integer 0..16>	Number of 8-bit character sets supported (CCS)
CHARACTER-SET-1 . . CHARARCTER-SET-16	*NO / <integer 1..16> / <integer 240>	Display of CCS 1 to 16 (Example: The value i from 1 through 16 corresponds to the ISO standard ISO 8859-i, i.e. for i=1 Latin 1 Western European applies, 240 corresponds to Unicode)

Table 165: Output fields for SHOW-TERMINAL-ATTRIBUTES, INF=*CAPABILITIES

Example

/show-terminal-attributes info=all

```
---------------------- OPTIONS ----------------------------------------
%OVERFLOW-CONTROL     = NO-CONTROL
%MAXIMUM-LINES        = 255        LINE-LENGTH          =  72
%LINE-END-CHARACTER   =  X'00'     WRITE-READ-MODE      = MODIFIED-FIELDS
%LOWER-CASE           = NO         GRAPHICS             = NO
%APL-CHARACTER-SET    = NO         HARDCOPY             = NO
%SUBSTITUTE-CHARACTER =  X'4A'     ACKNOWLEDGE-OUTPUT   = YES
%CODED-CHARACTER-SET  = 7-BIT      ROLL-UP              = NO
%SYSTEM-PROMPT        = /
%PROGRAM-PROMPT       = *
%---------------------- IDENTIFICATION ---------------------------------
%TERMINAL-TYPE        = SS-8103    PARTNER-TYPE         = APPL
%STATION-NAME         = TELSR000   PROCESSOR-NAME       = D016ZE07
%LOCAL-HARDCOPY       = NO         ID-CARD-READER       = NO
%CHIP-CARD-READER     = NO         HOST-NAME            = D016ZE07
%---------------------- DIMENSION --------------------------------------
%DIM-24-80-SUPPORT    = NO         DIM-32-80-SUPPORT    = NO
%DIM-43-80-SUPPORT    = NO         DIM-27-132-SUPPORT   = NO
%PHYSICAL-MAX-LINES   =  255       PHYSICAL-LINE-LENGTH =   72
%PHYSICAL-MAX-BUFFER  =  4088
%---------------------- CAPABILITIES -----------------------------------
%COLOUR-SUPPORT       = NO         HARDWARE-INFOLINE    = NO
%LINE-MODE            = YES        EXTENDED-LINE-MODE   = NO
%PHYSICAL-MODE        = YES        FORM-MODE            = YES
%PROTOCOL-TYPE        =            EXTEND-FIELD-ATTRIB  = NO
%STATUS-REQUEST       = NO         ENCRYPTION-SUPPORT   = NO
%DOORS-SUPPORT        = NO         DESK2000-SUPPORT     = NO
%UNICODE-SUPPORT      = NO
%NUMBER-OF-8-BIT-CHARACTER-SET-SUPPORTED = 0
%CHARACTER-SET-1      = 240        CHARACTER-SET-2      = NO
%CHARACTER-SET-3      = NO         CHARACTER-SET-4      = NO
%CHARACTER-SET-5      = NO         CHARACTER-SET-6      = NO
%CHARACTER-SET-7      = NO         CHARACTER-SET-8      = NO
%CHARACTER-SET-9      = NO         CHARACTER-SET-10     = NO
%CHARACTER-SET-11     = NO         CHARACTER-SET-12     = NO
%CHARACTER-SET-13     = NO         CHARACTER-SET-14     = NO
%CHARACTER-SET-15     = NO         CHARACTER-SET-16     = NO
```

The output was generated on a data display terminal (or terminal emulation) of the type 9763 and in the terminal mode Unicode. The value 240 for CHARACTER-SET-1 indicates that the Unicode code table is supported for this terminal. In this case, CODED-CHARACTER-SET=UTFE can be entered with a corresponding MODIFY-TERMINAL-OPTION command (7-bit mode is currently still entered, see CODED-CHARACTER-SET).

Output in S variables

The command's INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *OPTIONS	1
INFORMATION = *IDENTIFICATION	2
INFORMATION = *DIMENSIONS	3
INFORMATION = *CAPABILITIES	4

Output information	Name of the S variable	T	Contents	Condition
Terminal output acknowledgment	var(*LIST).ACK-OUT	S	*NO *YES	1
Use of an APL character set supported	var(*LIST).APL-CHAR-SET	S	*NO *YES	1
Display of CCS 1 to 16 (example: the ISO standard ISO 8859-i corresponds to the value i from 1 through 16, i.e. for i=1 Latin 1 Western European; the value 240 corresponds to Unicode)	var(*LIST).CHAR-SET-1 . . var(*LIST).CHAR-SET-16	S	*NO / <integer 1..16> / <integer 240>	4
Chipcard reader fitted	var(*LIST).CHIP-CARD-READER	S	*YES / *NO	2
Terminal operating mode (7-bit/8-bit/Unicode)	var(*LIST).CODED-CHAR-SET	S	<name 1..8> *7-BIT	1
Number of colors supported	var(*LIST).COLOUR	S	*NO / 4 / 8	4
Output only supported for reasons of compatibility	var(*LIST).DESK-SUPPORT	S	*YES / *NO	4
Supports 24 lines and 80 columns	var(*LIST).DIM-24-80	S	*YES / *NO	3
Supports 27 lines and 132 columns	var(*LIST).DIM-27-132	S	*YES / *NO	3
Supports 32 lines and 80 columns	var(*LIST).DIM-32-80	S	*YES / *NO	3
Supports 43 lines and 80 columns	var(*LIST).DIM-43-80	S	*YES / *NO	3
Output only supported for reasons of compatibility	var(*LIST).DOORS-SUPPORT	S	*YES / *NO	4
Encryption	var(*LIST).ENCRYPTION	S	*YES / *NO	4

Extended field attribute supported	var(*LIST).EXT-FIELD-ATTR	S	*YES / *NO	4
Extended line mode supported	var(*LIST).EXTEND-LINE-MODE	S	*YES / *NO	4
Form mode supported	var(*LIST).FORM-MODE	S	*YES / *NO	4
Use of a graphics option supported	var(*LIST).GRAPHIC	S	*NO *YES	1
Hardcopy logging mode	var(*LIST).HARDCOPY	S	*CENTRAL *LOC *NO	1
ID card reader fitted	var(*LIST).ID-CARD-READER	S	*YES / *NO	2
Hardware information line present	var(*LIST).INFOLINE	S	*YES / *NO	4
End-of-line character	var(*LIST).LINE-END-CHAR	S	*NONE <c-string 1..1>	1
Line length	var(*LIST).LINE-LEN	I	<integer 10..255>	1
Line mode supported	var(*LIST).LINE-MODE	S	*YES / *NO	4
Hardcopy device fitted	var(*LIST).LOCAL-HARDCOPY	S	*YES / *NO	1
Lowercase output supported	var(*LIST).LOW-CASE	S	*NO *YES	1
Maximum number of lines before screen overflow	var(*LIST).MAX-LINE	I	<integer 3..255>	1
Number of 8-bit / Unicode encoded character sets (CCS)	var(*LIST).NUM-OF-8B-CHAR-SET	I	<integer 1..16>	4
Screen overflow control mode (no control, control by acknowledgment, control by timeout)	var(*LIST).OV-CONTR	S	*NO-CONTR *TIME(TIMEOUT = xxx) *USER-ACK	1
Partner type	var(*LIST).PARTNER-TYPE	S	TERMINAL / APPL	2
Maximum line length	var(*LIST).PHYS-LINE-LEN	I	<integer 1..32767>	3
Maximum number of lines	var(*LIST).PHYS-MAX-LINES	I	<integer 1..32767>	3
Size of screen buffer	var(*LIST).PHYS-MAX-BUF	I	<integer 1..32767>	3
Physical mode supported	var(*LIST).PHYS-MODE	S	*YES / *NO	4
Processor name	var(*LIST).PROCESSOR-NAME	S	<text 1..8>	2

Program prompts that read using RDATA (default “*”)	var(*LIST).PROGRAM-PROMPT	S	’*’ <c-string 1..32>	1
Protocol type (810 or 3270 protocol)	var(*LIST).PROTOCOL-TYPE	S	810 / 3270	4
Terminal roll-up mode	var(*LIST).ROLL-UP		*YES *NO	1
Station name	var(*LIST).STATION-NAME	S	<text 1..8>	2
Status request	var(*LIST).STATUS-REQUEST	S	*YES / *NO	4
Substitutes for nondisplayable characters	var(*LIST).SUBST-CHAR	S	<c-string 1..1>	1
System prompt (default “/”)	var(*LIST).SYSTEM-PROMPT	S	’/’ <c-string 1..32>	1
Terminal type	var(*LIST).TERMINAL-TYPE	S	<text 1..8>	2
Output message display control and input mode control	var(*LIST).WRITE-READ-MODE	S	*MOD-FIELD *NO-FIELD	1

7.31 SHOW-TERMINAL-OPTIONS

Display logical terminal properties

Component:	TIAM
Functional area:	Job processing
Domain:	JOB
Privileges:	STD-PROCESSING TSOS HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The MODIFY-TERMINAL-OPTIONS command allows users to output the logical properties of their terminals to SYSOUT.
The logical properties of the terminal are defined in the system by means of class 2 system parameters at system generation time, through generation of the terminal, by the terminal itself, and through VTSU operating parameters. These defined values are in force at the start of the interactive task; they can be modified within the user's task by means of the MODIFY-TERMINAL-OPTIONS command.
Information on the terminal's entire range of attributes can be requested with the SHOW-TERMINAL-ATTRIBUTES command.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-TERMINAL**-OPT**IONS

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
2	0	TIA0200	Information about terminal properties not available
	1	CMD0202	Syntax error (command not allowed in batch jobs)
	32	CMD2009	Error during S variable generation
	64	CMD0216	Privilege error

Output format

The output fields and the values displayed correspond to the operands and operand values of the MODIFY-TERMIMAL-OPTIONS command.

Output field	Possible values	Meaning
ACKNOWLEGE-OUTPUT	YES / NO	Acknowledgment mechanism
APL-CHARACTER-SET	YES / NO	Use of APL character set
CODED-CHARACTER-SET	7-BIT / <name 1..8>	Code table
GRAPHICS	YES / NO	Use of graphics characters
HARDCOPY	NO / LOCAL / CENTRAL	Support for hardcopy printer
LINE-END-CHARACTER	<x-string 2..2>	Line-end character
LINE-LENGTH	<integer 10..255>	Output line length
LOWER-CASE	YES / NO	Uppercase/lowercase differentiation
MAXIMUM-LINES	<integer 3..255>	Number of lines after which screen overflow occurs
OVERFLOW-CONTROL	USER-ACKNOWLEDGE / NO-CONTROL / TIME(TIMEOUT=<integer 0..60>)	Type of screen overflow control
WRITE-READ-MODE	MODIFIED-FIELDS / NO-FIELDS	Control of display of outputs and the type of input
SUBSTITUTE-CHARACTER	<x-string 2..2>	Substitute characters for displaying nonprinting characters
SYSTEM-PROMPT	Slash (/) or <c-string 1..32 with-low>	System prompt
PROGRAM-PROMPT	Asterisk (*) or <c-string 1..32 with-low>	Program prompt (read with RDATA)
ROLL-UP	*YES *NO	Terminal roll-up mode

Table 166: Output fields of the SHOW-TERMINAL-OPTIONS command

Output in S variables

Output information	Name of the S variable	T	Contents	Condition
Terminal output acknowledgment	var(*LIST).ACK-OUT	S	*NO *YES	
Use of an APL character set supported	var(*LIST).APL-CHAR-SET	S	*NO *YES	
Terminal operating mode (7-bit/8-bit /Unicode)	var(*LIST).CODED-CHAR-SET	S	<name 1..8> *7-BIT	
Use of a graphics option supported	var(*LIST).GRAPHIC	S	*NO *YES	
Hardcopy logging mode	var(*LIST).HARDCOPY	S	*CENTRAL *LOC *NO	
End-of-line character	var(*LIST).LINE-END-CHAR	S	*NONE <c-string 1..1>	
Line length	var(*LIST).LINE-LEN	I	<integer 10..255>	
Lowercase output supported	var(*LIST).LOW-CASE	S	*NO *YES	
Maximum number of lines of screen overflow	var(*LIST).MAX-LINE	I	<integer 3..255>	
Screen overflow control mode (no control, control by acknowledgment, control by timeout)	var(*LIST).OV-CONTR	S	*NO-CONTR *TIME (TIMEOUT=xx) *USER-ACK	
Program prompts that read using RDATA (default “*”)	var(*LIST).PROGRAM-PROMPT	S	’*’ <c-string 1..32>	
Terminal roll-up mode	var(*LIST).ROLL-UP	S	*YES *NO	
Substitutes for nondisplayable characters	var(*LIST).SUBST-CHAR	S	<c-string 1..1>	
System prompt (default “/”)	var(*LIST).SYSTEM-PROMPT	S	’/’ <c-string 1..32>	
Output message display control and input mode control	var(*LIST).WRITE-READ-MODE	S	*MOD-FIELD *NO-FIELD	

Example

/show-term ——————————————————————————————————— (1)

```
%OVERFLOW-CONTROL     = USER-ACKNOWLEDGE
%MAXIMUM-LINES        =  24        LINE-LENGTH          =  80
%LINE-END-CHARACTER   =  X'00'     WRITE-READ-MODE      = MODIFIED-FIELDS
%LOWER-CASE           = YES        GRAPHICS             = NO
%APL-CHARACTER-SET    = NO         HARDCOPY             = LOCAL
%SUBSTITUTE-CHARACTER =  X'07'     ACKNOWLEDGE-OUTPUT   = NO
%CODED-CHARACTER-SET  = 7-BIT      ROLL-UP              = NO
%SYSTEM-PROMPT        = /
%PROGRAM-PROMPT       = *
```

/mod-term ov-contr=*time(timeout=10) ——————————————————— (2)
/show-term ——————————————————————————————————— (3)

```
%OVERFLOW-CONTROL     = TIME(TIMEOUT = 10)
%MAXIMUM-LINES        =  24        LINE-LENGTH          =  80
%LINE-END-CHARACTER   =  X'00'     WRITE-READ-MODE      = MODIFIED-FIELDS
%LOWER-CASE           = YES        GRAPHICS             = NO
%APL-CHARACTER-SET    = NO         HARDCOPY             = LOCAL
%SUBSTITUTE-CHARACTER =  X'07'     ACKNOWLEDGE-OUTPUT   = NO
%CODED-CHARACTER-SET  = 7-BIT      ROLL-UP              = NO
%SYSTEM-PROMPT        = /
%PROGRAM-PROMPT       = *
```

(1) Outputs the logical terminal properties.

(2) Overflow control is effected on a time basis at 10-second intervals.

(3) Outputs the logical terminal properties again.

7.32 SHOW-TEST-OPTIONS

Display task-specific settings for testing and diagnostics

Component:	AIDSYSA
Functional area:	Program control
Domain:	PROGRAM
Privileges:	all privileges bar OPERATING

Function

The SHOW-TEST-OPTIONS command displays the test options set with the MODIFY-TEST-OPTIONS command. Optionally context information is also displayed on settings in the user entry and in system parameters which are relevant to testing and on the number of user/area dumps created for the task (see the CONTEXT-INFORMATION operand).

Privileged functions

The privileged user (TSOS privilege) can access tasks of foreign user IDs and password information for foreign tasks. The optional context information also contains privileged system parameters and cross-system information on the system dumps generated.

Format

SHOW-TEST-OPTIONS Alias: **SHTSO**

TASK-IDENTIFICATION = ***OWN** / ***TSN**(...) / ***TID**(...)

***TSN**(...)

| **TSN** = <alphanum-name 1..4> / <c-string 1..4>

***TID**(...)

| **TID** = <x-text 5..8>

,**INF**ORMATION = ***ALL** /

list-poss(4): ***PRIV**ILEGE / ***USERDUMP-OPT**IONS / ***AUDIT** / ***OWN-UID-DEBUG**GING

,**PASS**WORD-**INF**ORMATION = ***SUMM**ARY / ***FULL**(...)

***FULL**(...)

| **DEBUG-PASS**WORD = ***NONE** / <c-string 1..8>

,**CONTEXT-INF**ORMATION = ***NO** / ***Y**ES

Operands

TASK-IDENTIFICATION = *OWN / *TSN(...) / *TID(...)
Identifies the task whose test options are to be displayed.
Only a privileged user (TSOS privilege) can also specify tasks of foreign user IDs.

TASK-IDENTIFICATION = *OWN
The test options of the local task are to be displayed.

TASK-IDENTIFICATION = *TSN(...)
The task is determined by specifying its task sequence number (TSN).

> **TSN = <alphanum-name 1..4> / <c-string 1..4>**
> TSN of the selected task. When <alphanum-name 1..4> is specified, the specified value is, if necessary, filled on the left with zeros. When <c-string 1..4> is specified, the specified value is filled on the left with zeros.

TASK-IDENTIFICATION = *TID(...)
The task is determined by specifying its task ID (TID).

> **TID = <x-text 5..8>**
> TID of the selected task. The specified value is, if necessary, filled on the left with zeros.

INFORMATION = *ALL / list-poss(4): *PRIVILEGE / *USERDUMP-OPTIONS / *AUDIT / *OWN-UID-DEBUGGING
Determines the output blocks of the summary information. When a list is specified, output takes place in the specified order. Repeated specifications are ignored.

INFORMATION = *ALL
All settings which can be specified using the MODIFY-TEST-OPTIONS command are displayed.

INFORMATION = *PRIVILEGE
All settings which can be specified in the PRIVILEGE operand of the MODIFY-TEST-OPTIONS command are displayed.

INFORMATION = *USERDUMP-OPTIONS
All settings which can be specified in the USERDUMP-OPTIONS operand of the MODIFY-TEST-OPTIONS command are displayed.

INFORMATION = *AUDIT
All settings which can be specified in the AUDIT operand of the MODIFY-TEST-OPTIONS command are displayed.

INFORMATION = *OWN-UID-DEBUGGING
All settings which can be specified in the OWN-UID-DEBUGGING operand of the MODIFY-TEST-OPTIONS command are displayed.

PASSWORD-INFORMATION = *SUMMARY / *FULL(...)
Determines the output of passwords when INFORMATION=*OWN-UID-DEBUGGING.

PASSWORD-INFORMATION = *SUMMARY
An overview is displayed. Individual passwords for OWN-UID-DEBUGGING are not displayed.

PASSWORD-INFORMATION=*FULL(...)
All passwords for OWN-UID-DEBUGGING are to be displayed.

The nonprivileged user is shown the passwords only if his/her own task is selected and a password is specified in the DEBUG-PASSWORD operand which matches one of the passwords defined in the MODIFY-TEST-OPTIONS command (ACCEPT- or ENABLE-ACCESS operand).

DEBUG-PASSWORD = *NONE / <c-string 1..8>
Specifies a DEBUG password for the task.
The default *NONE means that no password is specified: Only a privileged user (TSOS privilege) requires no password, or in this case any password entered is ignored.

CONTEXT-INFORMATION = *NO / *YES
Determines whether additional information is to be displayed which goes beyond the information of the MODIFY-TEST-OPTIONS command.

CONTEXT-INFORMATION = *NO
No additional information is to be shown.

CONTEXT-INFORMATION=*YES
Additional information, some of which depends on the TSOS command privilege, is to be displayed (see output format on "Context information for nonprivileged users").

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	1	IDA0300	Syntax error
	32	CMD0221	System error
	64	CMD0216	Error: command privilege missing
	64	IDA0301	Semantic error

Output formats

All numerical specifications in the display are hexadecimal.

Summary information

/show-test-options task-id=*own,information=*all

```
PRIVILEGE: ------------------------------------------------------------
  current: (READ = 1, WRITE = 1)
USERDUMP-OPTIONS: -----------------------------------------------------
  DUMP           = *SYSTEM          DATA-IN-VIRTUAL     = *STD
  DATA-SPACES    = *NO              MEMORY-MAP          = *YES
  OUTPUT-PUBSET  = *DEFAULT-PUBSET  SUPPRESS-DUPLICATES = *YES
  MAXIMUM-NUMBER = *UNLIMITED
AUDIT: ----------------------------------------------------------------
  HARDWARE-AUDIT = *ALLOWED         LINKAGE-AUDIT       = *NOT-ALLOWED
OWN-UID-DEBUGGING: ----------------------------------------------------
  ACCEPT-ACCESS  = *NO              PASSWORD            : n/a
  ENABLE-ACCESS  = *YES             PASSWORD            : given,2
```

The names correspond to the operand names and values of the MODIFY-TEST-OPTIONS command. The display of the individual information blocks depends on the specifications in the INFORMATION operand.

Key for password display:

`n/a`	Not applicable (value does not exist)
`none`	A password is not required
`given`	No existing password is displayed
`given,n`	n existing passwords are not displayed (n = 1..8)

Task information

/show-test-opt task-id=*tsn(tsn=snap),information=*privilege

```
TSN            = |SNAP|           TID                 = 00010019 ————————  (1)
PRIVILEGE: ------------------------------------------------------------
  current: (READ = 0, WRITE = 0)
```

(1) Outputs for a task other than a user's own task are introduced with the TSN and TID of the selected task.

Information on passwords

/show-test-opt task-id=*own,information=*own-uid-debug,debug-pass='hugo'

```
OWN-UID-DEBUGGING: ------------------------------------------------------
  ACCEPT-ACCESS  = *NO              PASSWORD            : n/a
  ENABLE-ACCESS  = *YES             PASSWORD            = |HUGO    |
  ENABLE-ACCESS  = *YES             PASSWORD            = |EMILHANS
```

If the required authorization is available, existing ACCEPT and ENABLE passwords are displayed. The order of the ENABLE passwords is the reverse of the chronological order in which they were entered using the MODIFY-TEST-OPTIONS command. In other words, the most recent password is output first.

Context information for nonprivileged users

/show-test-opt task-id=*own,information=*all,context-info=*yes

```
PRIVILEGE: ----------------------------------------------------------------
  current: (READ = 1, WRITE = 1)    MODIFICATION        = *UNCONTROLLED   (1)
  maximal: (READ = 8, WRITE = 2)
  Cl2-opt: (READ = 9, WRITE = 9)
USERDUMP-OPTIONS: ---------------------------------------------------------
  DUMP           = *SYSTEM          DATA-IN-VIRTUAL     = *STD
  DATA-SPACES    = *NO              MEMORY-MAP          = *YES
  OUTPUT-PUBSET  = *DEFAULT-PUBSET  SUPPRESS-DUPLICATES = *YES
  MAXIMUM-NUMBER = *UNLIMITED
  # user dumps   = 007E ————————————————————————————————————————  (2)
  Cl2-options:
  DUMPCL5P       = 01               DUMPSEPA            = 04
AUDIT: --------------------------------------------------------------------
  HARDWARE-AUDIT = *NOT-ALLOWED     LINKAGE-AUDIT       = *NOT-ALLOWED
    USER-ATTR    : *ALLOWED           USER-ATTR         : *NOT-ALLOWED    (3)
    CL2-option   : not allowed        CL2-option        : not allowed
    HSI-CFCS     : not availabe       HSI-CFCS          : available
OWN-UID-DEBUGGING: ------------------------------------------------------
  ACCEPT-ACCESS  = *NO              PASSWORD            : n/a
  ENABLE-ACCESS  = *YES             PASSWORD            : given.2
```

A nonprivileged user obtains the following additional information with CONTEXT-INFO=*YES:

(1) In the `PRIVILEGE` output block:

- Modification mode and maximum values for the test privilege according to the user entry.
  See SHOW-USER-ATTRIBUTES command, output fields *READ-PRIVILEGE*, *WRITE-PRIVILEGE* and *MODIFICATION*, grouped under *TEST-OPTIONS*.
- Maximum values for the test privilege according to system parameters (`Cl2-opt`) RDTESTPR and WRTESTPR

(2) In the USERDUMP-OPTIONS output block:

- Number of user/area dumps generated in the task
- The values for the nonprivileged system parameters for CDUMP are displayed under Cl2-options.

(3) In the AUDIT output block:

- USER-ATTR displays the permission for linkage/hardware audits according to the user entry. See SHOW-USER-ATTRIBUTES command, output fields *LINKAGE-AUDIT* and *HARDWARE-AUDIT*, grouped under *AUDIT*.
- CL2-option displays the permission for linkage/hardware audits according to the system parameter (Cl2-option) AUDALLOW
- HSI-CFCS displays the availability of linkage/hardware audits according to the hardware/software interface (HSI)

Context information for users with TSOS privilege

/show-test-opt task-id=*own,information=*all,context-info=*yes

```
PRIVILEGE: ------------------------------------------------------------
  current: (READ = 1, WRITE = 1)    MODIFICATION        = *UNCONTROLLED   (1)
  maximal: (READ = 8, WRITE = 2)
  Cl2-opt: (READ = 9, WRITE = 9)
USERDUMP-OPTIONS: -----------------------------------------------------
  DUMP           = *SYSTEM          DATA-IN-VIRTUAL     = *STD
  DATA-SPACES    = *NO              MEMORY-MAP          = *YES
  OUTPUT-PUBSET  = *DEFAULT-PUBSET  SUPPRESS-DUPLICATES = *YES
  MAXIMUM-NUMBER = *UNLIMITED
  # user dumps   = 007E (task)      # system dumps      = 0000 (task)     (2)
  # autom. SD's  = 0000 (system)    # system dumps      = 0000 (system)
  Cl2-options:
  DUMPCL5P       = 01               DUMPSEPA            = 04
  DUMPCTRL       = 0F               DUMPSD#             = FF
  DUMPSREF       = 01               SNAPTIME            = 0018
AUDIT: ----------------------------------------------------------------
  HARDWARE-AUDIT = *NOT-ALLOWED     LINKAGE-AUDIT       = *NOT-ALLOWED
    USER-ATTR    : *ALLOWED           USER-ATTR         : *NOT-ALLOWED    (3)
    CL2-option   : not allowed        CL2-option        : not allowed
    HSI-CFCS     : not availabe       HSI-CFCS          : available
OWN-UID-DEBUGGING: ----------------------------------------------------
  ACCEPT-ACCESS  = *NO              PASSWORD            : n/a
  ENABLE-ACCESS  = *YES             PASSWORD            : given.2
```

A privileged user (TSOS privilege) obtains the following additional information with CONTEXT-INFO=*YES:

(1) In the PRIVILEGE output block:

- Modification mode and maximum values for the test privilege according to the user entry. See SHOW-USER-ATTRIBUTES command, output fields *READ-PRIVILEGE, WRITE-PRIVILEGE* and *MODIFICATION*, grouped under *TEST-OPTIONS*.

- Maximum values for the test privilege according to system parameters (`Cl2-opt`) RDTESTPR and WRTESTPR

(2) In the `USERDUMP-OPTIONS` output block:

- Number of user/area dumps and system dumps generated in the task
- Number of system dumps generated automatically or throughout the system
- The values for the system parameters for CDUMP and SNAP are displayed under `Cl2-options`.

(3) In the `AUDIT` output block:

- `USER-ATTR` displays the permission for linkage/hardware audits according to the user entry. See SHOW-USER-ATTRIBUTES command, output fields *LINKAGE-AUDIT* and *HARDWARE-AUDIT*, grouped under *AUDIT*.
- `CL2-option` displays the permission for linkage/hardware audits according to the system parameter (`Cl2-option`) AUDALLOW
- `HSI-CFCS` displays the availability of linkage/hardware audits according to the hardware/software interface (HSI)

For the nonprivileged user, the context information in the `USERDUMP-OPTIONS` output block also displays information on the system dumps generated automatically and throughout the system and on privileged system parameters.

7.33 SHOW-TRACE-STATUS

Output attributes and status of system traces

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS OPERATING SW-MONITOR-ADMINISTRATION
Routing code:	R

Function

The command provides an overview of all system traces. The default output includes a list of permanent, nonswitchable traces as well as those temporary traces which system administrators can explicitly activate and deactivate with the START-TRACE and STOP-TRACE commands.

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-TRACE-STATUS

TRACE-IDENTIFICATION = ***ALL**(...) / list-poss(51): <name 1..8>(...)

***ALL**(...)

| **SUBSYS**TEM-**NAME** = ***ALL** / <name 1..8> / ***NONE**

| ,**SUBSYS**TEM-**VERS**ION = ***ALL** / <product-version without-man-corr> /

| <product-version mandatory-man-corr>

<name 1..8>(...)

| **SUBSYS**TEM-**NAME** = ***ALL** / <name 1..8> / ***NONE**

| ,**SUBSYS**TEM-**VERS**ION = ***ALL** / <product-version without-man-corr> /

| <product-version mandatory-man-corr>

,**SEL**ECT = ***ALL** / ***BY-ATTR**IBUTES(...)

***BY-ATTR**IBUTES(...)

| **STA**TUS = ***ANY** / ***ON** / ***OFF**

| ,**TYPE** = ***ANY** / ***PERMANENT** / ***TEMP**ORARY

,**INF**ORMATION = ***NONE** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **TRACE-INF**ORMATION = ***NO** / ***Y**ES

| ,**BUF**FER-**INF**ORMATION = ***NO** / ***Y**ES

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = **0** / <integer 0..99>

Operands

TRACE-IDENTIFICATION =
Specifies the traces on which information is to be output.

TRACE-IDENTIFICATION = *ALL(...)
Information is to be provided on all defined traces.
If the traces involved are not statically defined, they are assigned to a specific subsystem that can be defined in more detail in the following operands.

SUBSYSTEM-NAME =
Specifies the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = *ALL
Displays information in all cases, regardless of the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = <name 1..8>
Exact specification of the subsystem to which the trace is assigned and about which information is to be output.

SUBSYSTEM-NAME = *NONE
Displays information only on statically defined traces that are not assigned to any subsystem.

SUBSYSTEM-VERSION =
Specifies the version of the subsystem to which the trace is assigned.

SUBSYSTEM-VERSION = *ALL
Information on the specified traces is to be provided for all versions of the selected subsystem.

SUBSYSTEM-VERSION = <product-version without-man-corr> / <product-version mandatory-man-corr>
Specifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "SDF syntax representation").

Possible values (for TRACE-ID=*ALL) are listed in the following table:

TraceID	Subsystem name	Switchable	Brief description
AIDSYS	*NONE	N	AIDSYS trace
ASTRA	*NONE	N	ASTRA trace
CCOPY	CCOPY	Y	CCOPY trace
CMSTRACE	*NONE	Y	CMS trace
CUIRTR	*NONE	Y	CUIR trace
DISKAI	*NONE	Y	Trace for disk attention interrupt processing
DIVTRACE	DIV	Y	DIV trace
DLMTRACE	DLMUSER	Y	DLMUSER trace
DPRTCOM	DPRINTCM	Y	DPRINTCM communication trace
DPSLOG	BS2CP	Y	Trace of IMPORT-PUBSET and EXPORT-PUBSET operations
EMMIO	*NONE	Y	EMMIO trace
FITC	BS2CP	Y	FITC trace
MAILCERR	MAILCLNT	N	MAILCLNT error trace

MAILCEVT	MAILCLNT	Y	MAILCLNT trace
MRSCAT	*NONE	Y	MRSCAT occupation trace
MSCFLOG	MSCF	Y	Trace for MSCF errors
NDVMTRAC	*NONE	Y	BAVOLMON I/O trace
PAGING	*NONE	N	PAGING trace
PRNGDERR	PRNGD	N	PRNGD error trace
PRNGDEVT	PRNGD	Y	PRNGD trace
RECTRACE	*NONE	N	Reconfiguration trace
SM2EVENT	SM2	Y	SM2 error trace
SM2FUNCT	SM2	Y	SM2 trace for user call
SYNTRACE	*NONE	N	ETMSYNCH trace
TBOURSE	*NONE	Y	ETMBOWK trace
TDISAM	*NONE	Y	K-ISAM trace
TDISAMNK	*NONE	Y	NK-ISAM trace
TDJCTRL	*NONE	N	DJCTRL trace
TDRSRLER	*NONE	N	DRSRL error trace
TDRSRLSY	*NONE	N	DRSRL error trace
TEMMSLT	*NONE	N	EMMSLT trace
TFASTPAM	FASTPAM	Y	Access method trace
TJLOGLOW	*NONE	Y	JMS trace
TJOBPOOL	*NONE	Y	JMS-JOBPOOL trace
TLOCK	*NONE	Y	Task lock management trace
TNBCADB	*NONE	N	NBCADS character trace
TNBCADG	*NONE	N	NBCADS big trace
TNBCCER	*NONE	N	NBCCER character trace
TNBCCNT	*NONE	N	NBCCNT character trace
TNBCCS	*NONE	N	NBCCNTS character trace
TNBCCSG	*NONE	N	NBCCNTS I/O trace
TNBCENT	*NONE	N	NBCENTR I/O trace

TNBCONS	*NONE	N	NBCONS trace
TNBCREC	*NONE	N	NBCRECK I/O trace
TNBROUTE	*NONE	N	NBROUTE trace
TNDIDARM	*NONE	N	DAR manager trace
TNDM#ALL	BS2CP	Y	Trace for all NDM FE
TNDM#ERR	BS2CP	N	NDM error trace
TNDM#NKA	BS2CP	Y	Trace for FE NKA module
TNDM#NKD	BS2CP	Y	Trace for FE NKD module
TNDM#NKG	BS2CP	Y	Trace for FE NKG module
TNDM#NKL	DRV	Y	Trace for FE NKL module
TNDM#NKR	BS2CP	Y	Trace for FE NKR module
TNDM#NKS	NKS	Y	Trace for FE NKS module
TNDM#NKT	BS2CP	Y	Trace for FE NKT module
TNDM#NKV	NKVD	Y	Trace for FE NKV module
TRFA	*NONE	Y	Remote file access trace
TRSOADM	*NONE	N	RSO trace (old RSO version)
TRSOADM	RSO	Y	RSO trace
TSDVINT	*NONE	N	SDV and interrupt trace
TSSVADM	*NONE	N	SPOOL trace (old SPOOL version)
TSSVADM	SPOOL	Y	SPOOL trace
UTLTRACE	*NONE	N	User table load trace
VMMALLOC	BS2CP	Y	Trace for VM allocation

Table 167: Possible values for SHOW-TRACE-STATUS TRACE-ID=*ALL

TRACE-IDENTIFICATION = list-poss(51): <name 1..8>(...)
Specifies up to 51 names of traces on which information is to be requested. If the traces involved are not statically defined, they are assigned to a specific subsystem that can be defined in more detail in the following operands.

SUBSYSTEM-NAME =
Specifies the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = *ALL
Displays information in all cases, regardless of the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = <name 1..8>
Exact specification of the subsystem to which the trace is assigned and about which information is to be output.

SUBSYSTEM-NAME = *NONE
Displays information only on statically defined traces that are not assigned to any subsystem.

SUBSYSTEM-VERSION =
Specifies the version of the subsystem to which the trace is assigned.

SUBSYSTEM-VERSION = *ALL
Information on the specified traces is to be provided for all versions of the selected subsystem.

**SUBSYSTEM-VERSION = <product-version without-man-corr> /
<product-version mandatory-man-corr>**
Specifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see "product-version" (SDF syntax representation)).

SELECT =
Selects the traces according to their attributes.

SELECT = *ALL
No attributes are specified.

SELECT = *BY-ATTRIBUTES(...)
Specifies the attributes according to which traces are selected.

STATUS =
Selects traces according to their status.

STATUS = *ANY
All traces are to be output, regardless of status.

STATUS = *ON
Only traces which are activated (ON), or which are in an intermediate state (ON/OFF), are to be output.

STATUS = *OFF
Only traces which are deactivated (OFF), or which are in an intermediate state (ON/OFF), are to be output.

TYPE =
Selects traces according to whether they can be switched on and off.

TYPE = *ANY
All traces are to be output, regardless of whether or not they can be switched on and off.

TYPE = *PERMANENT
Only traces which are permanently switched on are to be output.

TYPE = *TEMPORARY
Only traces which can be switched with a command are to be output.

INFORMATION =
Type of output.

INFORMATION = *NONE
Only the trace ID and its current trace status are to be output.

INFORMATION = *PARAMETERS(...)
Specifies further trace attributes to be output in addition to the trace ID and current status.

TRACE-INFORMATION =
Specifies whether the scope and type of the traces are also to be output.

TRACE-INFORMATION = *NO
The scope and type of the traces are not to be output by default.

TRACE-INFORMATION = *YES
The scope and type of the traces are also to be output.

BUFFER-INFORMATION =
Specifies whether the size and memory class of the trace buffer are also to be output.

BUFFER-INFORMATION = *NO
The size and memory class of the trace buffer are not to be output by default.

BUFFER-INFORMATION = *YES
The size and memory class of the trace buffer are also to be output.

OUTPUT =
Specifies the output destination.

OUTPUT = *SYSOUT
The tabular list is to be output to SYSOUT.
This is the only allowable operand value for the operator at the console. OUTPUT=*SYSLST will be rejected and an error message issued.

OUTPUT = *SYSLST(...)
The tabular list is to be output to SYSLST in both interactive and batch mode.

SYSLST-NUMBER = 0 / <integer 0..99>
Number of the SYSLST file to which output is directed.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1		CMD0001	Requested trace does not exist
1	1	PDT0213	OUTPUT=*SYSLST operand not permitted for console
	32	CMD0221	Internal error
1	64	PDT0200	No trace processed
2	64	PDT0200	One of the traces specified in the list was not processed
	64	PDT0209	No authorization for command

Description of the output fields

Field	Meaning / contents
TRACE-IDENTIFICATION	Global information that describes the trace in more detail:
• NAME	Name of the trace.
• SS-NAME	Name of the subsystem to which the trace is assigned.
• SS-VERS	Version number of the subsystem.
STATUS	Current status of the trace. The status description is divided into two parts; any combination may occur.
	Part 1 describes the buffer status: DEF No buffer available for trace. INI Trace is initialized and buffer data is known to the trace manager. Part 2 describes the activation status: ON Trace is switched on. OFF Trace is switched off. ON/OFF Trace is only partially activated.

Field	Meaning / contents
SCOPE	Scope of a trace: SYSTEM Global system trace. TASK Task-specific trace.
TYPE	Indicates whether the trace is one that is permanently switched on or one that can be switched on and off: PERM Trace is switched on permanently. TEMP Trace can be switched on and off.
BUFFER	Information on the trace buffer:
• SIZE	Size of the trace buffer in bytes.
• CLASS	Memory class of the trace buffer: 1 Class 1 memory 2 Class 2 memory 3 Class 3 memory 4 Class 4 memory 5 Class 5 memory

Table 168: Output fields of the SHOW-TRACE-STATUS command

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION=*NONE	1
INFORMATION=*PAR(TRACE-INFORMATION=*YES, BUFFER-INFORMATION=*NO)	2
INFORMATION=*PAR(TRACE-INFORMATION=*NO, BUFFER-INFORMATION=*YES)	3
INFORMATION=*PAR(TRACE-INFORMATION=*YES, BUFFER-INFORMATION=*YES)	4

Output information	Name of the S variable	T	Contents	Condition
Trace buffer memory class	var(*LIST).BUF-CLASS	I	<integer 1..5>	3,4
Trace buffer size	var(*LIST).BUF-SIZE	I	<integer 0..2^{31}>	3,4
Trace buffer status	var(*LIST).BUF-STA	S	*DEFI *INIT	1,2,3,4
Trace scope	var(*LIST).SCOPE	S	*SYS *TASK	2,4
Trace switch status	var(*LIST).STA	S	*ON *OFF *ON-OFF	1,2,3,4
Name of the subsystem assigned the trace	var(*LIST).SUBSYS-NAME	S	<c-string 1..8>	1,2,3,4
Version of the subsystem	var(*LIST).SUBSYS-VERSION	S	<c-string 1..4> <c-string 1..7>	1,2,3,4
Trace identifier	var(*LIST).TRACE-ID	S	<c-string 1..8>	1,2,3,4
Trace switchability	var(*LIST).TYPE	S	*PERM *TEMP	2,4

Example

```
/declare-var var-name=var(type=*structure),multiple-elem=*list
/exec-cmd cmd=(show-trace-status inf=*par(trace-inf=*yes,buffer-inf=*no)),
          text-output=*none,structure-output=var
/show-var var,inf=*par(val=*c-literal,list-index=*yes)
```

```
VAR#1.TRACE-ID = 'AIDSYS'
VAR#1.SUBSYS-NAME = '*NONE'
VAR#1.SUBSYS-VERSION = '00.0'
VAR#1.BUF-STA = '*DEFI'
VAR#1.STA = '*ON'
VAR#1.SCOPE = '*TASK'
VAR#1.TYPE = '*PERM'
*END-OF-VAR
VAR#2.TRACE-ID = 'ASTRA'
VAR#2.SUBSYS-NAME = '*NONE'
VAR#2.SUBSYS-VERSION = '00.0'
VAR#2.BUF-STA = '*INIT'
VAR#2.STA = '*ON'
VAR#2.SCOPE = '*SYS '
VAR#2.TYPE = '*PERM'
*END-OF-VAR
VAR#3.TRACE-ID = 'CMSTRACE'
VAR#3.SUBSYS-NAME = '*NONE'
VAR#3.SUBSYS-VERSION = '00.0'
VAR#3.BUF-STA = '*DEFI'
VAR#3.STA = '*OFF'
VAR#3.SCOPE = '*SYS '
VAR#3.TYPE = '*TEMP'
*END-OF-VAR
.......
.......
.......
VAR#58.TRACE-ID = 'TSSVADM'
VAR#58.SUBSYS-NAME = 'SPOOL'
VAR#58.SUBSYS-VERSION = '04.9'
VAR#58.BUF-STA = '*INIT'
VAR#58.STA = '*ON'
VAR#58.SCOPE = '*SYS '
VAR#58.TYPE = '*TEMP'
*END-OF-VAR
VAR#59.TRACE-ID = 'UTLTRACE'
VAR#59.SUBSYS-NAME = '*NONE'
VAR#59.SUBSYS-VERSION = '00.0'
VAR#59.BUF-STA = '*DEFI'
VAR#59.STA = '*ON'
VAR#59.SCOPE = '*SYS '
VAR#59.TYPE = '*PERM'
*END-OF-VAR
VAR#60.TRACE-ID = 'VMMALLOC'
VAR#60.SUBSYS-NAME = 'BS2CP'
VAR#60.SUBSYS-VERSION = '20.0'
VAR#60.BUF-STA = '*INIT'
VAR#60.STA = '*OFF'
VAR#60.SCOPE = '*SYS '
```

```
VAR#60.TYPE = '*TEMP'
*END-OF-VAR
```

7.34 SHOW-USER-ATTRIBUTES

Display information on entries in user catalog

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION USER-ADMINISTRATION
Routing code:	$

Function

The SHOW-USER-ATTRIBUTES command displays all data from the user entry except for the LOGON password and the user switches. The entry for a user ID is created by the systems support staff or the authorized group administrator in the user catalog of the pubset. Output can be either to SYSLST or to SYSOUT. The user can only access files and job variables of a pubset if a user entry also exists for this pubset and the protection attributes allow this. The user can also ascertain from the user entry, for example, whether he may use public storage space on the corresponding pubset.

The command supports structured output in S variables (see “Output in S variable”).

Privileged functions

Systems support staff (USER-ADMINISTRATION privilege) can request information for any user ID (by specifying *ALL or a list of user IDs in the USER-IDENTIFICATION operand). Selection criteria in the SELECT operand can be used to restrict information output to user IDs with specific characteristics. In interactive mode, the systems support staff can explicitly have user IDs output with PASSWORD-INFORMATION=*FULL. With the INFORMATION operand, statistical information (*SUMMARY for SF pubsets, *PUBSET-SUMMARY for SM pubsets) and user lists (*USER-LIST) can be requested, classified by pubset.

Authorized group administrators can request the same information for all the user IDs they manage.

Format

SHOW-USER-ATTRIBUTES Alias: **SHUA**

```
 USER-IDENTIFICATION = *OWN / *ALL / list-poss(127): <name 1..8 with-wild(32)>
,INFORMATION = *ATTRIBUTES (...) / *SUMMARY / *USER-LIST / *PUBSET-ATTRIBUTES /
                    *PUBSET-SUMMARY
   *ATTRIBUTES(...)
       | PASSWORD-INFORMATION = *SUMMARY / *FULL
,PUBSET = *HOME / *DEFAULT-PUBSET / *ALL / list-poss(36): <cat-id 1..4>
,OUTPUT = *SYSOUT / list-poss(2): *SYSOUT / *SYSLST(...)
   *SYSLST(...)
       | SYSLST-NUMBER = 00 / <integer 0..99>
       | ,PAGE-SIZE = 64 / <integer 20..255>
,SELECT = *ALL / [*BY-ATTRIBUTES](...)
   [*BY-ATTRIBUTES](...)
       | ACCOUNT-ATTRIBUTES = *ANY / *NONE / [*PARAMETERS](...)
       |   [*PARAMETERS](...)
       |     | ACCOUNT-NUMBER = *ANY / <alphanum-name 1..8 with-wild(16)>
       |     | ,CPU-LIMIT = *ANY / *STD / *MAXIMUM / <integer 0..2147483647 seconds> /
       |     |                 [*INTERVAL](...)
       |     |   [*INTERVAL](...)
       |     |     | FROM = 0 / <integer 0..2147483647 seconds>
       |     |     | ,TO = 2147483647 / <integer 0..2147483647 seconds>
       |     | ,LOGON-DEFAULT = *ANY / *NO / *YES
       |     | ,INHIBIT-DEACTIVATION = *ANY / *NO / *YES
       |     | ,MAX-ALLOWED-CATEGORY = *ANY / *STD / *TP / *SYSTEM
       |     | ,MAXIMUM-RUN-PRIORITY = *ANY / *STD / <integer 30..255> / [*INTERVAL](...)
       |     |   [*INTERVAL](...)
       |     |     | FROM = 30 / <integer 30..255>
       |     |     | ,TO = 255 / <integer 30..255>
       |     | ,NO-CPU-LIMIT = *ANY / *NO / *YES
       |     | ,POSIX-RLOGIN-DEFAULT = *ANY / *NO / *YES
```

| | ,**SP**OOLOUT-**CL**ASS = ***ANY** / ***STD** / <integer 0..255> / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | **FROM** = **0** / <integer 0..255>
| | | ,**TO** = **255** / <integer 0..255>
| | ,**START-IMMED**IATE = ***ANY** / ***NO** / ***Y**ES
| ,**PUBSET-ATTR**IBUTES = ***ANY** / [***PAR**AMETERS](...)
| [***PAR**AMETERS](...)
| | **FILE-NUM**BER-**LIMIT** = ***ANY** / ***MAX**IMUM / <integer 0..16777215> / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | **FROM** = **0** / <integer 0..16777215>
| | | ,**TO** = **16777215** / <integer 0..16777215>
| | ,**FILE-NUM**BER-**USED** = ***ANY** / <integer 0..16777215> / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | **FROM** = **0** / <integer 0..16777215>
| | | ,**TO** = **16777215** / <integer 0..16777215>
| | ,**JV-NUM**BER-**LIM**IT = ***ANY** / ***MAX**IMUM / <integer 0..16777215> / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | **FROM** = **0** / <integer 0..16777215>
| | | ,**TO** = **16777215** / <integer 0..16777215>
| | ,**JV-NUM**BER-**USED** = ***ANY** / <integer 0..16777215> / [***INTERVAL**](...)
| | [***INTERVAL**](...)
| | | **FROM** = **0** / <integer 0..16777215>
| | | ,**TO** = **16777215** / <integer 0..16777215>
| | ,**PERM-SPACE-LIM**ITS = ***ANY** / <integer 0..2147483647 *2Kbyte*> / ***INTERVAL**(...) /
| | [***PAR**AMETERS](...)
| | ***INTERVAL**(...)
| | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | [***PAR**AMETERS](...)
| | | **TOTAL-SPACE** = ***ANY** / ***MAX**IMUM / <integer 0..2147483647 *2Kbyte*> /
| | | [***INTERVAL**](...)
| | | [***INTERVAL**](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>

| | | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**S0-LEVEL-SPACE** = ***ANY** / ***MAX**IMUM /
| | | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)
| | | | [***INTERVAL***](...)
| | | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**HIGH-PERF-SPACE** = ***ANY** / ***MAX**IMUM /
| | | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)
| | | | [***INTERVAL***](...)
| | | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**VERY-HIGH-PERF-SPACE** = ***ANY** / ***MAX**IMUM /
| | | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)
| | | | [***INTERVAL***](...)
| | | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**HIGH-AVAIL**ABLE**-SPACE** = ***ANY** / ***MAX**IMUM /
| | | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)
| | | | [***INTERVAL***](...)
| | | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | ,**PERM-SPACE-USED** = ***ANY** / <integer 0..2147483647 *2Kbyte*> / ***INTERVAL**(...) /
[***PAR**AMETERS](...)
| | ***INTERVAL**(...)
| | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | [***PAR**AMETERS](...)
| | | **TOTAL-SPACE** = ***ANY** / ***MAX**IMUM / ***UNLIMITED** /
| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)
| | | [***INTERVAL***](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,**S0-LEVEL-SPACE** = ***ANY** / ***MAX**IMUM /

| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL**](...)
| | | [***INTERVAL**](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,**HIGH-PERF-SPACE** = ***ANY** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL**](...)
| | | [***INTERVAL**](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,**VERY-HIGH-PERF-SPACE** = ***ANY** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL**](...)
| | | [***INTERVAL**](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,**HIGH-AVAIL**ABLE**-SPACE** = ***ANY** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL**](...)
| | | [***INTERVAL**](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | ,**TEMP-SPACE-LIM**ITS = ***ANY** / <integer 0..2147483647 *2Kbyte*> / ***INTERVAL**(...) /
| | [***PAR**AMETERS](...)
| | ***INTERVAL**(...)
| | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | [***PAR**AMETERS](...)
| | | **TOTAL-SPACE** = ***ANY** / ***MAX**IMUM / ***UNLIMITED** /
| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL**](...)
| | | [***INTERVAL**](...)
| | | | **FROM** = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,**TO** = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,**HIGH-PERF-SPACE** = ***ANY** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [***INTERVAL**](...)
| | | [***INTERVAL**](...)

| | | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>

| | | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>

| | | | ,VERY-HIGH-PERF-SPACE = ***ANY** / ***MAX**IMUM /

<integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)

| | | | [***INTERVAL***](...)

| | | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>

| | | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>

| | ,TEMP-SPACE-USED = ***ANY** / <integer 0..2147483647 *2Kbyte*> / ***INTERVAL***(...) /

| | [***PAR**AMETERS](...)

| | ***INTERVAL***(...)

| | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>

| | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>

| | [***PAR**AMETERS](...)

| | | TOTAL-SPACE = ***ANY** / ***MAX**IMUM / <integer 0..2147483647 *2Kbyte*> /

[***INTERVAL***](...)

| | | [***INTERVAL***](...)

| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>

| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>

| | | ,HIGH-PERF-SPACE **= *ANY** / *MAXIMUM / <integer 0..
2147483647 2Kbyte> /

[***INTERVAL***](...)

| | | [***INTERVAL***](...)

| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>

| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>

| | | ,VERY-HIGH-PERF-SPACE = ***ANY** / ***MAX**IMUM /

<integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)

| | | [***INTERVAL***](...)

| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>

| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>

| | ,WORK-SPACE-LIMITS= ***ANY** / [***PAR**AMETERS](...)

| | [***PAR**AMETERS](...)

| | | TOTAL-SPACE = ***ANY** / ***MAX**IMUM / ***UNLIMITED** /

<integer 0..2147483647 *2Kbyte*> / [***INTERVAL***](...)

| | | [**INTERVAL**](...)
| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,HIGH-PERF-SPACE = ***ANY*** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [**INTERVAL**](...)
| | | [**INTERVAL**](...)
| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,VERY-HIGH-PERF-SPACE = ***ANY*** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [**INTERVAL**](...)
| | | [**INTERVAL**](...)
| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | ,WORK-SPACE-USED = ***ANY*** / [***PAR**AMETERS](...)
| | [***PAR**AMETERS](...)
| | | TOTAL-SPACE = ***ANY*** / ***MAX**IMUM / <integer 0..2147483647 *2Kbyte*> /
| | | [**INTERVAL**](...)
| | | [**INTERVAL**](...)
| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,HIGH-PERF-SPACE = ***ANY*** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [**INTERVAL**](...)
| | | [**INTERVAL**](...)
| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | | ,VERY-HIGH-PERF-SPACE = ***ANY*** / ***MAX**IMUM /
| | | <integer 0..2147483647 *2Kbyte*> / [**INTERVAL**](...)
| | | [**INTERVAL**](...)
| | | | FROM = **0** / <integer 0..2147483647 *2Kbyte*>
| | | | ,TO = **2147483647** / <integer 0..2147483647 *2Kbyte*>
| | ,DEF-STORAGE-CLASS = ***ANY*** / ***NONE** / ***Y**ES / <structured-name 1..8 with-wild(16)>
| | ,DMS-TUNING-RESOURCES = ***ANY*** / ***NONE** / ***CONCURRENT-USE** /
| | ***EXCL**USIVE-**USE**

| | ,**PHYSICAL-ALLOCATION** = ***ANY** / ***NOT-ALLOW**ED / ***ALLOW**ED
| | ,**PUB**LIC-**SPACE-EXC**ESS = ***ANY** / ***NO** / ***ALLOW**ED / ***TEMP**ORARILY-**ALLOW**ED
,**ADDR**ESS-**SPACE**-LIMIT = ***ANY** / ***STD** / ***MAX**IMUM / <integer 1..2147483647 *Mbyte*> /
[***INTERVAL**](...)
[***INTERVAL**](...)
| **FROM** = **1** / <integer 1..2147483647 *Mbyte*>
| ,**TO** = **2147483647** / <integer 1..2147483647 *Mbyte*>
,**CODED-CHAR**ACTER-**SET** = ***ANY** / ***STD** / <name 1..8 with-wild(16)>
,**CRYPTO-SESSION-LIM**IT= ***ANY** / ***STD** / ***MAX**IMUM / <integer 0..32767> / [***INTERVAL**](...)
[***INTERVAL**](...)
| **FROM** = **0** / <integer 0..32767>
| ,**TO** = **32767** / <integer 0..32767>
,**CRYPTO-SESSION-USED** = ***ANY** / <integer 0..32767> / [***INTERVAL**](...)
[***INTERVAL**](...)
| **FROM** = **0** / <integer 0..32767>
| ,**TO** = **32767** / <integer 0..32767>
,**CSTMP**-MACRO-ALLOWED = ***ANY** / ***NO** / ***Y**ES
,**DEF**AULT-**MSG-LANG**UAGE = ***ANY** / ***STD** / <name 1..1 with-wild(16)>
,**DEF**AULT-**PUB**SET = ***ANY** / ***HOME** / <alphanum-name 1..4 with-wild(16)>
,**EMAIL-ADDR**ESS = ***ANY** / ***NONE** / ***Y**ES / <c-string 1..1800 with-low with-wild>(...) /
<x-string 1..3600>
<c-string 1..1800 with-low with-wild>(...)
| **CASE-SENSITIVE** = ***Y**ES / ***NO**
,**F**ILE-**AUDI**T= ***ANY** / ***NO** / ***ALLOW**ED
,**HARD**WARE-**AUDIT** = ***ANY** / ***ALLOW**ED / ***NOT-ALLOW**ED
,**LINKAGE-AUDIT** = ***ANY** / ***ALLOW**ED / ***NOT-ALLOW**ED
,**LOCK-USER** = ***ANY** / ***NO** / ***Y**ES
,**LOGON-PASS**WORD = ***ANY** / ***NONE** / ***Y**ES
,**MAIL**ING-**ADDR**ESS = ***ANY** / ***NONE** / ***Y**ES / <c-string 1..64 with-low>(...) / <x-string 1..128>
<c-string 1..64 with-low>(...)
| **CASE-SENSITIVE** = ***Y**ES / ***NO**
,**MAX-ACC**OUNT-**REC**ORDS= ***ANY** / ***NO-LIM**IT / <integer 0..32767> / [***INTERVAL**](...)
[***INTERVAL**](...)

```
|          |      FROM = 0 / <integer 0..32767>
|          |      ,TO = 32767 / <integer 0..32767>
|      ,NET-STORAGE-USAGE = *ANY / *NOT-ALLOWED / *ALLOWED
|      ,NET-CODED-CHAR-SET = *ANY / *STD / *ISO / *NO-CONVERSION / <name 1..8>
|      ,PASSWORD-MANAGEMENT= *ANY / *BY-USER / *BY-ADMINISTRATOR /
|                                  *USER-CHANGE-ONLY
|      ,PROFILE-ID = *ANY / *NONE / *YES / <structured-name 1..30 with-wild(48)>
|      ,RESIDENT-PAGES = *ANY / *STD / *MAXIMUM / <integer 0..2147483647 4Kbyte> /
|                          [*INTERVAL](...)
|        [*INTERVAL](...)
|          |      FROM = 0 / <integer 0..2147483647 4Kbyte>
|          |      ,TO = 2147483647 / <integer 0..2147483647 4Kbyte>
|      ,TAPE-ACCESS = *ANY / *STD / *PRIVILEGED / *READ / *BYPASS-LABEL / *ALL
|      ,TEST-OPTIONS = *ANY / [*PARAMETERS](...)
|        [*PARAMETERS](...)
|          |      MODIFICATION =*ANY / *CONTROLLED / *UNCONTROLLED
|          |      ,READ-PRIVILEGE = *ANY / <integer 1..9> / [*INTERVAL](...)
|          |        [*INTERVAL](...)
|          |          |      FROM = 1 / <integer 1..9>
|          |          |      ,TO = 9 / <integer 1..9>
|          |      ,WRITE-PRIVILEGE = *ANY / <integer 1..9> / [*INTERVAL](...)
|          |        [*INTERVAL](...)
|          |          |      FROM = 1 / <integer 1..9>
|          |          |      ,TO = 9 / <integer 1..9>
```

Operands

USER-IDENTIFICATION = *OWN / *ALL / list-poss(127): <name 1..8 with-wild(32)>
Displays information on entries in the user catalog for the specified user ID. The default value is *OWN, i.e. the user's own ID. Nonprivileged users can only obtain information on the user entry for their own user ID.

INFORMATION = *ATTRIBUTES(...) / *SUMMARY / *USER-LIST
Specifies the type and scope of information to be displayed.

INFORMATION = *ATTRIBUTES(...)
Displays all information on the selected user IDs.

PASSWORD-INFORMATION = *SUMMARY
The default value is *SUMMARY, i.e. the display shows only whether a LOGON password has been entered (output YES or NO).

PASSWORD-INFORMATION = *FULL
Only for systems support staff or for the group administrator for the specified user ID:
An entered LOGON password is output explicitly in interactive mode. In batch mode, the output takes place in the same way as for *SUMMARY.

INFORMATION = *SUMMARY
Only for systems support staff or for the group administrator for the specified user ID:
Displays the following information, separated according to pubsets. All information only relates to the set of user IDs selected by means of the USER-IDENTIFICATION and SELECT operands:

- USER(S) Number of user IDs entered in the user catalog
- USER(S) LOCKED Number of locked user IDs
- USER(S) WITH PASSWORD Number of user IDs protected with a password.
- ACCOUNT-NUMBER(S) Number of explicitly assigned accounting numbers.
- (K-)PAM-PAGES OF SPACE AVAILABLE Maximum total number of storage blocks permitted for the users on public volumes. When “PAM-PAGES” is output, the total is displayed in 2-KB units or when “K-PAM-PAGES” is output, the total is displayed in 2-MB units. If the total number of permitted storage blocks exceeds 2147483647 “K-PAM-PAGES”, “**********” is output.
- (K-)PAM-PAGES OF SPACE USED Total amount of storage space on public volumes already occupied by users. When “PAM-PAGES” is output, the total is displayed in 2-KB units or when “K-PAM-PAGES” is output, the total is displayed in 2-MB units. If the total number of occupied storage blocks exceeds 2147483647 “K-PAM-PAGES”, “**********” is output. Beyond that, the ratio of SPACE USED to SPACE AVAILABLE is output in percent. A value > 999 is represented as “***”.

INFORMATION = *USER-LIST
Only for systems support staff or for the group administrator for the specified user ID. Displays only the names of the selected user IDs. The information for each pubset specified is output separately.

INFORMATION = *PUBSET-ATTRIBUTES
Displays the pubset-specific user attributes of the selected user IDs.

Note

The operand is primarily intended for SM pubsets. If it is used for SF pubsets, a simplified output layout is used (see Examples).

INFORMATION = *PUBSET-SUMMARY
Only for systems support staff or for the group administrator for the specified user ID. Totals are to be calculated and output for the quantitative attributes, notably the limits and counters. All information only relates to the set of user IDs selected by means of the USER-IDENTIFICATION and SELECT operands.

Note

The operand is primarily intended for SM pubsets. If it is used for SF pubsets, a simplified output layout is used (see Examples).

PUBSET = *HOME / *DEFAULT-PUBSET / *ALL / list-poss(36): <cat-id 1..4>
Specifies the public volume set for which user-catalog information is to be displayed. Information can only be output for locally imported pubsets.

PUBSET = *HOME
Displays information on entries in the user catalog of the home pubset.

PUBSET = *DEFAULT-PUBSET
Displays information on entries in the user catalog of the default pubset (corresponds to specifying the default catalog name of the user).

PUBSET = *ALL
Displays information on entries in the user catalogs of all pubsets.

PUBSET = list-poss(36): <cat-id 1..4>
Displays information on entries in the user catalogs of the specified pubsets. A maximum of 36 catalog names may be specified.

OUTPUT =
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The output is directed to SYSOUT.

OUTPUT = *SYSLST(...)
Output is written to SYSLST.

SYSLST-NUMBER = 00 / <integer 0..99>
Output to SYSLST (specify 00) or to a SYSLST file from the series SYSLST01 to SYSLST99.

PAGE-SIZE = 64 / <integer 20..255>
Number of lines per print page.

SELECT = *ALL / *BY-ATTRIBUTES(...)
Criteria for selecting user entries.

SELECT = *ALL
Informs about all user entries for which the user has access authorization.

SELECT = *BY-ATTRIBUTES(...)
Restricts the user entries defined in USER-IDENTIFICATION to user entries which satisfy the specifications. The default value *ANY or ANY means that no restrictions of the user entries regarding the attribute concerned are required.

ACCOUNT-ATTRIBUTES = *ANY / *NONE / *PARAMETERS(...)
Informs about user entries in conjunction with their account-specific ID attributes.

ACCOUNT-ATTRIBUTES = *ANY
The account-specific ID attributes are not a selection criterion.

ACCOUNT-ATTRIBUTES = *NONE
Informs about user entries without account number. Such user IDs can be created when an SM pubset is generated or a user catalog is restored.

ACCOUNT-ATTRIBUTES = *PARAMETERS(...)
Informs about user entries which have the following account-specific ID attributes.

ACCOUNT-NUMBER = *ANY / <alphanum-name 1..8 with-wild(16)>
Informs about user entries in conjunction with an account number.

ACCOUNT-NUMBER = *ANY
An account number is not a selection criterion.

ACCOUNT-NUMBER = <alphanum-name 1..8 with-wild(16)>
Informs about user entries for which the specified account number is defined.

CPU-LIMIT = *ANY / *STD / *MAXIMUM / <integer 0..2147483647 *seconds*> / *INTERVAL(...)
Informs about user entries in conjunction with the CPU time available under an existing account number.

CPU-LIMIT = *ANY
The CPU time is not a selection criterion.

CPU-LIMIT = *STD
Informs about user entries for which the default value set in the system parameter SYSGJCPU is available.

CPU-LIMIT = *MAXIMUM
Informs about user entries for which the maximum CPU time of 2147483647 seconds is available.

CPU-LIMIT = <integer 0..2147483647 *seconds*>
Informs about user entries for which the specified CPU time is available.

CPU-LIMIT = *INTERVAL(...)
Informs about user entries for which a CPU time is available in the specified interval.

FROM = 0 / <integer 0..2147483647 *seconds*>
User entries with a CPU time >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *seconds*>
User entries with a CPU time <= the specified value.

LOGON-DEFAULT = *ANY / *NO / *YES
Informs about user entries in conjunction with the definition of a default account number for interactive and batch jobs.

LOGON-DEFAULT = *ANY
The definition of a default account number is not a selection criterion.

LOGON-DEFAULT = *NO
Informs about user entries without default account number.

LOGON-DEFAULT = *YES
Informs about user entries with default account number.

INHIBIT-DEACTIVATION = *ANY / *NO / *YES
Informs about user entries in conjunction with the option of inhibiting deactivation for individual account numbers.

INHIBIT-DEACTIVATION = *ANY
The option of inhibiting deactivation is not a selection criterion.

INHIBIT-DEACTIVATION = *NO
Informs about user entries for which individual account numbers may not inhibit deactivation.

INHIBIT-DEACTIVATION = *YES
Informs about user entries for which individual account numbers may inhibit deactivation.

MAX-ALLOWED-CATEGORY = *ANY / *STD / *TP / *SYSTEM
Informs about user entries in conjunction with possible task attributes for individual account numbers.

MAX-ALLOWED-CATEGORY = *ANY
The task attribute is not a selection criterion.

MAX-ALLOWED-CATEGORY = *STD
Informs about user entries for which individual account numbers may not utilize the task attributes BATCH and DIALOG.

MAX-ALLOWED-CATEGORY = *TP
Informs about user entries for which individual account numbers may utilize the task attributes BATCH, DIALOG, and TP.

MAX-ALLOWED-CATEGORY = *SYSTEM
Informs about user entries for which individual account numbers may utilize every task attribute.

MAXIMUM-RUN-PRIORITY = *ANY / *STD / <integer 30..255> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum possible priority for individual account numbers.

MAXIMUM-RUN-PRIORITY = *ANY
The priority is not a selection criterion.

MAXIMUM-RUN-PRIORITY = *STD
Informs about user entries with a maximum possible priority for individual account numbers whose value corresponds to the system parameter SYSGJPRI.

MAXIMUM-RUN-PRIORITY = <integer 30..255>
Informs about user entries with the specified priority for individual account numbers.

MAXIMUM-RUN-PRIORITY = *INTERVAL(...)
Informs about user entries for which the maximum possible priority is in the specified value range.

FROM = 30 / <integer 30..255>
User entries with a priority >= the specified value.

TO = 255 / <integer 30..255>
User entries with a priority <= the specified value.

NO-CPU-LIMIT = *ANY / *NO / *YES
Informs about user entries in conjunction with permission to exceed the CPU limit for individual account numbers.

NO-CPU-LIMIT = *ANY
Permission to exceed the CPU limit for individual account numbers is not a selection criterion.

NO-CPU-LIMIT = *NO
Informs about user entries for which individual account numbers may not exceed the CPU limit.

NO-CPU-LIMIT = *YES
Informs about user entries for which individual account numbers may exceed the CPU limit.

POSIX-RLOGIN-DEFAULT = *ANY / *NO / *YES
Informs about user entries in conjunction with the option of using an individual account number for a POSIX remote login session.

POSIX-RLOGIN-DEFAULT = *ANY
An account number for a POSIX remote login session is not a selection criterion.

POSIX-RLOGIN-DEFAULT = *NO
Informs about user entries for which individual account numbers may not be used for a POSIX remote login session.

POSIX-RLOGIN-DEFAULT = *YES
Informs about user entries for which individual account numbers may be used for a POSIX remote login session.

SPOOLOUT-CLASS = *ANY / *STD / <integer 0..255> / *INTERVAL(...)
Informs about user entries in conjunction with the spoolout class for individual account numbers.

SPOOLOUT-CLASS = *ANY
The spoolout class is not a selection criterion.

SPOOLOUT-CLASS = *STD
Informs about user entries whose spoolout class has the value of the system parameter SYSGJCLA for individual account numbers.

SPOOLOUT-CLASS = <integer 0..255>
Informs about user entries whose spoolout class has the specified value for individual account numbers.

SPOOLOUT-CLASS = *INTERVAL(...)
Informs about user entries whose spoolout class is in the specified value range.

FROM = 0 / <integer 30..255>
User entries with a spoolout class >= the specified value.

TO = 255 / <integer 30..255>
User entries with a spoolout class <= the specified value.

START-IMMEDIATE = *ANY / *NO / *YES
Informs about user entries in conjunction with the option of using the Job Express function for individual account numbers.

START-IMMEDIATE = *ANY
The option of using the Job Express function is not a selection criterion.

START-IMMEDIATE = *NO
Informs about user entries for which individual account numbers may not use the Job Express function.

START-IMMEDIATE = *YES
Informs about user entries for which individual account numbers may use the Job Express function.

PUBSET-ATTRIBUTES = *ANY / *PARAMETERS(...)
Informs about user entries in conjunction with their pubset attributes.

PUBSET-ATTRIBUTES = *ANY
The pubset attributes are not a selection criterion.

PUBSET-ATTRIBUTES = *PARAMETERS(...)
Informs about user entries which have the following pubset attributes.

FILE-NUMBER-LIMIT = *ANY / *MAXIMUM / <integer 0..16777215> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum permissible number of files.

FILE-NUMBER-LIMIT = *ANY
The maximum permissible number of files is not a selection criterion.

FILE-NUMBER-LIMIT = *MAXIMUM
Informs about user entries for which the maximum possible number of files (16 777 215) is permissible.

FILE-NUMBER-LIMIT = <integer 0..16777215>
Informs about user entries for which the specified number of files is permissible.

FILE-NUMBER-LIMIT = *INTERVAL(...)
Informs about user entries for which the permissible number of files is within the specified value range.

FROM = 0 / <integer 0..16777215>
User entries with the permissible number of files >= specified value.

TO = 16777215 / <integer 0..16777215>
User entries with the permissible number of files <= specified value.

FILE-NUMBER-USED = *ANY / *MAXIMUM / <integer 0..16777215> / *INTERVAL(...)
Informs about user entries in conjunction with the current number of files.

FILE-NUMBER-USED = *ANY
The current number of files is not a selection criterion.

FILE-NUMBER-USED = *MAXIMUM
Informs about user entries for which the current number corresponds to the maximum possible number of files (16 777 215).

FILE-NUMBER-USED = <integer 0..16777215>
Informs about user entries for which the specified number of files currently exists.

FILE-NUMBER-USED = *INTERVAL(...)
Informs about user entries for which the number of files which currently exist is within the specified value range.

FROM = 0 / <integer 0..16777215>
User entries whose current number of files >= specified value.

TO = 16777215 / <integer 0..16777215>
User entries whose current number of files <= specified value.

JV-NUMBER-LIMIT = *ANY / *MAXIMUM / <integer 0..16777215> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum permissible number of job variables.

JV-NUMBER-LIMIT = *ANY
The maximum permissible number of job variables is not a selection criterion.

JV-NUMBER-LIMIT = *MAXIMUM
Informs about user entries for which the maximum possible number of job variables (16 777 215) is permissible.

JV-NUMBER-LIMIT = <integer 0..16777215>
Informs about user entries for which the specified number of job variables is permissible.

JV-NUMBER-LIMIT = *INTERVAL(...)
Informs about user entries for which the permissible number of job variables is within the specified value range.

FROM = 0 / <integer 0..16777215>
User entries with the permissible number of job variables >= specified value.

TO = 16777215 / <integer 0..16777215>
User entries with the permissible number of job variables <= specified value.

JV-NUMBER-USED = *ANY / *MAXIMUM / <integer 0..16777215> / *INTERVAL(...)
Informs about user entries in conjunction with the current number of job variables.

JV-NUMBER-USED = *ANY
The current number of job variables is not a selection criterion.

JV-NUMBER-USED = *MAXIMUM
Informs about user entries for which the current number corresponds to the maximum possible number of job variables (16 777 215).

JV-NUMBER-USED = <integer 0..16777215>
Informs about user entries for which the specified number of job variables currently exists.

JV-NUMBER-USED = *INTERVAL(...)
Informs about user entries for which the number of job variables which currently exist is within the specified value range.

FROM = 0 / <integer 0..16777215>
User entries whose current number of job variables >= specified value.

TO = 16777215 / <integer 0..16777215>
User entries whose current number of job variables <= specified value.

PERM-SPACE-LIMITS = *ANY / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...) / *PARAMETERS(...)
Informs about user entries in conjunction with the maximum permanent storage space available.
Only the operand values PERM-SPACE-LIMITS=<integer> and *INTERVAL(...) are meaningful for selecting the permanent storage space on SF pubsets. Alternately, selection can also take place via *PARAMETERS(...,S0-LEVEL-SPACE=...).

PERM-SPACE-LIMITS = *ANY
The maximum permanent storage space available is not a selection criterion.

PERM-SPACE-LIMITS = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as permanent storage space.

PERM-SPACE-LIMITS = *INTERVAL(...)
Informs about user entries for which the maximum permanent storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum permanent storage space >= specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum permanent storage space <= specified value.

PERM-SPACE-LIMITS = *PARAMETERS(...)
Informs about user entries for which the maximum permanent storage space on SM pubsets satisfies the following attributes:

TOTAL-SPACE = *ANY / *MAXIMUM / *UNLIMITED / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum permanent storage space available.

TOTAL-SPACE = *ANY
The maximum permanent storage space available is not a selection criterion.

TOTAL-SPACE = *MAXIMUM
Informs about user entries whose maximum (2 147 483 647 PAM pages) is available as the maximum permanent storage space.

TOTAL-SPACE = *UNLIMITED
Informs about user entries for which unlimited permanent storage space is available.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum permanent storage space.

TOTAL-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum permanent storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum permanent storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum permanent storage space <= the specified value.

S0-LEVEL-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum permanent storage space available on storage level S0.

S0-LEVEL-SPACE = *ANY
The maximum permanent storage space available on storage level S0 is not a selection criterion.

S0-LEVEL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum permanent storage space on S0.

S0-LEVEL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum permanent storage space on S0.

S0-LEVEL-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum permanent storage space on S0 is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum permanent storage space on S0 >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum permanent storage space on S0 <= the specified value.

HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum high-performance permanent storage space available.

HIGH-PERF-SPACE = *ANY
The maximum high-performance permanent storage space available is not a selection criterion.

HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum high-performance permanent storage space.

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum high-performance permanent storage space.

HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum high-performance permanent storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-performance permanent storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-performance permanent storage space <= the specified value.

VERY-HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum very high-performance permanent storage space available.

VERY-HIGH-PERF-SPACE = *ANY
The maximum very high-performance permanent storage space available is not a selection criterion.

VERY-HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum very high-performance permanent storage space.

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum very high-performance permanent storage space.

VERY-HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum very high-performance permanent storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum very high-performance permanent storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum very high-performance permanent storage space <= the specified value.

HIGH-AVAILABLE-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum high-availability permanent storage space available.

HIGH-AVAILABLE-SPACE = *ANY
The maximum high-availability permanent storage space available is not a selection criterion.

HIGH-AVAILABLE-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum high-availability permanent storage space.

HIGH-AVAILABLE-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum high-availability permanent storage space.

HIGH-AVAILABLE-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum high-availability permanent storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-availability permanent storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-availability permanent storage space <= the specified value.

PERM-SPACE-USED = *ANY / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...) / *PARAMETERS(...)
Informs about user entries in conjunction with the permanent storage space used.

Only the operand values PERM-SPACE-USED=<integer> and *INTERVAL(...) are meaningful for selecting the permanent storage space used on SF pubsets. Alternately, selection can also take place via PARAMETERS(...,S0-LEVEL-SPACE=...).

PERM-SPACE-USED = *ANY
The permanent storage space used is not a selection criterion.

PERM-SPACE-USED = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the permanent storage space is used.

PERM-SPACE-USED = *INTERVAL(...)
Informs about user entries for which the permanent storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose permanent storage space used >= specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose permanent storage space used <= specified value.

PERM-SPACE-USED = *PARAMETERS(...)
Informs about user entries for which the permanent storage space used on SM pubsets satisfies the following attributes:

TOTAL-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum permanent storage space used.

TOTAL-SPACE = *ANY
The permanent storage space used is not a selection criterion.

TOTAL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) permanent storage space is used.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the permanent storage space is used.

TOTAL-SPACE = *INTERVAL(...)
Informs about user entries for which the permanent storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose permanent storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose permanent storage space used <= the specified value.

S0-LEVEL-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the permanent storage space used on storage level S0.

S0-LEVEL-SPACE = *ANY
The permanent storage space used on storage level S0 is not a selection criterion.

S0-LEVEL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) permanent storage space on S0 is used.

S0-LEVEL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the permanent storage space on S0 is used.

S0-LEVEL-SPACE = *INTERVAL(...)
Informs about user entries for which the permanent storage space on S0 is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose permanent storage space used on S0 >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose permanent storage space used on S0 <= the specified value.

HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the high-performance permanent storage space used.

HIGH-PERF-SPACE = *ANY
The high-performance permanent storage space used is not a selection criterion.

HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) high-performance permanent storage space is used.

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the high-performance permanent storage space is used.

HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the high-performance permanent storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-performance permanent storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-performance permanent storage space used <= the specified value.

VERY-HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the very high-performance permanent storage space used.

VERY-HIGH-PERF-SPACE = *ANY
The very high-performance permanent storage space used is not a selection criterion.

VERY-HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) very high-performance permanent storage space is used.

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the very high-performance permanent storage space is used.

VERY-HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the very high-performance permanent storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose very high-performance permanent storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose very high-performance permanent storage space used <= the specified value.

HIGH-AVAILABLE-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the high-availability permanent storage space used.

HIGH-AVAILABLE-SPACE = *ANY
The high-availability permanent storage space used is not a selection criterion.

HIGH-AVAILABLE-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) high-availability permanent storage space is used.

HIGH-AVAILABLE-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the high-availability permanent storage space is used.

HIGH-AVAILABLE-SPACE = *INTERVAL(...)
Informs about user entries for which the high-availability permanent storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-availability permanent storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-availability permanent storage space used <= the specified value.

TEMP-SPACE-LIMITS = *ANY / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...) / *PARAMETERS(...)
Informs about user entries in conjunction with the maximum temporary storage space available.
Only the operand values TEMP-SPACE-LIMITS=<integer> and *INTERVAL(...) are meaningful for selecting the temporary storage space on SF pubsets. Alternately, selection can also take place via *PARAMETERS(...,TOTAL-SPACE=...).

TEMP-SPACE-LIMITS = *ANY
The maximum temporary storage space available is not a selection criterion.

TEMP-SPACE-LIMITS = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as temporary storage space.

TEMP-SPACE-LIMITS = *INTERVAL(...)
Informs about user entries for which the maximum temporary storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum temporary storage space >= specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum temporary storage space <= specified value.

TEMP-SPACE-LIMITS = *PARAMETERS(...)
Informs about user entries for which the maximum temporary storage space on SM pubsets satisfies the following attributes:

TOTAL-SPACE = *ANY / *MAXIMUM / *UNLIMITED / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum temporary storage space available.

TOTAL-SPACE = *ANY
The maximum temporary storage space available is not a selection criterion.

TOTAL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum temporary storage space.

TOTAL-SPACE = *UNLIMITED
Informs about user entries for which unlimited temporary storage space is available.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum temporary storage space.

TOTAL-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum temporary storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum temporary storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum temporary storage space >= the specified value.

HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum high-performance temporary storage space available.

HIGH-PERF-SPACE = *ANY
The maximum high-performance temporary storage space available is not a selection criterion.

HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum high-performance temporary storage space.

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum high-performance temporary storage space.

HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum high-performance temporary storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-performance temporary storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-performance temporary storage space <= the specified value.

VERY-HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum very high-performance temporary storage space available.

VERY-HIGH-PERF-SPACE = *ANY
The maximum very high-performance temporary storage space available is not a selection criterion.

VERY-HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum very high-performance temporary storage space.

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum very high-performance temporary storage space.

VERY-HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum very high-performance temporary storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum very high-performance temporary storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum very high-performance temporary storage space <= the specified value.

TEMP-SPACE-USED = *ANY / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...) / *PARAMETERS(...)
Informs about user entries in conjunction with the temporary storage space used.

Only the operand values TEMP-SPACE-USED=<integer> and *INTERVAL(...) are meaningful for selecting the temporary storage space on SF pubsets. Alternately, selection can also take place via *PARAMETERS(...,TOTAL-SPACE=...).

TEMP-SPACE-USED = *ANY
The temporary storage space used is not a selection criterion.

TEMP-SPACE-USED = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the temporary storage space is used.

TEMP-SPACE-USED = *INTERVAL(...)
Informs about user entries for which the temporary storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose temporary storage space used >= specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose temporary storage space used <= specified value.

TEMP-SPACE-USED = *PARAMETERS(...)
Informs about user entries for which the temporary storage space used on SM pubsets satisfies the following attributes:

TOTAL-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with maximum temporary storage space used.

TOTAL-SPACE = *ANY
The temporary storage space used is not a selection criterion.

TOTAL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) temporary storage space is used.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the temporary storage space is used.

TOTAL-SPACE = *INTERVAL(...)
Informs about user entries for which the temporary storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose temporary storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose temporary storage space used <= the specified value.

HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the high-performance temporary storage space used.

HIGH-PERF-SPACE = *ANY
The high-performance temporary storage space used is not a selection criterion.

HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) high-performance temporary storage space is used.

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the high-performance temporary storage space is used.

HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the high-performance temporary storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-performance temporary storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-performance temporary storage space used <= the specified value.

VERY-HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the very high-performance temporary storage space used.

VERY-HIGH-PERF-SPACE = *ANY
The very high-performance temporary storage space used is not a selection criterion.

VERY-HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) very high-performance temporary storage space is used.

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the very high-performance temporary storage space is used.

VERY-HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the very high-performance temporary storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose very high-performance temporary storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose very high-performance temporary storage space used <= the specified value.

WORK-SPACE-LIMITS = *ANY / *PARAMETERS(...)
Informs about user entries in conjunction with the maximum available work file storage space. This storage space is available only on the SM pubset.

WORK-SPACE-LIMITS = *ANY
The maximum available work file storage space is not a selection criterion.

WORK-SPACE-LIMITS = *PARAMETERS(...)
Informs about user entries for which work file storage space with the following attributes is available on SM pubsets:

TOTAL-SPACE = *ANY / *MAXIMUM / *UNLIMITED / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum available work file storage space.

TOTAL-SPACE = *ANY
The maximum available work file storage space is not a selection criterion.

TOTAL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) work file storage space is available.

TOTAL-SPACE = *UNLIMITED
Informs about user entries for which unlimited work file storage space is available.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum available work file storage space.

TOTAL-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum available work file storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum available work file storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum available work file storage space <= the specified value.

HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum available high-performance work file storage space.

HIGH-PERF-SPACE = *ANY
The maximum available high-performance work file storage space is not a selection criterion.

HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum high-performance work file storage space.

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum high-performance work file storage space.

HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum high-performance work file storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-performance work file storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum high-performance work file storage space <= the specified value.

VERY-HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum available very high-performance work file storage space.

VERY-HIGH-PERF-SPACE = *ANY
The maximum available very high-performance work file storage space is not a selection criterion.

VERY-HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) is available as the maximum very high-performance work file storage space.

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages is available as the maximum very high-performance work file storage space.

VERY-HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the maximum very high-performance work file storage space is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum very high-performance work file storage space >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose maximum very high-performance work file storage space <= the specified value.

WORK-SPACE-USED = *ANY / *PARAMETERS(...)
Informs about user entries in conjunction with the work file storage space used.

WORK-SPACE-USED = *ANY
The work file storage space used is not a selection criterion.

WORK-SPACE-USED = *PARAMETERS(...)
Informs about user entries for which the work file storage space used satisfies the following attributes:

TOTAL-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum work file storage space used.

TOTAL-SPACE = *ANY
The work file storage space used is not a selection criterion.

TOTAL-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) work file storage space is used.

TOTAL-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the work file storage space is used.

TOTAL-SPACE = *INTERVAL(...)
Informs about user entries for which the work file storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose work file storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose work file storage space used <= the specified value.

HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the high-performance work file storage space used.

HIGH-PERF-SPACE = *ANY
The high-performance work file storage space used is not a selection criterion.

HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) high-performance work file storage space is used.

HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the high-performance work file storage space is used.

HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the high-performance work file storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-performance work file storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose high-performance work file storage space used <= the specified value.

VERY-HIGH-PERF-SPACE = *ANY / *MAXIMUM / <integer 0..2147483647 *2Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the very high-performance work file storage space used.

VERY-HIGH-PERF-SPACE = *ANY
The very high-performance work file storage space used is not a selection criterion.

VERY-HIGH-PERF-SPACE = *MAXIMUM
Informs about user entries for which the maximum (2 147 483 647 PAM pages) very high-performance work file storage space is used.

VERY-HIGH-PERF-SPACE = <integer 0..2147483647 *2Kbyte*>
Informs about user entries for which the specified number of PAM pages of the very high-performance work file storage space is used.

VERY-HIGH-PERF-SPACE = *INTERVAL(...)
Informs about user entries for which the very high-performance work file storage space used is in the specified value range.

FROM = 0 / <integer 0..2147483647 *2Kbyte*>
User entries whose very high-performance work file storage space used >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *2Kbyte*>
User entries whose very high-performance work file storage space used <= the specified value.

DEF-STORAGE-CLASS = *ANY / *NONE / *YES / <structured-name 1..8 with-wild(16)>
Informs about user entries in conjunction with the default storage class for files on SM pubsets.

DEF-STORAGE-CLASS = *ANY
Definition of a default storage class is not a selection criterion.

DEF-STORAGE-CLASS = *NONE
Informs about user entries for which no default storage class is specified.

DEF-STORAGE-CLASS = *YES
Informs about user entries for which a default storage class is specified.

DEF-STORAGE-CLASS = <structured-name 1..8 with-wild(16)>
Informs about user entries with the specified default storage class.

DMS-TUNING-RESOURCES = *ANY / *NONE / *CONCURRENT-USE / *EXCLUSIVE-USE
Informs about user entries in conjunction with permissible tuning measures.

DMS-TUNING-RESOURCES = *ANY
Permissible tuning measures are not a selection criterion.

DMS-TUNING-RESOURCES = *NONE
Informs about user entries which may not use tuning measures.

DMS-TUNING-RESOURCES = *CONCURRENT-USE
Informs about user entries which may reserve preferred resources, but thus compete with users with the same privilege.

DMS-TUNING-RESOURCES = *EXCLUSIVE-USE
Informs about user entries which may reserve preferred resources exclusively.

PHYSICAL-ALLOCATION = *ANY / *NOT-ALLOWED / *ALLOWED
Informs about user entries in conjunction with permission for physical storage space allocation.

PUBLIC-SPACE-EXCESS = *ANY / *NO / *ALLOWED / *TEMPORARILY-ALLOWED
Informs about user entries in conjunction with permission to exceed the defined storage space limit.

PUBLIC-SPACE-EXCESS = *ANY
Permission to exceed the defined storage space limit is not a selection criterion.

PUBLIC-SPACE-EXCESS = *NO
Informs about user entries which do not have permission to exceed the defined storage space limit.

PUBLIC-SPACE-EXCESS = *ALLOWED
Informs about user entries which may exceed the defined storage space limit.

PUBLIC-SPACE-EXCESS = *TEMPORARILY-ALLOWED
Informs about user entries which may exceed the defined storage space limit if the limit was not reached when the task started.

ADDRESS-SPACE-LIMIT = *ANY / *STD / *MAXIMUM/ <integer 1..2147483647 *Mbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum user address space.

ADDRESS-SPACE-LIMIT = *ANY
The maximum user address space is not a selection criterion.

ADDRESS-SPACE-LIMIT = *STD
Informs about user entries whose user address space corresponds to the value of the system parameter SYSGJASL (the system parameter SYSGJASL has the default value 16 MB, see the “Introductory Guide to Systems Support” [14]).

ADDRESS-SPACE-LIMIT = *MAXIMUM
Informs about user entries with the maximum address space (2 147 483 647 MB).

ADDRESS-SPACE-LIMIT = <integer 1..2147483647 *Mbyte*>
Informs about user entries with a user address space of the specified size.

ADDRESS-SPACE-LIMIT = *INTERVAL(...)
Informs about user entries whose maximum user address space is in the specified value range.

FROM = 1 / <integer 1..2147483647 *Mbyte*>
User entries with a user address space >= the specified value.

TO = 32767 / <integer 1..2147483647 *Mbyte*>
User entries with a user address space <= the specified value.

CODED-CHARACTER-SET = *ANY / *STD / <name 1..8>
Informs about user entries in conjunction with the coding table entered.

CODED-CHARACTER-SET = *ANY
The coding table entered is not a selection criterion.

CODED-CHARACTER-SET = *STD
Informs about user entries with the system's default coding table (system parameter HOSTCODE).

CODED-CHARACTER-SET = <name 1..8 with-wild(16)>
Informs about user entries with the specified coding table.

CRYPTO-SESSION-LIMIT = *ANY / *STD / *MAXIMUM / <integer 0..32767> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum number of openCRYPT sessions.

CRYPTO-SESSION-LIMIT = *ANY
The maximum number of openCRYPT sessions is not a selection criterion.

CRYPTO-SESSION-LIMIT = *STD
Informs about user entries with the maximum number of 128 openCRYPT sessions.

CRYPTO-SESSION-LIMIT = *MAXIMUM
Informs about user entries with the maximum number of 32767 openCRYPT sessions.

CRYPTO-SESSION-LIMIT = <integer 0..32767>
Informs about user entries with the specified maximum number of openCRYPT sessions.

CRYPTO-SESSION-LIMIT = *INTERVAL(...)
Informs about user entries whose maximum number of openCRYPT sessions is in the specified value range.

FROM = 0 / <integer 1..32767>
User entries with a maximum number of openCRYPT sessions >= the specified value.

TO = 32767 / <integer 0..32767>
User entries with a maximum number of openCRYPT sessions <= the specified value.

CRYPTO-SESSION-USED = *ANY / *STD / <integer 0..32767> / *INTERVAL(...)
Informs about user entries in conjunction with the current number of openCRYPT sessions.

CRYPTO-SESSION-USED = *ANY
The current number of openCRYPT sessions is not a selection criterion.

CRYPTO-SESSION-USED = <integer 0..32767>
Informs about user entries with the specified current number of openCRYPT sessions.

CRYPTO-SESSION-USED = *INTERVAL(...)
Informs about user entries whose current number of openCRYPT sessions is in the specified value range.

FROM = 0 / <integer 0..32767>
User entries with a current number of openCRYPT sessions >= the specified value.

TO = 32767 / <integer 0..32767>
User entries with a current number of openCRYPT sessions <= the specified value.

CSTMP-MACRO-ALLOWED = *ANY / *NO / *YES
Informs about user entries in conjunction with permission to use the CSTMP macro.

CSTMP-MACRO-ALLOWED = *ANY
Permission to use the CSTMP macro is not a selection criterion.

CSTMP-MACRO-ALLOWED = *NO
Informs about user entries which may not use the CSTMP macro.

CSTMP-MACRO-ALLOWED = *YES
Informs about user entries which may use the CSTMP macro.

DEFAULT-MSG-LANGUAGE = *ANY / <name 1..1 with-wild(16)> / *STD
Informs about user entries in conjunction with the message language entered.

DEFAULT-MSG-LANGUAGE = *ANY
The message language entered is not a selection criterion.

DEFAULT-MSG-LANGUAGE = *STD
Informs about user entries which by default use the message language defined with the system parameter MSGLPRI.

DEFAULT-MSG-LANGUAGE = <name 1..1 with-wild(16)>
Informs about user entries which by default use the specified message language.

DEFAULT-PUBSET = *ANY / *HOME / <alphanum-name 1..4 with-wild(16)>
Informs about user entries in conjunction with the default pubset.

DEFAULT-PUBSET = *ANY
The default pubset is not a selection criterion.

DEFAULT-PUBSET = *HOME
Informs about user entries which use the home pubset as the default pubset.

DEFAULT-PUBSET = <alphanum-name 1..4 with-wild(16)>
Informs about user entries which use the specified pubset as the default pubset.

EMAIL-ADDRESS = *ANY / *NONE / *YES / <c-string 1800 with-low with-wild>(...) / <x-string 1..3600>
Informs about user entries in accordance with the email address entered.

EMAIL-ADDRESS = *ANY
The email address entered is not a selection criterion.

EMAIL-ADDRESS = *NONE
Informs about user entries without an email address.

EMAIL-ADDRESS = *YES
Informs about user entries with one or more email addresses.

EMAIL-ADDRESS = <c-string 1800 with-low with-wild>(...)
Informs about user entries with the specified address entry. When one particular email address is being

searched for, wildcards can be used to find address entries which contain this address in a list of email addresses. By default, a distinction is made between upper/lower case in the search (corresponding to CASE-SENSITIVE=*YES).

CASE-SENSITIVE = *YES / *NO
Specifies whether uppercase/lowercase notation should be taken into account when checking the email address.

EMAIL-ADDRESS = <x-string 1..3600>
Informs about user entries with the address entry in hexadecimal format.

FILE-AUDIT = *ANY / *NO / *ALLOWED
Informs about user entries in conjunction with permission to activate AUDIT mode.

FILE-AUDIT = *ANY
Permission to activate AUDIT mode is not a selection criterion.

FILE-AUDIT = *NO
Informs about user entries which may not activate AUDIT mode.

FILE-AUDIT = *ALLOWED
Informs about user entries which may activate AUDIT mode.

HARDWARE-AUDIT = *ANY / *ALLOWED / *NOT-ALLOWED
Informs about user entries in conjunction with permission to control Hardware Audit mode.

HARDWARE-AUDIT = *ANY
Permission to control Hardware Audit mode is not a selection criterion.

HARDWARE-AUDIT = *ALLOWED
Informs about user entries which may control Hardware Audit mode.

HARDWARE-AUDIT = *NOT-ALLOWED
Informs about user entries which may not control Hardware Audit mode.

LINKAGE-AUDIT = *ANY / *ALLOWED / *NOT-ALLOWED
Informs about user entries in conjunction with permission to control Linkage Audit mode.

LINKAGE-AUDIT = *ANY
Permission to control Linkage Audit mode is not a selection criterion.

LINKAGE-AUDIT = *ALLOWED
Informs about user entries which may control Linkage Audit mode.

LINKAGE-AUDIT = *NOT-ALLOWED
Informs about user entries which may not control Linkage Audit mode.

LOCK-USER = *ANY / *NO / *YES
Informs about user entries in conjunction with a user ID lock.

LOCK-USER = *ANY
The user ID lock is not a selection criterion.

LOCK-USER = *NO
Informs only about the user entries which are not locked.

LOCK-USER = *YES
Informs only about the user entries which are locked.

LOGON-PASSWORD = *ANY / *NONE / *YES
Informs about user entries in conjunction with the assignment of a user password.

LOGON-PASSWORD = *ANY
Assignment of a user password is not a selection criterion.

LOGON-PASSWORD = *NONE
Informs about user entries for which no user password is assigned.

LOGON-PASSWORD = *YES
Informs about user entries for which a user password is assigned.

MAILING-ADDRESS = *ANY / *NONE / *YES / <c-string 1..64 with-low>(...) / <x-string 1..128>
Informs about user entries in conjunction with the mailing address for SPOOLOUT lists.

MAILING-ADDRESS = *ANY
The mailing address for SPOOLOUT lists is not a selection criterion.

MAILING-ADDRESS = *NONE
Informs about user entries without a mailing address for SPOOLOUT lists.

MAILING-ADDRESS = *YES
Informs about user entries with a mailing address for SPOOLOUT lists.

MAILING-ADDRESS = <c-string 1..64 with-low>(...)
Informs about user entries with the specified mailing address for SPOOLOUT lists. By default, a distinction is made between upper/lower case in the search (corresponding to CASE-SENSITIVE=*YES).

CASE-SENSITIVE = *YES / *NO
Specifies whether a distinction is to be made between upper/lower case when checking the mailing address.

MAILING-ADDRESS = <x-string 1..128>
Informs about user entries with the hexadecimal mailing address for SPOOLOUT lists.

MAX-ACCOUNT-RECORDS = *ANY / *NO-LIMIT / <integer 0..32767> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum permitted number of user-specific accounting records.

MAX-ACCOUNT-RECORDS = *ANY
The maximum permitted number of user-specific accounting records is not a selection criterion.

MAX-ACCOUNT-RECORDS = *NO-LIMIT
Informs about user entries for which the permitted number of user-specific accounting records is not limited.

MAX-ACCOUNT-RECORDS = <integer 0..32767>
Informs about user entries with the specified maximum permitted number of userspecific accounting records.

MAX-ACCOUNT-RECORDS = *INTERVAL(...)
Informs about user entries for which the permitted number of user-specific accounting records is in the specified value range.

FROM = 0 / <integer 0..32767>
User entries whose maximum permitted number of user-specific accounting records >= the specified value.

TO = 32767 / <integer 0..32767>
User entries whose maximum permitted number of user-specific accounting records <= the specified value.

NET-STORAGE-USAGE = *ANY / *NOT-ALLOWED / *ALLOWED
Informs about user entries in conjunction with permission to use Net-Storage volumes.

NET-CODED-CHAR-SET = *ANY / *STD / *ISO / *NO-CONVERSION / <name 1..8>
Informs about user entries in conjunction with the entered character set for SAM node files.

NET-CODED-CHAR-SET = *ANY
Informs about user entries without conjunction with the entered character set for SAM node files.

NET-CODED-CHAR-SET = *STD
Informs about user entries with the system's default character set (system parameter NETCODE).

NET-CODED-CHAR-SET = *ISO
Informs about user entries for which a code conversion for SAM node files into a standard ISO code is specified.

NET-CODED-CHAR-SET = *NO-CONVERSION
Informs about user entries for which no code conversion for SAM node files is specified.

NET-CODED-CHAR-SET = <name 1..8>
Informs about user entries for which a code conversion for SAM node files into the specified code is specified.

PASSWORD-MANAGEMENT = *ANY / *BY-USER / *BY-ADMINISTRATOR / *USER-CHANGE-ONLY
Informs about user entries in conjunction with the rights for managing the user password.

PASSWORD-MANAGEMENT = *ANY
The rights for managing the user password are not a selection criterion.

PASSWORD-MANAGEMENT = *BY-USER
Informs about user entries for which the user can define, modify and delete the password.

PASSWORD-MANAGEMENT = *BY-ADMINISTRATOR
Informs about user entries for which only the system administrator can define, modify and delete the password.

PASSWORD-MANAGEMENT = *USER-CHANGE-ONLY
Informs about user entries for which the user cannot define, but can modify the password.

PROFILE-ID = *ANY / *NONE / *YES / <structured-name 1..30 with-wild(48)>
Informs about user entries in conjunction with a profile ID for assigning group syntax files.

PROFILE-ID = *ANY
The profile ID is not a selection criterion.

PROFILE-ID = *NONE
Informs about user entries without profile ID.

PROFILE-ID = *YES
Informs about user entries with a profile ID.

PROFILE-ID = <structured-name 1..30 with-wild(48)>
Informs about user entries the specified profile ID.

RESIDENT-PAGES = *ANY / *STD / *MAXIMUM / <integer 0..2147483647 *4Kbyte*> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum resident main memory.

RESIDENT-PAGES = *ANY
The maximum resident main memory is not a selection criterion.

RESIDENT-PAGES = *STD
Informs about user entries which may occupy a maximum of 32 767 resident main memory pages.

RESIDENT-PAGES = *MAXIMUM
Informs about user entries which may occupy a maximum of 2 147 483 647 resident main memory pages.

RESIDENT-PAGES = <integer 0..2147483647 *4Kbyte*>
Informs about user entries which may occupy a maximum of the specified number of resident main memory pages.

RESIDENT-PAGES = *INTERVAL(...)
Informs about user entries for which the maximum resident main memory is in the specified value range.

FROM = 0 / <integer 0..2147483647 *4Kbyte*>
User entries with a maximum resident main memory >= the specified value.

TO = 2147483647 / <integer 0..2147483647 *4Kbyte*>
User entries with a maximum resident main memory <= the specified value.

TAPE-ACCESS = *ANY / *STD / *PRIVILEGED / *READ / *BYPASS-LABEL / *ALL
Informs about user entries in conjunction with the access rights to tapes.

TAPE-ACCESS = *ANY
The access rights to tapes are not a selection criterion.

TAPE-ACCESS = *STD
Informs about user entries with restricted access rights to tapes.

TAPE-ACCESS = *PRIVILEGED
Informs about user entries with extended access rights to tapes.

TAPE-ACCESS = *READ
Informs about user entries with extended read access to tapes.

TAPE-ACCESS = *BYPASS-LABEL
Informs about user entries with unrestricted read access to tapes.

TAPE-ACCESS = *ALL
Informs about user entries with unrestricted access to tapes.

TEST-OPTIONS = *ANY / *PARAMETERS(...)
Informs about user entries in conjunction with the maximum possible test privilege.

TEST-OPTIONS = *ANY
The maximum possible test privileges are not a selection criterion.

TEST-OPTIONS = *PARAMETERS(...)
Informs about user entries with the specified maximum test privileges.

MODIFICATION = *ANY / *CONTROLLED / *UNCONTROLLED
Informs about user entries in conjunction with permission to modify the test privileges.

MODIFICATION = *ANY
Permission to modify the test privileges is not a selection criterion.

MODIFICATION = *CONTROLLED
Informs about user entries which may modify their test privileges only with the agreement of the operator.

MODIFICATION = *UNCONTROLLED
Informs about user entries which may modify their test privileges without restriction.

READ-PRIVILEGE = *ANY / <integer 1..9> / *INTERVAL(...)
Informs about user entries in conjunction with the maximum read privileges.

READ-PRIVILEGE = *ANY
The maximum read privileges are not a selection criterion.

READ-PRIVILEGE = <integer 1..9>
Informs about user entries with the specified maximum read privileges.

READ-PRIVILEGE = *INTERVAL(...)
Informs about user entries whose read privileges are in the specified value range.

FROM = 1 / <integer 1..9>
User entries with read privileges >= the specified value.

TO = 9 / <integer 1..9 >
User entries with read privileges <= the specified value.

WRITE-PRIVILEGE = *ANY / <integer 1..9> / *INTERVAL(...)
Informs about user entries in conjunction with maximum write privileges.

WRITE-PRIVILEGE = *ANY
The maximum write privileges are not a selection criterion.

WRITE-PRIVILEGE = <integer 1..9>
Informs about user entries with the specified maximum write privileges.

WRITE-PRIVILEGE = *INTERVAL(...)
Informs about user entries whose write privileges are in the specified value range.

FROM = 1 / <integer 1..9>
User entries with write privileges >= the specified value.

TO = 9 / <integer 1..9 >
User entries with write privileges <= the specified value.

Return codes

(SC2)	SC1	Maincode	Bedeutung
	0	CMD0001	Command executed without error
	1	SRM6010	Syntax error in command
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error during command processing
	130	SRM6030	Command cannot temporarily be executed

Output fields and meaning

The output from the SHOW-USER-ATTRIBUTES command can be directed to SYSOUT or to SYSLST (see OUTPUT operand). Each user entry that is output begins with a header line containing the catalog ID and user ID of the entry concerned, together with the date and time of the output. Each user entry output ends with a trailer line which again contains the catalog ID and user ID of the entry concerned (see example). The following table contains all the output fields, sorted alphabetically, with their meanings and possible values.

Output field	Meaning and possible values
ACCOUNT-#	Account number (1 to 8 characters)
ADDRESS-SPACE-LIMIT	User address space (1 to 2 147 483 647 MB)
AUDIT...	Header line summarizing the authorization to control the hardware audit mode and the linkage audit mode
CODED-CHARACTER-ET	CCS name (*STD or 8 characters)
CPU-LIMIT	Maximum available CPU time, with reference to the account number (0 to 2147483647 CPU seconds)
CRYPTO-SESSION-LIMIT	Maximum number of openCRYPT sessions in a BS2000 session (0 through 32767)
CRYPTO-SESSION-USED	Number of openCRYPT sessions used in a BS2000 session (0 through 32767)
CSTMP-MACRO-ALLOWED	Specifies whether the user is authorized to use the CSTMP macro (YES or NO)
DEFAULT-ACCOUNT-# FOR LOGON	*Display only for HOME pubset:* Default account number for interactive and batch jobs (specification ACCOUNT=*NONE at task startup)
DEFAULT-JOB-CLASS FOR BATCH-JOBS	*Indicated only for home pubset:* Default job class for batch jobs (JOB-CLASS=*STD specified at start of job)

DEFAULT-JOB-CLASS FOR DIALOG-JOBS	*Indicated only for home pubset:* Default job class for interactive jobs (JOB-CLASS=*STD specified at start of job)
DEFAULT-JOB-CLASS FOR POSIX-JOBS	*Indicated only for home pubset:* Default job class for POSIX jobs (JOB-CLASS=*STD specified at start of job)
DEF-STORAGE-CLASS	*With INFORMATION=*PUBSET-ATTRIBUTES:* Default storage class for files in SM pubsets (*NONE or 1 to 8 characters)
DEFAULT-MSG-LANGUAGE	Language in which messages are to be output (1 character). e.g. D = German, E = English. If no entry exists, the messages are output in the language specified by the system parameter MSGLPRI.
DEFAULT-ACCOUNT-# FOR REMOTE-LOGIN	Account number for billing a POSIX remote login session (1-8 characters or *NONE)
DEFAULT-PUBSET	Default catalog ID (1 to 4 characters)
DMS-TUNING-RESOURCES	Specifies which DMS tuning resources may be utilized (*NONE, *CONCURRENT or *EXCLUSIVE)
EMAIL-ADDRESS	Email address (1 to 1800 characters or *NONE). The entry can also contain multiple, comma-separated email addresses.
FILE-AUDIT	Specifies whether the user may use the AUDIT function (*YES or *NO)
FILE-NUMBER-LIMIT	Maximum number of permanent files (0 to 16777215)
FILES	Current number of files
GROUP-ID	Name of the user group to which the user ID is assigned
HARDWARE-AUDIT	Indicates whether the user is authorized to control the hardware audit mode (*ALLOWED or *NOT-ALLOWED)
HIGH-AVAIL-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Totals of the quotas for high-availability storage space, separately for permanent files, temporary files, and work files: LIMIT shows the maximum permissible values USED shows the values for currently occupied space (*MAXIMUM or 0 to 2147483647 in 2 KB pages)
HIGH-PERF-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Totals of the quotas for high-performance storage space, separately for permanent files, temporary files, and work files: LIMIT shows the maximum permissible values USED shows the values for currently occupied space (*MAXIMUM or 0 to 2147483647 in 2 KB pages)
INHIB-DEACT	Task deactivation inhibition (*YES or *NO); with reference to the account number

JOB-VARIABLES	Current number of job variables
JV-NUMBER-LIMIT	Maximum number of permanent job variables (0 to 16777215)
LIMITED FILES	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Current number of files
LINKAGE-AUDIT	Indicates whether the user is authorized to control linkage audit mode (*ALLOWED or *NOT-ALLOWED)
LIST OF JOB-CLASSES ALLOWED	*Indicated only for HOME pubset:* Job classes which the user may use for jobs
LOGON-PASSWORD	Specifies whether access to the system is locked for the user ID (*YES or *NO) *System or group administrator:* When PASSWORD-INFORMATION=*FULL is specified in interactive mode, the password is output explicitly (c-string or x-string)
MAIL-ADDRESS	Mailing address (1 to 64 characters or *NONE)
MAX-ACCOUNT-RECORDS	Maximum number of user-specific accounting records (0 to 32767)
MAX-ALLOWED-CATEGORY	Specifies which task attribute may be applied to user jobs (STD, TP or SYS); with reference to the account number
MAX-RUN-PRIORITY	Highest run priority (task scheduling priority); with reference to the account no. (30 to 255)
MODIFICATION	Specifies whether test options may be modified by the user (*CONTROLLED or *UNCONTROLLED)
NET-CODED-CHAR-SET	Name of the CCS to be entered for the code conversion of SAM node files (*STD or *ISO or *NO-CONVERSION or 8 characters)
NET-STORAGE-USAGE	Specifies whether the user is allowed to Net-Storage volumes (*ALLOWED or *NOT-ALLOWED)
NO-CPU-LIMIT	Permission for jobs with no CPU limit; with reference to the account number (*YES or *NO)
PASSWORD-MGMT	Specifies whether the user is authorized to modify his LOGONpassword (*BY-USER, *BY-ADMINISTRATION or *USER-CHANGE-ONLY)
PERM-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES or* *PUBSET-SUMMARY: Column header for summary of space quotas for permanent files in SM pubsets
PERM-SPACE-LIMIT	*With INFORMATION=*PUBSET-ATTRIBUTES or* *PUBSET-SUMMARY: Maximum amount of available public space for permanent files in SF pubsets

Output field	Meaning and possible values
PERM-SPACE-USED	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Public space in SF pubsets that is currently used by permanent files.
PHYSICAL-ALLOCATION	Indicates whether the user is allowed to perform absolute space allocation for the pubset (*ALLOWED or *NOT-ALLOWED)
PROFILE-ID	Profile ID of the user for assigning a group syntax file (as per SDF parameter file); (up to 30 characters or *NONE)
PROTECTION-ATTRIBUTES...	Header line summarizing the output fields LOGON-PASSWORD, PASSWORD-MGMT, TAPE-ACCESS and FILE-AUDIT
PUBLIC-SPACE-EXCESS	Specifies whether the user is allowed to occupy more public space than defined by PUBLIC-SPACE-LIMIT. (*NO, *TEMPORARILY-ALLOWED or *ALLOWED)
PUBLIC-SPACE-LIMIT	Maximum available public storage space for permanent files (0 to 2147483647 2-KB pages)
PUBLIC-SPACE-USED	Public storage space currently occupied by permanent files (0 to 2147483647 2-KB pages)
READ-PRIVILEGE	Maximum read privilege relating to use of the software product AID (1 to 9)
RESIDENT-PAGES	Maximum number of resident main memory pages (0 to 2 147 483 647 4-KB pages)
SPOOLOUT-CLASS	Spoolout class (0 to 255); with reference to the account number
START-IMMED	Specifies whether the user may start jobs with START= *IMMEDIATE (*YES or *NO); with reference to the account number
S0-LEVEL-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Totals of the quotas for storage space on processing level S0, separately for permanent files, temporary files, and work files: LIMIT shows the maximum permissible values USED shows the values for currently occupied space (*MAXIMUM or 0 to 2147483647 in 2 KB pages)
TAPE-ACCESS	Specifies whether errors may be ignored during label checking of tapes (*STD, *PRIVILEGED, *READ, *BYPASS-LABEL or *ALL)
TEMP-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Column header for summary of values for temporary space quotas in SM pubsets
TEMP-SPACE-LIMIT	Maximum available public storage space for temporary files (0 to 2147483647 2-KB pages)
TEMP-SPACE-USED	

	Public storage space currently occupied by temporary files (0 to 2147483647 2-KB pages)
TEST-OPTIONS...	Header line summarizing the output fields for test options: *READ-PRIVILEGE, *WRITE-PRIVILEGE, *MODIFICATION
TOTAL-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Totals of all storage space quotas, separately for permanent files, temporary files, and work files: LIMIT shows the values for maximum permissible space USED shows the values for currently occupied space (0 to 2147483647 in 2 KB pages)
USERS	Number of user entries specified (USER-ID operand) (1 to 2147483647 entries)
USER-ID	User ID to which the entry in the user catalog applies (1 to 8 characters)
USER-LOCKED	Specifies whether access to the system is locked for the user ID (*YES or *NO)
VERY-HIGH-PERF-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Totals of the quotas for high-performance storage space, separately for permanent files, temporary files, and work files: LIMIT shows the maximum permissible values USED shows the values for currently occupied space (*MAXIMUM or 0 to 2147483647 in 2 KB pages)
WORK-SPACE	*With INFORMATION=*PUBSET-ATTRIBUTES / *PUBSET-SUMMARY:* Column header for summary of values for work file space quotas in SM pubsets
WRITE-PRIVILEGE	Maximum write privilege relating to use of the software product AID (1 to 9)

Table 169: Output fields for the SHOW-USER-ATTRIBUTES command

Output in S variable

The command’s INFORMATION operand identifies the S variables which are also to be generated (see also the “Condition” column). The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ATTRIBUTES	INF=ATTR
INFORMATION = *SUMMARY	INF=SUM
INFORMATION = *USER-LIST	INF=U-LIST
INFORMATION = *PUBSET-ATTRIBUTES	INF=PUB-A
INFORMATION = *PUBSET-SUMMARY	INF=PUB-S

Notes

- Only systems support or the group administrator in change of the specified user ID is allowed to specify INFORMATION=*SUMMARY or INFORMATION=*USER-LIST.
- The operands INFORMATION=*PUBSET-ATTRIBUTES and =*PUBSET-SUMMARY are provided primarily for system-managed pubsets. If they are used for single-feature pubsets, the S variables are output for nondefined values but are not assigned values.

Output information	Name of the S variable	T	Contents	Condition
Account number of the user ID	var(*LIST).ACCOUNT(*LIST).ACCOUNT	S	<alphan.-name 1..8>	INF=ATTR
CPU limit for the user ID	var(*LIST).ACCOUNT(*LIST).CPU-LIM	I	<integer 0..2147483647>	INF=ATTR
Deactivation inhibit available to the user ID	var(*LIST).ACCOUNT(*LIST).INHIBIT-DEACTIVATE	S	*NO *YES	INF=ATTR
Default account number for access without account number	var(*LIST).ACCOUNT(*LIST).LOGON-DEF	S	*NO *YES	INF=ATTR
Task attribute for jobs associated with the user ID	var(*LIST).ACCOUNT(*LIST).MAX-ALLOW-CATEG	S	*STD *SYS *TP	INF=ATTR
Maximum run priority for jobs associated with the user ID	var(*LIST).ACCOUNT(*LIST).MAX-RUN-PRIO	I	<integer 30..255>	INF=ATTR
Permission for the user ID to run batch jobs with no time limit	var(*LIST).ACCOUNT(*LIST).NO-CPU-LIM	S	*NO *YES	INF=ATTR
Account number for POSIX rlogin access	var(*LIST).ACCOUNT(*LIST).POSIX-RLOG-DEF	S	*NO *YES	INF=ATTR
Spoolout class for the account number of the user ID	var(*LIST).ACCOUNT(*LIST).SPOOL-CLASS	I	<integer 0..255>	INF=ATTR
Job express function available to the user ID	var(*LIST).ACCOUNT(*LIST).START-IMMED	S	*NO *YES	INF=ATTR
User address space limit	var(*LIST).ADDR-SPACE-LIM	I	<integer 1..2147483647>	INF=ATTR
Name of the extended coded character set	var(*LIST).CODED-CHAR-SET	S	<name 1..8>	INF=ATTR

Output information	Name of the S variable	T	Contents	Condition
Maximum number of openCRYPT sessions in a BS2000 session	var(*LIST).CRYPTO-SESSION-LIM	I	<integer 1..32767>	INF=ATTR
Current number of openCRYPT sessions in the BS2000 session	var(*LIST).CRYPTO-SESSION-USED	I	<integer 1..32767>	INF=ATTR
User ID is authorized to run the CSTMP macro	var(*LIST).CSTMP	S	*NO *YES	INF=ATTR
Default job class for batch jobs	var(*LIST).DEF-JOB-CLASS-BATCH	S	'' *NONE <name 1..8>	INF=ATTR
Default job class for interactive jobs	var(*LIST).DEF-JOB-CLASS-DIALOG	S	'' *NONE <name 1..8>	INF=ATTR
Default job class for POSIX jobs	var(*LIST).DEF-JOB-CLASS-POSIX	S	'' *NONE <name 1..8>	INF=ATTR
Default language for message output	var(*LIST).DEF-MSG-LANG	S	'' <name 1..1>	INF=ATTR
Default catalog ID	var(*LIST).DEF-PUBSET	S	<cat-id 1..4>	INF=ATTR
Default storage class for files on SM pubsets	var(*LIST).DEF-STOR-CLASS	S	*NONE <name 1..8>	INF=PUB-A
Usage mode for DMS tuning resources	var(*LIST).DMS-TUNING-RESOURCE	S	*CONCURRENT-USE *EXCL-USE *NONE	INF=ATTR/ PUB-A
Email address of the user ID (multiple addresses are separated by a comma)	var(*LIST).EMAIL-ADDR	S	*NONE <c-literal 1..1800>	INF=ATTR
File access AUDIT function available to the user ID	var(*LIST).F-AUDIT	S	*ALLOW *NO	INF=ATTR
Maximum number of permanent files	var(*LIST).F-NUM-LIM	I	<integer 0..16777215>	INF=ATTR/ PUB-A/ PUB-S
	var(*LIST).GROUP-ID	S	*UNIV <name 1..8>	INF=ATTR

Name of the user group to which the user ID is assigned				
Control of hardware AUDIT function through the user ID	var(*LIST).HARDWARE-AUDIT	S	*ALLOW *NOT-ALLOW	INF=ATTR
Job classes available to the user	var(*LIST).JOB-CLASS-ALLOW(*LIST)	S	<name 1..8>	INF=ATTR
Maximum number of permanent job variables	var(*LIST).JV-NUM-LIM	I	<integer 0..16777215>	INF=ATTR/ PUB-A/ PUB-S
Control of linkage AUDIT function through the user ID	var(*LIST).LINKAGE-AUDIT	S	*ALLOW *NOT-ALLOW	INF=ATTR
User ID is password-protected (*YES/*NO); if the system or group administrator specifies PASSWORD-INFO=FULL in interactive mode, the password is explicitly displayed	var(*LIST).LOGON-PASS	S	*NO *YES <c-string 11..11> <c-string 19..19>	INF=ATTR
Mailing address	var(*LIST).MAIL-ADDR	S	*NONE <c-literal 1..67>	INF=ATTR
Maximum number of user-specific accounting records	var(*LIST).MAX-ACCOUNT-REC	S	*NO-LIM <0..32767>	INF=ATTR
Indication of whether the user needs the operator's permission to modify test options	var(*LIST).MODIF	S	*CONTR *UNCONTR	INF=ATTR
Name of the character set for the code conversion of SAM node files (NETCCSN); if *NO-CONV, there is no code conversion	var(*LIST).NET-CODED-CHAR-SET	S	*ISO *NO-CONV <name 1..8>	INF=ATTR
Specifies whether the user is allowed to Net-Storage volumes	var(*LIST).NET-STOR-USAGE	S	*NO *ALLOW	INF=ATTR/ PUB-A
Current number of account numbers	var(*LIST).NUM-OF-ACCOUNT	I	<integer 1..2147483647>	INF=SUM
Current number of files	var(*LIST).NUM-OF-F	I	<integer 0..16777215>	INF=ATTR/ PUB-A/ PUB-S

Current number of job variables	var(*LIST).NUM-OF-JV	I	<integer 0..16777215>	INF=ATTR/ PUB-A/ PUB-S
Current number of user IDs	var(*LIST).NUM-OF-USER	I	<integer 1..2147483647>	INF=SUM/ PUB-S
Number of locked user IDs	var(*LIST).NUM-OF-USER-LOCK	I	<integer 0..2147483647>	INF=SUM
Number of password-protected user IDs	var(*LIST).NUM-OF-USER-PASS	I	<integer 0..2147483647>	INF=SUM
Indication of who is allowed to change the LOGON password	var(*LIST).PASS-MANAGE	S	*BY-ADM *BY-USER *USER-CHA-ONLY	INF=ATTR
Maximum HIGH-AVAILABLE-SPACE available for permanent files	var(*LIST).PERM-HASL	S	<c-string 1..14> *MAX	INF=PUB-A/ PUB-S
HIGH-AVAILABLE-SPACE currently occupied by permanent files	var(*LIST).PERM-HASU	S	<c-string 1..14>	INF=PUB-A/ PUB-S
Maximum HIGH-PERF-SPACE available for permanent files	var(*LIST).PERM-HPSL	S	<c-string 1..14> *MAX	INF=PUB-A/ PUB-S
HIGH-PERF-SPACE currently occupied by permanent files	var(*LIST).PERM-HPSU	S	<c-string 1..14>	INF=PUB-A/ PUB-S
Maximum S0-LEVEL-SPACE available	var(*LIST).PERM-S0LSL	S	<c-string 1..14> *MAX	INF=PUB-A/ PUB-S
S0-LEVEL-SPACE currently occupied	var(*LIST).PERM-S0LSU	S	<c-string 1..14>	INF=PUB-A/ PUB-S
Maximum space available for permanent files	var(*LIST).PERM-TSL	S	<c-string 1..14> *UNLIM	INF=PUB-A/ PUB-S
Space currently occupied by permanent files	var(*LIST).PERM-TSU	S	<c-string 1..14>	INF=PUB-A/ PUB-S
Maximum VERY-HIGH-PERF-SPACE available for permanent files	var(*LIST).PERM-VHPSL	S	<c-string 1..14> *MAX	INF=PUB-A/ PUB-S
	var(*LIST).PERM-VHPSU	S	<c-string 1..14>	INF=PUB-A/ PUB-S

VERY-HIGH-PERF-SPACE currently occupied by permanent files				
Indication of whether the user is allowed absolute space allocation (direct allocation) for the pubset	var(*LIST).PHYS-ALLOC	S	*NO *ALLOW	INF=ATTR/ PUB-A
Profile ID of the user for assigning a group syntax file	var(*LIST).PROF-ID	S	*NONE <filename1..54> <struc.-name 1..30>	INF=ATTR
Indication of whether the user is allowed to occupy more public space than defined by PUBLIC-SPACE-LIMIT	var(*LIST).PUB-SPACE-EXC	S	*ALLOW *NO *TEMP-ALLOW	INF=ATTR/ PUB-A
Maximum available public space for permanent files	var(*LIST).PUB-SPACE-LIM	I	<integer 0..2147483647>	INF=ATTR
Public space currently occupied by permanent files	var(*LIST).PUB-SPACE-USED	I	<integer 0..2147483647>	INF=ATTR
Pubset catalog ID	var(*LIST).PUBSET	S	<cat-id 1..4>	
Highest read privilege when using AID	var(*LIST).READ-PRIVIL	I	<integer 1..9>	INF=ATTR
Maximum number of resident main memory pages (in 4K pages)	var(*LIST).RESID-PAGE	I	<integer 0..2147483647>	INF=ATTR
Available space; (********** is output if the value is greater than 1000* (2^{31}-1))	var(*LIST).SPACE-AVAIL	S	********** 0..2147483647 0..2147483647K	INF=SUM
Occupied space; (********** is output if the value is greater than 1000* (2^{31}-1))	var(*LIST).SPACE-USED	S	********** 0..2147483647 0..2147483647K	INF=SUM
Occupied space as a percentage; (*** is output if the overflow value ********** is output for the available or occupied space)	var(*LIST).SPACE-USED-PERCENT	S	*** 0..999	INF=SUM
Indication of whether errors encountered during tape	var(*LIST).TAPE-ACCESS	S	*ALL *BYPASS-LABEL	INF=ATTR

label checking may be ignored			*PRIVIL *READ *STD	
Maximum HIGH-PERF-SPACE available for temporary files	var(*LIST).TEMP-HPSL	S	<c-string 1..14> *MAX	INF=PUB-A/PUB-S
HIGH-PERF-SPACE currently occupied by temporary files	var(*LIST).TEMP-HPSU	S	<c-string 1..14>	INF=PUB-A/PUB-S
Maximum available public space for temporary files	var(*LIST).TEMP-SPACE-LIM	I	<integer 0..2147483647>	INF=ATTR
Public space currently occupied by temporary files	var(*LIST).TEMP-SPACE-USED	I	<integer 0..2147483647>	INF=ATTR
Maximum space available for temporary files	var(*LIST).TEMP-TSL	S	<c-string 1..14> *UNLIM	INF=PUB-A/PUB-S
Space currently occupied by temporary files	var(*LIST).TEMP-TSU	S	<c-string 1..14>	INF=PUB-A/PUB-S
Maximum VERYHIGH-PERF-SPACE available for temporary files	var(*LIST).TEMP-VHPSL	S	<c-string 1..14> *MAX	INF=PUB-A/PUB-S
VERY-HIGH-PERF-SPACE currently occupied by temporary files	var(*LIST).TEMP-VHPSU	S	<c-string 1..14>	INF=PUB-A/PUB-S
User ID(only the system administrator may list more than one user ID)	var(*LIST).USER-ID	S	<name 1..8>	INF=ATTR/PUB-A
	var(*LIST).USER-ID(*LIST)	S	<name 1..8>	INF=U-LIST
System access lock on user ID	var(*LIST).USER-ID-LOCK	S	*NO *YES	INF=ATTR
Maximum high-performance work space available	var(*LIST).WORK-HPSL	S	<c-string 1..14> *MAX	INF=PUB-A/PUB-S
High-performance work space currently occupied	var(*LIST).WORK-HPSU	S	<c-string 1..14>	INF=PUB-A/PUB-S
Maximum work space available	var(*LIST).WORK-TSL	S	<c-string 1..14> *UNLIM	INF=PUB-A/PUB-S
Work space currently occupied	var(*LIST).WORK-TSU	S	<c-string 1..14>	INF=PUB-A/PUB-S
	var(*LIST).WORK-VHPSL	S	<c-string 1..14> *MAX	INF=PUB-A/PUB-S

Maximum very high-performance work space available				
Very high-performance work space currently occupied	var(*LIST).WORK-VHPSU	S	<c-string 1..14>	INF=PUB-A/PUB-S
Highest write privilege when using AID	var(*LIST).WRITE-PRIVIL	I	<integer 1..9>	INF=ATTR

Examples

Output of the user entry from the user catalog of the default pubset

/show-user-attr pubset=*default

```
%SHOW-USER-ATTRIBUTES --- PUBSET TK82 - USER COGNIBS3       2017-01-29 15:09:50
%-------------------------------------------------------------------------------
%USER-ID                     COGNIBS3          PUBLIC-SPACE-USED               0
%GROUP-ID                  *UNIVERSAL          PUBLIC-SPACE-LIMIT          20000
%DEFAULT-PUBSET                 TK82          PUBLIC-SPACE-EXCESS            *NO
%MAX-ACCOUNT-RECORDS             100          TEMP-SPACE-USED                 0
%DEFAULT-MSG-LANGUAGE                         TEMP-SPACE-LIMIT       2147483647
%                                             FILES                           0
%PROTECTION-ATTRIBUTES...                     FILE-NUMBER-LIMIT        16777215
%LOGON-PASSWORD                 *YES          JOB-VARIABLES                   0
%PASSWORD-MGMT     *USER-CHANGE-ONLY          JV-NUMBER-LIMIT          16777215
%TAPE-ACCESS                   *READ          RESIDENT-PAGES              32767
%FILE-AUDIT                     *NO          ADDRESS-SPACE-LIMIT            16
%                                             DMS-TUNING-RESOURCES        *NONE
%TEST-OPTIONS...                              CSTMP-MACRO-ALLOWED            *NO
%READ-PRIVILEGE                   1           CODED-CHARACTER-SET       EDF03IRV
%WRITE-PRIVILEGE                  1           PHYSICAL-ALLOCATION            *NO
%MODIFICATION            *CONTROLLED          USER-LOCKED                    *NO
%                                             CRYPTO-SESSION-USED             0
%AUDIT...                                     CRYPTO-SESSION-LIMIT          128
%HARDWARE-AUDIT             *ALLOWED          NET-STORAGE-USAGE         *ALLOWED
%LINKAGE-AUDIT              *ALLOWED          NET-CODED-CHAR-SET        *ISO
%
%PROFILE-ID  *NONE
%MAIL-ADDRESS  Abteilung Z8   Raum 55.105
%EMAIL-ADDRESS alfred.holli@incognito.de,
%              joachim.vogi@incognito.de,
%              (jk)johannes.kuli@incognito.de,
%              (mr)mathias.reh@incognito.de
%
%+---------+-----------+---------+--------+------------+-------+------+------+
%!ACCOUNT-#! CPU-LIMIT !SPOOLOUT-!MAX-RUN-!MAX-ALLOWED-!NO-CPU-!START-!INHIB-!
%!         !           !  CLASS  !PRIORITY!  CATEGORY  ! LIMIT ! IMMED! DEACT!
%+---------+-----------+---------+--------+------------+-------+------+------+
%! ACC00015!      10000!     0   !   255  !     STD    !   NO  !  YES !   NO !
%+---------+-----------+---------+--------+------------+-------+------+------+
%DEFAULT-ACCOUNT-# FOR LOGON:        *NONE
%DEFAULT-ACCOUNT-# FOR REMOTE-LOGIN: *NONE
%
%DEFAULT-JOB-CLASS FOR BATCH-JOBS:   JCB05000
%DEFAULT-JOB-CLASS FOR DIALOG-JOBS:  JCDSTD
%DEFAULT-JOB-CLASS FOR POSIX-JOBS:   JCPOSSTD
%LIST OF JOB-CLASSES ALLOWED:
%JCBNACHT JCBNAMCM JCBNAMCP JCBSHUT  JCB00050 JCB00200 JCB02000 JCB05000
%JCB10000 JCB32000 JCDSTD
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER COGNIBS3 ON PUBSET TK82
/
```

This output shows information for user ID *COGNIBS3* taken from the user catalog of the default pubset TK82.

*Outputs with INFORMATION=*PUBSET-ATTRIBUTES or *PUBSET-SUMMARY*

The example shows how output differs for SM and SF pubsets.

/show-user-attr pubset=smz,inf=*pubset-attr ———————————————— (1)

```
%SHOW-USER-ATTRIBUTES --- PUBSET 2OS6 - USER USERYZ02       2017-01-16 13:13:16
%-------------------------------------------------------------------------------
%USER-ID                 USERYZ02        PUBLIC-SPACE-EXCESS     *NOT-ALLOWED
%CODED-CHARACTER-SET     EDF03IRV        DMS-TUNING-RESOURCES    *NONE
%NET-CODED-CHAR-SET      *ISO            PHYSICAL-ALLOCATION     *NOT-ALLOWED
%DEF-STORAGE-CLASS       *NONE           NET-STORAGE-USAGE       *ALLOWED
%
%FILE-NUMBER-LIMIT         16777215      JV-NUMBER-LIMIT           16777215
%LIMITED FILES                10759      JOB-VARIABLES                    4
%
%                                  PERM-SPACE      TEMP-SPACE      WORK-SPACE
%TOTAL-SPACE             LIMIT     2147483647      2147483647      2147483647
%                        USED          539790               0               0
%S0-LEVEL-SPACE          LIMIT         250000
%                        USED          114213
%HIGH-PERF-SPACE         LIMIT       *MAXIMUM        *MAXIMUM        *MAXIMUM
%                        USED                0               0               0
%VERY-HIGH-PERF-SPACE    LIMIT       *MAXIMUM        *MAXIMUM        *MAXIMUM
%                        USED                0               0               0
%HIGH-AVAILABLE-SPACE    LIMIT               0
%                        USED                0
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER USERYZ02 ON PUBSET 2OS6
```

/show-user-attr pubset=smz,inf=*pubset-summary ———————————————— (2)

```
%SHOW-USER-ATTRIBUTES --- PUBSET SMZ  - PUBSET-SUMMARY      2017-01-16 13:33:16
%-------------------------------------------------------------------------------
%USERS                           1
%FILE-NUMBER-LIMIT         16777215      JV-NUMBER-LIMIT           16777215
%LIMITED FILES                   26      JOB-VARIABLES                    0
%
%                                  PERM-SPACE      TEMP-SPACE      WORK-SPACE
%TOTAL-SPACE             LIMIT     2147483647      2147483647      2147483647
%                        USED           10248               0               0
%S0-LEVEL-SPACE          LIMIT     2147483647
%                        USED           10248
%HIGH-PERF-SPACE         LIMIT     2147483647      2147483647      2147483647
%                        USED                0               0               0
%VERY-HIGH-PERF-SPACE    LIMIT     2147483647      2147483647      2147483647
%                        USED                0               0               0
%HIGH-AVAILABLE-SPACE    LIMIT               0
%                        USED                0
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES                          END OF DISPLAY FOR PUBSET SMZ
```

/show-user-attr pubset=*home,inf=*pubset-attr ——————————————————— (3)

```
%SHOW-USER-ATTRIBUTES --- PUBSET 2SBZ - USER USERYZ02       2017-01-16 43:13:16
%-------------------------------------------------------------------------------
%USER-ID                 USERYZ02        PUBLIC-SPACE-EXCESS     *NOT-ALLOWED
%CODED-CHARACTER-SET     EDF03IRV        DMS-TUNING-RESOURCES    *NONE
%NET-CODED-CHAR-SET      *ISO            PHYSICAL-ALLOCATION     *NOT-ALLOWED
%                                        NET-STORAGE-USAGE       *ALLOWED
%
%FILE-NUMBER-LIMIT         16777215      JV-NUMBER-LIMIT                0
%LIMITED FILES                    0      JOB-VARIABLES                  0
%PERM-SPACE-LIMIT                 0      TEMP-SPACE-LIMIT        2147483647
%PERM-SPACE-USED                  0      TEMP-SPACE-USED                0
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER USERYZ02 ON PUBSET 2SBZ       (4)
```

/show-user-attr pubset=*home,inf=*pubset-summmary ——————————————————— (5)

```
%SHOW-USER-ATTRIBUTES --- PUBSET 2SBZ - PUBSET-SUMMARY      2017-01-16 13:53:16
%-------------------------------------------------------------------------------
%USERS                            1
%FILE-NUMBER-LIMIT         16777215      JV-NUMBER-LIMIT           16777215
%LIMITED FILES                 3765      JOB-VARIABLES                205
%PERM-SPACE-LIMIT        2147483647      TEMP-SPACE-LIMIT        2147483647
%PERM-SPACE-USED            867750       TEMP-SPACE-USED                90
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES                          END OF DISPLAY FOR PUBSET 2SBZ
```

(1) The output shows information on user ID USERYZ02 taken from the user catalog of SM pubset SMZ, using INFORMATION=*PUBSET-ATTRIBUTES.

(2) Using INFORMATION=*PUBSET-SUMMARY, the information on all the specified user IDs of SM pubset SMZ is summarized. In this case only user ID USERYZ02 was specified (see output field USERS = 1).

(3) The output shows information on user ID USERYZ02 taken from the user catalog of the home pubset (SF pubset 2SBZ), using INFORMATION=*PUBSET-ATTRIBUTES. The output is now shorter because it does not include any of the attributes which are specific to SM pubsets.

(4) Using INFORMATION=*PUBSET-SUMMARY, the information on all the specified user IDs of SF pubset 2SBZ is summarized. In this case, only user ID USERYZ02 was specified (see output field USERS = 1). The output is now shorter because it does not include any of the attributes which are specific to SM pubsets.

7.35 SHOW-USER-STATUS

Display information about group of jobs

Component:	STATUS
Functional area:	Job processing
Domain:	JOB USER-ADMINISTRATION
Privileges:	alle Privilegien
Routing code:	E

Function

The SHOW-USER-STATUS command supplies information on jobs assigned to the user's own ID. It can also supply information on jobs generated under the user's own ID but running under a different user ID (extended access; does not apply to spool jobs). The RSO device administrator also obtains information on spoolout jobs under other user IDs if the output is directed to a device under his administration. The following information can be requested (INFORMATION operand):

- Value *STD: attributes of the individual job, such as job name, account number, TSN, type (processing state), priority, CPU time used, time limit etc. This information is output for all jobs if the command is issued without operands.
- value *ENVIRONMENT: job name, TSN, names of the hardware used by the job (terminal, processor, SPOOL devices, forms, overlays), waiting time in HOLD status, catalog identification, spoolout class.
- value *PROGRAM (output only for jobs of type T2 or T3): job name, TSN, type, category, name and size of the loaded program (if present), current command.
- Value *JOB (can be queried only for jobs of types T1 to T3): job names, TSN, type, category, job class, residence time in the current processing state; in addition, for batch jobs: job scheduling priority, start time, repetition interval, values for RERUN-AFTER-CRASH and FLUSH-AFTER-SHUTDOWN.
- Value *REPEAT-JOB (can be queried only for repeat jobs): information on job repetition, such as job name, type, category, interval, number of repetitions, NTSN, next start time.
- Value *BY-CALENDAR (can be queried only for calendar jobs): information on job name, TSN, type, symbolic starting date, job count and next calculated start time.

The specification of a job class for selecting the jobs to be output is available as an additional selection criterion (JOB-CLASS-NAME operand).

The command supports structured output in S variables (see "Output in S variable").

Privileged functions

Systems support (TSOS and OPERATING privilege) can use the command to obtain comprehensive and detailed information relating both to jobs of all users and to a specific user ID. The INFORMATION operand allows them to define the overview they want to have displayed in more detail in terms of job type and associated attributes. They can also use a category as an additional criterion for selecting the jobs to be displayed (CATEGORY-NAME operand).

Format

SHOW-USER-STATUS	Alias: **SHUS**

USER-IDENTIFICATION = ***ALL** / <name 1..8 with-wild(24)>

,**JOB-TYPE** = ***ANY** / ***JOBS** / ***SP**OOLOUT / ***WAIT**ING-**JOB**S / ***BATCH**-JOBS / ***DIALOG-JOBS** /
***WAIT**ING-**SP**OOLOUT / ***RUN**NING-**SP**OOLOUT / ***RSO-SP**OOLOUT(...)

***RSO-SP**OOLOUT(...)

| **DEST**INATION = ***ALL** / <alphanum-name 1..8>

| ,**DEV**ICE = ***ALL** / <alphanum-name 1..8 with-wild>

,**INF**ORMATION = ***STD** / ***ENVIR**ONMENT(...) / ***PROG**RAM / ***JOB** / ***REP**EAT-**JOB** / ***BY-CALENDAR**

***ENVIR**ONMENT(...)

| **TER**MINAL = ***NONE** / **APPLI**CATION / ***ORIG**INAL

,**OUT**PUT-**JOB**-ID = ***STD** / ***NAME** / ***USER-ID**ENTIFICATION / ***NONE**

,**CPU-LIM**IT = ***ANY** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **MIN**IMUM = **0** / <integer 0..2147483647 *seconds*>

| ,**MAX**IMUM = **2147483647** / <integer 0..2147483647 *seconds*>

,**JOB-TYPE-TIME** = ***ANY** / ***PAR**AMETERS(...)

***PAR**AMETERS(...)

| **MIN**IMUM = **0** / <integer 0..2147483647 *minutes*>

| ,**MAX**IMUM = **2147483647** / <integer 0..2147483647 *minutes*>

,**CATEG**ORY-**NAME** = ***ALL** / <name 1..8>

,**JOB-CLASS-NAME** = ***ALL** / <name 1..8>

,**JOB-NAME** = ***ALL** / ***NONE** / <name 1..8 with-wild(24)>

Operands

USER-IDENTIFICATION =
Defines the user ID to which the information output is to relate.

USER-IDENTIFICATION = *ALL
The jobs of all users currently on the system are to be displayed. Nonprivileged users receive information about all jobs started under their own user ID. They also receive information about jobs which were generated by their own ID and are running under a different ID (extended access; does not apply to SPOOL jobs). An RSO device administrator receives information about all print jobs to be output on a printer under his administration.

USER-IDENTIFICATION = <name 1..8>
Only jobs for this user ID are to be included in the information output. Nonprivileged users can only explicitly specify their own user ID. An exception to this applies to RSO device administrators for RSO SPOOL jobs. The same information is output as with USER-IDENTIFICATION=*ALL.

Restriction

Specifying a USER-IDENTIFICATION with wildcards is not supported for spoolout jobs.

JOB-TYPE = *ANY / *JOBS / *SPOOLOUT / *WAITING-JOBS / *BATCH-JOBS / *DIALOG-JOBS / *WAITING-SPOOLOUT / *RUNNING-SPOOLOUT / *RSO-SPOOLOUT(...)
Job types on which information is desired.

Operand value	Meaning (job type)
*ANY	All (subsequently listed) job types
*JOBS	All ENTER and interactive jobs (T1, T2, and T3)
*SPOOLOUT	Executing and waiting spoolout tasks
*WAITING-JOBS	Waiting ENTER jobs (T1)
*BATCH-JOBS	Executing ENTER jobs (T2)
*DIALOG-JOBS	Executing interactive jobs (T3)
*WAITING-SPOOLOUT	Waiting spoolout tasks (T4)
*RUNNING-SPOOLOUT	Executing spoolout tasks (T5)
*RSO-SPOOLOUT(...)	Waiting and executing spoolout tasks for RSO printers (T7); the output can be restricted to specific RSO printers or printer pools (see operand description)

JOB-TYPE = *RSO-SPOOLOUT(...)
Requests information about spoolout jobs for the specified RSO printers.

DESTINATION = *ALL / <name 1..8 with-wild>
Provides information on all spoolout jobs that are output to the RSO designated printers. The following may be specified:

- name of the RSO printer; can be specified in wildcard format
- name of an RSO device pool; all printers in this pool are selected.

DEVICE = *ALL / <alphanum-name 1..8 with-wild>
Names of the RSO printers (can also be specified in wildcard format). The default value is *ALL, i.e. all device pools are selected.

INFORMATION = *STD / *ENVIRONMENT(...) / *PROGRAM / *JOB / *REPEAT-JOB / *BY-CALENDAR
Type of information to be displayed. The operand values *PROGRAM, *JOB, *REPEAT-JOB, and *BY-CALENDAR return information which is available only for some types of job. In this case only on information on such jobs is output.

INFORMATION = *STD

Displays the following information for the job type specified:

Field	Meaning / Contents
NAME	• Job name (default value for nonprivileged users or with OUTPUT-JOB-ID=*NAME) • User ID (default value for nonprivileged users or with OUTPUT-JOB-ID=*USER-ID) • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number
TYPE	Job type (T1 to T7), additional information, depending on job type
TYPE = 1	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import • HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
TYPE = 2/3	Type = 2/3: Active batch and interactive jobs; the first 7 characters of the category name are output, e.g.: • SYS: Category for system tasks • BATCH: Category for batch tasks • DIALOG: Category for dialog tasks • TP: Category for for transaction tasks
TYPE = 4	Type = 4 • PR: APA printer (2050-APA, 2090-APA, 2090-TWIN) • SD: 3341, 3342, 3343 • SD7: High-speed printer with loadable (3337, 3338, 3339 / 3348, 3349 / 3365 / 9xxx) • NSD: High-speed printer with loadable VFB or laser printer • HP: HP (3351, 3353) and HP90 (2090, 2140, 2240) high-performance printers • NHS: High-performance printer or line printer • NHP: High-performance printer • HSD: High-performance printer or line printer • WP: SPOOLOUT jobs waiting for PRE-PROCESSING

	• T9P: Tape device 1600 BPI • T9G: Tape device 6250 BPI • TP: Any tape device • WFT:Jobs waiting for file transfer • FT: Jobs in the process of file transfer
TYPE = 5	Type = 5: Active spoolout task • mn: Output device, currently active • KP: Suspended; can be started in the same session • PRE: Active PRE-PROCESSING job
TYPE = 7	Type = 7: RSO spoolout tasks • WT: Waiting RSO spoolout tasks • ACT: Active RSO spoolout tasks • TP: Any tape device • WP: RSO jobs waiting for PRE-PROCESSING • PRE: Active PRE-PROCESSING for RSO jobs
PRI	Job and task priority; * indicates the job express function
CPU-USED	Only for T2 / T3: CPU time used, in seconds. If the maximum possible display value of 999999.999 has been reached, the current value is displayed in a new line.
CPU-MAX	Only for T1 / T2 / T3: • Maximum CPU time allowed for the job • NTL (NO TIME LIMIT) • HOLD, if the job was suspended by systems support
ACCOUNT#	Only for T1 / T2 / T3: Account number to which the job is being charged
SIZE	Only for T4/T5/T7; the value depends on the setting in the SPOOL parameter file (SPOOLOUT-SIZE); possible settings: • File size in PAM pages • Approximate number of lines (printer) or blocks (tape) to be output. • For files created by SYSFILE management, the estimated size is displayed in logical printer pages and marked with “P”. • Specifications from the PRINT-DOCUMENT command are not taken into account in calculation.
COPIES	Only for T4/T5/T7: Number of copies still to be printed

PRSIZE	Only for T4/T5/T7: Number of lines, records or PAM pages already output. Upon restart following forced termination, PRSIZE is not reset to zero; upon restart following termination by the operator, PRSIZE is set to zero. • PRSIZE=TRD: Job scheduled for APA printer has been transferred • PRSIZE=TRT: Job scheduled for APA printer is being transferred
RTSN	Only for T4/T5/T7: TSN of the job generating the spoolout job.
OPT	Only for T4/T5: Optional indication * when a FOB, page rotation, or more than four character sets are used.
DEVICE	Only for T7: Device name or pool name (identified by *)

INFORMATION = *ENVIRONMENT(...)

The RFA application name R<tsn><sysid> is displayed for AFR partner tasks.

TERMINAL = *NONE / *APPLICATION / *ORIGINAL

Specifies which values are to be output in the fields STATION and PROCESSOR. If *APPLICATION is specified, the names used in the application (e.g. OMNIS) for the station and processor names are output. If *ORIGINAL is specified, the names used by BCAM are output.
Specifying *NONE is the same as specifying *APPLICATION.

Displays the following information for the job specified:

Field	Meaning / Contents
NAME	• Job name (default value for nonprivileged users or with OUTPUT-JOB-ID=*NAME) • User ID (default value for nonprivileged users or with OUTPUT-JOB-ID=*USER-ID) • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number
STATION	Station name (with local printer; mnemonic device name); name from the application or BCAM name
PROCESSOR	Processor name; name from the application or BCAM name
HOLD	Time (hhmm) at which the job was placed in the "HOLD" state or "NO" state if it is not in the HOLD state (only displayed for T1, T2 and T3 jobs)
MRSCAT	Catalog ID and QUIET when the catalog is in the QUIET state or empty
FORM	Form name when printing the form used
CLASS	Spoolout class which is assigned to the job
DIA	Name of the overlay used for the laser printer
DEV	Name of the output device as described in INFORMATION=*STD, field TYPE; (only displayed for T4 and T5 jobs)
PVS	Catalog ID of the pubset on which the output file is stored
OPT	Displays with the '*' character that a FOB overlay, page rotation, or more than four character sets are used for the job
ERMSG	Error code for RSO devices. The error message can be queried with the HELP-MSG-INFORMATION command
ERCOD	Complete return code returned by DCAM or the device

INFORMATION = *PROGRAM

Output for jobs of type T2 and T3 only

Displays the following information for the specified job:

Field	Meaning / Contents
NAME	• Job name (default value for nonprivileged users or with OUTPUT-JOB-ID=*NAME) • User ID (default value for nonprivileged users or with OUTPUT-JOB-ID=*USER-ID) • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number
TYPE	Job type (T2 or T3) plus category name (7 characters)
SIZE	Program size in main memory pages (4 KB)
CURR-CMD	• Command which is currently being executed • HOLD when the job is in the "HOLD" state
PROG	Name of the loaded program, if available (up to 154 characters depending on the type of program file)

INFORMATION = *JOB

Output for jobs of type T1, T2 and T3 only

Displays the following information for the specified job:

Field	Meaning / Contents
NAME	• Job name (default value for nonprivileged users or with OUTPUT-JOB-ID=*NAME) • User ID (default value for nonprivileged users or with OUTPUT-JOB-ID=*USER-ID) • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number
TYPE	Job type (T1 to T3), additional information, depending on job type
	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import • HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
	Type = 2/3: Active batch and interactive jobs; the first 7 characters of the category name are output, e. g.: • SYS: Category for system tasks • BATCH: Category for batch tasks • DIALOG: Category for dialog tasks • TP: Category for for transaction tasks
JCLASS	Job class assigned to the user
INTYPE	Time span in which the job is in the processing status under consideration (in minutes)
P	Job scheduling priority
START	Specification of the job start time in accordance with the SET-LOGON-PARAMETERS (or LOGON), ENTER-JOB or ENTER-PROCEDURE command: "Eyyyy-mm-dd.hhmm" for START=*EARLIEST(...) "Lyyyy-mm-dd.hhmm" for START=*LATEST(...) "Ayyyy-mm-dd.hhmm" for START=*AT(...) "yyyy-mm-dd.hhmm" for SCHEDULING-TIME=*BY-CALENDAR(...) "Whhmm" for START=*WITHIN(...) "BYOPER:"

	"BYUSER" "SOON" for START=*SOON "IMMED" for START=*IMMEDIATELY
REP	Specification of the job repetition in accordance with the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command: "NO" "STUP" for REPEAT-JOB=*AT-STREAM-STARTUP "DAIL" for REPEAT-JOB=*DAILY "WEEK" for REPEAT-JOB=*WEEKLY "hhmm" for REPEAT-JOB=*PERIOD(...)
RER	YES or NO, as specified in the RERUN-AFTER-CRASH operand of the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command
FLU	YES or NO, as specified in the FLUSH-AFTER-SHUTDOWN operand of the SET-LOGON-PARAMETERS, LOGON or ENTER-JOB command

INFORMATION = *REPEAT-JOB

Output for repeat jobs only (type T1 and T2)

Displays the following information for the specified job:

Field	Meaning / Contents
NAME	• Job name (default value and with OUTPUT-JOB-ID=*NAME) • User ID if OUTPUT-JOB-ID=*USER-ID was specified • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number
REP	Information on job repetition "STUP" for REPEAT-JOB=*AT-STREAM-STARTUP "DAIL" for REPEAT-JOB=*DAILY "WEEK" for REPEAT-JOB=*WEEKLY "hhmm" for REPEAT-JOB=*PERIOD(...)
REPCNT	Counter for job repetitions
NTSN	TSN which was reserved for the job repetition
NSTART	Start time determined for the repetition of the job

INFORMATION = *BY-CALENDAR

Output for calendar jobs only (type T1 and T2)

Displays the following information for the specified job:

Field	Meaning / Contents
NAME	• Job name (default value for nonprivileged users or with OUTPUT-JOB-ID=*NAME)

	• User ID (default value for nonprivileged users or with OUTPUT-JOB-ID=*USER-ID) • Blank if OUTPUT-JOB-ID=*NONE was specified
TSN	Task sequence number
TYPE	Job type (T1 to T2), additional information, depending on job type
	Type = 1: Waiting batch jobs • DO: *dormant*: the relevant job scheduler is not yet active; or job run J(i), with (i >= 1) of a repeat job. • WT: *waiting*: The job is waiting to be started by the system. • HO: *HELD-BY-COMMAND*: Job was paused with HOLD-JOB; also displayed if one of the wait statuses HOP, HOT or HOC is in effect due to a lack of resources • HOP: *HELD-BY-PUBSET*: job waiting for pubset import • HOT: *HELD-BY-TSN*: job waiting for TSN release • HOC: *HELD-BY-CALENDAR*: job waiting for import of the pubset that contains the calendar file
	Type = 2: Active batch and interactive jobs; the first 7 characters of the category name are output, e. g.: • SYS: Category for system tasks • BATCH: Category for batch tasks
SYMDAT	Symbolic date which determines the start time of the calendar job; the output field is empty if the job is not a calendar job
COUNT	Run counter for the current number of job repetitions; the output field is empty if the job is not a calendar job.
START	Specification of the job start time of the calendar job which is calculated from the specified symbolic date in the format "yyyy-mm-dd.hhmm". The output field is empty if the job is not a calendar job.

OUTPUT-JOB-ID = *STD / *NAME / *USER-IDENTIFICATION / *NONE
Specifies whether the name or user ID of the job desired is to be displayed in addition to the TSN. The default value is *STD, i.e. the nonprivileged user receives the job name in output field NAME (corresponds to OUTPUT-JOB-ID=*NAME), the privileged user receives the user ID (corresponds to OUTPUT-JOB-ID=*USER-ID).

CPU-LIMIT = *ANY / *PARAMETERS(...)
Selects jobs according to CPU time usage.
The operand has no significance for SPOOL tasks.

CPU-LIMIT = *PARAMETERS(...)

MINIMUM = 0 / <integer 0..2147483647 *seconds*>
CPU time, in seconds; selects jobs that have required at least the specified amount of CPU time.

MAXIMUM = 2147483647 / <integer 0..2147483647 *seconds*>
CPU time, in seconds; selects jobs that have required not more than the specified amount of CPU time.

JOB-TYPE-TIME = *ANY / *PARAMETERS(...)
Selects jobs of the types 1 to 3 according to the amount of time they belonged to the specified job type. SPOOL jobs are not displayed.

JOB-TYPE-TIME = *PARAMETERS(...)

MINIMUM = 0 / <integer 0..2147483647 *minutes*>
Time, in minutes; selects jobs that were assigned to the specified job type for at least the specified length of time.

MAXIMUM = 2147483647 / <integer 0..2147483647 *minutes*>
Time, in minutes; selects jobs that were assigned to the specified job type for at most the specified length of time.

CATEGORY-NAME =
Selects jobs according to their job (task) category.

CATEGORY-NAME = *ALL
Jobs of all categories are included in the output.

CATEGORY-NAME = <name 1..8>
Specifies the category according to which jobs are selected.

JOB-CLASS-NAME =
Selects the jobs according to their job class.

JOB-CLASS-NAME = *ALL
The jobs from all job classes are examined.

JOB-CLASS-NAME = <name 1..8>
Determines the job class which is used as a basis for selecting the jobs.

JOB-NAME =
Selects the jobs according to their name as defined in the SET-LOGON-PARAMETERS or ENTER-JOB command.

JOB-NAME = *ALL
All jobs are examined.

JOB-NAME = *NONE

*NONE designates jobs for which no job name was defined.

JOB-NAME = <name 1..8 with-wild(24)>

Determines the job name which is used as a basis for selecting the jobs.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Without errors
1	0	CMD0001	An attempt was made to create S variables for job types TYPE4 through TYPE8
2	0	EXC0152	Requested information does not exist
2	0	SPS0171	Local spoolout not available
2	0	SPA0003	RSO subsystem not loaded
2	0	SPS0266	Bourse of the ADM task destroyed
2	0	SPS0420	RSO subsystem not loaded
	1	CMD0202	Syntax or semantic error
	1	SCP0973	Inconsistency between operands
	32	CMD2009	Error during generation of S variables
	32	SCP0974	User ID specified for spoolout does not exist
	64	EXC0252	Specified user ID does not exist
	64	EXC0153	No authorization for command
	64	SCP0975	No authorization for command

Output in S variable

The INFORMATION operand identifies the S variables which are to be created. If there is no current value to pass to an S variable, a null string (type S) or the number 0 (type I) is assigned instead. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *STD	1
INFORMATION = *ENVIRONMENT	2
INFORMATION = *PROGRAM	3
INFORMATION = *JOB	4
INFORMATION = *REPEAT	5
INFORMATION = *BY-CALENDAR	6

When information is output to SYSOUT, print jobs are also displayed for reasons of compatibility. Variable output, on the other hand, only contains jobs of the types 1 to 3. The corresponding SPOOL commands must be used for print jobs.

Output information	Name of the S variable	T	Contents	Condition
Account number to which the job is being charged	var(*LIST).ACCOUNT	S	'' <alphan.-name 1..8>	1
Name of the last command which was processed by the task	var(*LIST).CMD	S	'' <struc.-name 1..30>	3
Maximum CPU time allowed for the job HOLD=Job was suspended by systems support NTL=No time limit	var(*LIST).CPU-LIM	S	'' HOLD NTL <integer>	1
CPU time already used by the task	var(*LIST).CPU-USED	S	'' <nnnnnn.nnnn>	1
CPU time already used by the task in unabbreviated form	var(*LIST).CPU-USED-LONG	S	'' <nnnnnnnnnn.nnnn>	1
Member name when the program was loaded from a library	var(*LIST).ELEM-NAME	S	'' <comp.-name 1..64>	3
Member type when the program was loaded from a library	var(*LIST).ELEM-TYPE	S	'' <alphan.-name 1..8>	3
Member version when the program was loaded from a library	var(*LIST).ELEM-VERSION	S	'' <comp.-name 1..24>	3
Name of the file containing the load module	var(*LIST).FILE-NAME	S	'' <filename 1..54>	3
Removal of the batch job from the job queue if it has not been processed by the end of the session	var(*LIST).FLUSH-AFTER-HUTDOWN	S	'' NO YES	4
Time since the job has been in the HOLD state	var(*LIST).HOLD-TIME	S	'' NO <hhmm>	2

Output information	Name of the S variable	T	Contents	Condition
Name of the job class in which the job has been queued	var(*LIST).JOB-CLASS	S	'' <name 1..8>	4
Number of job repetitions	var(*LIST).JOB-COUNT	I	0 <integer>	5, 6
Job name	var(*LIST).JOB-NAME	S	'' <name 1..8>	
Priority of the job	var(*LIST).JOB-PRIO	I	0 <integer 1..9>	1, 4
Type of job (1,2 3,4,5,7)	var(*LIST).JOB-TYPE	I	0 <integer 1..7>	1, 3, 4, 5, 6
Original name of the processor via which the terminal is addressed	var(*LIST).ORIG-PROC-NAME	S	'' <name 1..8>	2
Original name of the terminal	var(*LIST).ORIG-STATION	S	'' <alphan.-name 1..8>	2
Name of the processor via which the terminal is addressed	var(*LIST).PROC-NAME	S	'' <name 1..8>	2
Size of the program (in 4KB)	var(*LIST).PROG-SIZE	I	0 <integer>	3
Only when PUBSET-STATE=QUIET: Pubset affected	var(*LIST).PUBSET	S	'' <cat-id 1..4>	2
Displays whether the task is waiting for access to a pubset in QUIET state to become possible again.	var(*LIST).PUBSET-STATE	S	'' QUIET	2
Specifies when the job repetition is to be started	var(*LIST).REPEAT-JOB	S	'' <hhmm> AT DAIL EARLIEST LATEST NO STUP WEEK	4, 5
Start date of job repetition	var(*LIST).REPEAT-JOB-DATE	S		5

			'' <yyyy-mm-dd>	
Start time of job repetition	var(*LIST).REPEAT-JOB-TIME	S	'' <hh:mm:00>	5
TSN of the job repetition	var(*LIST).REPEAT-JOB-TSN	S	'' <alphan.-name 1..4>	5
Restart of the batch job in the next session	var(*LIST).RERUN-AFTER-CRASH	S	'' NO YES	4
Run priority of the job	var(*LIST).RUN-PRIO	I	0 <integer 30..255>	1
Desired start time of the job. Time values (by WITHIN without date specification, otherwise with) belong to the values of AT, EARLIEST, LATEST and WITHIN. These are then contained in the START-DATE and START-TIME variables.	var(*LIST).START	S	'' AT EARLIEST LATEST WITHIN IMMED SOON STUP	4
Start date of the job	var(*LIST).START-DATE	S	'' <yyyy-mm-dd>	4, 6
Job is to be started immediately.	var(*LIST).START-IMMED	S	TRUE FALSE	1
Start time of the job	var(*LIST).START-TIME	S	'' <hh:mm:00>	4, 6
Name of the station (with local printer; mnemonic device name); name from the application or BCAM name	var(*LIST).STATION	S	'' <alphan.-name 1..8>	2
Additional details of job type For job types 2 and 3 the category name is output: either one of the predefined names BATCH, DIALOG, SYS or TP, or a self-defined name	var(*LIST).SUB-TYPE	S	'' <name 1..7> BATCH DIALOG DO HO HOC HOP HOT SYS	1, 3, 4, 5, 6

			TP WT	
Symbolic date which determines the start time of the calendar job	var(*LIST).SYMBOLIC-DATE	S	'' <name 1..20>	6
Task sequence number	var(*LIST).TSN	S	<alphan.-name 4..4>	
User ID under which the job was started	var(*LIST).USER-ID	S	'' <name 1..8>	

7.36 SHOW-USER-SWITCHES

Display user switches set to ON

Component:	BS2000
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The SHOW-USER-SWITCHES command displays the numbers of the user switches that are set to ON.
32 user switches are available to each user ID (switches numbered 0 to 31); each job running under that user ID has access to these switches. If a new user ID is created by a system administrator or if the system is newly generated, all user switches will be cleared (value OFF).
User switches are not cleared at job end (in contrast to job switches, see SHOW-JOB-SWITCHES command).
With SHOW-USER-SWITCHES the user switch settings for other user IDs can also be checked; however, only the user switch settings for the user's own ID can be changed (MODIFY-USER-SWITCHES command).

Format

SHOW-USER-SWITCHES	Alias: **SHUSW**
USER-IDENTIFICATION = ***OWN** / <name 1..8>	

Operands

USER-IDENTIFICATION = *OWN / <name 1..8>
User ID whose user switches are to be checked.

USER-IDENTIFICATION = *OWN
The user switches for the user's own ID are checked.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax error
	32	EXC0041	System error
	64	EXC0868	User ID not found
	130	CMD2382	User switches not available because the user ID is locked

Example

```
/mod-user-sw on=(0,2,4) ──────────────────────────────────────────── (1)
/show-user-sw
```

```
USER SWITCHES ON EQUAL-
  0, 2, 4
```

```
/show-user-sw user-id=xyz ─────────────────────────────────────────── (2)
```

```
ALL USER SWITCHES SET OFF
```

(1) Switches 0, 2 and 4 for the user's own ID are set to ON.

(2) All switches for the user ID *XYZ* are set to OFF.

7.37 SHOW-VARIABLE

Show contents of variables

Component:	SDF-P-BASYS
Functional area:	Procedures
Domain:	PROCEDURE
Privileges:	STD-PROCESSING OPERATING HARDWARE-MAINTENANCE SECURITY-ADMINISTRATION SAT-FILE-MANAGEMENT SAT-FILE-EVALUATION

Function

The SHOW-VARIABLE command outputs the contents of variables. Possible output media are SYSOUT, SYSLST, file, list variable or library element.

Output format

- The contents of a variable of type INTEGER are output as a string of characters 0-9, possibly with a leading minus sign.
- The contents of a variable of type BOOLEAN are output as the character string FALSE or TRUE.

The order in which the contents of variable elements are output is equivalent to the order of the element declarations for complex variables having the type “structure” and to the numerical order of the array indices for complex variables having the type “array”.

The output always begins on a new line for each variable.

Restrictions

If the chargeable SDF-P subsystem is not available, the following restrictions apply:

- Only the contents of simple S variables are output. When variable names are specified explicitly, only simple S variables can be specified.
- Output to a list variable (OUTPUT=*VARIABLE) is not possible.
- Within the structure *BY-ATTRIBUTES(...) (SELECT operand), only the respective default values may be specified for SCOPE and INITIALIZATION; the same applies to VALUE and NAME in the structure *PARAMETERS(...) (INFORMATION operand).

Format

SHOW-VARIABLE Alias: **SHV**

VARIABLE**-NAME** = ***ALL** / list-poss(2000):<composed-name 1..255> /

<structured-name 1..20 with-wild(40)>

,**SEL**ECT = ***BY-ATTR**IBUTES(...)

***BY-ATTR**IBUTES(...)**

| **SCOPE** = ***VISIBLE** / ***PROC**EDURE / ***CURR**ENT / ***CURR**ENT-***PARAM**ETERS /

| ***TASK-VISIBLE** / ***TASK-ALL** / ***CALL**ING-***PROC**EDURES

| ,**INIT**IALIZATION = ***YES** / ***ANY**

,**INF**ORMATION = ***PAR**AMETERS (...)

***PAR**AMETERS(...)

| **VAL**UE = ***WITHOUT-QUOTES** / ***C-LIT**ERAL / ***X-LIT**ERAL / ***NONE**

| ,**NAME** = ***FULL-NAME(...)** / ***ELEM**ENT-***NAME(...)** / *NONE

| ***FULL-NAME(...)**

| | **LIST-INDEX-NUM**BER = ***NO** / ***Y**ES

| ***ELEM**ENT-***NAME(..)**

| | **LIST-INDEX-NUM**BER = ***NO** / ***Y**ES

,**OUTPUT** = ***SYSOUT** / ***SYSLST** / <filename 1..54 without-gen-vers>(...) / ***VAR**IABLE(...) /

LIB**RARY-ELEM**ENT(...)

<filename 1..54 without-gen-vers>(...)

| **WRITE-MODE** = ***REPLACE** / *EXTEND**

***VAR**IABLE(...)

| **VAR**IABLE**-NAME** = <composed-name 1..20>

| ,**WRITE-MODE** = ***REPLACE** / ***EXTEND**

LIB**RARY-ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-vers>

| ,**ELEM**ENT = <composed-name 1..64>(...)

| <composed-name 1..64>(...)

| | **VERSION** = ***HIGH**EST-***EXIST**ING / ***UP**PER-***LIM**IT / <composed-name 1..24>

| ,**TYPE** = **S** / <alphanum-name 1..8>

```
|       ,WRITE-MODE = *REPLACE / *EXTEND
```

Operands

VARIABLE-NAME =
Designates the variables to be output.

VARIABLE-NAME = *ALL
Default value. All variables having the scope specified under SCOPE are output in the alphabetical order of their variable names. Elements in structures are output in the order of their declarations, while array elements are output in the numerical order of their array indices.

VARIABLE-NAME = list-poss(2000): <composed-name 1..255>
Names of the variables to be output.
These names are output in the specified order.

VARIABLE-NAME = <structured-name 1..20 with-wild(40)>
The variables whose names correspond to the search pattern are output in the lexical order of their names.

SELECT = *BY-ATTRIBUTES(...)
Designates more precisely the variables to be output.

SCOPE = *VISIBLE / *PROCEDURE / *CURRENT / *CURRENT-PARAMETERS / *TASK-ALL / *TASK-VISIBLE / *CALLING-PROCEDURES
Designates the scope of the variables to be output.

SCOPE = *VISIBLE
Outputs all visible variables.
A variable is visible if it is not overlaid by a declaration in an include procedure.

> The operand values *PROCEDURE, *CURRENT, *CURRENT-PARAMETERS, *TASK-ALL, *TASK-VISIBLE and *CALLING-PROCEDURES can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

INITIALIZATION = *YES / *ANY
Specifies whether noninitialized variables are to be output.

INITIALIZATION = *YES
Only initialized variables are output.

> The operand value *ANY can only be specified if the chargeable SDF-P subsystem is loaded. The operand value *ANY is completely described in the “SDF-P” manual [34].

INFORMATION = *PARAMETERS(...)
Specifies the information which is output.

VALUE = *WITHOUT-QUOTES / *C-LITERAL / *X-LITERAL / *NONE
Specifies whether the values of the variables should be output, and in what format.

VALUE = *WITHOUT-QUOTES
Outputs variables with the data type STRING, without apostrophes.

> The operand values *C-LITERAL, *X-LITERAL and *NONE can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described in the “SDF-P” manual [34].

NAME = *FULL-NAME(...) / *ELEMENT-NAME(...) / *NONE
Specifies the format in which the names of the variables are output.

NAME = *FULL-NAME(...)
Outputs full variable names.

LIST-INDEX-NUMBER = *NO / *YES
Defines whether the elements of a list are to have the element number appended to them instead of the suffix (*LIST).

> The operand values *ELEMENT-NAME and *NONE can only be specified if the chargeable SDF-P subsystem is loaded. The operand values are completely described “SDF-P” manual [34].

OUTPUT =
Designates the output medium.

OUTPUT = *SYSOUT
Output to SYSOUT.

OUTPUT = *SYSLST
Output to SYSLST.

OUTPUT = <filename 1..54 without-gen-vers>(...)
Output to the specified file, which must be a SAM file.

WRITE-MODE = *REPLACE
The current contents of the file are to be overwritten.

WRITE-MODE = *EXTEND
The output is to be appended to the current contents.

OUTPUT = *VARIABLE(...)
Only possible if the chargeable SDF-P subsystem is available.
Output to a list variable.

VARIABLE-NAME = <structured-name 1..20>
Name of the list variable.

WRITE-MODE = *REPLACE
The current contents of the list variable are to be overwritten.

WRITE-MODE = *EXTEND
The list variable is to be extended, i.e. the output is to be appended to the current contents.

OUTPUT = *LIBRARY-ELEMENT(...)
Output to an element in a PLAM library.

LIBRARY = <filename 1..54 without-vers>
Name of the PLAM library.

ELEMENT = <composed-name 1..64>(...)
Name of the element.

VERSION =
Designates the version of the element.

VERSION = *HIGHEST-EXISTING
Selects the highest existing version.

VERSION = *UPPER-LIMIT
Selects the highest possible version.

VERSION = <composed-name 1..24>
Selects the specified version.

TYPE = S / alphanum-name 1..8
Designates the element type.

WRITE-MODE = *REPLACE
The current contents of the element are to be overwritten.

WRITE-MODE = *EXTEND
The element is to be extended, i.e. the output is to be appended to the current contents.

Return codes

It is possible that part of the command has been processed and executed when the error occurs. In this case, the result of the command is not guaranteed.

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error
1	0	CMD0001	Warning: variable not found
	1	CMD0202	Syntax error
	3	CMD2203	Incorrect syntax file
	32	CMD0221	System error (internal error)
	64	CMD0216	User does not have required privilege
	64	SDP0091	Semantic error Guaranteed message: SDP1018
	130	SDP0099	No more address space available

7.38 SHOW-VOLUME-SET-LIST

Show volume set list definitions

Component:	BS2000
Functional area:	Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

The SHOW-VOLUME-SET-LIST command provides systems support staff with information on the composition of volume set lists defined for a system-managed (SM) pubset. If the definitions of more than one volume set list or of all volume set lists are requested, the set of volume set lists to be output can be restricted to specific volume sets by means of the SELECT operand.
Output can be directed either to SYSOUT or to SYSLST.

The SM pubset must have been imported to the local system (in exclusive or shared mode).

The command supports structured output in S variables (see "Output in S variables").

Format

SHOW-VOLUME**-SET-LIST**

VOLUME**-SET-LIST-NAME** = ***ALL** / <composed-name 1..8 with-wild>

,**PUBSET** = <cat-id 1..4>

,**INF**ORMATION = ***SUMM**ARY / ***ALL**

,**SEL**ECT = ***ALL** / ***BY-VOL**UME**-SET**(...)

***BY-VOL**UME**-SET**(...)

| **ENTRY** = list-poss(255): <cat-id 1..4>

,**OUTPUT** = ***SYSOUT** / ***SYSLST**(...)

***SYSLST**(...)

| **SYSLST-NUM**BER = ***STD** / <integer 1..99>

Operands

VOLUME-SET-LIST-NAME = *ALL / <composed-name 1..8 with-wild>
Specifies the volume set lists for which information is required.

VOLUME-SET-LIST-NAME = *ALL
Information is required for all volume set lists which are assigned to the pubset specified in the PUBSET operand and also meet the selection criteria given in the SELECT operand.

VOLUME-SET-LIST-NAME = <composed-name 1..8 with-wild>
Name of the volume set list for which information is required. Wildcards can be used to identify more than one volume set list.
Information is required for all specified volume set lists which are assigned to the pubset specified in the PUBSET operand and also meet the selection criteria given in the SELECT operand.

PUBSET = <cat-id 1..4>
Identifies the associated SM pubset. The pubset must have been imported to the local system (in exclusive or shared mode).

INFORMATION = *SUMMARY / *ALL
Specifies how much of the available information is to be output (see also section "Output format").

INFORMATION = *SUMMARY
For each volume set list specified, the name of the volume set list, the catalog ID of the SM pubset and the number of associated volume sets are output.

INFORMATION = *ALL
Output is as for INFORMATION=*SUMMARY, with the addition of a list of the associated volume sets and the brief descriptive text for each volume set list specified.

SELECT = *ALL / *BY-VOLUME-SET(...)
Specifies whether the set identified in the VOLUME-SET-LIST-NAME operand is to be restricted by selection criteria.

SELECT = *BY-VOLUME-SET(...)
Only volume set lists which contain one of the volume sets specified next are output.

ENTRY = list-poss(255): <cat-id 1..4>
Volume set ID.
Up to 255 volume sets can be listed.

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The information is output to the system file SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to the system file SYSLST.

SYSLST-NUMBER = *STD / <integer 1..99>
Specifies whether the information is to be output to the system file SYSLST or to a SYSLST file from the set SYSLST01 through SYSLST99.
The default is *STD, i.e. output is directed to the system file SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No errors
	1	CMD0202	Syntax error in command
	32	CMD0221	Internal system error
	32	CMD2009	Error on output to S variables (e.g. subsystem not available)
	64	CMD0216	No authorization to use command
	64	DMS1482	Error accessing volume set list catalog
	64	DMS1484	Volume set list catalog invalid
	64	DMS1485	Pubset not known
	64	DMS1486	Pubset is not a system-managed pubset
	64	DMS1487	Pubset not available
	64	DMS148B	Volume set list not defined
	64	DMS1490	Storage class management not available for this pubset
	64	DMS149B	No volume set lists meet the selection criteria
	64	DMS149D	No volume set list exists for the specified pubset
	129	DMS148D	Not enough class 4/5 memory
	129	DMS148E	Error on MSCF connection to master
	129	DMS149E	Output error: SYSLST file cannot be extended
	129	DMS148F	GCF subsystem not ready

Output format

The output information for each volume set list selected breaks down into the following three blocks:

1. Information header
2. List of the volume sets which belong to the volume set list
3. Brief description of the volume set list

Which information blocks are output is governed by the value of the INFORMATION operand. With INFORMATION=*SUMMARY (default value), only the first block of information, i.e. the information header, is output. With INFORMATION=*ALL, the three blocks are output in succession.

Information header

The information header consists of the following line of values.

```
NAME: <vslname>  PUBSET: <catid>  NUMBER-OF-VOLUME-SETS: <count>
```

Key:

<vslname>	Name of the volume set list
<catid>	Catalog ID of the SM pubset for which the volume set list is defined
<count>	Number of volume sets on the list

Listing of volume sets

This information block is output only with INFORMATION=*ALL.
The listing is preceded by the header:

```
----------------------- VOLUME-SETS --------------------------
```

This is followed by up to 17 lines of values consisting of the IDs of the volume sets.
The number of lines of values depends on the number of volume sets defined in the volume set list. Each line can include up to 15 volume sets.
If there are no volume sets defined in the volume set list, a single line giving the value *NONE is output.

Brief description of the volume set list

This information block is output only with INFORMATION=*ALL.
The brief description is preceded by the header:

```
------------------- VOLUME-SET-LIST-INFO ---------------------
```

This is followed by up to 10 lines showing the brief description text for the volume set list. The number of lines of values depends on the length of the brief description. Each line can include up to 74 characters.
If no brief description has been defined for the volume set list, a single line giving the value *NONE is output.

Output in S variables

The INFORMATION operand identifies the S variables which are to be created. The following specifications are possible for INFORMATION:

Notation used in command	Abbreviated form used in table
INFORMATION = *ALL	1
INFORMATION = *SUMMARY	2

Output information	Name of the S variable	T	Contents	Condition
Number of volume sets belonging to the list	var(*LIST).COUNT	I	<integer 0..255>	1,2
Catalog ID of the pubset for which the volume set list is defined	var(*LIST).PUBSET	S	<cat-id 1..4>	1,2
Name of the volume set list	var(*LIST).VOL-SET-LIST	S	<comp.-name 1..8>	1,2
Free text formulated by the system administrator	var(*LIST).VOL-SET-LIST-INFO	S	" <c-string 1..720>	1
ID of the volume set (output only for var(*LIST).COUNT > 0)	var(*LIST).VOL-SET(*LIST).VOL-SET-ID	S	<cat-id 1..4>	1

Example

```
/show-volume-set-list volume-set-list-name = vsl1,
                      pubset = abcd, information = *all
```

```
NAME: VSL1          PUBSET: ABCD          NUMBER-OF-VOLUME-SETS: 6

------------------------ VOLUME-SETS ---------------------------

VST1 VST2 VST3 VST4 VST5 VST6

--------------------- VOLUME-SET-LIST-INFO ----------------------

Liste fuer high available Volume-Sets
```

7.39 SHUTDOWN

Initiate session termination

Component:	BS2000
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING
Routing code:	R

Function

The SHUTDOWN command prohibits new jobs or terminates all currently active jobs. The operator issues the SHUTDOWN command prior to physical shutdown of the system or prior to activating an automatic restart so that all system activities can be completed normally. System shutdown comprises two stages:

1. Suspension of job acceptance in the system and notification of the interactive user.
2. Immediate initialization of session termination (termination of all active jobs).

When system shutdown is completed, message EXC0557 is issued.

On shutdown with automatic restart (RESTART=*YES), timed restarts can be arranged with the DELAY suboperand.

Guest systems can also be shut down using the SHUTDOWN-VM command (see the “VM2000” manual [50]).

On the SE server the request to shut down the session can also be entered on the SE manager. For such a request, the system parameter SHUTPROC specifies whether a SHUTDOWN command is issued or an ENTER job is started.

Format

SHUTDOWN

```
MODE = *NO / *END(...) / *QUIET

    *END(...)

        |       RESTART = *NO / *YES(...)

        |           *YES(...)

        |               |       DELAY = *STD / <integer 0..32767 seconds>

        |               |       ,IPL-DEVICE = *NO / <alphanum-name 2..4>

,MESSAGE = *NO / <c-string 1..40>
```

Operands

MODE =
Defines how the system is to be terminated.

MODE = *NO
The default value *NO is equivalent to specifying MODE=*END(RESTART=*NO); in other words, all job are terminated immediately, and there is no automatic restart.

MODE = *END
The system immediately terminates all interactive and noninteractive jobs currently running.

> **RESTART = *NO / *YES(...)**
> Governs whether there is to be an automatic restart on completion of system shutdown. The default is *NO, i. e. no automatic restart.
>
> **RESTART = *YES(...)**
> An automatic restart will be initiated on completion of system shutdown.
>
> > **DELAY = *STD / <integer 0..32767 *seconds*>**
> > Defines a delay in seconds inserted between completion of system shutdown (output of message EXC0557) and initiation of automatic restart.
> > The default is *STD, which means that automatic restart is to be initiated immediately (equivalent to specifying 0 seconds).
> >
> > **IPL-DEVICE = *NO / <alphanum-name 2..4>**
> > Specifies which IPL device to use for automatic restart.
> >
> > **IPL-DEVICE = *NO**
> > Restart is to be performed with the same IPL device.
> >
> > **IPL-DEVICE = <alphanum-name 2..4>**
> > Device mnemonic of a new IPL device (only disk accesses are permitted) to be used when the system is restarted.

MODE = *QUIET
The Control System is to prohibit the scheduling of additional jobs. The BCAM command /BCEND W=Y,TERM=N is simulated (see the “BCAM” manual [2]), and notification (message NRTK201) is sent to all interactive tasks.

MESSAGE =
Specifies whether a freely definable text is to be sent to all interactive tasks in addition to message NRTK201 (MODE = *QUIET) or a special text is to be processed internally in the system (MODE = *END).

MESSAGE = *NO
No message is to be sent.

MESSAGE = <c-string 1..40>
The message (max. 40 characters) to be sent.
The ‘*RESTART’ text can be processed in connection with MODE = *END. In this case the system is terminated with previous resource release.
With MODE = *QUIET the specified text is appended to message NRTK201 as an insert and sent to all interactive tasks.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	EXC0745	SHUTDOWN with MODE=*QUIET already called
2	0	EXC0747	SHUTDOWN continue interrogation rejected by caller
2	0	NRT1204	SHUTDOWN with MODE=*END already called
	64	NRT1206	Internal $HSVP error with GET-IPL-DEVICE
	64	NRT1207	Specified IPL device does not exist
	64	NRT1208	Internal $NKBINF error
	1	EXC0746	Syntax error
	64	CMD0216	Caller is not privileged
	64	EXC0688	Automatic restart not possible because IPL disk does not belong to home pubset
2	64	NRT1205	SHUTDOWN with automatic restart and change of IPL device not supported
	64	NRT1203	Dynamic I/O configuration change is active
	64	NRT1210	IPL device is not a valid disk
	64	NRT1211	IPL device is neither installed nor assigned (in VM2000)
	64	NRT1212	IPL device is not assigned exclusively (in VM2000)
	64	NRT1213	IPL device not accepted

Notes

- The operator should always perform a normal shutdown to allow sufficient time for tasks to be terminated between SHUTDOWN MODE=*QUIET and SHUTDOWN MODE=*END.
- At the start of SHUTDOWN-END processing a check is carried out to determine whether an archive save run is active. If so, the SHUTARCH system parameter is checked to see whether the operator should be asked if SHUTDOWN-END processing is to continue. If ‘SHUTARCH’ is set to ‘N’ (default value) the operator is not asked; if ‘Y’ is set the operator is presented with the following message:

  ```
  EXC074F ARCHIVE SAVE RUN ACTIVE. CONTINUE SHUTDOWN PROCESSING?
  REPLY (Y=YES; N=NO)
  ```

  The operator can abort system termination by entering ‘N’ when asked whether SHUTDOWN-END processing should continue. This is acknowledged with the following message:

  ```
  EXC0747 SHUTDOWN FUNCTION WITHDRAWN BY CALLER
  ```

- For SHUTDOWN MODE=*END, the command BCEND is simulated. Nevertheless, you should call the BCEND call before the SHUTDOWN-END job to allow the user programs connected to the user programs time to terminate properly.
- If a session is not properly shut down, the same accounting file must be loaded during the next system initialization in order to ensure that restoration takes place.
- All tasks for which a HOLD-TASK command was given must be released by means of RESUME-TASK command before SHUTDOWN MODE=*END is entered; otherwise these tasks will not be properly terminated.
- All pending system dumps should be completed prior to input of SHUTDOWN MODE=*END. System dumps requested during SHUTDOWN processing are rejected.
- An attempt is made to terminate all existing user tasks via CANCEL-JOB calls. A FORCE-JOB-CANCEL call is issued to all user tasks which cannot be terminated via a simple CANCEL-JOB command. If there is at least one task which cannot be terminated either with CANCEL or with FORCE-JOB-CANCEL the following message is output after the (FORCE-)CANCEL cycle:

  ```
  EXC0716 ONE OR MORE TASKS PERMANENTLY PENDED. TAKE DUMP AFTER COMPLETION
  OF SHUTDOWN
  ```

  The system parameter SHUTCTL enables the maximum wait time in the (FORCE-)CANCEL cycle to be set to a value ranging from 30 seconds (SHUTCTL=0) to 60 minutes (SHUTCTL=60).
- The SHUTDOWN-END job is normally acknowledged by the following message:

  ```
  EXC0557 SHUTDOWN PROCESSING COMPLETED
  ```

  If problems arise during SHUTDOWN-END processing, an appropriate warning, such as the above message `EXC0716`, is output instructing you to start a dump.
  At the end of SHUTDOWN-END processing the operator is presented with the following message:

  ```
  EXC0557 SHUTDOWN PROCESSING COMPLETED WITH PROBLEMS
  ```

  In this case you should make a memory dump using SLED.

- If automatic restart has been activated, initiation of the shutdown job is acknowledged with the following message:

  ```
  SHUTDOWN WITH AUTOMATIC RESTART INITIATED
  ```

  Dependencies on the SET-RESTART-OPTIONS command arise only in conjunction with a crash (with a shutdown).

- For a shutdown with RESTART=*NO, a SLED dump is produced only in conjunction with the restart option DUMP=*SLED (see SET-RESTART-OPTIONS command).
- For a shutdown with RESTART=*YES, a SLED dump is produced both with the restart option DUMP=*SLED and if a dump is requested explicitly by the crash caller.

7.40 SKIP-COMMANDS

Go to branch destination (depending on switches or JVs)

Component:	BS2000
Functional area:	Job processing
Domain:	JOB JOB-VARIABLES PROCEDURE USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

Using the SKIP-COMMANDS command, conditional or unconditional branching can be performed in a procedure. The following conditions are possible:

- Branch depending on the setting of a job switch (operand IF=*JOB-SWITCHES). Job switches can be set using the MODIFY-JOB-SWITCHES command (see section "Job switches").
- Branch depending on the setting of a user switch (IF=*USER-SWITCHES operand). User switches can be set using the MODIFY-USER-SWITCHES command.
- Branch depending on the contents of a job variable (IF=*JV operand). This function is only available in conjunction with the JV subsystem.

In the case of an unconditional branch, processing branches to the specified branch destination.

In the case of a conditional branch, processing branches to the specified branch destination if the condition is met. If the condition is not met, processing continues with the next command.

This command may only be used in cataloged command sequences. It is rejected in a dialog and therefore not offered in the menu.

In S procedures, SKIP-COMMANDS is subject to restrictions as non-S labels are supported at the top block level only. The GOTO command should be used for unconditional branches, and a corresponding IF command block for conditional branches. This will also enable branches within command blocks or into a superordinate command block.

Format

SKIP-COMMANDS

TO-LABEL = <name 1..8>

,IF = ***NO-COND**ITION / ***JOB-SW**ITCHES(...) / ***USER-SW**ITCHES(...) / ***JV**(...)

***JOB-SW**ITCHES(...)

| ON = ***NONE** / list-poss(32): <integer 0..31>

| ,OFF = ***NONE** / list-poss(32): <integer 0..31>

***USER-SW**ITCHES(...)

| USER-IDENTIFICATION = ***OWN** / <name 1..8>

| ,ON = ***NONE** / list-poss(32): <integer 0..31>

| ,OFF = ***NONE** / list-poss(32): <integer 0..31>

***JV**(...)

| CONDITION = <text 0..1800 with-low *cond-expr*>

Operands

TO-LABEL = <name 1..8>
Branch destination. Name of non-S label identifying the command with which processing is to continue if the specified condition is satisfied.
The name of the branch destination can be defined as a job variable.
If no condition is defined, an unconditional branch occurs. If the specified branch destination does not exist, the branch cannot be executed if the condition is satisfied, and the procedure is aborted.

IF =
Type of condition.

IF = *NO-CONDITION
An unconditional branch is made to the specified branch destination (TO-LABEL).

IF = *JOB-SWITCHES(...)
Branch depending on settings of specified job switches.

ON = *NONE / list-poss(32): <integer 0..31>
Job switches. The condition is satisfied when the specified switches are set to ON and the switches specified in the OFF operand are set to OFF. The default value is *NONE, i.e. the job switches are not checked to see whether they are set to ON.

OFF = *NONE / list-poss(32): <integer 0..31>
Job switches. The condition is satisfied when the specified switches are set to OFF and the switches specified in the ON operand are set to ON. The default value is *NONE, i.e. the job switches are not checked to see whether they are set to OFF.

IF = *USER-SWITCHES(...)
Branch depending on user switch settings.

USER-IDENTIFICATION = *OWN / <name 1..8>
User ID whose user switches are to be interrogated. The default value is *OWN, i.e. the user switches of the user ID under which the current job is running are interrogated.

ON = *NONE / list-poss(32): <integer 0..31>
User switches. The condition is satisfied when the specified switches are set to ON and the switches specified in the OFF operand are set to OFF.
The default value is *NONE, i.e. the user switches are not checked to see whether they are set to ON.

OFF = *NONE / list-poss(32): <integer 0..31>
User switches. The condition is satisfied when the specified switches are set to OFF and the switches specified in the ON operand are set to ON.
The default value is *NONE, i.e. the user switches are not checked to see whether they are set to OFF.

IF = *JV(...)
Branch depending on the contents of a JV.

CONDITION = <text 0..1800 with-low *cond-expr*>
Conditional expression (enclosed in parentheses).
Permissible specifications are described in section "Conditional expressions (job variables)". Special job variables are permitted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax error, error in the condition, branch label not found, or branch to the SKIP-COMMANDS command
	32	CMD0221	Internal error
	32	EXC0041	System error
	64	EXC0868	User ID not found
	64	EXC0878	Label not found
	130	CJC0002	JV cannot be accessed
	130	CJC0003	Memory saturation
	130	CMD2382	User ID locked

Notes

- In a procedure file, both forward and backward branching is possible, i.e. a previous set of commands can be processed. The system first searches for the branch destination from the SKIP-COMMANDS command to the end and then continues the search from the beginning of the file.
- The period preceding the branch destination must not be inserted by expression replacement, because then the branch destination as such will no longer be found.

7.41 START-ACCOUNTING

Activate accounting system and open accounting file

Component:	BS2000
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS

Function

The system administration can use this command to activate the accounting system. The names of the accounting file, the accounting records and record extensions to be logged are defined as well as job classes to be cyclically monitored.

It should be borne in mind that the accounting system does not check the specifications for accounting records or job classes. Specifications of undefined accounting records or job classes are accepted without challenge and **no** error message is issued.

Format

START-ACCOUNTING

NAME = **_*STD_** / <filename 1..54> / <partial-filename 2..53>

,**SPACE** = **_*STD_** / ***RELA**TIVE(...)

***RELA**TIVE(...)

| **PRIM**ARY-**ALLOC**ATION = <integer 1..65535>

| ,**SEC**ONDARY-**ALLOC**ATION = <integer 0..32767>

,**BUF**FER-**LEN**GTH = ***BY-PROG**RAM** / ***STD**(...)

***STD**(...)

| **SIZE** = **_1_** / <integer 1..16>

,**VOL**UME = **_*STD_** / <vsn 1..6>

,**ALT**ERNATE-**FILES** = **_*NONE_** / list-poss(5): <filename 1..54> / <partial-filename 2..53>

,**SET-REC**ORD-**TYPE** = **_*STD_** / ***ALL** / list-poss(64): <name 1..6>

,**ADD-REC**ORD-TYPE = **_*NONE_** / list-poss(64): <name 1..6>

,**REM**OVE-**REC**ORD-**TYPE** = **_*NONE_** / list-poss(64): <name 1..6>

,**ACCOUNT**ING-**PERIOD** = **_*STD_** / <integer 10..1440>

,**JOB-CLASS** = **_*NONE_** / ***ALL** / list-poss(16): <name 1..8>

Operands

NAME =
Defines the name of the accounting file.

NAME = *STD
The accounting file receives the standard name $TSOS.SYS.ACCOUNT.<date>.xxx.nn that consists of the fixed prefix $TSOS.SYS.ACCOUNT and a variable part.

Key:

<date>	:	yyyy-mm-dd or yy.mm.dd	date (year in two or four digit form)
xxx	:	session number	
nn	:	serial number of the accounting file	

NAME = <filename 1..54>
Specifies a fully qualified file name.

NAME = <partial-filename 2..53>
Specifies a partially qualified file name.
This specification results in automatic generation of the file name.
It should be borne in mind that:

- the partial qualification must not exceed 26 characters in length (without user ID) because the suffix <date>.xxx.nn is added automatically; in the case of a catalog ID with more than one character, this value is reduced by the number of extra characters; if the year is specified in four-digit form, only 24 characters may be used
- partial qualification can be terminated with the user ID; the file name is then automatically given the suffix SYS.ACCOUNT.<date>.xxx.nn;
- if no user ID is specified, the file is cataloged under TSOS.

SPACE =
Defines the storage space allocation for the file to be opened.

SPACE = *STD
Allocates to the file 48 PAM blocks for primary storage and 48 PAM blocks for secondary storage.

SPACE = *RELATIVE(...)
Specifies the relative storage space allocation.

PRIMARY-ALLOCATION = <integer 1..65535>
Number of PAM blocks for primary allocation.

SECONDARY-ALLOCATION = <integer 0..32767>
Number of PAM blocks for subsequent file extensions.

BUFFER-LENGTH =
Defines the block size for the input/output buffer of the accounting file.
Specification of this operand is meaningful only for new accounting files. The operand is ignored if the specified file is already cataloged.

BUFFER-LENGTH = *BY-PROGRAM
Defines a buffer of 2048 bytes for input/output of the file.

BUFFER-LENGTH = *STD(...)

SIZE = 1 <integer 1..16>
The specified number of PAM blocks is to be used as the buffer length. If the accounting file is to be set up in an NK4 pubset, an even number should be specified. However, when the command is processed, an odd value will automatically be rounded up to the next higher multiple of 2. The user will be informed of this action by a message.

VOLUME =
Specifies that the new accounting file is to be created on a specific volume.

VOLUME = *STD
The BS2000 (DMS) data management system determines the volume on which the accounting file is to be created.

VOLUME = <vsn 1..6>
The accounting file is to be created on the volume with the specified volume serial number. The VOLUME operand supports only volumes that require no device-specific information. If the accounting file is to be created on a **tape** or a **private disk**, the system must be informed of this with the CREATE-FILE command before the file is changed.
If, in the case of a **shared disk**, this does not belong to the default pubset of the specified user ID, the catalog ID of the volume must be specified in the file name. If automatic file name generation is required, the specification should be: `:catid:$TSOS.`

ALTERNATE-FILES =
Defines the names of continuation files to be opened automatically if the accounting file is changed or in the event of a DMS error.
Defining a list of continuation files is meaningful only if the current accounting file was not automatically generated.

ALTERNATE-FILES = *NONE
No continuation files are defined.

ALTERNATE-FILES = list-poss(5): <filename 1..54> / <partial-filename 2..53>
Fully or partially qualified names of the continuation files.
If a partially qualified name is entered in the list, this must be specified last. Subsequent file names - both partially and fully qualified - are ignored.
A partially qualified file name specification causes the file name to be generated automatically when the accounting file is changed (see also the CHANGE-ACCOUNTING-FILE command).

SET-RECORD-TYPE =
Defines the accounting records and record extensions to be written to the accounting file.

SET-RECORD-TYPE = *STD
The system determines which accounting records and record extensions are to be written to the accounting file. Default settings defined by the system for record selection are:

- deactivated records: DALC, DRFA, PACC, RCPU, RSRV, SPLI, and TATR
- deactivated extensions:
  - JD, JP, JR from record JOBS
  - CA, ID, PC, TI from record PRGS
  - CA, ID, PC, TI from record PRGT
  - CA, ID, PC, TI from record TASK

  - ID, VU from record TDEV
- activated extensions: ID from record UACC

SET-RECORD-TYPE = *ALL
All accounting records and implicitly activated record extensions are written to the accounting file.

SET-RECORD-TYPE = list-poss(64): <name 1..6>
Labels of the accounting records or record extensions to be written.
Up to 64 accounting records/record extensions may be specified (see note).

ADD-RECORD-TYPE =
Defines the accounting records and record extensions to be written in addition to the default settings.
This operand is permitted only in conjunction with the specification SET-RECORD-TYPE=*STD.

ADD-RECORD-TYPE = *NONE
No additional accounting records and record extensions are written.

ADD-RECORD-TYPE = list-poss(64): <name 1..6>
Labels of the accounting records and record extensions to be additionally written. Up to 64 accounting records /record extensions can be specified (see note).

REMOVE-RECORD-TYPE =
Declares that the specified accounting records or record extensions are no longer to be written to the accounting file.
The specification is permitted only if the value *STD or *ALL was specified for the SET-RECORD-TYPE operand.

REMOVE-RECORD-TYPE = *NONE
No accounting records and record extensions are deleted from the list of accounting records to be written.

REMOVE-RECORD-TYPE = list-poss(64): <name 1..6>
Labels of the accounting records and record extensions that are no longer to be written. Up to 64 accounting records /record extensions can be specified (see note).

ACCOUNTING-PERIOD =
Defines the cycle of the periodic accounting interval in minutes.
Certain records of the accounting system and job classes are periodically updated to determine average values.
The frequency of this periodic monitoring should be based on the lower end of the permissible range only in exceptional cases in order to avoid overloading.
The maximum value corresponds to one day.

ACCOUNTING-PERIOD = *STD
The default value of 20 minutes applies.

ACCOUNTING-PERIOD = <integer 10..1440>
Value in minutes determining the frequency of periodic monitoring of accounting records and job classes.

JOB-CLASS =
List of job classes to be subjected to periodic monitoring by the accounting system.

JOB-CLASS = *NONE
No job classes are monitored.

JOB-CLASS = *ALL
All job classes are to be monitored.

JOB-CLASS = list-poss(16): <name 1..8>
Specification of up to 16 job classes to be monitored within the specified period.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No error, but no action
2	0	NAM3001	Requested action performed, but another file had to be set up due to a DMS error
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	NAM0012	No authorization for the command
	64	NAM3003	Semantic error
	128	CMD2280	Temporarily unable to execute the command

Note

The accounting records are addressed via the record label (field 1 of the record description), the record extensions via the record label and the label of the extension.
If an accounting record is activated, all record extensions of this record are implicitly also activated. If only certain extensions are to be activated or deactivated, they must be explicitly specified. The accounting record is then monitored along with the remaining extensions.
Certain records and record extensions must not be deactivated. The relevant commands are checked to ensure that these conditions are met, and the accounting system issues a corresponding message to the user.
Up to 64 records or record extensions can be specified with the SET/ADD/REMOVE-RECORD-TYPE operand. It should be noted that a maximum number of 30 records with 10 extensions each can be managed internally by the accounting system.

7.42 START-ACS

Activate ACS for current BS2000 session

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	ACS-ADMINISTRATION

Function

The system administration uses the START-ACS command to make the ACS function available to all users. Following the loading of the ACS subsystem by a START-SUBSYSTEM command, it is then possible to make the settings required for the session by means of the ADD-ACS-SYSTEM-FILE and MODIFY-ACS-OPTIONS commands, after which the nonprivileged users can access ACS.

Format

START-ACS
ACS-ID = ***NONE** / <x-string 1..8> / <c-string 1..4>
,**SECURITY-LEVEL** = ***HIGH** / ***LOW**

Operands

ACS-ID =
Defines a character string which is copied into the file in encrypted form every time that a virtual alias catalog is saved (STORE-ALIAS-CATALOG), and is checked when the catalog is loaded (LOAD-ALIAS-CATALOG); if the strings do not match, the LOAD-ALIAS-CATALOG command will be rejected.

ACS-ID = *NONE
Default value: no string is declared.

ACS-ID = <x-string 1..8> / <c-string 1..4>
String (as EBCDIC characters, or in hexadecimal form) which is to be copied into the file every time that an alias catalog is saved.

SECURITY-LEVEL =
Determines whether the subsystem is to be operated as a higher security system - in the ACS sense. The main effect of the increased security requirements is on the availability of individual ACS user commands.

SECURITY-LEVEL = *HIGH
Due to the increased security requirements, the commands ADD-ALIAS-CATALOG-ENTRY, MODIFY-ALIAS-CATALOG-ENTRY and LOAD-ALIAS-CATALOG ALIAS-CAT-ID=*OWN are prohibited to the nonprivileged user.

SECURITY-LEVEL = *LOW
The security requirements are not increased; the commands mentioned above are (except where prohibited by the syntax files) available to the user.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed correctly
1	0	CMD0001	No action

Notes

- If the ACS subsystem is terminated by a STOP-SUBSYSTEM ACS, and then later, i.e. within the same session, is restarted by a START-SUBSYSTEM, the following points should be noted:
  - the options set by the ACS administrator before the STOP-SUBSYSTEM continue to apply;
  - all the ACS system file declarations which applied before the subsystem was unloaded will still apply;
  - the SECURITY-LEVEL parameter must be redefined during START-ACS.
- If the ACS subsystem is terminated by a STOP-SUBSYSTEM ACS, SUBSYSTEM-PARAMETER =‘RESET’, and is then restarted within the same session by a START-SUBSYSTEM, the following points should be noted:
  - the default declarations for the ACS options will apply
  - there will be no valid declarations for the ACS system files
  - the SECURITY-LEVEL parameter must be redefined during START-ACS.
- The following always apply when the ACS subsystem is halted by a HOLD-SUBSYSTEM or unloaded by a STOP-SUBSYSTEM:
  - Tasks which have already called an ACS command can continue to use ACS.
  - Tasks which have not yet been connected to the ACS subsystem can no longer make such a connection
  - Tasks which were only connected to ACS as a result of a spool pubset declaration, but which have not yet themselves invoked any ACS commands, will be disconnected the next time that they call the function “Complete-Filename”.

7.43 START-CONFIGURATION-UPDATE

Start dynamic I/O configuration change

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

Systems support staff can initialize a dynamic I/O configuration change for systems of SU /390 with the aid of the START-CONFIGURATION-UPDATE command. Once the reconfiguration has been started successfully, systems support staff can change the input/output configuration dynamically using the ADD-IO-UNIT, REMOVE-IO-UNIT and MODIFY-IO-UNIT commands. The modifications are made in the active IORSF (Input/Output Resource File), i. e. they take immediate effect.

Dynamic I/O configuration change is concluded again with the STOP-CONFIGURATION-UPDATE command.

Exception

If only the timeout settings for the devices or the PAV settings are to be modified the MODIFY-IO-UNIT command (TIMEOUT operand) can be entered outside a dynamic I/O configuration change (i.e. regardless of the system type).

Dynamic I/O configuration change VM2000

Under VM2000, the dynamic I/O configuration change commands can only be entered at the monitor system. The relevant modifications in the input/output tables are carried out automatically in the active guest systems that support dynamic I/O configuration change.

When the START-CONFIGURATION-UPDATE command is entered, message NKR0178 shows how many guest systems are active and how many of them support dynamic I/O configuration change. If guest systems are active that do not support dynamic I/O configuration change, the VM administrator must make sure that the modifications made to the configuration will not damage them.

Format

START-CONFIGURATION-UPDATE

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKR0006	Syntax error
	64	CMD0216	User is not authorized
1	64	NKR0169	System error
3	64	NKR0169	Dynamic I/O configuration change was rejected
4	64	NKR0169	Dynamic I/O configuration change is not supported
13	64	NKR0169	Configuration change already active
14	64	NKR0169	Configuration change not performed by the guest system

7.44 START-EXECUTABLE-PROGRAM

Load and start executable program (LLM, load module, object module)

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The START-EXECUTABLE-PROGRAM command has two functions:

- It calls the dynamic binder loader DBL and defines the primary input. DBL then links LLMs (link and load modules) or OMs together into a load unit, loads this into main memory and starts it. The DBL loads an LLM which has already been linked by the BINDER into a load unit and stored in a PAM file (PAM-LLM) only in main memory and starts it.
- It calls the static loader ELDE. A program (load module) previously linked by TSOSLNK is then loaded into main memory by ELDE and started.

If the user wants merely to load the load unit or program but not start it at this time, the LOAD-EXECUTABLE-PROGRAM command can be used instead of START-EXECUTABLE-PROGRAM.

In the case of operands which have *DBL-PARAMETERS as their default value, the MODIFY-DBL-DEFAULTS command can be used to modify the default DBL parameters which apply when the task is started. The parameters can be configured separately for calls to the LOAD- and START-EXECUTABLE-PROGRAM commands on the one hand and for the BIND macro call on the other. The SHOW-DBL-DEFAULTS command lists the values which are currently set. The RESET-DBL-DEFAULTS command can be used to return the settings to the DBL defaults.

> **i** Structure-implicit notation is guaranteed for the PROGRAM-MODE, REP-FILE and ALTERNATE-LIBRARIES operands (see section "Compressing structures").

Restrictions

Users with SAT-FILE-EVALUATION, SAT-FILE-MANAGEMENT and SECURITY-ADMINISTRATION privileges can only use the command in procedures.

Format

START-EXECUTABLE-PROGRAM Alias: **SRX**

```
FROM-FILE = <filename 1..54 without-gen> / *OMF / [*LIBRARY-ELEMENT](...)
    [*LIBRARY-ELEMENT](...)
        |       LIBRARY = *DBL-DEFAULT / *BLSLIB / <filename 1..54 without-gen> / *LINK(...)
        |           *LINK(...)
        |               |       LINK-NAME = <structured-name 1..8>
        |       ,ELEMENT-OR-SYMBOL = <composed-name 1..64 with-under>(...) /
        |                                   <c-string 1..32 with-low symbol>
        |           <composed-name 1..64 with-under>(...)
        |               |       VERSION = *HIGHEST-EXISTING / <composed-name 1..24 with-under>
        |               |       ,NAME-SCOPE = *ELEMENT / *STD / *SYMBOL
        |       ,TYPE = (L,C,R) / list-poss(3): L / C / R
,PROGRAM-PARAMETERS = *NONE / <c-string 1..1800 with-low>
,DBL-PARAMETERS = *STD / [*PARAMETERS](...)
    [*PARAMETERS](...)
        |       LOADING = [*PARAMETERS](...)
        |           [*PARAMETERS](...)
        |               |       PROGRAM-MODE = *DBL-DEFAULT / *ANY / *24
        |               |       ,LOAD-INFORMATION = *DBL-DEFAULT / *DEFINITIONS / *MAP / *NONE /
        |               |                                   *REFERENCES
        |               |       ,REP-FILE = *DBL-DEFAULT / *NONE / <filename 1..54 without-gen>
        |               |       ,IGNORE-ATTRIBUTES = *DBL-DEFAULT / *NONE / *READ-ONLY
        |               |       ,AMODE-CHECK = *DBL-DEFAULT / *STD / *ADVANCED
        |       ,RESOLUTION = [*PARAMETERS](...)
        |           [*PARAMETERS](...)
        |               |       SHARE-SCOPE = *DBL-DEFAULT / *SYSTEM-MEMORY / *NONE / *ALL /
        |               |                               *MEMORY-POOL(...)
        |               |           *MEMORY-POOL(...)
        |               |               |       SCOPE = *ALL / *USER-ID / *USER-GROUP / *HOST-SYSTEM
        |               |       ,PROGRAM-VERSION = *DBL-DEFAULT / *STD / *BLANK /
```

```
|          |                    <composed-name 1..24 with-under>
|          |      ,ALTERNATE-LIBRARIES = *DBL-DEFAULT / *NONE / list-poss(2): *TASKLIB /
|          |                    *BLSLIB##
|          |      ,AUTOLINK = *DBL-DEFAULT / *YES / *NO / *ALTERNATE-LIBRARIES
|     ,ERROR-PROCESSING = [*PARAMETERS](...)
|        [*PARAMETERS](...)
|          |      NAME-COLLISION = *DBL-DEFAULT / *STD / *ABORT
|          |      ,UNRESOLVED-EXTRNS = *DBL-DEFAULT / *STD / *DELAY / *ABORT
|          |      ,ERROR-EXIT = *DBL-DEFAULT / *NONE / <x-string 1..8>
|     ,REPORTING = [*PARAMETERS](...)
|        [*PARAMETERS](...)
|          |      MESSAGE-CONTROL = *DBL-DEFAULT / *INFORMATION / *WARNING / *ERROR /
|          |                    *NONE
|          |      ,PROGRAM-MAP = *DBL-DEFAULT / *NONE / *SYSLST(...) / *SYSOUT / *BOTH(...)
|          |        *SYSLST(...)
|          |          |      SYSLST-NUMBER = *STD / <integer 1..99>
|          |        *BOTH(...)
|          |          |      SYSLST-NUMBER = *STD / <integer 1..99>
,MONJV = *NONE / <filename 1..54 without-gen-vers>
,CPU-LIMIT = *JOB-REST / <integer 1..32767 seconds>
,TEST-OPTIONS = *DBL-DEFAULT / *NONE / *AID
,RESIDENT-PAGES = [*PARAMETERS] (...)
   [*PARAMETERS](...)
      |      MINIMUM = *STD / <integer 0..2147483647 4Kbyte>
      |      ,MAXIMUM = *STD / <integer 0..2147483647 4Kbyte>
,VIRTUAL-PAGES = *STD / <integer 0..32767 4Kbyte>
```

Operands

FROM-FILE =
Determines the input source from which the program is to be loaded.

FROM-FILE = <filename 1..54 without-gen>
Name of the PAM file that contains a load module or PAM-LLM.

> If the file/library name is specified without a catalog/user ID and if it is not cataloged in the user ID, the system tries to access a file or library of the same name in the system default ID. (For information on this "secondary read" function see the "Introductory Guide to DMS" [13].)

FROM-FILE = *OMF
The input source is the EAM object module file. This contains object modules only.

FROM-FILE = *LIBRARY-ELEMENT(...)
The input source is a program library from which modules are retrieved. Either the dynamic binder loader DBL or the static loader ELDE is called depending on the element type.

LIBRARY =
Specifies the input source from which modules (LLMs, load modules or object modules) are to be retrieved. The input source must generally be a program library. If the input source is an object module library (OML) then the following conditions must be fulfilled:

- Only object modules (OM, TYPE=R) may be loaded
- A value other than the default value ELEMENT must be specified for the NAME-SCOPE operand.

Whether other libraries are searched depends on the specification in the ALTERNATE-LIBRARIES operand.

LIBRARY = *DBL-DEFAULT
The setting in the last MODIFY-DBL-DEFAULTS command applies. *BLSLIB is set by default on task start.

LIBRARY = *BLSLIB
The input source is the **standard library** with the file link name BLSLIB.

LIBRARY = <filename 1..54 without-gen>
File name of a library serving as input source.

LIBRARY = *LINK(...)
File link name of the library serving as input source.

LINK-NAME = <structured-name 1..8>
File link name of the library.

ELEMENT-OR-SYMBOL =
Specifies the modules that are to be retrieved from the specified input source.
In the case of an object module, the start address is dependent on the specifications in the END record as follows:

- If a start address is specified in the END record then this address is used.
- If no start address is specified in the END record then the address of the first CSECT in the module is used.

- If an external reference (EXTRN or WXTRN) is specified in the END record then the module is started at the address of the symbol that resolves this reference. If no symbol that resolves the reference is found then
  - in the case of an unresolved EXTRN, loading is aborted,
  - in the case of an unresolved WXTRN, the module is started at the address of the first CSECT.

An LLM is started at the address that was taken over by the BINDER when the LLM was stored.

ELEMENT-OR-SYMBOL = <composed-name 1..64 with-under>(...)
Name of the object module (element type R), load module (element type C) or LLM (element type L). The possible element types are specified in the TYPE operand. Depending on the specification in the NAME-SCOPE operand, a CSECT name, ENTRY name or element name from a module may be specified.

VERSION =
Specifies the element version.

VERSION = *HIGHEST-EXISTING
The default value for the highest element version in program libraries is taken over (see the “LMS” manual [21]).

VERSION = <composed-name 1..24 with-under>
Explicit specification of the element version.

NAME-SCOPE =
Specifies whether the name entered in ELEMENT-OR-SYMBOL can be an element name or also a CSECT or ENTRY name.

NAME-SCOPE = *ELEMENT
Only elements in PLAM libraries are searched for.

NAME-SCOPE = *SYMBOL
Only CSECT or ENTRY names are searched for. If the specified name is longer than 32 characters, the command is rejected.
For the search order, see section “Linkage process” in the “BLSSERV” manual [3].

NAME-SCOPE = *STD
Both element names (with the exception of type C) and CSECT/ENTRY names are searched for. If the specified name is longer than 32 characters, the command is rejected. For the search order, see section “Linkage process” in “BLSSERV” manual [3].

ELEMENT-OR-SYMBOL = <c-string 1..32 with-low *symbol*>
Specifies a symbol as a C string (pay attention to uppercase/lowercase). For the search order, see section “Linkage process” in “BLSSERV” manual [3].

TYPE = (L,C,R) / list-poss(3): L / C / R
Specifies the element type. When a list is specified, the order of the specified element types also determines the search order. The default setting (L,C,R) specifies that the element is first searched for in the LLMs, then in the load modules and finally in the OMs. In the case of NAME-SCOPE=*SYMBOL/*STD, the specification of element type C is ignored.

The following applies for element names > 41 characters:

- If element type C is specified as an individual value, the command is rejected.
- If multiple element types are specified, element type C is ignored.

The operand is only evaluated for the input source (LIBRARY), not for alternate libraries for which the order L, R applies.

PROGRAM-PARAMETERS = *NONE / <c-string 1..1800 with-low>
Parameters can be specified only if the chargeable SDF-P subsystem is in use:
The specified program parameters are read by the called program from the S variable SYSPARAM or via the C function *getopt*.
The default value is *NONE, i.e. no parameters are passed to the program. In such cases, an existing SYSPARAM is deleted.

DBL-PARAMETERS = *STD / *PARAMETERS(...)
This operand is not evaluated for load modules (element type C).
Designates all the parameters that are set by default in DBL or whose default setting can be modified using the MODIFY-DBL-DEFAULTS command. *STD is set by default, i.e. the command is called with the current DBL parameters. It is possible to declare explicit values for the command call by specifying *PARAMETER(...).

DBL-PARAMETERS = *PARAMETERS(...)
Explicit specification of the DBL parameters for this command call.

LOADING = *PARAMETERS(...)
Specifies the parameters for the load operation.

PROGRAM-MODE=
Specifies in which part of the address space (above or below the 16-Mbyte boundary) the modules of the load unit are to be loaded. For the addressing mode, see the “BLSSERV” manual [3].

PROGRAM-MODE = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is 24.

PROGRAM-MODE = *ANY
The modules of the load unit may be loaded above or below the 16-Mbyte boundary.

PROGRAM-MODE = *24
The entire load unit is loaded below the 16-Mbyte boundary.

LOAD-INFORMATION =
Specifies the loading information for the load unit.

LOAD-INFORMATION = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *DEFINITIONS.

LOAD-INFORMATION = *DEFINITIONS
Loads an ESD containing the program definitions of all the modules in the load unit. Program definitions include program sections (CSECTs), entry points (ENTRYs), COMMON areas and external dummy sections (XDSECs-D).

LOAD-INFORMATION = *REFERENCES
Loads an ESD containing not only the program definitions, but also the satisfied references of all the modules in the load unit.
References include external references (EXTRNs), V-type constants, conditional external references (WXTRNs) and external dummy sections (XDSECs-R).

LOAD-INFORMATION = *MAP
Only one ESD required for the generation of the DBL list is *temporarily* loaded. The ESD is unloaded as soon as the DBL list has been generated.

LOAD-INFORMATION = *NONE
The external symbols dictionary (ESD) is not loaded with LLMs and is only loaded temporarily with OMs.

- With LLMs, the ESD is not read at all and consequently is also not used to resolve references within the generated load unit.
- With OMs, the ESD is read and is temporarily available during the loading process.

If external references need to be resolved between LLMs and OMs of the generated load unit, the minimum specification is *DEFINITIONS or *MAP.

REP-FILE = *DBL-DEFAULT / *NONE / <filename 1..54 without-gen>
Specifies whether REP records are to be applied to the modules of a load unit. Default: The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE, i. e. no REP records are used.
If the user specifies a file name, the DBL attempts to process REP records from this file. The REP records must have the standard format that is processed by the RMS utility routine (see the “Utility Routines” manual [9]). Should an error occur during REP record processing, a message (warning) is output, the invalid REP record is skipped and REP processing is then continued.

IGNORE-ATTRIBUTES =
Specifies which CSECT attributes are ignored on loading.

IGNORE-ATTRIBUTES = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE.

IGNORE-ATTRIBUTES = *NONE
No CSECT attributes are ignored on loading.

IGNORE-ATTRIBUTES = *READ-ONLY
The CSECT attribute READ-ONLY is ignored on loading. The CSECT is loaded into a readable/writable main memory page. This enables breakpoints to be set when testing with AID, for example.

AMODE-CHECK = *DBL-DEFAULT / *STD / *ADVANCED
Determines whether additional checks of the addressing mode should take place during loading.

AMODE-CHECK = *DBL-DEFAULT
The setting of the last MODIFY-DBL-DEFAULTS command applies. When the task begins, *STD is the default.

AMODE-CHECK = *STD
Only the checks compatible with BLSSERV < V2.5 are executed.

AMODE-CHECK = *ADVANCED
The same checks as for AMODE-CHECK = *STD are performed.
During loading, a check is also performed to see whether inconsistencies can occur while resolving external references because of the load unit’s addressing mode.

RESOLUTION = *PARAMETERS(...)
Specifies how external references are to be handled.

SHARE-SCOPE =

*This specification is ignored for a PAM-LLM (SHARE-SCOPE=*NONE applies implicitly).* Specifies whether, and if so, which portion of the shared code (see section “Shareable programs (shared code)” in the “BLSSERV” manual [3]) is included in the search for modules of the load unit and for unresolved external references.
On the system level, system administration can make available frequently used programs or modules to users in class 4/5 memory (as nonprivileged subsystems). The nonprivileged user can also make available programs or modules to users in class 6 memory (in a memory pool).
If a user uses modules from the available shared code, these modules need not be created in the task’s class 6 memory. The references to modules already loaded as shared code suffice.
The shared code is searched in the following order:

1. Search of the shared code in class 6 memory (Common Memory Pools). If DBL finds the symbol it is searching for, it passes the load address, connects the task to the memory pool and terminates the load operation.
2. Search of the system’s shared code, i.e. search of all nonprivileged subsystems that have been loaded into class 3/4 and class 5 memory. If DBL finds the symbol it is searching for, it passes the load address, connects the task to the memory pool and terminates the load operation.

SHARE-SCOPE = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *SYSTEM-MEMORY.

SHARE-SCOPE = *SYSTEM-MEMORY
Only the shared code made available in class 3/4 and class 5 memory is included in the search.

SHARE-SCOPE = *NONE
Shared code is not included in the search.

SHARE-SCOPE = *ALL
Both the shared code made available in class 3/4 and class 5 memory (system memory) and that made available in class 6 memory (memory pools) is included in the search.

SHARE-SCOPE = *MEMORY-POOL(...)
The user shared code available in class 6 memory is included in the search, i.e. memory pools with the specified scope are included.

SCOPE =
Scope of the memory pools to be included.

SCOPE = *ALL
All memory pools which the task can access are included.

SCOPE = *USER-ID
Only memory pools which were set up for the user ID of the calling task are included, i.e. memory pools which are shareable for all tasks under this user ID.

SCOPE = *USER-GROUP
Only memory pools which were set up for the user group to which the calling task belongs are included, i.e. memory pools which are shareable for all tasks of this user group.

SCOPE = *HOST-SYSTEM
Only memory pools which were set up globally are included, i.e. memory pools which can be used by all tasks.

PROGRAM-VERSION =
Specifies the program version that DBL is to use. With regard to DBL, a program version is the version of a load unit which is about to be or has already been loaded.

PROGRAM-VERSION = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *STD.

PROGRAM-VERSION = *STD
The load unit produced by the load call is assigned the version of the loaded library element as its program version.
If the symbol specified in the load call has already been loaded, the command looks for the program version defined in the SELECT-PROGRAM-VERSION command. If no program version has yet been defined, DBL uses the first symbol it finds.

PROGRAM-VERSION = *BLANK
The program version is disregarded. If the load unit specified in the call is not yet loaded, the load unit being loaded is not assigned a version.

PROGRAM-VERSION = <composed-name 1..24 with-under>
Version of the program looked for among the programs which are already loaded. If this program version has not yet been loaded, the load unit being loaded is assigned this version.

ALTERNATE-LIBRARIES = *DBL-DEFAULT / *NONE / list-poss(2) *TASKLIB / *BLSLIB##
*This specification is ignored for a PAM-LLM (ALTERNATE-LIBRARIES=*NONE applies implicitly).*
Specifies whether alternate libraries are to be searched for symbols. They are also used for the DBL autolink function (see also the AUTOLINK operand).
If a list is specified then the libraries are searched in the specified order.
When the alternate libraries are searched, then the fixed type order L,R applies irrespective of the TYPE operand. In this case, only symbols are searched for, not element names.

ALTERNATE-LIBRARIES = *DBL-DEFAULT
The setting in the last MODIFY-DBL-DEFAULTS command applies. *NONE is set by default at task start.

ALTERNATE-LIBRARIES = *NONE
No alternate libraries are searched.

ALTERNATE-LIBRARIES = *TASKLIB
The system and/or user Tasklibs are searched in the following order:

1. The library that was assigned using the SET-TASKLIB command
2. The library $userid.TASKLIB
   or, if this does not exist
   The TASKLIB library under the system default ID (DEFLUID ID)

ALTERNATE-LIBRARIES = *BLSLIB##
The libraries assigned with the file link name BLSLIBnn or $BLSLBnn (00<=nn<=99) are searched.

Files with the file link name $BLSLBnn are alternate system libraries that are internally assigned by the system depending on the components that are required by the runtime system.

AUTOLINK =
*This specification is ignored for a PAM-LLM (AUTOLINK=*NO applies implicitly).* Specifies whether the DBL autolink function is to be used.

AUTOLINK = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *YES.

AUTOLINK = *YES
The DBL autolink function is used and both the input source and any alternate libraries are searched.

AUTOLINK = *NO
The DBL autolink function is not used.

AUTOLINK = *ALTERNATE-LIBRARIES
The DBL autolink function is used for alternate libraries only if alternate library searching has been enabled (ALTERNATE-LIBRARIES=*TASKLIB/*BLSLIB##).

ERROR-PROCESSING = *PARAMETERS(...)
Specifies how any errors that occur are to be handled.

NAME-COLLISION =
Specifies how name collisions between symbols of the same name are to be handled. Name collisions are discovered only if the symbols are *not* masked.

NAME-COLLISION = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *STD.

NAME-COLLISION = *STD
Name collisions between nonmasked symbols are indicated by warning messages. The module containing the symbol with the same name is loaded. The new occurrence of the symbol is masked, i.e. it is no longer used to satisfy external references.

NAME-COLLISION = *ABORT
Loading of the current load unit is aborted if a name collision between nonmasked symbols is discovered.

UNRESOLVED-EXTRNS =
*This specification is ignored for a PAM-LLM (UNRESOLVED-EXTRNS=*STD applies implicitly).*
Specifies how unresolved external references are to be handled. All unresolved external references are output to the system file SYSOUT, with unresolved external dummy sections (XDSECs-R) listed separately.

UNRESOLVED-EXTRNS = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *STD.

UNRESOLVED-EXTRNS = *STD
Unresolved external references are assigned an address specified in the ERROR-EXIT operand.

UNRESOLVED-EXTRNS = *DELAY
Unresolved external references are satisfied at a later time. This operand is permissible only when LOAD-INFORMATION=*REFERENCES.
The DBL stores the unresolved external references in the link context. After the next load unit is loaded into the context, the DBL attempts to satisfy the stored external references with CSECTs and ENTRYs from this new load unit. This process is repeated whenever further load units are loaded for as long as

the context continues to exist. External dummy sections (XDSECs-R) cannot be stored.
When stored in the context, the unresolved external references are assigned a (preliminary) address, which is specified in the ERROR-EXIT operand.

UNRESOLVED-EXTRNS = *ABORT
All external references must be resolved. If not, the current load unit is aborted.

ERROR-EXIT = *DBL-DEFAULT / *NONE / <x-string 1..8>
Defines the address that unresolved external references are to be assigned if the operands UNRESOLVED-EXTRNS=*STD / *DELAY are specified.
Default: The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE.
If *NONE is specified, external references are left unresolved (equivalent to specifying X'FFFFFFFF').

REPORTING = *PARAMETERS(...)
Specifies how the load operation is to be logged.

MESSAGE-CONTROL =
Specifies the lowest message class at which messages are to be output.

MESSAGE-CONTROL = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *INFORMATION.

MESSAGE-CONTROL = *INFORMATION
Outputs messages of all message classes.

MESSAGE-CONTROL = *WARNING
Outputs messages of the WARNING and ERROR message classes only; messages of the INFORMATION message class are not output.

MESSAGE-CONTROL = *ERROR
Outputs messages of the ERROR message class only.

MESSAGE-CONTROL = *NONE
No messages are to be output.

PROGRAM-MAP =
Specifies whether or not a DBL list is to be output and defines the output destination for the DBL list.

PROGRAM-MAP = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NO.

PROGRAM-MAP = *NONE
No DBL list is to be output.

PROGRAM-MAP = *SYSLST(...)
The output destination is the SYSLST system file.

SYSLST-NUMBER =
Specifies the number of the SYSLST system file from the set SYSLST00 to SYSLST99.

SYSLST-NUMBER = *STD
The output destination is the system file SYSLST[00]

SYSLST-NUMBER = <integer 1..99>
The output destination is a SYSLST system file from the set SYSLST01 to SYSLST99.

PROGRAM-MAP = *SYSOUT
The output destination is the SYSOUT system file.

PROGRAM-MAP = *BOTH(...)
The system files SYSOUT *and* SYSLST are both output destinations.

SYSLST-NUMBER =
Specifies the number of the SYSLST system file from the set SYSLST00 to SYSLST99.

SYSLST-NUMBER = *STD
The output destination is the system file SYSLST[00]

SYSLST-NUMBER = <integer 1..99>
The output destination is a SYSLST system file from the set SYSLST01 to SYSLST99.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Name of the job variable that is to monitor the program.
While the program is executing, the system sets the JV to one of the following values:

$R	program executing
$T	program terminated
$A	program abnormally terminated

(see also the “Job Variables” manual [20]).

CPU-LIMIT = *JOB-REST / <integer 1..32767 *seconds*>
Maximum CPU time, in seconds, allowed for execution of the program.
If execution of the program exceeds the specified time, in interactive mode the program is interrupted and message EXC0075 is output. The user can request a dump, abort the program or continue the program. If a STXIT routine is defined in the program for the event of reaching the CPU time limit, this routine is executed and the program terminated.
In batch mode the program is terminated. See also section "Time limits in BS2000".

CPU-LIMIT = *JOB-REST
If the job was started with a time limit, the remaining CPU time will be used as the time limit for the program. Otherwise, the program executes without a time limit.

TEST-OPTIONS =
Specifies whether symbolic addresses in the program may be used in testing (with AID). Symbolic addresses can only be used to debug programs for which debugging and diagnostic information (LSD/list for symbolic debugging) was generated at compile time. This entails setting certain compiler options when compiling the source program (see the appropriate compiler user guide).

TEST-OPTIONS = *DBL-DEFAULT
The setting from the last MODIFY-DBL-DEFAULTS command applies. At the start of a task, the preset value is *NONE.

TEST-OPTIONS = *NONE
The local symbolic address table/the internal symbolic address table is not used.

TEST-OPTIONS = *AID
This operand is required for testing with AID.
This specification permits the use of symbolic addresses when testing the program with AID commands. For this, a local symbolic address table or an internal symbolic address table must have been generated when the program was compiled.
This specification is only possible for OMs (element type R) and LLMs (element type L) if LOAD-INFORMATION=*DEFINITIONS/*REFERENCES is also specified.

RESIDENT-PAGES = *PARAMETERS(...)
Number of resident memory pages required for the program run.
This operand must be specified if, in the program, pages are to be made resident with a CSTAT macro (see the “Executive Macros” manual [22]). The permissible number of resident memory pages can be controlled by the operator.
If the operand is omitted (MIN=*STD,MAX=*STD), the memory requirements are taken from the start record of the program, which requires the file to be opened.

MINIMUM = *STD / <integer 0..2147483647 *4Kbyte*>
Minimum number of resident memory pages required.

MAXIMUM = *STD / <integer 0..2147483647 *4Kbyte*>
Maximum number of resident memory pages required.

VIRTUAL-PAGES = *STD / <integer 0..32767 *4Kbyte*>
The operand is evaluated only if a load module (element type C) is loaded.
Number of pageable memory pages which must be available for the program run. If the specified number exceeds the number of pages available on the computer, the command is rejected.

VIRTUAL-PAGES = *STD
The memory requirements are taken from the start record of the program.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0150	Warning on loading of the program (see the message on SYSOUT)
	32	BLS0152	Loading of the program aborted due to system error
	64	CMD0216	The user is not authorized to use the command
	64	BLS0153	Loading of the program aborted due to an unrecoverable error (see the SYSOUT message for the reason)

Notes

- Additional information regarding the loading of programs is contained in the description of the loaders in the “BLSSERV” manual [3].
- DBL does not lock any libraries or library elements during the program run.
- Calling DBL with START-/LOAD-EXECUTABLE-PROGRAM always corresponds to a call with START-/LOAD-PROGRAM and RUN-MODE=*ADVANCED. The functionality of RUN-MODE=*STD is only available with the earlier commands START-/LOAD-PROGRAM.
- Some DBL functions are not available for an LLM that has already been linked into a load unit with BINDER and stored in a PAM file (PAM-LLM). Explicit specifications for the operands involved are ignored and the command is executed implicitly with the following values:
  - SHARE-SCOPE=*NONE
  - ALTERNATE-LIBRARIES=*NONE
  - AUTOLINK=*NO
  - UNRESOLVED-EXTRNS=*STD
- If multiple identical element types (TYPE operand) or alternate libraries (ALTERNATE-LIBRARIES operand) are specified, command execution is aborted with an error message.
- If NAME-SCOPE=*SYMBOL/*STD or ELEMENT-OR-SYMBOL= <c-string> is specified then:
  - if only element type C is declared (TYPE operand), command execution is aborted with an error message.
  - if element type C and at least one other element type are declared (TYPE operand) then element type C is ignored and the command is executed. If NAME-SCOPE=*STD then a warning is issued if an existing C element is skipped.
- As the specification of an element name > 32 characters in the ELEMENT-OR-SYMBOL operand cannot refer to a CSECT or ENTRY name (up to 32 characters), the following applies:
  - When NAME-SCOPE=*SYMBOL is specified the command is rejected.
  - When NAME-SCOPE=*STD is specified the search is restricted just to element names without a warning.
- As the specification of an element name > 41 characters in the ELEMENT-OR-SYMBOL operand cannot refer to a load module (element type C with up to 41 characters), the following applies:
  - When TYPE=C is specified the command is rejected.
  - If in addition to C at least one other element type is specified in the TYPE operand, element type C is ignored without a warning.
- DBL defines the following names for the context and the load unit:
  - the default name “LOCAL#DEFAULT” for the context
  - the default name “%UNIT” for the load unit
- Execution of programs cannot be nested. If a START-EXECUTABLE-PROGRAM or START-PROGRAM command is issued when a program is already loaded, the loaded program is unloaded and the new command is executed. No error message appears; however, an ABEND-STXIT routine defined in the unloaded program is

first activated, unless the START-PROGRAM command is called via the CMD macro (see the “Executive Macros” manual [22]).

- For program monitoring, see also the “Job Variables” manual [20].
  - The status indicator in the job variable monitoring the program is set to “$R” when the program is started.
  - If a program is already loaded or a started program is interrupted by a HOLD-PROGRAM command or depression of the [K2] key, the status indicator in the program-monitoring job variable is set to “$A”.
  - If the JV is not accessible at the time the command is processed, an error message is issued to SYSOUT and command processing is continued.

Examples

```
/SRX (MY-LIB,MITZI)
```

The element MITZI from the library MY-LIB is loaded and started. The search order is: LLM, load module, object module.

This extremely abbreviated form should only be used in dialogs.

```
/START-EXE (LIB=SYSLNK.GTI,ELEM-OR-SYM='TONI'),REP-FILE=SYSREP.GTI
```

Starts the module containing the symbol TONI. The search is first performed in the shared code and then in the library SYSLNK.GTI with type L being searched before type R. When the module is loaded from the library, the REP file SYSREP.GTI is processed.

Note

Since the name is specified as a C-string in ELEM-OR-SYM, the library is only searched for symbol names, not for element names.

```
/START-EXE FROM-FILE=(LIB=MY-LIB,ELEM=SONJA),DBL-PAR=(RESOLUTION=(AUTOLINK=*NO))
```

The element SONJA from the library MY-LIB is loaded and started. The search order is: LLM, load module, object module. The autolink function is not used here.

```
/START-EXE FROM-FILE=(ELEM=CAESAR),PROG-PAR='Monday Winter'
```

Calls a C program stored under the element name CAESAR from the default library and passes the program parameters that the program accesses via the *getopt* function (an Assembler program would read the parameters from the S variable SYSPARAM).

7.45 START-FILE-CACHING

Start PFA caching for open file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS

Function

The START-FILE-CACHING command starts caching for a file that is already open for processing. The file has to be on a pubset for which a cache configuration is defined in the MRSCAT and the cache has to be active, i.e. PFA caching for the pubset has to be activated.
Caching can be activated later for files for which no appropriate cache medium was available or was requested when the OPEN was issued (the first OPEN in the case of shared update processing). The performance requirements for input/output operations are defined through the IO-ATTRIBUTES operand which is validated and output in the same way as when OPEN is issued (see ADD-FILE-LINK command).

The command is rejected in the following situations:

- The caller is not authorized to access the file.
- The file is not open on the local host.
- No PFA cache area is available.
- The file is already being cached.
- The file is on a private disk or on a tape.
- An XCS lock exists for the file.
- The specified cache settings are not possible or not allowed.

Format

START-FILE-CACHING

FILE-**NAME** = <filename 1..54>

,**IO-ATTRIBUTES** = [***PAR**AMETERS](...)

[***PAR**AMETERS](...)

| **PERFORMANCE** = ***HIGH** / ***VERY-HIGH** / ***USER-MAX**IMUM

| ,**USAGE** = ***READ-WRITE** / ***WR**ITE / ***READ**

Operands

FILE-NAME = <filename 1..54>
Name of the file to be cached. The file has to be open and on a pubset that is locally accessible.

IO-ATTRIBUTES = *PARAMETERS(...)
Specifies the performance requirements demanded by the user for input/output operations. Whether the requirements are fulfilled and to what extent depends on the cache medium active for the pubset (see the output for the SHOW-PUBSET-CACHE-ATTRIBUTES or SHOW-PUBSET-PARAMETERS command). Read and write access is performed through a fast cache. The number of disk accesses and the access times are reduced.

IO-ATTRIBUTES = *PARAMETERS(...)
The specifications made for the PERFORMANCE and USAGE operands determine the performance attributes.

PERFORMANCE = *HIGH / *VERY-HIGH / *USER-MAXIMUM
Specifies the file's performance attribute. This operand defines the priority requested for the input/output operations named in the USAGE operand. The highest performance operand allowed for files that are located on a PFA pubset with CACHED-FILES=*BY-USER (see the MODIFY-PUBSET-CACHE-ATTRIBUTES command) is defined in the user entry (see output for the SHOW-USER-ATTRIBUTES command, output field *DMS-TUNING-RESOURCES*).

PERFORMANCE = *HIGH
The file is to be processed through a cache (high performance priority).
This value can only be specified for a file on a PFA pubset with CACHED-FILES=*BY-USER if the user has the DMS tuning privilege CONCURRENT-USE or EXCLUSIVE-USE for the pubset (see the output for the SHOW-USER-ATTRIBUTES command, output field *DMS-TUNING-RESOURCES*).

PERFORMANCE = *VERY-HIGH
The file is to be processed through a cache. The referenced data in the file is to be kept permanently in the cache (highest performance priority; only available in GS). The cache data is only evicted from the cache when the file is closed. Only users who have the DMS tuning privilege EXCLUSIVE-USE for the pubset can specify (see the output for the SHOW-USER-ATTRIBUTES command, output field *DMS-TUNING-RESOURCES*).

Note

All cache segments used for this file are locked until the file is closed. If several files with this attribute are open simultaneously, the cache space available for files that are cached normally may become restricted to an extent that they cannot be accessed with reasonable speed.

PERFORMANCE = *USER-MAXIMUM
The file is assigned the highest performance attribute contained in the user catalog for the user. If the user does not have the DMS tuning privilege, the command is rejected.

USAGE = *READ-WRITE / *WRITE / *READ
Specifies for which input/output operations high performance requirements (processing via cache) are wanted. The default setting is *READ-WRITE, i.e. the requirements apply to read and write operations.
If the file does not have a particular performance attribute (PERFORMANCE= *STD) and if the cache area for the pubset is not defined in such a way that all existing files are served (see the operand CACHED-FILES=*ALL for the MODIFY-PUBSET-CACHING-ATTRIBUTES command), then the USAGE operand has no effect on processing.

USAGE = *READ-WRITE
The performance requirements apply both to read and to write operations.

USAGE = *WRITE
The performance requirements apply to write operations only.

USAGE = *READ
The performance requirements apply to read operations only.

Note

In the case of USAGE=*READ-WRITE or *WRITE, write caching is only performed if the prerequisites for the DISK-WRITE file attribute are met (see CREATE-FILE or MODIFY-FILE-ATTRIBUTES). In the case of DISK-WRITE= *IMMEDIATE, the cache medium used for write caching has to be failsafe (see the output for the command SHOW-MASTER-CATALOG-ENTRY INFORMATION=*USER, output field *CACHE-MEDIUM*).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	The desired state was already reached
	1	CMD0202	Syntax error
	32	DMS1D0E	MSCF connection error
	32	DMS1D10	Internal error
	64	DMS1D03	User does not have access authorization for the file
	64	DMS1D05	File not open (on local host)
	64	DMS1D06	No cache available
	64	DMS1D07	No user privilege for increased performance
	64	DMS1D08	Caching no allowed for this file
	64	DMS1D09	File is processed with XCS environment
	64	DMS1D0A	File not allowed (or not available)
	64	DMS1D0B	Data backup must not be left until close
	64	DMS1D0D	Storage bottleneck
	64	DMS1D0F	Error in catalog management call
	64	DMS1D11	’DAB’ subsystem not found

7.46 START-HARDWARE-AUDIT

Start hardware AUDIT mode

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The START-HARDWARE-AUDIT command controls the AUDIT mode for the processor state TU (task unprivileged) or TPR (task privileged). The branch instruction addresses are entered into the AUDIT table.
Hardware AUDIT mode is terminated with the STOP-HARDWARE-AUDIT command. The hardware AUDIT table is then no longer available.
Hardware AUDIT mode may be interrupted with the HOLD-HARDWARE-AUDIT command. When hardware AUDIT mode is resumed with RESUME-HARDWARE-AUDIT, it continues the hardware AUDIT table used previously. The contents of the hardware AUDIT table can be output with the SHOW-HARDWARE-AUDIT command as long as hardware AUDIT mode has not yet been terminated.

Availability of the AUDIT function

Hardware AUDIT is not available on systems with /390 architecture.

Systems support staff can make the AUDIT function globally available with the parameter service (AUDALLOW=YES). Via the user entry, systems support controls whether a user is authorized to start the hardware AUDIT mode.

Each user can prohibit or allow the hardware AUDIT mode within his or her task by means of the MODIFY-TEST-OPTIONS command (effective only if the authorization in the user entry allows it).

Privileged functions

Systems support (TSOS privilege) can start the AUDIT mode for each task and also control it for the TPR processor state.
If the AUDIT function is activated for recording all branch instructions on the job level (SCOPE=*OWN-JOB/*ALL-JOBS/*TID/*TSN), SCOPE=*PROGRAM-LEVEL is rejected. If a PCB-specific AUDIT is activated at a lower PCB, the new request is accepted additionally. Activation of ALL-JOBS-AUDIT results in deactivation of the AUDIT function on the job level in each job and subsequent activation of ALL-JOBS-AUDIT without retention of the earlier AUDIT table. See also the “Diagnostics Handbook” [8].

Format

START-HARDWARE**-AUDIT**

SCOPE = ***OWN-JOB** / ***PROG**RAM**-LEV**EL / ***ALL-JOBS** / ***TID**(...) / ***TSN**(...)

***TID**(...)

| **TID** = <alphanum-name 1..8>

***TSN**(...)

| **TSN** = <alphanum-name 1..4> / <c-string 1..4>

,**BUF**FER**-SIZE** = **0** / <integer 0..16 *4Kbyte*>

,**STATE** = ***USER** / ***SYS**TEM

Operands

SCOPE =
Scope of the hardware AUDIT function.

SCOPE = *OWN-JOB
The request applies to actions (processor state TU) in the user's own task (in which the command was issued).

SCOPE = *PROGRAM-LEVEL
The request applies to the PCB-specific function relating to the highest interrupted PCB of the processor state TU. It is allowed only for the user's own job (see TID, TSN operands). If a task-wide hardware AUDIT is activated (SCOPE=*OWN-JOB), a PCB-specific hardware AUDIT request is refused. If a PCB-specific hardware AUDIT at a lower PCB is activated, the new request is accepted in addition.

SCOPE = *ALL-JOBS
All jobs currently in the system are to be monitored with AUDIT.
This operand value may only be entered in conjunction with the operand STATE=*SYSTEM.

SCOPE = *TID(...)
AUDIT is to monitor only one task, identified by its internal task identifier (TID). Nonprivileged users can only specify tasks running under their own user ID.

TID = <alphanum-name 1..8>
TID of the task.

SCOPE = TSN(...)
AUDIT is to monitor only one task, identified by its task sequence number (TSN). Nonprivileged users can only specify tasks running under their own user ID.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN of the task.

BUFFER-SIZE = 0 / <integer 0..16 *4Kbyte*>
Number of 4-KB pages additionally requested in TU for the hardware AUDIT table to allow it to be saved to this area before cyclic overwriting. In TPR, the maximum possible size of the backup table is 4 KB. It replaces the 256-

byte hardware AUDIT table. In TPR, BUFFER-SIZE can only be assigned the value 0 (no backup table) or 1 (backup table 4 KB).
Any value > 1 entered is replaced by 1.

STATE =
Processor state for which AUDIT is to be active.

STATE = *USER
The hardware AUDIT is to be started for the nonprivileged processor state TU.

STATE = *SYSTEM
Only privileged users are allowed to select this operand value.
The hardware AUDIT is to be started for the privileged processor state TPR.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	Hardware AUDIT already underway
2	0	IDA0009	BUFFER-SIZE invalid
	1	CMD2201	Invalid operand combination, specified task or PCB does not exist
	64	CMD0216	User does not have required authorization
	64	IDA0003	No hardware AUDIT table created
	64	IDA0004	Hardware AUDIT running with SCOPE=*OWN-JOB; SCOPE=*PROGRAM-LEVEL rejected
	64	IDA0006	BUFFER-SIZE operand ignored
	64	IDA0011	Privilege error
	64	IDA0020	Hardware AUDIT not available on this system (HSI)
	64	IDA0023	Hardware AUDIT not available because user entry does not contain authorization
	64	IDA0024	Hardware AUDIT not available due to the current test option settings for the active task
	130	IDA0017	Out of memory; hardware AUDIT disabled for all tasks
	130	IDA0019	START command rejected because a STOP command is still being processed

7.47 START-HEL-LOGGING

Activate hardware error logging

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE TSOS

Function

The START-HEL-LOGGING command activates the hardware error logging (HEL) mechanism and opens a logging file.
As HEL is started up automatically during system startup, the command is required only in the following cases:

- HEL has not been activated owing to a startup error
- HEL has been terminated by a system error
- HEL has been disabled by a STOP-HEL-LOGGING command

Hardware errors are logged in the logging file which has been opened; the type of errors that are recorded can be defined with the MODIFY-HEL-LOGGING command. The CHANGE-HEL-FILE command can be used to close the current logging file and open another.
HEL logging files are created under the TSOS user ID with a default name formed on the pattern `$TSOS.SYS.HEL.yyyy-mm-dd.hhmmss`. The name components *yyyy-mm-dd* and *hhmmss* respectively identify the date and time when the logging file was initially opened. The file access rights are by default set to USER-ACCESS=*SPECIAL and ACCESS=*READ, which means that all user IDs, including the user ID with the HARDWARE-MAINTENANCE privilege, have read access to HEL logging files.
A HEL log file is given the size specified in the SPACE operand. There is no provision for dynamic extension (SECONDARY-ALLOCATION=0). If the file grows to the size of the primary allocation, it is automatically closed and a new logging file is created and opened.

HEL logging file are evaluated using the ELSA utility (**E**rror **L**ogging **S**ystem **A**nalysis; see the “ELSA” manual [16]).

Format

START-HEL-LOGGING
FILE = **<u>*SAME</u>** / ***NEXT** ,**SPACE** = **<u>*UNCHA</u>**<u>NGED</u> / ***STD** / <integer 24..65536 *2Kbyte*>

Operands

FILE = <u>*SAME</u> / *NEXT
Specifies which logging file to open.

FILE = *SAME
Opens the most recent logging file and continues writing to it.
If no logging file exists, a new one is created with the default name.

FILE = *NEXT
Creates a new logging file with the default name and opens it.

SPACE = *UNCHANGED / *STD / <integer 24..65536 *2Kbyte*>
Defines the size (primary allocation, plus rounding as required; see the PRIMARY-ALLOCATION operand of the CREATE-FILE command) of a new logging file.
If an existing logging file is to be reopened, the SPACE argument is irrelevant.

SPACE = *UNCHANGED
The logging file is to be the same size as the old one.

SPACE = *STD
The logging file is given the default size of 400 PAM pages.

SPACE = <integer 24..65536 *2Kbyte*>
The log file is given the specified number of PAM pages.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	CMD0001	Hardware error logging is already active
	32	HEL0100	Internal error
	32	HEL0101	Resources not available
	32	HEL0105	Bourse problems
	32	HEL0106	DMS error
	32	HEL0107	DMS error
	64	HEL0110	Privilege error

Example

See the SHOW-HEL-LOGGING command.

7.48 START-JOB-STREAM

Start job stream and associated job scheduler

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

The START-JOB-STREAM command starts a job stream and thus, implicitly, the associated job scheduler. Any start time stored in the job stream definition is ignored.

The command allows a privileged ENTER to be used in starting the batch holder job of the job scheduler. The name of the job scheduler is specified in the associated ENTER file; the name of this ENTER file is a component part of the stream specification in the SJMSFILE. In principle, any preferred names can be used for the files; the systems support staff are responsible for the use of consistent names (see the “Introduction to System Administration” [14]).

The command is used when

- the job stream was terminated with the STOP-JOB-STREAM command at an earlier stage
- the job stream received the start attribute “*BY-OPERATOR” when it was defined with the JMU utility
- the job stream is to be started at an earlier time than specified in the definition.

Successful execution of the command is acknowledged by a message output on the console.

Format

START-JOB-STREAM
STREAM-NAME = <name 1..8>

Operands

STREAM-NAME = <name 1..8>
Name of the job stream to be started.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

7.49 START-LINKAGE-AUDIT

Start linkage AUDIT mode

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

This command controls the subroutine trace (linkage AUDIT mode) for processor state TU (task unprivileged), TPR (task privileged) or TPR and SIH. The branch destination addresses are recorded in the linkage AUDIT table on execution of the BASR, BALR, BASSM and BAKR instructions.
If the linkage AUDIT mode is in the “HOLD” state (after the corresponding command), it is activated again by means of START-LINKAGE-AUDIT. If any save table is present, it continues to be used.

Availability of AUDIT function

Systems support can make the AUDIT function globally available using the parameter service (AUDALLOW=YES) and it can control whether a user is authorized to start the linkage AUDIT mode or not via the user entry.

Each user can prohibit or allow the hardware AUDIT mode within his or her task by means of the MODIFY-TEST-OPTIONS command (effective only if the authorization in the user entry allows it).

Privileged functions

Systems support (TSOS privilege) can also control the subroutine trace for the TPR or TPR/SIH processor state.

If the processor-local linkage AUDIT is also to be used during the startup phase, it must be activated with the aid of the parameter service (see the “Introduction to System Administration” [14]). This function is also unrestrictedly available for multiprocessors, i.e. on all CPUs.
The only way to view the processor-local linkage AUDIT table is to use a dump and the DAMP interactive dump analyzer. Interactive output with SHOW-LINKAGE-AUDIT is not possible.

Format

START-LINKAGE-AUDIT

STATE = ***USER** (...) / ***SYS**TEM(...) / ***PROCES**SOR(...)

***USER**(...)

| **SCOPE** = ***OWN-JOB** / ***PROG**RAM-**LEV**EL / ***TID**(...) / ***TSN**(...)

| ***TID**(...)

| | **TID** = <alphanum-name 1..8>

| ***TSN**(...)

| | **TSN** = <alphanum-name 1..4> / <c-string 1..4>

| ,**BUF**FER-**SIZE** = **0** / <integer 0..16 *4Kbyte*>

***SYS**TEM(...)

| **SCOPE** = ***OWN-JOB** / ***PROG**RAM-**LEV**EL / ***ALL-JOBS** / ***TID**(...) / ***TSN**(...)

| ***TID**(...)

| | **TID** = <alphanum-name 1..8>

| ***TSN**(...)

| | **TSN** = <alphanum-name 1..4> / <c-string 1..4>

***PROCES**SOR(...)

| **SCOPE** = ***INTERRUPT-HANDLING** / ***SYS**TEM-**LEVEL**

Operands

STATE =
Processor state for which the linkage AUDIT is to be activated.

STATE = *USER(...)
The linkage AUDIT is to be activated for the nonprivileged processor state TU.

SCOPE = *OWN-JOB / *PROGRAM-LEVEL / *TID(...) / *TSN(...)
Scope of the linkage AUDIT function.

SCOPE = *OWN-JOB
The request applies to the user's own task.

SCOPE = *PROGRAM-LEVEL
The request applies to the PCB-specific function relating to the highest interrupted PCB. If a task-wide linkage AUDIT is activated (SCOPE=*OWN-JOB), a PCB-specific request is refused. If a PCB-specific linkage AUDIT at a lower PCB is activated, the new request is accepted in addition.

SCOPE = *TID(...)
Only a task that is identified by means of an internal task number (TID) is to be monitored by linkage AUDIT. Nonprivileged users can only specify tasks running under their own user ID.

TID = <alphanum-name 1..8>
Task identifier that is assigned to the task which is to be monitored.

SCOPE = *TSN(...)
Only a task that is identified by means of its task sequence number (TSN) is to be monitored by linkage AUDIT. Nonprivileged users can only specify tasks running under their own user ID.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN that is assigned to the job which is to be monitored.

BUFFER-SIZE = 0 / <integer 0..16 *4Kbyte*>
Number of pages in 4KB units additionally required for the linkage AUDIT to protect it against cyclic overwriting.

STATE = *SYSTEM(...)
Only privileged users are allowed to select this operand value.
The linkage AUDIT is to be started for the privileged processor state TPR.

SCOPE = *OWN-JOB / *PROGRAM-LEVEL / *ALL-JOBS / *TID(...) / *TSN(...)
Scope of applicability of the linkage AUDIT function.

SCOPE = *OWN-JOB
The request applies to the user's own (TSOS) task.

SCOPE = *PROGRAM-LEVEL
The request applies to the PCB-specific function which is associated with the highest interrupted PCB. If a task-wide linkage AUDIT has been activated (SCOPE=*OWN-JOB), a PCB-specific request will be rejected. If a PCB-specific linkage AUDIT has been activated for a lower PCB, the new request will be accepted as an addition.

SCOPE = *ALL-JOBS
All the jobs currently on the system are to be monitored by the linkage AUDIT.

SCOPE = *TID(...)
The linkage AUDIT is to monitor a single task, identified by its internal task identifier (TID).

TID = <alphanum-name 1..8>
Task identifier of the task.

SCOPE = *TSN(...)
The linkage AUDIT is to monitor a single task, identified by its task sequence number (TSN).

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN of the task.

STATE = *PROCESSOR(...)
Only privileged users are allowed to select this operand value.
The linkage AUDIT is to be activated for the local processor only, for the privileged states SIH and TPR.

SCOPE = *INTERRUPT-HANDLING / *SYSTEM-LEVEL
Scope of applicability of the linkage AUDIT function.

SCOPE = *INTERRUPT-HANDLING
The request applies to the processor state SIH only.

SCOPE = *SYSTEM-LEVEL
The request applies to both privileged processor states, SIH and TPR.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
1	0	CMD0001	Linkage AUDIT already running, local linkage AUDIT already running, BUFFER-SIZE operand ignored or linkage AUDIT table empty; therefore no output
	1	CMD2201	PCB not present. Command rejected
	64	CMD0216	User does not have required authorization
	64	IDA0033	Linkage AUDIT running with SCOPE=*OWN-JOB; SCOPE=*PROGRAM-LEVEL rejected
	64	IDA0038	Specified task does not exist
	64	IDA0041	Linkage AUDIT not available on this system (HSI)
	64	IDA0043	Linkage AUDIT is running in processor-local mode; STATE=*SYSTEM rejected
	64	IDA0044	Linkage AUDIT running with STATE=*SYSTEM; STATE=*PROCESSOR rejected
	64	IDA0052	Linkage AUDIT not available because the user entry does not contain an authorization
	64	IDA0053	Linkage AUDIT not available because the current test option settings for the active task
	64	IDA0060	AUDIT functions globally not available in this session
	130	IDA0045	Central AUDIT management currently locked

7.50 START-POSIX-INSTALLATION

Start POSIX installation program

Component:	POSIX-BC
Functional area:	POSIX administration and application
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS POSIX-ADMINISTRATION

Function

The START-POSIX-INSTALLATION command starts the POSIX installation program. The installation program can run in interactive mode, the installation statements being inquired via FHS masks. The installation program can also run automatically if a parameter file containing all the installation statements is specified.

Execution of the POSIX installation program is described in detail in the “POSIX Basics for Users and System Administrators” manual [28].

Format

START-POSIX-INSTALLATION

```
INPUT-INTERFACE = *STD / *FHS / *FILE(...)

    *FILE(...)

        |       FILE-NAME = <filename 1..54>

        |       ,ERROR-HANDLING = *PARAMETERS(...)

        |           *PARAMETERS(...)

        |               |       RETURNCODE = *NO / *YES

        |               |       ,ABORT-ON-WARNING = *NO / *YES
```

Operands

INPUT-INTERFACE = *STD / *FHS / *FILE(...)
Specifies whether installation is to run in interactive mode or automatically.

INPUT-INTERFACE = *STD / *FHS
Installation is to run in interactive mode (via FHS masks). Execution of installation in interactive mode is described in the “POSIX Basics for Users and System Administrators” manual [28].

INPUT-INTERFACE = *FILE(...)
Installation is to run automatically using the specified parameter file. Automatic execution of installation and details on how to set up the parameter file are described in the “POSIX Basics for Users and System Administrators” manual [28].

FILE-NAME = <filename 1..54>
Name of the parameter file.

ERROR-HANDLING = *PARAMETERS(...)
Defines the response when errors occur.

RETURNCODE = *NO / *YES
Defines whether, when errors occur, the command is to supply a POSIX-specific command return code (with the maincode POS295x) and trigger the spin-off mechanism.

RETURNCODE = *NO
When errors occur, the spin-off mechanism is not triggered and command return codes are not supplied.

RETURNCODE = *YES
When errors occur, the spin-off mechanism is triggered in procedures and the command supplies return codes (with the maincode POS295x).

ABORT-ON-WARNING = *NO / *YES
Controls the behavior when errors of the class 'warning' occur in the parameter file (with the maincode POS2956).

> When errors of the class 'error' occur, processing of the parameter file is always aborted; when errors of the class 'note' occur, processing is always continued in the next line.

ABORT-ON-WARNING = *NO

Processing of the parameter file is continued in the next line when errors of the class 'warning' occur.

ABORT-ON-WARNING = *YES
Processing of the parameter file is aborted when errors of the class 'warning' occur.

Return codes

POSIX-specific command return codes (i.e. with maincode POS295x) are returned only if RETURNCODE=*YES was specified. When RETURNCODE=*NO is specified, command return codes which are returned in the event of an error (subcode 1 not 0) cannot be guaranteed.

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No errors
	64	POS2950	Invalid procedure parameter file.
	64	POS2951	Parameter file was not found or is not accessible.
	64	POS2952	The user ID is not authorized to execute the POSIX installation program.
	64	POS2953	Another instance of the POSIX installation program is currently being executed.
	64	POS2954	Installation program cannot be loaded.
	64	POS2955	Serious error in the installation program.
lno	64	POS2956	Error in the parameter file. The number of the line (lno) in or after which the error occurred can be taken from the SC2. In the case of batch installation in online mode, detailed information can be found in the POSIX file `/var/sadm/pkg /insterr`.
	64	POS2957	Timeout when waiting for a POSIX restart. File is locked.

Logging errors in the parameter file (maincode POS2956)

In the case of batch installation in online mode, i.e. not in the case of initial installation or file system extension in offline mode, the following information is written to the POSIX file `/var/sadm/pkg/insterr:`

- Name of the parameter file
- Date and time of installation

In the event of notes / warnings / errors, also:

- Errored line in the parameter file
- Error class (note, warning, error) and error text

Sample logging file

```
input file : :FR01:$TSOS.POSIX-INSTALL.FS.TMP.TEST
time       : Wed Jan 28 13:17:40 2017
- line   3 : a;$SYSROOT.FS.TMP.TEST;8192;Y;Y;/tmp/test;N;;y;N
  note     : Line 3: BS2000 file already existing, file size may not be changed
  note     : Line 3: file system size of existing filesystem will be used
input file : :V70A:$TSOS.INSTALL.POSIX-SOCKENS
time       : Wed Jan 28 13:27:25 2017
- line   4 : POSIX-SOCKENS;Y
  warning  : IMON-GPN: installation unit not found in SCI
input file : :FR01:$TSOS.POSIX-INSTALL.FIRST
time       : Wed Jan 28 13:38:51 2017
- line 1   : [FirstInstallation]
  error    : POSIX subsystem is available
```

7.51 START-POSIX-SHELL

Switch to POSIX shell

Component:	POSIX-BC
Functional area:	POSIX administration and application
Domain:	PROCEDURE UTILITIES
Privileges:	STD-PROCESSING

Function

The START-POSIX-SHELL command opens a POSIX shell, so that the user can work in a UNIX-based environment within BS2000.
The POSIX shell is the command interface to a UNIX kernel (UNIX System V) ported to BS2000.
Within the POSIX shell, users can take advantage of the extensive UNIX command language (compliant with the POSIX standard). The shell provides access to the POSIX file system implemented in BS2000, which is organized like a UNIX file system.

The POSIX shell will not be opened unless the POSIX subsystem is loaded and is in the *AVAILABLE status (see the SHOW-POSIX-STATUS command).
Once the POSIX shell has been successfully accessed, the shell prompt is displayed. The default prompt for nonprivileged POSIX users is **$** (the value of the shell's PS1 environment variable). The shell is now ready for input from the interactive terminal. See the "POSIX Commands" manual [29] for a description of the input which is allowed (the supported POSIX command set) and for general information on working with the POSIX shell.

The POSIX shell is closed by the POSIX command **exit**. The user then goes back to working in BS2000 in the usual way.

Requirement for accessing the POSIX shell

The POSIX shell cannot be accessed unless there is a suitable user entry authorizing POSIX use. This entry contains the following POSIX-specific user attributes:

- user login name
- user ID number
- group ID number
- explanatory comment
- name of the POSIX directory in which the user's POSIX files will be stored (home directory)
- name of the POSIX program that will be started up when the user accesses the shell (by default the interactive POSIX shell)

A privileged user (POSIX-ADMINISTRATION privilege) assigns these user attributes with the MODIFY-POSIX-USER-ATTRIBUTES command, and with the MODIFY-POSIX-USER-DEFAULTS can also define default values which are automatically allocated to the POSIX user entry whenever a new BS2000 user entry is created (see the ADD-USER command). The SHOW-POSIX-USER-ATTRIBUTES command provides information on a POSIX user entry. The SHOW-POSIX-USER-DEFAULTS command lists the current default values.

Format

START-POSIX-SHELL	Alias: **POSIX-SH**
VERSION = ***STD** / <product-version without-man-corr>	

Operands

VERSION = *STD / <product-version without-man-corr>
Specifies the version number of the program to call (in this case the POSIX shell). The default is *STD, which means that the currently available version will be called.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors

> Return codes supplied in the event of errors (nonzero subcode 1) cannot be guaranteed, but automatic error handling is possible on the basis of the spin-off mechanism (equivalent to the SET-PROCEDURE-OPTIONS command with its default setting ERROR-MECHANISM=*SPIN-OFF-COMPATIBLE).

Notes

Input to the POSIX shell is handled a block at a time and is thus not passed to the shell until the [EM] [DUE] keys or just [DUE] are pressed.

Entering the string @@**d** has the same effect as pressing the [END] key.

Entering the string @@**c** has the same effect as pressing the [DEL] key.

Example

/show-posix-user-attr ——————————————————————————————— (1)

```
%POSIX-USER-ATTRIBUTES --- PUBSET 2OSH                    2017-02-04 13:49:57
%-------------------------------------------------------------------------
%USER-ID             USER2                  PUBSET    2OSH
%USER-NUMBER           100 (DEFAULT)
%GROUP-NUMBER          100 (DEFAULT)
%COMMENT      RLOGIN-BERECHTIGUNG
%DIRECTORY    /home/gast
%PROGRAM      *SHELL
%-------------------------------------------------------------------------
%POSIX-USER-ATTRIBUTES                                        END OF DISPLAY
```

/a='* Text in BS2000 ***' ——————————————————————————— (2)**
/shv a,inf=*par(name=*none),out=bs2text ——————————————————— (3)
/copy-posix-file copy-dir=*to-posix,bs2000-file=bs2text,
posix-file=*by-source ——————————————————— (4)
/start-posix-sh ——————————————————————————————————— (5)

```
POSIX Basisshell 11.0A45 created Mar 23 2017
POSIX Shell 10.0A45 created Mar 07 2017
Copyright (C) Fujitsu Technology Solutions 2009
              All Rights reserved
Last login: Mon Jul 03 11:23:36 2017 on sf/002
**************************************************************************
**                          POSIX - D236ZE14                            **
**************************************************************************
**  In case of problems contact the administrator:                      **
**                                                                      **
**                  Mr. Meier                Tel. 10815                **
**************************************************************************
```

$ pwd ——— (6)

```
/home/gast
```

$ ls -l ——— (7)

```
total 40
-rw-rw-rw-   1 100      USROTHER   12288 Sep  4 14:57 LCMD113
-rw-r--r--   1 100      USROTHER      31 Feb  4 13:45 bs2text
-rw-r--r--   1 100      USROTHER     214 Jan 13 16:20 sicher
```

$ cat bs2text ————————————————————————————————————— (8)

```
*** Text in BS2000     ***
```

```
$ echo $HOME ──────────────────────────────────────────────────────────── (9)
```

```
/home/gast
```

```
$ exit ─────────────────────────────────────────────────────────────────── (10)
/write-text 'continue with BS2000'
```

```
continue with BS2000 ──────────────────────────────────────────────────── (11)
```

(1) The SHOW-POSIX-USER-ATTRIBUTES command lists the POSIX user attributes of user *USER2*.

(2) S variable *A* is assigned a text string.

(3) The SHV (SHOW-VARIABLE) command outputs the content of S variable *A* to the *BS2TEXT* file.

(4) The COPY-POSIX-FILE command copies the BS2000 file *BS2TEXT* to the POSIX file system.

(5) The START-POSIX-SHELL command opens the POSIX shell.

(6) The POSIX *pwd* command displays the path name of the current POSIX directory.

(7) The POSIX *ls* command lists the files in the current directory.

(8) The POSIX command cat displays the content of the *BS2TEXT* file which was copied beforehand from BS2000 (see item1).

(9) The POSIX *echo* command displays the value of the HOME shell variable (compare with the POSIX user attribute DIRECTORY under Point 1).

(10) The *exit* command closed the POSIX shell.

(11) Then BS2000 commands can be entered again, in this case the WRITE-TEXT command.

7.52 START-PRINTER-OUTPUT

Assign printers for spoolout jobs

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	S

Function

The START-PRINTER-OUTPUT command assigns printers for spoolout jobs. Nonprivileged users (STD-PROCESSING) can issue the command only when acting as RSO device administrators.
The administration parameters specified in the command govern which spoolout jobs will be printed on the specified device.
The administration parameters of a device which has already been assigned can be changed with the MODIFY-PRINTER-OUTPUT-STATUS command. Device assignments are canceled with the STOP-PRINTER-OUTPUT command.

> Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high-performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
> The state of the printer in BS2000 has no effect on this forwarding. The START-PRINTER-OUTPUT command is therefore now only relevant for RSO printers and virtual devices. For local printers, it is still accepted but has no effect.

Privileged functions

RSO device administrators and spool and cluster administrators can assign any of the devices that they manage.
For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “DPRINT” [10].

Notes

- For the print sample, the data is modified as follows: all letters are replaced by “X”, all digits by “0”.
- To execute a spoolout request for a printer, all of the scheduling operands must apply to the device. If this is not the case, the spoolout request remains in the queue.
- To execute an RSO request for a printer, at least one of the specifications for each of class, form name and user ID must apply to the device. If this is not the case, the RSO request remains in the queue.
- If the specifications for form name, class or user ID are omitted, any output for a specified device can be executed. But if values are specified for these categories, only those RSO requests which match all the specifications can be executed.
- The hierarchy of the operands for controlling spoolout is described in the section on scheduling in the “SPOOL” manual [43].
- If a print sample has been completed and printout has been delayed, the print sample remains the same on restart.
- The following operands must not be specified for APA printers:
  FORMS-OVERLAY
  PAGE-PRINTER-OUTPUT
  PRINT-SAMPLE
  ROTATION
  FORMS-OVERLAY-BUFFER
  CHARACTER-SET-NUMBER
- The following operands may only be used with the privilege TSOS or OPERATING:
  DEVICE-NAME=*ANY-LOCAL-PRINTER(...)
  ROTATION
  TWO-UP-PROCESSING
  FORMS-OVERLAY-BUFFER
  CHARACTER-SET-NUMBER
- If a printer is defined with ACCESS-TYPE=TACLAN, the START-PRINTER-OUTPUT command is rejected with message SRO0369 if the SOCKETS subsystem is not loaded or not defined in the subsystem catalog. In the case of other printers (not defined with ACCESS-TYPE=TACLAN), the command is rejected with message SRO0369 if the DCAM subsystem is not loaded.

Format

START-PRINTER-OUTPUT Alias: **SRPRTO**

```
DEVICE-NAME = *ANY-LOCAL-PRINTER(...) / *RSO-PRINTER(...)

  *ANY-LOCAL-PRINTER(...)

    |     NAME = list-poss(8): <alphanum-name 1..8>

    |     ,DESTINATION = *NONE / *STD / list-poss(16): *CENTRAL / <alphanum-name 1..8>

    |     ,FORM-NAME = *ALL / *STD / *EQUIVALENT(...) / *EXCEPT(...) / *EQUIVALENT-EXCEPT(...) /

    |                          list-poss(16): <alphanum-name 1..6>

    |       *EQUIVALENT(...)

    |         |     EQUIVALENT-FORMS = *ALL / list-poss(16): <alphanum-name 1..6>

    |       *EXCEPT(...)

    |         |     FORMS-LIST = list-poss(16): <alphanum-name 1..6>

    |       *EQUIVALENT-EXCEPT(...)

    |         |     FORMS-LIST = list-poss(16): <alphanum-name 1..6>

    |     ,FORMS-OVERLAY = *ALL / *NONE / *ONLY / *EXCEPT(...) /

    |                          list-poss(16): <alphanum-name 2..2>

    |       *EXCEPT(...)

    |         |     FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>

    |     ,HOST-NAME = *ALL-CLUSTERS / *HOME / *LOCAL-CLUSTER / *EXCEPT(...) /

    |                          list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

    |       *EXCEPT(...)

    |         |     HOST-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

    |     ,PAGE-PRINTER-OUTPUT = *NO / *ALLOWED

    |     ,PRINT-SAMPLE = *NO / *YES

    |     ,TRACE = *NO / *YES(...)

    |       *YES(...)

    |         |     LEVEL = *COMPLETE / *STATUS / *BLOCK-CONTROL

  *RSO-PRINTER(...)

    |     NAME = list-poss(8): <alphanum-name 1..8>

    |     ,DESTINATION = *NONE / *STD / list-poss(16): <name 1..8>
```

| ,**FORM-NAME** = ***STD** / ***EQU**IVALENT(...) / ***EQU**IVALENT-**EXCEPT**(...) / <alphanum-name 1..6>

| ***EQU**IVALENT(...)

| | **EQU**IVALENT-**FORMS** = ***ALL** / list-poss(16): <alphanum-name 1..6>

| ***EQU**IVALENT-**EXCEPT**(...)

| | **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

| ,**PRINT-SAMPLE** = ***NO** / ***Y**ES

| ,**TRACE** = ***NO** / ***Y**ES

| ,**ALLOWED-ACCESSES** = ***STD** / list-poss(4): <-c-string 1..4>

,**USER-ID**ENTIFICATION = ***ALL** / ***EXCEPT**(...) / list-poss(16): <name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **USER-ID**ENT-**LIST** = list-poss(16): <name 1..8> / <c-string 1..8 with-low>

,**SP**OOLOUT-**CL**ASS = ***ALL** / ***EXCEPT**(...) / list-poss(16): <integer 1..255>

***EXCEPT**(...)

| **SP**OOLOUT-**CL**ASS-**LIST** = list-poss(16): <integer 1..255>

,**SP**OOLOUT-**NAME** = ***ALL** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **SP**OOLOUT-**NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**ACCOUNT** = ***ALL** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8>

***EXCEPT**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

,**ROT**ATION = ***ANY** / ***Y**ES / ***NO** / ***MANUAL**

,**TWO-UP-PROCES**SING = ***ANY** / ***Y**ES / ***NO** / ***MODE-1** / ***MODE-2**

,**FORMS-O**VERLAY-**BUFFER** = ***ANY** / ***ONLY** / ***NO** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = **0** / <integer 0..32767>

| ,**HIGH** = **4032** / <integer 0..32767>

,**PRIO**RITY = ***ALL** / ***RANGE**(...)

***RANGE**(...)

| **FROM** = **30** / <integer 30..255>

| ,**TO** = **255** / <integer 30..255>

,**CHAR**ACTER-**SET-NUM**BER = ***ALL** / ***ONE** / ***RANGE**(...)

```
*RANGE(...)
    |    LOW = 1 / <integer 1..32767>
    |    ,HIGH = 64 / <integer 1..32767>
,EXIT-ROUTINES = *ACTIVE / *NOT-ACTIVE
```

Operands

DEVICE-NAME =
Type of printer to be assigned.

DEVICE-NAME = *ANY-LOCAL-PRINTER(...)
For privileged users only (see “Privileges” above).
Local printers are assigned.

NAME = list-poss(8): <alphanum-name 1..8>
Logical names of devices, defined in the SPOOL parameter file (maximum of 8 alphanumeric characters) or mnemonic names of devices (2 alphanumeric characters) to be assigned to waiting spoolout jobs.
If a device has been activated with a particular name (START- or MODIFY-PRINTER-OUTPUT), it can only be addressed by this name until it is deactivated (STOP-PRINTER-OUTPUT).

DESTINATION =
Specifies whether and how the assignment of the specified local printers to a pool is modified.
During PRINT validation a check is carried out to determine whether a specified pool is defined in the SPOOL parameter file and the specified device name exists in the pool.

DESTINATION = *NONE
The list of local pools for the specified printers is deleted, i.e. spoolout jobs for these pools are no longer processed.

DESTINATION = *STD
Standard pools for local printers.
The list of assigned pools for local printers is replaced by a list of standard pools containing the specified local printers (SPOOL parameter file).

DESTINATION = list-poss(16): *CENTRAL / <name 1..8>
List of local pools to which the spoolout jobs for the specified printers can be directed.

FORM-NAME =
Forms with which spoolout jobs can be processed on the specified printers.

FORM-NAME = *ALL
Spoolout jobs can be processed on the specified printers with any forms.

FORM-NAME = *STD
Spoolout jobs can be processed on the specified printers with all forms permitted in the SPOOL parameter file for the relevant printer.
If the printer is not in the SPOOL parameter file, FORM-NAME=*STD is assumed automatically.

FORM-NAME = *EQUIVALENT(...)
Equivalent forms with which spoolout jobs can be processed on the specified printers. Printout is not interrupted whenever one form is replaced by another.

EQUIVALENT-FORMS = *ALL / list-poss(16): <alphanum-name 1..6>
All or the specified list of equivalent forms are admitted.

FORM-NAME = *EXCEPT(...)
Forms with which spoolout jobs cannot be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 2..2>
List of excluded forms.

FORM-NAME = *EQUIVALENT-EXCEPT(...)
List of equivalent forms with which spoolout jobs cannot be processed on the specified printers.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded equivalent forms.

FORM-NAME = list-poss(16): <alphanum-name 1..6>
List of forms with which spoolout jobs can be processed on the specified printers. Printout is interrupted with a message on the console whenever one form is replaced by another.

FORMS-OVERLAY =
Names of the film overlays with which spoolout jobs can be processed on the specified laser printers.

FORMS-OVERLAY = *ALL
Spoolout jobs can be processed on the specified printers with any film overlay.

FORMS-OVERLAY = *NONE
Only spoolout jobs which do not use film overlays can be processed on the specified printers.

FORMS-OVERLAY = *ONLY
Only spoolout jobs which use (any) film overlays can be processed on the specified printers.

FORMS-OVERLAY = *EXCEPT(...)
Names of the film overlays with which spoolout jobs cannot be processed on the specified printers.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of excluded film overlays.

FORMS-OVERLAY = list-poss(16): <alphanum-name 2..2>
List of film overlays with which spoolout jobs can be processed on the specified printers.

HOST-NAME = *ALL-CLUSTERS / *LOCAL-CLUSTER / *HOME / *EXCEPT(...) /
list-poss(16): <name 1..8> / <c-string 1..8 with-low>
Specifies for the printer the hosts whose print jobs are processed.

HOST-NAME = *ALL-CLUSTERS
Print jobs from all hosts in all clusters are processed on the specified printer.

HOST-NAME = *LOCAL-CLUSTER
Print jobs from all hosts in the local cluster are processed on the specified printer.

HOST-NAME = *HOME
Only print jobs from the local host are processed on the specified printer.

HOST-NAME = *EXCEPT(...)
Print jobs from all hosts except those in the EXCEPT list are processed on the specified printer.

HOST-LIST = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
BCAM names of the hosts whose print jobs are not to be processed.

HOST-NAME = list-poss(16): <name 1..8>
Only print jobs from hosts in this list are processed on the specified printer.

PAGE-PRINTER-OUTPUT = *NO / *ALLOWED
Specifies whether spoolout jobs for laser printer may also be output on line printers.

PRINT-SAMPLE = *NO / *YES
Determines whether a print sample is to be made for the spoolout jobs offered for printout in accordance with the assignment operand. For APA printers PRINT-SAMPLE=*YES is rejected.

TRACE = *NO / *YES (...)
Only permitted for APA printers. Switches tracing on or off. Name of the trace file: $SYSSPOOL.TF.<mn>.<dvcname>.<yyyy-mm-dd>.<hhmmss>

LEVEL = *COMPLETE / *STATUS / *BLOCK-CONTROL
Specifies what files are written to the tracer listing. For a description of the data see the “SPOOL” manual [43].

LEVEL = *COMPLETE
The trace is to be logged in full.

LEVEL = *STATUS
For APA jobs only: trace and status data is to be logged.

LEVEL = *BLOCK-CONTROL
For APA jobs only: trace, status and block control data is to be logged.

DEVICE-NAME = *RSO-PRINTER(...)
Not for nonprivileged users other than RSO device administrators.
RSO printers are to be assigned.

NAME = list-poss(8): <alphanum-name 1..8>
Names of RSO printers which are to be assigned to waiting spoolout jobs.

DESTINATION = *NONE / *STD / list-poss(16): <name 1..8>
Determines whether the specified RSO printers are to be assigned to one or more pools and, if so, which.

DESTINATION = *NONE
Spoolout jobs which are to be output to RSO pools cannot be processed on the specified RSO printers.

DESTINATION = *STD
The list of assigned pools comprises all the standard pools which contain the specified RSO printers.

FORM-NAME =
Forms with which spoolout jobs can be processed on the specified RSO printers.

FORM-NAME = *STD
Spoolout jobs can be processed on the specified printers with all the equivalent forms defined in the SPOOL parameter file for the relevant RSO printer.

FORM-NAME = *EQUIVALENT(...)
Spoolout jobs can be processed on the specified RSO printers with equivalent forms.

EQUIVALENT-FORMS = *ALL / list-poss(16): <alphanum-name 1..6>
All equivalent forms or the specified list of equivalent forms are admitted.

FORM-NAME = *EQUIVALENT-EXCEPT(...)
Spoolout jobs cannot be processed on the specified RSO printers with certain equivalent forms.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded equivalent forms.

FORM-NAME = <alphanum-name 1..6>
Form with which spoolout jobs can be processed on the specified RSO printers.

PRINT-SAMPLE = *NO / *YES
Specifies whether a print sample is to be made.
In RSO mode a print sample can be requested for public devices printing on continuous paper (not single-sheet printers).

TRACE = *NO / *YES
Specifies whether a trace file is created for output to the specified RSO printers. The trace file is cataloged under the name $SYSSPOOL.SYSTRC.RSO.device.yy-mm-dd.hh.mm (...year-month-day.hour.minutes).

ALLOWED-ACCESSES = *STD / list-poss(4): <c-string 1..4>
This operand specifies which accesses are allowed. It is permissible for any RSO printer.

ALLOWED-ACCESSES = *STD
The value (`C'RSO', C'UTM'`) is set.

ALLOWED-ACCESSES = list-poss(4): <c-string 1..4>
List of allowed accesses. The following may be specified:

`C'RSO'`	RSO print jobs can be assigned to the printer that is started.
`C'UTM'`	UTM print jobs can be assigned to the printer that is started.

USER-IDENTIFICATION =
User IDs under which spoolout jobs can be processed on the specified printers.

USER-IDENTIFICATION = *ALL
Spoolout jobs can be processed on the specified printers irrespective of the user ID.

USER-IDENTIFICATION = *EXCEPT(...)
Spoolout jobs cannot be processed on the specified printers under the user IDs indicated here.

USER-IDENT-LIST = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
List of excluded user IDs.

USER-IDENTIFICATION = list-poss(16): <name 1..8> / <c-string 1..8 with-low>
List of user IDs under which spoolout jobs can be processed on the specified printers.

SPOOLOUT-CLASS =
Spoolout classes from which spoolout jobs can be processed on the specified printers.

SPOOLOUT-CLASS = *ALL
Spoolout jobs from all spoolout classes can be processed on the specified printers.

SPOOLOUT-CLASS = *EXCEPT(...)
Spoolout classes from which spoolout jobs cannot be processed on the specified printers.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of excluded spoolout classes.

SPOOLOUT-CLASS = list-poss(16): <integer 1..255>
List of spoolout classes from which spoolout jobs can be processed on the specified printers.

SPOOLOUT-NAME =
Job names with which spoolout jobs can be processed on the specified printers.

SPOOLOUT-NAME = *ALL
Spoolout jobs with any job name can be processed on the specified printers.

SPOOLOUT-NAME = *EXCEPT(...)
Job names with which spoolout jobs cannot be processed on the specified printers.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of excluded job names.

SPOOLOUT-NAME = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names with which spoolout jobs can be processed on the specified printers.

ACCOUNT =
Account numbers with which spoolout jobs can be processed on the specified printers.

ACCOUNT = *ALL
Spoolout jobs with any account number can be processed on the specified printers.

ACCOUNT = *EXCEPT(...)
Account numbers with which spoolout jobs cannot be processed on the specified printers.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of excluded account numbers.

ACCOUNT = list-poss(16): <alphanum-name 1..8>
List of account numbers with which spoolout jobs can be processed on the specified printers.

ROTATION =
Determines whether spoolout jobs which require the page rotation module can be processed on the specified printers.

ROTATION = *ANY
Spoolout jobs can be processed on the specified printers whether they require the page rotation module or not.

ROTATION = *NO
Only spoolout jobs which do not require the page rotation module can be processed on the specified printers.

ROTATION = *YES
Only spoolout jobs which require the page rotation module can be processed on the specified printers.

ROTATION = *MANUAL
In contrast to NO, the operator can address the page rotation module via hardware switches. In this case all the pages are printed out in rotated format.

TWO-UP-PROCESSING = *ANY / *YES / *NO / *MODE-1 / *MODE-2
This operand is only still available for reasons of compatibility.

FORMS-OVERLAY-BUFFER =
Determines whether spoolout jobs which require an FOB data overlay can be processed on the specified virtual devices.

FORMS-OVERLAY-BUFFER = *ANY
Spoolout jobs with and without FOB data overlays can be processed on the specified virtual devices. The maximum possible FORMS-OVERLAY-BUFFER is taken from the corresponding default device entry.

FORMS-OVERLAY-BUFFER = *ONLY
Only spoolout jobs which use an FOB data overlay can be processed on the specified virtual devices. The maximum possible FORMS-OVERLAY-BUFFER is taken from the corresponding default device entry.

FORMS-OVERLAY-BUFFER = *NO
Spoolout jobs which use an FOB data overlay cannot be processed on the specified virtual devices.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Only spoolout jobs which use an FOB data overlay the size of which falls within the specified range can be processed on the specified virtual devices.

LOW = 0 / <integer 0..32767>
Lower limit of the range (in sublines).

HIGH = 4032 / <integer 0..32767>
Upper range limit for HP90 printers: 4032 sublines. Upper range limit for HP printers: 672 sublines.

PRIORITY =
Priorities of the spoolout jobs which can be processed on the specified printers.

PRIORITY = *ALL
Spoolout jobs with any priority can be processed on the specified printers.

PRIORITY = *RANGE(...)
Spoolout jobs with priorities within the specified range can be processed on the specified printers.

FROM = 30 / <integer 30..255>
Lower range limit.

TO = 255 / <integer 30..255>
Upper range limit.

CHARACTER-SET-NUMBER =
Number of character sets required with which spoolout jobs can be processed on the specified virtual devices.

CHARACTER-SET-NUMBER = *ALL
Spoolout jobs can be processed on the specified virtual devices irrespective of the number of character sets required. The maximum possible number of required character sets is taken from the corresponding default device entry.

CHARACTER-SET-NUMBER = *ONE
Only spoolout jobs which require no more than one character set can be processed on the specified virtual devices.

CHARACTER-SET-NUMBER = *RANGE(...)

Spoolout jobs which require a number of character sets which falls within the specified range can be processed on the specified virtual devices. During initialization of a device, a check is made as to how many character sets can be loaded on the device. If this value is less than one of the two values specified, either a message is sent to the operator terminal and the value for HIGH is adapted (if LOW <= number of character sets that can be loaded on the device), or the command is rejected (if LOW > number of character sets that can be loaded on the device).

LOW = 1 / <integer 1..32767>

Lower range limit.

HIGH = 64 / <integer 1..32767>

Upper range limit.

EXIT-ROUTINES = *ACTIVE / *NOT-ACTIVE

Specifies whether exit routines are to be called during spoolout.

Return codes

(SC2)	SC1	Maincode	Meaning/Guaranteed messages
	0	CMD0001	No error Guaranteed message: SPS0B06
2	0	SRO0357	Too many pools
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	1	SRO0173	Semantic error
	32	SCP0974	System error. Command rejected
	32	SRO0174	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value Guaranteed messages: SCP0944, SCP0951, SCP0957, SCP0967, SCP1010, SPS0168
	64	SRO0175	No authorization for command
	64	SRO0176	Invalid operand value
	128	SCP0896	SCSIPCL subsystem not loaded or not ready
	128	SCP0911	RSO subsystem in dump creation or restart phase
	128	SCP0992	SPS subsystem not loaded or not supported
	128	SCP1008	DPRINTSV subsystem not loaded Guaranteed message: SCP1008
	128	SPS0420	Subsystem not loaded/ready
	128	SRO0364	Form not accepted

Notes

1. User responsibilities: The SPOOL administrator can start any printer in the configuration that is connected to his or her host. Although the cluster administrator can start, suspend or modify any printer in the configuration, it is advisable to leave the responsibility for device management to the SPOOL administrators in the cluster.
2. Checking the user ID: Changing the user ID in the user ID catalog has no effect if the active printer is defined in the configuration file. If, however, the printer is defined in the local SPOOL parameter file, a change does take effect.
3. Printer name conventions: When a printer is started, the command can include a printer name from the local SPOOL parameter file or from the configuration file.

   If there is a suitable name in the configuration file, the printer is started and becomes available to every host that belongs to the cluster. The command must be issued by a cluster administrator or a SPOOL administrator. The SPOOL administrator must issue the command at the host to which the printer is connected.

   If there is no suitable name in the configuration file, the local SPOOL parameter file is searched. If there is a suitable printer, it is started, but it is only available to the local host.
4. Distributed and nondistributed printer pools: A printer cannot be connected to distributed and nondistributed printer pools at the same time. If the printer is distributed, it can only be connected to distributed printer pools. If it is not distributed, it can only be connected to nondistributed printer pools.
5. Use of logical names: If a printer is started by means of its logical name in the SPOOL parameter file, it must be suspended before it can be started again by means of its logical name in the configuration file. The same applies in the reverse case.
6. Supported format names (corresponds to file attribute 'content type'): In the static definition of a printer in the SPOOL parameter file, the administrator must specify a list of supported format names. These format names then belong to the started printer. The print job scheduler uses this information to assign print jobs to this printer.
7. Use of virtual printers: The command processing supports virtual printers. Format names are not checked for validity if they were specified in the command and the command refers to a virtual printer. The format names allow a group of print jobs to be selected for processing by the supervisor task.

Monitoring RSO printers with job variables

In the case of printers that were defined with MONJV=*YES in the SPOOL parameter file, a monitoring job variable is created to monitor the asynchronous portion of the START-PRINTER-OUTPUT command. This job variable is created by the RSO system task during the asynchronous portion of the START-PRINTER-OUTPUT command and subsequently monitors the printer status (as indicated in the SHOW-SYSTEM-STATUS command) on the running device.
The monitoring job variable is created - as defined by conventions - under the user ID $SYSSPOOL with the predefined name PRT.RSO.<device-name>. This job variable is shared and cannot be protected by a password. The JV subsystems are needed to use this function.

The job variable is constructed as follows:

Sta	TSN	Proc.	Reserved	Device	ERCOD	ERMSG
0	3	8	16	37	46	55

The first three fields of the job variable are reserved for ENTER jobs. The following fields are assigned to SPOOL and indicate the various states that can occur in a print session. The “Status” and “Processor” fields are left-aligned. All other fields are right-aligned.
The contents of a job variable can be displayed with the SHOW-JV command.

Description of fields

Field	Contents	Meaning
Sta	$R	The printer is ready or is currently processing a print job (see ERMSG and ERCOD for more information).
	$T	The printer was terminated normally.
	$A	The printer was not correctly started (see ERMSG and ERCOD for more information).
TSN	Tsn	TSN of the task that is managing the printer. This may be either the TSN of the RSO controller task that is managing the printer or the TSN of the RSO system task (“RSO”). The TSN of the RSO system task is output if an error has occurred on processing the command with the RSO system task or if the controller was started for a print job. The TSN is padded to the left with the padding character “0”.
Proc.	Catid	Catalog ID of the system (home pubset) on which the printer is running.
Reserved		
Device	@@@@@@@@	Printer name
ERCOD	@@@@@@@@	(BCAM) error code for an error that has occurred for an active print job.
ERMSG	@@@@@@@@	RSO error message. The meaning depends on the value of the status field: • $R: This means that an error occurred when processing a print job and that the processing was therefore aborted. The value of ERMSG corresponds to the value displayed in the SHOW-SYSTEM-STATUS command. • $A: This means that an error occurred before the printer was ready. The value of ERMSG is the ID number of the RSO error message that is output at the console. The operation to stop the printer was aborted.

Application notes

- The job variable cannot be protected by a password.
- The job variable is not created on executing the synchronous portion of the START-PRINTER-OUTPUT command, but during the asynchronous portion, which is executed by the RSO system task and the controller task.
  - The RSO system task creates or updates a job variable whenever an error occurs on processing the print job. The job variable is then set to $SA and will contain an error code and/or an error message that describes the error. In the case of printers that are started for a print job, the job variable is set to the status $R, in which case the controller task is not really created. This is indicated in the job variable by the TSN “RSO”.
  - The controller task creates or updates a job variable to indicate errors that have occurred on initializing the controller. The job variable is then set to $A and contains an error code and/or an error message that describes the error. If the printer is initialized correctly and is ready, the job variable is set to the status $R. This status remains in effect even if the printer is temporarily disabled due to an error when processing a print job, but an error code and/or error message are added to describe the error. These details can also be output with the SHOW-SYSTEM-STATUS command. When the printer is subsequently released with a STOP-PRINTER-OUTPUT command, the status of the job variable is set to $T.
- All created job variables remain visible until the next time that the RSO is loaded. When this occurs, all printer job variables are reset.

Example

```
/start-printer-output device-name=*any-local-printer(name=l1,
                      host-name=*all),user-id=hello ———————————————— (1)

/start-printer-output device-name=*any-local-printer(name=l1,
                      host-name=*home),user-id=hello ———————————————— (2)
```

(1) Printer L1 processes print jobs from all hosts that go to the local server and are issued by the user ID HELLO (on any host).

(2) Printer L1 processes print jobs from the local host that go to the local server and are issued by the user ID HELLO (on the local host).

7.53 START-PROGRAM

Load and start program (load or object module)

Component:	BLSSERV
Functional area:	Program control
Domain:	PROGRAM
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

> As of BLSSERV V2.3, the START-PROGRAM command is replaced by the START-EXECUTABLE-PROGRAM command. START-PROGRAM continues to be supported and remains compatible. However, the START-EXECUTABLE-PROGRAM command should be used for new applications. Below you will simply find a brief description of the command function, the syntax format and the return codes.

Function

With the START-PROGRAM command

- object modules are linked, loaded into memory and started (invocation of the dynamic binder loader DBL),
- load modules are loaded into memory and started (invocation of the static loader ELDE).

When calling with LOAD-PROGRAM, only the checks of the addressing mode compatible with BLSSERV < V2.5 are performed. This corresponds to specifying AMODE-CHECK=*STD in the START-EXECUTABLE-PROGRAM command.
If the user wishes to load a program but not yet start it, the LOAD-EXECUTABLE-PROGRAM (or LOAD-PROGRAM) command is the appropriate one to issue.
In the case of operands which have *DBL-PARAMETERS as their default value, the MODIFY-DBL-DEFAULTS command can be used to modify the default DBL parameters which apply when the task is started. The parameters can be configured separately for calls to the LOAD- and START-... commands on the one hand and for the BIND macro call on the other. The SHOW-DBL-DEFAULTS command lists the values which are currently set. The RESET-DBL-DEFAULTS command can be used to return the settings to the DBL defaults.

Restrictions

Users with SECURITY-ADMINISTRATION, SAT-FILE-EVALUATION or SAT-FILE-MANAGEMENT privilege can use the command in procedures only.

Format

START-PROGRAM Alias: **SR** / **SRPG**

FROM-FILE = <filename 1..54 without-gen> / ***MOD**ULE(...) / ***PHASE**(...)

***MOD**ULE(...)

| **LIB**RARY = ***DBL-PAR**AMETERS / ***STD** / ***OMF** / <filename 1..54 without-gen> / ***LINK**(...)

| ***LINK**(...)

| | **LINK** = <structured-name 1..8> / <filename 1..8 without-gen-vers>

| ,**ELEM**ENT-**OR-SYMBOL** = ***ALL** / <composed-name 1..64 with-under>(...) /

<c-string 1..32 with-low>(...)

| <composed-name 1..64 with-under>(...)

| | **VERSION** = ***STD** / <text 1..24>

| <c-string 1..32 with-low>(...)

| | **VERSION** = ***STD** / <composed-name 1..24 with-under> / <c-string 1..24>

| ,**PROG**RAM-**MODE** = ***DBL-PAR**AMETERS / ***24** / ***ANY**

| ,**RUN-MODE** = ***DBL-PAR**AMETERS / ***STD** / ***ADVANCED**(...)

| ***ADVANCED**(...)

| | **ALTER**NATE-**LIB**RARIES = ***DBL-PAR**AMETERS / ***NO** / ***Y**ES

| | ,**NAME-COLLISION** = ***DBL-PAR**AMETERS / ***STD** / ***ABORT**

| | ,**UNRESOLVED-EXTRNS** = ***DBL-PAR**AMETERS / ***STD** / ***DELAY** / ***ABORT**

| | ,**ERROR-EXIT** = ***DBL-PAR**AMETERS / ***NONE** / <x-string 1..8>

| | ,**MES**SAGE-**CONTR**OL = ***DBL-PAR**AMETERS / ***INF**ORMATION / ***ERROR** /

| | ***WARN**ING

| | ,**LOAD-INF**ORMATION = ***DBL-PAR**AMETERS / ***DEFI**NITIONS / ***MAP** / ***NONE** /

| | ***REF**ERENCES

| | ,**PROG**RAM-**MAP** = ***DBL-PAR**AMETERS / ***NO** / ***SYSLST**(...) / ***SYSOUT** / ***BOTH**(...)

| | ***SYSLST**(...)

| | | **SYSLST-NUM**BER = ***STD** / <integer 0..99>

| | ***BOTH**(...)

| | | **SYSLST-NUM**BER = ***STD** / <integer 0..99>

| | ,**SHARE-SCOPE** = ***DBL-PAR**AMETERS / ***SYS**TEM-**MEMORY** / ***NONE** / ***ALL** /

| | ***MEMORY-POOL**(...)

```
        |           |        *MEMORY-POOL(...)
        |           |            |        SCOPE = *ALL / *USER-ID / *USER-GROUP / *HOST-SYSTEM
        |           |        ,IGNORE-ATTRIBUTES = *DBL-PARAMETERS / *NONE / *READ-ONLY
        |           |        ,REP-FILE = *DBL-PARAMETERS / *NONE / <filename 1..54 without-gen>
        |           |        ,AUTOLINK = *DBL-PARAMETERS / *YES / *NO / *ALTERNATE-LIBRARIES
        |           |        ,PROGRAM-VERSION = *DBL-PARAMETERS / *STD / *BLANK /
        |           |                                  <composed-name 1..24 with-under>
    *PHASE(...)
        |       LIBRARY = <filename 1..54 without-gen>
        |       ,ELEMENT = <filename 1..41 without-gen-vers>
        |       ,VERSION = *STD / <text 1..24>
,CPU-LIMIT = *JOB-REST / <integer 1..32767 seconds>
,TEST-OPTIONS = *DBL-PARAMETERS / *NONE / *AID
,MONJV = *NONE / <filename 1..54 without-gen-vers>
,RESIDENT-PAGES = *PARAMETERS (...)
    *PARAMETERS(...)
        |       MINIMUM = *STD / <integer 0..32767 4Kbyte>
        |       ,MAXIMUM = *STD / <integer 0..32767 4Kbyte>
,VIRTUAL-PAGES = *STD / <integer 0..32767 4Kbyte>
```

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	BLS0150	Warning on program loading (see message to SYSOUT)
	32	BLS0152	Program loading aborted due to system error
	64	CMD0216	User has no authorization for the command
	64	BLS0153	Program loading aborted due to unrecoverable error (for cause, see SYSOUT message)

7.54 START-PUBSET-CACHING

Define PFA cache area for pubset

Component:	BS2000
Functional area:	Caching media control Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

Systems support staff can use this command during a session to set up a cache area for high-speed temporary storage of data in a cache medium (main memory or global storage) for an imported SF pubset or for a volume set in an imported SM pubset. This activates PFA caching for the pubset/volume set.

The preconditions for setting up the cache area are that:

- no cache has yet been activated
- a cache configuration has previously been defined in the MRSCAT entry for the pubset or volume set concerned, using the MODIFY-PUBSET-CACHE-ATTRIBUTES command.

The START-PUBSET-CACHING command makes caching available to all hiperfiles in the pubset/volume set (files with the performance attribute HIGH or VERY-HIGH) which are opened from then on. Files which are already open cannot take advantage of caching until a START-FILE-CACHING command has been issued or until they are closed and reopened.

After a cache area has been removed using the STOP-PUBSET-CACHING command, the same cache medium must be used when it is set up again. The same applies to the VOLATILITY parameter specified in the MODIFY-PUBSET-CACHE-ATTRIBUTES command for the global storage (GS) cache medium. Changes are accepted only after the pubset has been re-imported.

The SHOW-PUBSET-CACHE-ATTRIBUTES (and also SHOW-PUBSET-PARAMETERS) command provides details of the cache configuration which is currently valid.

The command is not supported for the home pubset.

The command is also supported for shared pubset networks.
In a shared pubset network, the command can be issued on the master system or on a slave. A system message refers to the system which is issuing the command, unless it is preceded by message DMS136D, which then includes the name of the system (master or slave) on which the error has occurred. If the command is issued on a slave system, the system name may also be the local host name.

Format

START-PUBSET-CACHING

PUBSET = <cat-id 1..4>

,**PUB**SET**-TYPE** = ***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED(...)

***SYS**TEM**-MANAG**ED(...)

| **VOL**UME**-SET** = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
ID of the pubset for which the cache area is to be activated.

PUBSET-TYPE = *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Indicates whether the pubset is an SF pubset (cache directly assigned to the pubset) or an SM pubset (cache assigned to one of the volume sets of the pubset).

PUBSET-TYPE = *SINGLE-FEATURE
Default. The pubset is an SF pubset. The cache is directly assigned to the SF pubset.

PUBSET-TYPE = *SYSTEM-MANAGED(...)
The pubset is an SM pubset. The cache is assigned to a single volume set.

VOLUME-SET = <cat-id 1..4>
Identifies the volume set to which the cache is assigned.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
1	0	DMS1356	Cache area already active
	32	DMS1351	Pubset management parameter error
	32	DMS135F	Internal system error
	32	DMS1398	Reconfiguration no longer possible
	64	DMS1352	Not authorized to use command
	64	DMS1353	MRSCAT entry not found
	64	DMS1354	Pubset not locally imported
	64	DMS1355	Invalid cache configuration
	64	DMS1358	Function is not supported
	64	DMS135A	No cache for shared pubsets
	64	DMS135B	Cache memory allocation full
	64	DMS135D	Cache cannot be connected
	64	DMS135E	Cache handler not available
	64	DMS1362	No cache for home pubset
	64	DMS1381	Volume set conflict
	64	DMS138D	Pubset type conflict
	64	DMS1390	Earlier reconfiguration job not yet completed
	64	DMS1397	Reconfiguration by partner system not supported
	64	DMS139D	Volume not accessible
	128	DMS1363	Class 4/5 memory shortage
	128	DMS1389	Error in transmission to partner system
	128	DMS139A	Other pubset reconfiguration job still active
	128	DMS139B	Volume or volume set is reserved
	128	DMS139C	Pubset configuration file still locked

7.55 START-RESLOG-EVALUATION

Evaluate RESLOG file

Component:	RESLOG
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS
	SW-MONITOR-ADMINISTRATION

Function

The START-RESLOG-EVALUATION command starts the evaluation of RESLOG files. The caller can specify whether all the records or only the records relating to a specific period are to be evaluated. The result of the evaluation can be called in the form of a summary of the most important information or in detail with each ATTACH and DETACH operation. The output is written to SYSOUT but can alternatively be redirected to a file.

The RESLOG evaluation runs as a separate program that is loaded, started and terminated internally. Any previously loaded program is unloaded.

Format

START-RESLOG-EVALUATION

```
RESLOG-FILE = *CURRENT / *FROM-FILE(...) / <filename 1..54 without-gen-vers>

    *FROM-FILE(...)

        |    LIST-FILE-NAME = <filename 1..54 without-gen-vers>

,PERIOD = *INTERVAL(...)

    *INTERVAL(...)

        |    FROM = *FIRST-RECORD / <date>

        |    ,TO = *LAST-RECORD / <date>

,INFORMATION = *SUMMARY / *ALL

,OUTPUT = *SYSOUT / <filename 1..54 without-gen-vers>
```

Operands

RESLOG-FILE = *CURRENT / *FROM-FILE(...) / <filename 1..54 without-gen-vers>
Specifies one or more RESLOG files for evaluation.

RESLOG-FILE = *CURRENT
The current RESLOG file is evaluated.

RESLOG-FILE = <filename 1..54 without-gen-vers>
Path name of the RESLOG file that is to be evaluated.

RESLOG-FILE = *FROM-FILE(...)
The path names of the RESLOG files that are to be evaluated are taken from a file name list. The file name list must be a SAM file with variable record length which possesses a fully qualified path name (maximum 54 characters) in capitals. Partially qualified spoecifications or specifications including wild cards are not permitted. The following conditions must be fulfilled for the specified RESLOG files:

- They must all come from a single system (same server ID in the path name).
- They must be specified in sequence from earliest to most recent.

The easiest and quickest way to generate a file name list is to use the SHOW-FILE-ATTRIBUTES command. When this is done, all file selection possibilities are available (partial qualification, wildcards and selection criteria).

Example for the creation of a file name list

```
/SHOW-FILE-ATTRIBUTES FILE-NAME=:PVSX:$TSOS.SYS.RESLOG.<server-id>.,
     OUTPUT=<filelist>(FORM-NAME=FILE-NAME)
```

The fully qualified path names of all the already closed RESLOG files in the system specified by <server-id> are stored in the file <filelist> specified in the OUTPUT operand. The file <filelist> can be specified in the LIST-FILE-NAME operand.

LIST-FILE-NAME = <filename 1..54 without-gen-vers>
Path name of the file name list.

PERIOD = *INTERVAL(...)
Specifies the evaluation period.

FROM =
Specifies the start of the evaluation period.

FROM = *FIRST-RECORD
The evaluation period starts from the beginning of the specified RESLOG file or, in the case of a file name list, the beginning of the first log file in the list.

FROM = <date>
The evaluation period starts on the specified day.

TO =
Specifies the end of the evaluation period.

TO = *LAST-RECORD
The evaluation period terminates at the end of the specified RESLOG file or, in the case of a file name list, the end of the last log file in the list.

TO = <date>
The evaluation period ends on the specified day.

INFORMATION = *SUMMARY / *ALL
Specifies the level of detail of the evaluation.

INFORMATION = *SUMMARY
A summary of the most important information is output.

INFORMATION = *ALL
In addition to the summary information, outputs an overview listing each individual extra CPU ATTACH and DETACH operation. Also lists periods during which the RESLOG subsystem was not active.

OUTPUT = *SYSOUT / <filename 1..54 without-gen-vers>
Specifies where the information is output. The output can either be written to SYSOUT (default) or to the specified file.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error

> The codes returned in the event of an error (subcode 1 not equal to 0) cannot be guaranteed. However, automatic error processing is possible using the spin-off mechanism (corresponds to the default setting of the SET-PROCEDURE-OPTIONS command with ERROR-MECHANISM= *SPIN-OFF-COMPATIBLE).

Output information

Summary output of the current RESLOG file to SYSOUT

/START-RESLOG-EVALUATION [RESLOG-FILE=*CURRENT,INF=*SUMMARY,OUTPUT=*SYSOUT]

```
------------------------------------------------------------------------------
                          RESLOG EVALUATION
------------------------------------------------------------------------------
START DATE             : <date>              END DATE  : <date>
------------------------------------------------------------------------------
BS2000 VERSION         : 21.0A00             SERVER-ID : 3002000188000000
RESLOG VERSION         : 21.0A00
------------------------------------------------------------------------------
NUMBER EXTRA CPUS      :       1
NUMBER DAYS IN USE     :       1
------------------------------------------------------------------------------
TIME WITHOUT DATA      :       1 (hours) (2%)
------------------------------------------------------------------------------
```

Meaning of the output

START DATE	Start of the evaluation period
END DATE	End of the evaluation period
BS2000 VERSION	Operating system version at the start of the evaluation period
RESLOG VERSION	Version of the RESLOG file at the start of the evaluation period
SERVER-ID	Globally unique server ID of the system
NUMBER EXTRA CPUS	Number of extra CPUs at the start of the evaluation period
NUMBER DAYS IN USE	Number of days on which extra CPUs were used; each calendar day is counted on which each extra CPU was ATTACHED.
TIME WITHOUT DATA	Time in hours/days when RESLOG was inactive; the hours/days between the STOP and the following START records is counted. The time is also output as a percentage value relative to the overall evaluation period.

More detailed output of the current RESLOG file to the file PROT.EXTRA-CPU.002

/START-RESLOG-EVALUATION INFORMATION=*ALL, OUTPUT=PROT.EXTRA-CPU.002

```
.
.             Information as with INFORMATION=*SUMMARY
.
                DETAILED STATISTICS OF EXTRA-CPUS
--------+-------------------------+-------------------------+---------------
 CPU NR !      ATTACH TIME        !      DETACH TIME        !     DURATION
--------+-------------------------+-------------------------+---------------
  02    !  <date>       <time>    !  <date>          <time> !      1 (days)
        !                         !                         !
  02    !  <date>       <time>    !  <date>          <time>*!      1 (days)
        !                         !                         !
NO DATA !  <date>       <time>    !  <date>          <time> !      1 (hours)
-------------------------------------------------------------------------------
```

Meaning of the output

CPU NR	CPU number of the extra CPU or – if RESLOG is not loaded – NO DATA
ATTACH TIME/ DETACH TIME	Date and time of the ATTACH or DETACH operation for an extra CPU (if a CPU number is specified under CPU NR) or Date and time at the start of a period at which RESLOG was inactive (if the text NO DATA is specified under CPU NR)
DURATION	Period in hours or days relative to ATTACH/DETACH TIME • Output for extra CPU: The number of calendar days in the period between the ATTACH and DETACH operations for the extra CPU is output. • Output for NO DATA: The number of hours and days (rounded) in the period in which RESLOG was inactive is output

The times specified for ATTACH and DETACH TIME may be followed by an * (asterisk) which has the following meanings:

- The precise time of the ATTACH operation is not known because the extra CPU was already ATTACHED when RESLOG was started.
- The precise time of the DETACH operation is not known because the file was closed or changed or the subsystem was terminated abnormally while an extra CPU was ATTACHED.
- The actual time of the ATTACH/DETACH operation is not output because the evaluation period starts after an ATTACH and/or ends before a DETACH.
- The current file is evaluated and an extra CPU is ATTACHED. At DETACH-TIME, the date of the last alive or CPU record is written.

7.56 START-RESOURCE-COLLECTION

Start collector selection

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	J

Function

The START-RESOURCE-COLLECTION command is used by systems support staff (OPERATING privilege) to start the selection of a collector task by the system.

Format

START-RESOURCE**-COLL**ECTION
TIME-WEIGHT = ***STD** / <integer 0..600>

Operands

TIME-WEIGHT =
The system calculates a weight for each task in the secure queue according to its priority and the time it has spent in the secure queue. The task with the greatest weight becomes the collector.
The TIME-WEIGHT value can be used to influence the calculation of the weight:

- The higher the value selected for TIME-WEIGHT, the greater the influence of the priority when calculating the weight.
- The lower the value selected for TIME-WEIGHT, the greater the influence of the wait time when calculating the weight.

TIME-WEIGHT = *STD
Default value: 10.

TIME-WEIGHT = <integer 0..600>
Value: 0 <= int <= 600.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	64	NKS0041	Control task for SECURE queue with TSN=NKS not active. Command not executed.

7.57 START-SERSLOG

Activate software error logging

Component: BS2000

Functional area: Error logging

Domain: ERROR-LOGGING

Privileges: TSOS
OPERATING

Routing code: A

Function

The START-SERSLOG command activates software error logging (SERSLOG) and opens a new SERSLOG file. The SERSLOG system function for logging software errors is started automatically during system startup. For this reason the START-SERSLOG command is required only if SERSLOG has not been started owing to a STARTUP error, has been aborted as the result of a system error, or has been deactivated by the STOP-SERSLOG command.
If SERSLOG is already active when START-SERSLOG is issued, the command is rejected.

Format

START-SERSLOG

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NER0000	Internal error
	32	CMD0221	System error
	32	NER0000	Internal error
	64	NER1070	Task termination currently in process
	64	NER1000	No authorization for the command
	64	NER1040	DMS error
	128	NER1010	A SERSLOG command is currently being processed
	129	NER1030	The SERSLOG function is already active

7.58 START-SUBSYSTEM

Activate subsystem

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING SUBSYSTEM-MANAGEMENT
Routing code:	R

Function

This command enables systems support staff to activate any required subsystem.
The following information from the dynamic subsystem catalog is used for activating the subsystem:

- information on subsystem loading and linking;
- information on the initialization/deinitialization and termination of job relations;
- information on call points, ancillary components and operational dependencies (see the appropriate SSCM statements in the “Subsystem Management” manual [49]).

The command is rejected if

- the subsystem is not found in the dynamic subsystem catalog
- another version of the subsystem already exists and the coexistence is not allowed (see the VERSION-PARALLELISM operand)
- subsystems on which the subsystem to be activated depends are not loaded
- a required file (e.g. message file, library) cannot be found.

A corresponding message informs the systems support staff as to the acceptance or rejection of the command. By means of the RESET=*YES operand, initialization can be forced for those subsystems that are in the process of being deactivated. Any number of START-SUBSYSTEM commands can be issued under a privileged user ID of system’s support, in various tasks unless this is prohibited by the parameters specified during definition of the subsystem.

Depending on how the subsystem is defined (SSCM statement SET-/MODIFY-SUBSYSTEM-ATTRIBUTES, SUBSYSTEM-LOAD-MODE operand), it can be activated in various different ways:

- SUBSYSTEM-LOAD-MODE = *STD
  The BLS is called in STD run mode and loads the subsystem as an object module.
- SUBSYSTEM-LOAD-MODE = *ADVANCED
  The BLS is called in ADVANCED run mode and loads the subsystem as a link and load module (LLM).
- SUBSYSTEM-LOAD-MODE = *ANY
  The BLS is called in STD run mode and loads the subsystem as an object module. If an error occurs while the subsystem is being loaded, the BLS is called again, this time in ADVANCED run mode, and the subsystem is loaded as a link and load module (LLM). If the first call to the BLS fails, a BLS error message is output on the console.

Format

START-SUBSYSTEM

SUBSYSTEM-NAME = <structured-name 1..8>

,**VERSION** = **_*STD_** / <product-version mandatory-man-corr> / <product-version without-man-corr> / ***HIGHEST**

,**SUBSYS**TEM-**PAR**AMETER = **_*NONE_** / <c-string 1..254>

,**RESET** = **_*NO_** / ***Y**ES

,**SYNCH**RONOUS = **_*NO_** / ***Y**ES

,**VERSION-PARALLELISM** = **_*NONE_** / ***EXCHANGE-MODE**(...) / ***COEXIST**ENCE-**MODE**

***EXCHANGE-MODE**(...)

| **SUBSYS**TEM-**PAR**AMETER = **_*NONE_** / <c-string 1..254>

,**MONJV** = **_*NONE_** / <filename 1..54 without-gen-vers>

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Name of the subsystem to be activated.

VERSION = _*STD_ / <product-version mandatory-man-corr> / <product-version without-man-corr> / *HIGHEST
Specifies the version.
If a version is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "SDF syntax representation").

VERSION = _*STD_

If several versions exist for the specified subsystem, and neither a version nor *STD is explicitly specified, the subsystem that was declared with the start attribute CREATION-TIME=*AT-SUBSYSTEM-CALL (see the SSCM statement SET-SUBSYSTEM-ATTRIBUTES in the “Subsystem Management” manual [49]) is loaded. If this condition is not met, the lowest version for this subsystem that is stored in the static subsystem catalog is selected.

Exception

If a version of a subsystem is to be activated automatically with the first SVC call, then this version is taken as the standard version.

VERSION = *HIGHEST
Selects the highest version of the subsystem entered in the static subsystem catalog.

SUBSYSTEM-PARAMETER = _*NONE_ / <c-string 1..254>
Specifies whether special parameters which can be interpreted only by the specified subsystem may be processed.

RESET =
Determines the behavior and urgency of command processing.

RESET = *NO
If the subsystem concerned is in the process of being deactivated, the command is rejected until this blocking operation has terminated.

RESET = *YES
The command is accepted regardless of an ongoing deactivation operation and the subsystem or components of it are initialized (see also Notes).
The version parameter is mandatory for this operand.

SYNCHRONOUS =
Permits a choice between synchronous and asynchronous processing.

SYNCHRONOUS = *NO
The command is to be processed asynchronously, i.e. there is no need to wait for it to execute. Once the syntax of the command has been checked, the calling task is sent message ESM0216. No error messages relating to the execution of the command are output.

SYNCHRONOUS = *YES
The system waits for execution of the command.
Accompanying error messages are output.
In the event of a version change, this specification applies only to the new version. Deactivation of the other, “old” version always runs asynchronously.

VERSION-PARALLELISM =
Specifies whether different versions of the same subsystem can be active at the same time.

VERSION-PARALLELISM = *NONE
The coexistence of different versions of subsystems - irrespective of what is specified in the definition - is not to be allowed. If the status of any version is not NOT-CREATED, the activation will be rejected.

VERSION-PARALLELISM = *EXCHANGE-MODE(...)
Two versions of a subsystem may coexist temporarily. Activation is permitted if neither or only one of the subsystem versions is in the “CREATED” state. If two versions are already in this state, implicit deactivation is initiated for the last version started.
If a subsystem version is in the LOCKED state, DSSM handles it as NOT-CREATED.
The command with this operand is rejected if

- the version to be replaced is defined with HOLD=*NO but without a CLOSE-CTRL routine
- the command MODIFY-SUBSYSTEM-PARAMETER CHANGE-STATE=*NO was used for the version to be replaced
- RESET=*NO is specified at the same time
- the version is not in the CREATED, NOT CREATED or LOCKED state.

  SUBSYSTEM-PARAMETER = *NONE / <c-string 1..254>
  Specifies whether special parameters that can only be evaluated by the specified subsystem version are processed.

VERSION-PARALLELISM = *COEXISTENCE-MODE
Permits unrestricted coexistence of two or more versions of the same subsystem, provided that this was permitted for all versions involved in the SSCM statement SET-SUBSYSTEM-ATTRIBUTES.

MONJV = *NONE / <filename 1..54 without-gen-vers>
Specifies the name of a monitoring job variable. The monitor job variable indicates whether the subsystem is active,

halted, interrupted or locked. The specified job variable only becomes the monitoring job variable if the subsystem is not yet started. The monitor job variable can have the following contents:

Byte	Length	Contents	Values
1	3	Status	$R (running) / $A (abnormal end) / $L (loaded) / $T (terminate)
4	1	Reserved	0
5	4	TSN	???? (*four question marks*)
9	4	Home Catid	
13	4	Reserved	
17	1	Type	J / P / S
18	53	Reserved	
71	3	Session number	
74	8	Name of the subsystem	
82	7	Version of the subsystem	
89	15	Condition of the subsystem	for $R: created for $A: abnormal end / locked for $L: in create for $T: not created / not resumed / in delete / in resume / in hold
104	24	Unused	
128	127	Reserved for subsystem users	

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No action necessary; subsystem already active
	1	ESM0414	Syntax error: invalid version specified
	32	ESM0224	Command not processed
	32	ESM0228	Command terminated abnormally

Notes

- Subsystems generally have manifold relations (dependency relations, loading relations) to other subsystems. In order to ensure the performance of the individual subsystem, these relations must be taken into account. DSSM attempts to avoid potential conflicts that might arise from the user's requests and therefore rejects corresponding commands. Actions such as the installation of missing subsystems or unloading dependent subsystems are not performed.

  If, however, the user also generates complex subsystems using the CHECK-REFERENCE=*NO statement (see the SSCM statement SET-SUBSYSTEM-ATTRIBUTES), DSSM executes the requested functions **despite** possible conflicts: The START-SUBSYSTEM command loads the specified subsystem, even if a subsystem with which there are defined relations has not yet been completely loaded.
- In order to ensure a high degree of parallelism and data integrity, time-consuming administrative jobs are not executed under the control of the calling task but are transferred to a DSSM task.
  As a rule only the check of the requested function is performed **synchronously** (i.e. in conjunction with a wait state for the calling task). However, DSSM performs the actual processing **asynchronously** and independently of the calling task.
- After the STOP-SUBSYSTEM command, START-SUBSYSTEM is rejected if DSSM has not yet been able to complete the "load subsystem" action. However, if the RESET=*YES operand is specified, the systems support staff can force an unconditional loading of the subsystem. There is no wait for the completed processing of a STOP-SUBSYSTEM command.
  In this case, the initialization routine is activated. The subsystem in question, which is notified of the RESET, can specify the scope of this routine itself (complete initialization, partial initialization, no initialization).

  Exception

  If the subsystem in question is in the "IN-DELETE" status but has already been deinitialized, processing of "unload subsystem" is not aborted despite RESET=YES. The START-SUBSYSTEM command is rejected if the subsystem has reached the status "NOT-CREATED" and all resources have been released.
- If two versions of a subsystem are to be exchanged, the following points must be observed with regard to the use of the RESET=*YES parameter:
- If version A is in the IN-DELETE state and version B in the CREATED state, RESET=*YES can be specified for A only if coexistence was permitted for both versions at the definition (SSCM).

- If both versions are in the IN-DELETE state, RESET=*YES can be specified for one of them if the version involved was defined with RESET=*ALLOWED, VERSION-EXCHANGE=*ALLOWED.
- Restart (i.e. calling the INIT routine for subsystems defined with RESTART-REQUIRED=*YES) is not possible, since this may lead to illegal coexistence.

7.59 START-TAPE-OUTPUT

Assign tape devices for spoolout jobs

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	OPERATING PRINT-SERVICE-ADMINISTRATION
Routing code:	S

Function

The START-TAPE-OUTPUT command assigns tape devices for spoolout jobs.

Notes

- SPOOL uses the first volume label to form the name of a directory file (SR.vsn). This file contains all the jobs needed to process the replay tape. When the replay tape has been generated the directory file is copied to the tape so that the tape can be exported to another computer center. Once the replay tape has been exported, the directory file can be deleted from the disk.
- While a replay tape is being generated, systems support staff can use the MODIFY-TAPE-OUTPUT-STATUS command to change the selection criteria for the spoolout jobs to be output. The volume labels must not be modified.
- During the generation of a replay tape, a catalog entry is created for the TP.tsn file (tsn = task sequence number of the spoolout job). This entry is temporary and is deleted when the STOP-TAPE-OUTPUT command has been processed. Systems support staff should check before processing starts that no file with this name already exists.
- Replay tapes can only be processed in other computer centers if these computer centers have implemented the same version of SPOOL.
- To execute a spoolout request for a tape, all the scheduling operands must apply to the device. If this is not the case, the spoolout request remains in the queue.
- If no scheduling operands are specified, any spoolout for a specified device can be executed. If, however, scheduling operands are specified, only spoolout requests which match all the specifications can be executed.
- The hierarchy of operands for controlling spoolout is described in the section on scheduling in the “Spool & Print - Commands” manual [42].

Format

START-TAPE-OUTPUT

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>

,**DEV**ICE-**TYPE** = **<u>*TAPE</u>** / <structured-name 1..8>

,**DEST**INATION = **<u>*NONE</u>** / list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

,**FORM-NAME** = **<u>*ALL</u>** / ***STD** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..6>

***EXCEPT**(...)

| **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

,**USER-ID**ENTIFICATION = **<u>*ALL</u>** / ***EXCEPT**(...) / list-poss(16): <name 1..8>

***EXCEPT**(...)

| **USER-ID**ENT-**LIST** = list-poss(16): <name 1..8>

,**SP**OOLOUT-**CL**ASS = **<u>*ALL</u>** / ***EXCEPT**(...) / list-poss(16): <integer 1..255>

***EXCEPT**(...)

| **SP**OOLOUT-**CL**ASS-**LIST** = list-poss(16): <integer 1..255>

,**SP**OOLOUT-**NAME** = **<u>*ALL</u>** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **SP**OOLOUT-**NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**ACCOUNT** = **<u>*ALL</u>** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8>

***EXCEPT**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

,**FORMS-OVERLAY** = **<u>*ALL</u>** / ***NONE** / ***ONLY** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 2..2>

***EXCEPT**(...)

| **FORMS-O**VERLAY-**LIST** = list-poss(16): <alphanum-name 2..2>

,**FORMS-O**VERLAY-**BUFFER** = **<u>*ANY</u>** / ***ONLY** / ***NO** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = **<u>0</u>** / <integer 0..32767>

| ,**HIGH** = **<u>4032</u>** / <integer 0..32767>

,**PRIO**RITY = *<u>**ALL**</u> / ***RANGE**(...)

***RANGE**(...)

```
        |       FROM = 30 / <integer 30..255>

        |       ,TO = 255 / <integer 30..255>

,CHARACTER-SET-NUMBER = *ALL / *ONE / *RANGE(...)

    *RANGE(...)

        |       LOW = 1 / <integer 1..32767>

        |       ,HIGH = 64 / <integer 1..32767>

,SPOOLOUT-TYPE = *ALL / *HP-PRINTER / *PRINTER / *PAGE-PRINTER /

                    *BUFFER-LINE-PRINTER / *LIST(...)

    *LIST(...)

        |       SELECTION-TYPE = *MAY / *MUST

        |       ,DEVICE-TYPE = list-poss(8): *HP-PRINTER / *LP-PRINTER / *LP48-PRINTER /

        |                       *PCL-PRINTER / *LP65-PRINTER / *HP90-PRINTER /

        |                       *LP-EMULATED-PRINTER / *2050-APA-PRINTER /

        |                       *2090-APA-PRINTER / *2090-TWIN-PRINTER

,VOLUME = *ANY / list-poss(16): <alphanum-name 1..6>

,RETENTION-PERIOD = 10 / <integer 0..999>

,ROTATION = ANY / YES / NO

,TWO-UP-PROCESSING = *ANY / *YES / *NO / *MODE-1 / *MODE-2
```

Operands

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic device names of the tape devices to be assigned for the output of spoolout jobs.

DEVICE-TYPE = *TAPE / <structured-name 1..8>
Device type of the tape.

DESTINATION = *NONE / list-poss(16): *CENTRAL / <alphanum-name 1..8>
Jobs for the specified local device pools can be processed on the specified tape devices.

FORM-NAME =
Forms with which spoolout jobs can be processed on the specified tape devices.

FORM-NAME = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the form required.

FORM-NAME = *STD
Only jobs for which FORM=STD has been specified can be processed on the specified tape devices.

FORM-NAME = *EXCEPT(...)
Forms with which spoolout jobs cannot be processed on the specified tape devices.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded forms.

FORM-NAME = list-poss(16): <alphanum-name 1..6>
List of forms with which spoolout jobs can be processed on the specified tape devices.

USER-IDENTIFICATION =
User IDs under which spoolout jobs can be processed on the specified tape devices.

USER-IDENTIFICATION = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the user ID.

USER-IDENTIFICATION = *EXCEPT(...)
User IDs under which spoolout jobs cannot be processed on the specified tape devices.

USER-IDENT-LIST = list-poss(16): <name 1..8>
List of excluded user IDs.

USER-IDENTIFICATION = list-poss(16): <name 1..8>
List of user IDs under which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-CLASS =
Spoolout classes from which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-CLASS = *ALL
Spoolout jobs from all spoolout classes can be processed on the specified tape devices.

SPOOLOUT-CLASS = *EXCEPT(...)
Spoolout classes from which spoolout jobs cannot be processed on the tape devices.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of excluded spoolout classes.

SPOOLOUT-CLASS = list-poss(16): <integer 1..255>
List of spoolout classes from which spoolout jobs can be processed on the tape devices.

SPOOLOUT-NAME =
Job names under which spoolout jobs can be processed on the specified tape devices.

SPOOLOUT-NAME = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the job name.

SPOOLOUT-NAME = *EXCEPT(...)
Job names under which spoolout jobs cannot be processed on the specified tape devices.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of excluded job names.

SPOOLOUT-NAME = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names under which spoolout jobs can be processed on the tape devices.

ACCOUNT =
Account numbers with which spoolout jobs can be processed on the specified tape devices.

ACCOUNT = *ALL
Spoolout jobs with any account number can be processed on the specified tape devices.

ACCOUNT = *EXCEPT(...)
Account numbers with which spoolout jobs cannot be processed on the specified tape devices.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of excluded account numbers.

ACCOUNT = list-poss(16): <alphanum-name 1..8>
List of account numbers with which spoolout jobs can be processed on the specified tape devices.

FORMS-OVERLAY =
Names of the film overlays with which spoolout jobs can be processed on the specified tape devices.

FORMS-OVERLAY = *ALL
Spoolout jobs can be processed on the specified tape devices with any film overlay.

FORMS-OVERLAY = *NONE
Only spoolout jobs which do not use film overlays can be processed on the specified tape devices.

FORMS-OVERLAY = *ONLY
Only spoolout jobs which use (any) film overlays can be processed on the specified tape devices.

FORMS-OVERLAY = *EXCEPT(...)
Spoolout jobs which use one of the specified film overlays cannot be processed on the specified tape devices.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of excluded film overlays.

FORMS-OVERLAY = list-poss(16): <alphanum-name 2..2>
List of film overlays with which spoolout jobs can be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER =
Determines whether spoolout jobs which require an FOB data overlay can be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER = *ANY
Spoolout jobs can be processed on the specified tape devices, regardless of whether or not they require an FOB data overlay.

FORMS-OVERLAY-BUFFER = *ONLY
Only spoolout jobs which use an FOB data overlay can be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER = *NO
Spoolout jobs which use an FOB data overlay cannot be processed on the specified tape devices.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Only spoolout jobs which use an FOB data overlay the size of which falls within the specified range can be processed on the specified tape devices.

LOW = 0 / <integer 0..32767>
Lower range limit.

HIGH = 4032 / <integer 0..32767>
Upper range limit for HP90 printers: 4032 sublines. Upper range limit for HP printers: 672 sublines.

PRIORITY =
Priorities of the spoolout jobs which can be processed on the specified tape devices.

PRIORITY = *ALL
Spoolout jobs with any priority can be processed on the specified tape devices.

PRIORITY = *RANGE(...)
Spoolout jobs with priorities within the specified range can be processed on the specified tape devices.

FROM = 30 / <integer 30..255>
Lower range limit.

TO = 255 / <integer 30..255>
Upper range limit.

CHARACTER-SET-NUMBER =
Number of character sets required with which spoolout jobs can be processed on the specified tape devices.

CHARACTER-SET-NUMBER = *ALL
Spoolout jobs can be processed on the specified tape devices irrespective of the number of character sets required.

CHARACTER-SET-NUMBER = *ONE
Spoolout jobs which require no more than one character set can be processed on the specified tape devices.

CHARACTER-SET-NUMBER = *RANGE(...)
Spoolout jobs which require a number of character sets which falls within the specified range can be processed on the specified tape devices.

LOW = 1 / <integer 1..32767>
Lower range limit.

HIGH = 64 / <integer 1..32767>
Upper range limit.

SPOOLOUT-TYPE =
Spoolout jobs for certain types of output device can be processed on the specified tape devices.

SPOOLOUT-TYPE = *ALL
Spoolout jobs for all device types can be processed on the specified tape devices.

SPOOLOUT-TYPE = *HP-PRINTER
Only spoolout jobs for HP printers (3351, 3353) can be processed on the specified tape devices.

SPOOLOUT-TYPE = *PRINTER
Only spoolout jobs for printers can be processed on the specified tape devices.

SPOOLOUT-TYPE = *PAGE-PRINTER
Only spoolout jobs for laser printers can be processed on the specified tape devices.

SPOOLOUT-TYPE = *BUFFER-LINE-PRINTER
Spoolout jobs for line printers with loadable VFBs (3337, 3338, 3339, 3348, 3349) can be processed on the specified tape devices.

SPOOLOUT-TYPE = *LIST(...)
Spoolout jobs for the specified list of device types can be processed on the specified tape devices.

SELECTION-TYPE = *MAY / *MUST
Selection of spoolout jobs is restricted to those which at least may be output on one of the specified device types (*MAY) or to those which must be output on one of the specified device types, i.e. on no other device type than the ones specified (*MUST).

DEVICE-TYPE = list-poss(8): *HP-PRINTER / *LP-PRINTER / *LP48-PRINTER / *LP65-PRINTER / *PCL-PRINTER / *HP90-PRINTER / *LP-EMULATED-PRINTER / *2050-APA-PRINTER / *2090-APA-PRINTER / *2090-TWIN-PRINTER
List of device types. For the symbolic names see the “Spool & Print - Commands” manual [42].

VOLUME =
Volume labels of the tapes which are to be assigned for spoolout jobs for output to tape (WRITE-SPOOL-TAPE) (see "Notes").

VOLUME = *ANY
Accepts the volume label of the mounted tape.

VOLUME = list-poss(16): <alphanum-name 1..6>
Volume labels of the tapes to be used.

RETENTION-PERIOD = 10 / <integer 0..999>
Period in days during which the files are to be stored on tape.

ROTATION =
Determines whether spoolout jobs which require the page rotation module can be processed on the specified tape devices.

ROTATION = *ANY
Spoolout jobs can be processed on the specified tape devices, regardless of whether or not they require the page rotation module.

ROTATION = *NO
Only spoolout jobs which do not require the page rotation module can be processed on the specified tape devices.

ROTATION = *YES
Only spoolout jobs which require the page rotation module can be processed on the specified tape devices.

TWO-UP-PROCESSING = *ANY / *YES / *NO / *MODE-1 / *MODE-2
Only SPOOLOUT jobs with the specified value TWO-UP-PROCESSING can be processed on the specified tape devices.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value

7.60 START-TAPE-REPLAY

Assign tape devices for replay

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	OPERATING PRINT-SERVICE-ADMINISTRATION
Routing code:	S

Function

The START-TAPE-REPLAY command assigns tape devices for replay jobs. The files read in are either entered in the queue or output directly (OUTPUT-MODE operand).

Notes

- OUTPUT-MODE=*FROM-DISK-COPY is used in the following cases, even if OUTPUT-MODE=*DIRECT has been specified:
  - if one of the following operands has been specified in the PRINT-DOCUMENT command:
    - REPEAT = ...
    - FILE-PART = *LAST(...)
    - CONTROL-CHARACTERS = *APA
  - the file can only be printed on an APA printer
  - the file extends over several tapes
- During output of a replay tape the selection of jobs must not be changed by issuing further START-TAPE-REPLAY commands. The only option is to disconnect the tape device from SPOOL using the STOP-TAPE-REPLAY command and then assign the terminal for spoolout by means of a new START-TAPE-REPLAY command and other selection operands.
- To execute a spoolout request for a tape device, all of the scheduling operands must apply to the device. If this is not the case, the spoolout request remains in the queue.
- If no scheduling operands are specified, any spoolout for a specified device can be executed. If, however, scheduling operands are specified, only spoolout requests which match all the specifications can be executed.
- The hierarchy of operands for controlling spoolout is described in the section on scheduling in the “SPOOL” manual [43].

Format

START-TAPE-REPLAY

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>

,**DEST**INATION = **_*NONE_** / list-poss(16): ***CENTRAL** / <alphanum-name 1..8>

,**FORM-NAME** = **_*ALL_** / ***STD** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..6>

***EXCEPT**(...)

| **FORMS-LIST** = list-poss(16): <alphanum-name 1..6>

,**USER-ID**ENTIFICATION = **_*ALL_** / ***EXCEPT**(...) / list-poss(16): <name 1..8>

***EXCEPT**(...)

| **USER-ID**ENT**-LIST** = list-poss(16): <name 1..8>

,**SP**OOLOUT**-CL**ASS = **_*ALL_** / ***EXCEPT**(...) / list-poss(16): <integer 1..255>

***EXCEPT**(...)

| **SP**OOLOUT**-CL**ASS**-LIST** = list-poss(16): <integer 1..255>

,**SP**OOLOUT**-NAME** = **_*ALL_** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

***EXCEPT**(...)

| **SP**OOLOUT**-NAME-LIST** = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>

,**ACCOUNT** = **_*ALL_** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 1..8>

***EXCEPT**(...)

| **ACCOUNT-LIST** = list-poss(16): <alphanum-name 1..8>

,**FORMS-OVERLAY** = **_*ALL_** / ***NONE** / ***ONLY** / ***EXCEPT**(...) / list-poss(16): <alphanum-name 2..2>

***EXCEPT**(...)

| **FORMS-O**VERLAY**-LIST** = list-poss(16): <alphanum-name 2..2>

,**FORMS-O**VERLAY**-BUFFER** = **_*ANY_** / ***ONLY** / ***NO** / ***RANGE**(...)

***RANGE**(...)

| **LOW** = **_0_** / <integer 0..32767>

| ,**HIGH** = **_4032_** / <integer 0..32767>

,**PRIO**RITY = **_*ALL_** / ***RANGE**(...)

***RANGE**(...)

| **FROM** = **_30_** / <integer 30..255>

```
        |       ,TO = 255 / <integer 30..255>
,ROTATION = *ANY / *YES / *NO
,TWO-UP-PROCESSING = *ANY / *YES / *NO / *MODE-1 / *MODE-2
,CHARACTER-SET-NUMBER = *ALL / *ONE / *RANGE(...)
    *RANGE(...)
        |       LOW = 1 / <integer 1..32767>
        |       ,HIGH = 64 / <integer 1..32767>
,SPOOLOUT-TYPE = *ALL / *HP-PRINTER / *PRINTER / *PAGE-PRINTER /
                    *BUFFER-LINE-PRINTER / *LIST(...)
    *LIST(...)
        |       SELECTION-TYPE = *MAY / *MUST
        |       ,DEVICE-TYPE = list-poss(8): *HP-PRINTER / *LP-PRINTER / *LP65-PRINTER /
        |                   *PCL-PRINTER / *HP90-PRINTER /*LP48-PRINTER / LP-EMULATED-PRINTER /
        |                   *2050-APA-PRINTER / *2090-APA-PRINTER / *2090-TWIN-PRINTER
,VOLUME = list-poss(16): <alphanum-name 1..6>
,OUTPUT-MODE = *FROM-DISK-COPY / *DIRECT
,DIRECTORY-VOLUME = *STD / <alphanum-name 1..6>
```

Operands

UNIT = <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic device name of the tape device from which spoolout jobs are to be processed.

DESTINATION = *NONE / list-poss(16): *CENTRAL / <alphanum-name 1..8>
Jobs for the specified local device pools can be processed from the specified replay tape.

FORM-NAME =
Only the spoolout jobs on the specified tape device for which these forms have been specified can be processed.

FORM-NAME = *ALL
All the spoolout jobs on the replay tape can be processed.

FORM-NAME = *STD
Only spoolout jobs on the specified tape for which FORM=*STD has been specified can be processed.

FORM-NAME = *EXCEPT(...)
Forms with which spoolout jobs on the specified tape device cannot be processed.

FORMS-LIST = list-poss(16): <alphanum-name 1..6>
List of excluded forms.

FORM-NAME = list-poss(16): <alphanum-name 1..6>
List of forms with which spoolout jobs on the specified tape device can be processed.

USER-IDENTIFICATION =
User IDs of spoolout jobs on the specified tape device which can be processed.

USER-IDENTIFICATION = *ALL
Spoolout jobs on the specified tape device can be processed irrespective of the user ID.

USER-IDENTIFICATION = *EXCEPT(...)
User IDs of spoolout jobs on the specified tape device which cannot be processed.

USER-IDENT-LIST = list-poss(16): <name 1..8>
List of excluded user IDs.

USER-IDENTIFICATION = list-poss(16): <name 1..8>
Spoolout jobs on the specified tape device with the specified user IDs cannot be processed.

SPOOLOUT-CLASS =
Spoolout jobs on the specified tape device can be processed according to the spoolout classes specified here.

SPOOLOUT-CLASS = *ALL
Spoolout jobs on the specified tape device can be processed irrespective of the spoolout class.

SPOOLOUT-CLASS = *EXCEPT(...)
Spoolout classes with which spoolout jobs on the specified tape device cannot be processed.

SPOOLOUT-CLASS-LIST = list-poss(16): <integer 1..255>
List of excluded spoolout classes.

SPOOLOUT-CLASS = list-poss(16): <integer 1..255>
List of spoolout classes with which spoolout jobs on the specified tape device can be processed.

SPOOLOUT-NAME =
Job names with which spoolout jobs on the specified tape device can be processed.

SPOOLOUT-NAME = *ALL
Spoolout jobs on the specified tape device can be processed irrespective of the job name.

SPOOLOUT-NAME = *EXCEPT(...)
Job names with which spoolout jobs on the specified tape device cannot be processed.

SPOOLOUT-NAME-LIST = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of excluded job names.

SPOOLOUT-NAME = list-poss(16): <alphanum-name 1..8> / <c-string 1..8 with-low>
List of job names with which spoolout jobs on the specified tape device can be processed.

ACCOUNT =
Account numbers with which spoolout jobs on the specified tape device can be processed.

ACCOUNT = *ALL
Spoolout jobs on the specified tape device can be processed with all account numbers.

ACCOUNT = *EXCEPT(...)
Account numbers with which spoolout jobs on the specified tape device cannot be processed.

ACCOUNT-LIST = list-poss(16): <alphanum-name 1..8>
List of excluded account numbers.

ACCOUNT = list-poss(16): <alphanum-name 1..8>
List of account numbers with which spoolout jobs on the specified tape device can be processed.

FORMS-OVERLAY =
Spoolout jobs on the specified tape device can be processed according to the film overlays they require.

FORMS-OVERLAY = *ALL
Spoolout jobs on the specified tape device can be processed irrespective of the film overlays they require for output.

FORMS-OVERLAY = *NONE
Only spoolout jobs on the tape device which do not use a film overlay can be processed on the specified tape.

FORMS-OVERLAY = *ONLY
Only spoolout jobs on the tape device which use (any) film overlays can be processed on the specified tape.

FORMS-OVERLAY = *EXCEPT(...)
Spoolout jobs on the specified tape device which require the specified film overlays cannot be processed.

FORMS-OVERLAY-LIST = list-poss(16): <alphanum-name 2..2>
List of excluded film overlays.

FORMS-OVERLAY = list-poss(16): <alphanum-name 2..2>
List of film overlays with which spoolout jobs on the specified tape device can be processed.

FORMS-OVERLAY-BUFFER =
The spoolout jobs on the specified tape device can be processed according to the FOB data overlays they require for output.

FORMS-OVERLAY-BUFFER = *ANY
Spoolout jobs on the specified tape device can be processed irrespective of the FOB data overlays they require for output.

FORMS-OVERLAY-BUFFER = *ONLY
Only those spoolout jobs on the specified tape which use an FOB data overlay can be processed.

FORMS-OVERLAY-BUFFER = *NO
The spoolout jobs on the specified tape device which use an FOB data overlay can be processed.

FORMS-OVERLAY-BUFFER = *RANGE(...)
Only spoolout jobs on the specified tape device which use an FOB data overlay within the specified size range can be processed.

LOW = 0 / <integer 0..32767>
Lower range limit.

HIGH = 4032 / <integer 0..32767>
Upper range limit for HP90 printers: 4032 sublines. Upper range limit for HP printers: 672 sublines.

PRIORITY =
Priorities of the spoolout jobs which can be processed on the specified tape device.

PRIORITY = *ALL
Spoolout jobs on the specified tape device can be processed irrespective of their priority.

PRIORITY = *RANGE(...)
Only spoolout jobs on the tape device with priorities within the specified range can be processed.

FROM = 30 / <integer 30..255>
Lower range limit.

TO = 255 / <integer 30..255>
Upper range limit.

ROTATION =
Determines whether spoolout jobs on the tape device can be processed if they need the page rotation module function.

ROTATION = *ANY
Spoolout jobs on the tape device can be processed, regardless of whether or not they require the page rotation module.

ROTATION = *NO
Only spoolout jobs on the tape device which do not require the page rotation module can be processed.

ROTATION = *YES
Only spoolout jobs on the tape device which require the page rotation module can be processed.

TWO-UP-PROCESSING = *ANY / *YES / *NO / *MODE-1 / *MODE-2
Only SPOOLOUT jobs on the tape device that have the specified value TWO-UP-PROCESSING can be processed.

CHARACTER-SET-NUMBER =
Spoolout jobs on the specified tape device can be processed according to the number of character sets required.

CHARACTER-SET-NUMBER = *ALL
Spoolout jobs on the specified tape device can be processed irrespective of the number of character sets required.

CHARACTER-SET-NUMBER = *ONE
Only spoolout jobs on the specified tape device which require no more than one character set can be processed.

CHARACTER-SET-NUMBER = *RANGE(...)
Only spoolout jobs on the specified tape device which require a number of character sets within the specified range can be processed.

LOW = 1 / <integer 1..32767>
Lower range limit.

HIGH = 64 / <integer 1..32767>
Upper range limit.

SPOOLOUT-TYPE =
Only spoolout jobs on the specified tape device for the specified type of output device can be processed.

SPOOLOUT-TYPE = *ALL
Spoolout jobs on the specified tape device for all device types can be processed.

SPOOLOUT-TYPE = *HP-PRINTER
Only spoolout jobs on the specified tape device for HP printers (3351, 3353) can be processed.

SPOOLOUT-TYPE = *PRINTER
Only spoolout jobs on the specified tape device for printers can be processed.

SPOOLOUT-TYPE = *PAGE-PRINTER
Only spoolout jobs on the specified tape device for laser printers can be processed.

SPOOLOUT-TYPE = *BUFFER-LINE-PRINTER
Only spoolout jobs on the specified tape device for line printers with loadable VFBs (3337, 3338, 3339, 3348, 3349) can be processed.

SPOOLOUT-TYPE = *LIST(...)
Spoolout jobs on the tape device for the specified list of device types can be processed.

SELECTION-TYPE = *MAY / *MUST
Selection of spoolout jobs is restricted to those either which at least may be output on one of the specified device types (*MAY) or to those which must be output on one of the specified device types, i.e. on no other device type than the ones specified (*MUST).

DEVICE-TYPE = list-poss(8): *HP-PRINTER / *LP-PRINTER / *LP48-PRINTER / *LP65-PRINTER / *PCL-PRINTER / *HP90-PRINTER / *LP-EMULATED-PRINTER / *2050-APA-PRINTER / *2090-APA-PRINTER / *2090-TWIN-PRINTER
List of device types. For the symbolic names see the “SPOOL” manual [43].

VOLUME = list-poss(16): <alphanum-name 1..6>
VSN of the replay tape which is assigned to process (i.e. output) the files stored on it.

OUTPUT-MODE =
Specifies whether the files read in from the replay tape are to be entered in the queue (*FROM-DISK-COPY) or output directly (*DIRECT).

OUTPUT-MODE = *FROM-DISK-COPY
The files are first copied from tape to disk. The jobs are then entered in the normal spoolout queue (type 4).

OUTPUT-MODE = *DIRECT
The jobs are entered in the “replay queue”, i.e. the printer task reads the data direct from the tape. This saves disk memory space but takes longer.

DIRECTORY-VOLUME = *STD / <alphanum-name 1..6>
Specifies the volume containing the catalog of replay jobs.
If the specified tape is to be processed on another computer the directory of the replay tape must first be imported into the file catalog of the appropriate computer.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value

7.61 START-TASK-MEASUREMENT

Select task for SM2 task statistics

Component:	openSM2
Functional area:	Program control
Domain:	PROGRAM
Privileges:	all privileges bar HARDWARE-MAINTENANCE OPERATING

Function

The START-TASK-MEASUREMENT command allows users to select a task for statistical measurement. The SM2 software monitor then gathers task-specific measurement values and enters this data in a user-specific file.

In addition to the task-specific measurement values, program counter statistics and SVC statistics can also be requested for program runs.

For the program counter statistics, a timer is used to interrupt the program at certain intervals, and the address contained in the program counter of the next instruction to be executed is transferred to the user-specific SM2 output file on each occasion (recording of program counter sampling).

For the SVC statistics, all SVC calls by the program during task monitoring are recorded, and SVC numbers and call addresses are also stored in the SM2 output file.

User task measurement is terminated by the STOP-TASK-MEASUREMENT command or on task termination, and the user-specific SM2 output file is closed. Withdrawal of authorization for task monitoring by the SM2 primary administrator (MODIFY-USER-ADMISSION TASK=*INHIBIT) and unloading of SM2 (STOP-SUBSYSTEM SUBSYSTEM-NAME=SM2) also terminate any current user task measurements.

The separate product SM2-PA is available for evaluation of the SM2 output file created during user task measurement (see the “openSM2” manual [39]).

Note

> The user-specific SM2 output file may exceed the PUBLIC-SPACE-LIMIT defined for the user in the ADD-USER or MODIFY-USER-ATTRIBUTES command, even if PUBLIC-SPACE-EXCESS=*NO is specified.

Privileged functions

Privileged users (SW-MONITOR-ADMINISTRATION privilege) can monitor any task (see TSN operand).

Format

START-TASK-MEASUREMENT

TSN = ***OWN** / <alphanum-name 1..4>

,**FILE** = ***STD** / ***BY-LINK-NAME**

,**PCOUNTER-INTERVAL** = ***NONE** / <integer 1..10000>

,**SVC-STATIS**TICS = ***OFF** / ***ON**

,**LOAD-INFO** = ***STD** / ***DETAILED**

Operands

TSN =
Specifies the task for monitoring.

TSN = *OWN
The task calling the command is monitored.

TSN = <alphanum-name 1..4>
The task with the specified TSN is monitored. The nonprivileged user may only have tasks running under its user ID monitored by SM2.
Restriction: The task SM2U, which processes the user-specific SM2 output files, cannot be monitored.

FILE =
Defines the user- specific SM2 output file.

FILE = *STD
The user-specific SM2 output file is created with default file attributes under the standard name `$userid.SM2.TASKSTATISTIK.nnnn` (see table "File attributes of the user-specific SM2 output file").

FILE = *BY-LINK-NAME
The user defines the file name and further file attributes himself (see table "File attributes of the user-specific SM2 output file").
File assignment takes place via the file link name **PALINK**. Before issuing the START-TASK-MEASUREMENT command the user must create a TFT entry with the file link name `PALINK` for the file to be used see ADD-FILE-LINK command.

PCOUNTER-INTERVAL =
Defines the sampling cycle (in CPU milliseconds of CPU time used by the monitored task) for program counter statistics.

PCOUNTER-INTERVAL = *NONE
Program counter statistics not activated.

PCOUNTER-INTERVAL = <integer 1..10000>
Sampling cycle (in CPU milliseconds of CPU time used). (Only those samples taken in status TU are recorded.)

SVC-STATISTICS =
The SVC calls of the task to be monitored are recorded and written to the user-specific SM2 output file.

SVC-STATISTICS = *OFF
SVC statistics not activated.

SVC-STATISTICS = *ON
SVC statistics activated. (Only those SVCs called in status TU are recorded.)

LOAD-INFO =
Defines the time at which the module load information is to be gathered.

LOAD-INFO = *STD
The module load information is gathered only at program start and program termination time (or at beginning and end of measurement).

LOAD-INFO = *DETAILED
The module load information is gathered at program start time (or at beginning of measurement) and on each load or unload activity involving the task.
If this operand is specified, SM2-PA > V1.0 can precisely convert the gathered addresses into module-relative addresses. However, the work required to do this is greater, particularly if load or unload operations take place frequently within the program.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	NPS0050	System error in SM2 modules. Command rejected
	64	NPS0044	No authorization to monitor task. Command rejected
	64	NPS0045	Task already being monitored by SM2
	64	NPS0046	Task monitoring not initiated by START-TASK-MEASUREMENT. Command rejected
	64	NPS0047	Specified task does not exist
	64	NPS0051	Specified task cannot be monitored by the user
	64	NPS0065	No further tasks can be monitored
	64	NPS0066	Invalid file attributes on the user-specific SM2 output file
	64	NPS0067	DMS code ' (&00)' on macro call ' (&01)' for the user-specific SM2 file output

File attributes of the user-specific SM2 output file

File attribute	FILE = *STD	FILE = *BY-LINK-NAME
Definition of file characteristics	predefined	selectable
File name	$userid.SM2.TASKSTATISTIK.tsn	filename
Block length	BUFFER-LENGTH=STD(2)	BUFFER-LENGTH=STD(number)
Memory allocation	SPACE = RELATIVE (PRIMARY-ALLOCATION=30, SECONDARY-ALLOCATION=30)	SPACE = RELATIVE (PRIMARY-ALLOCATION=number1, SECONDARY-ALLOCATION=number2)
Access method	SAM	no choice, SAM format is mandatory
Open mode	EXTEND	no choice, existing file always continued
Format of data blocks	BLOCK-CONTROL-INFO determined by the corresponding CL2 option of the system	BLOCK-CONTROL-INFO = PAMKEY / NO / WITHIN-DATA-BLOCK

Table 170: File attributes of the user-specific SM2 output file

The BLOCK-CONTROL-INFO=*NO operand is treated like BLOCK-CONTROL-INFO= *WITHIN-DATA-BLOCK because only the SAM format is permitted for the file.

Notes

Generation of module-related program counter and SVC statistics requires the load information (load address and length) for each module that is linked into the monitored program or which is dynamically loaded by the monitored program. This module information is ascertained by SM2 on program termination or on termination of monitoring by STOP-TASK-MEASUREMENT and written to the SM2 output file.

Under certain circumstances, the module information provided by SM2 may be incomplete, or may not be provided at all.

- No information is supplied if user task measurement is inhibited by the SM2 administrator (MODIFY-USER-ADMISSION TASK=*INHIBIT) during the program run being monitored.
- No information is supplied if SM2 is unloaded during the program run being monitored (STOP-SUBSYSTEM SUBSYSTEM-NAME=SM2).
- No information is supplied for modules unloaded during the program run being monitored.
- Incomplete information is supplied if the program being monitored is using overlays. Samplings and SVCs occurring in overlaid modules are attributed to the module loaded on termination of monitoring.
- No information is supplied for modules/subsystems loaded as shared code.
- No information is supplied for programs linked without a test support option.
- No information is supplied for code sections not generated via load operations (e.g. if the coding was transferred to the dynamically requested memory by means of a MOVE instruction).

7.62 START-TRACE

Activate trace

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS OPERATING
Routing code:	R

Function

The START-TRACE command is used to activate the switchable traces. Traces serve to document certain process developments independently of a problem situation. The traces are stored in memory and are overwritten with a wrap-around algorithm.
Both permanent and temporary traces are recorded.
Temporary, switchable traces can be activated for diagnosing problem situations of a development or test phase.

In BS2000 operation, traces are managed by the trace manager, which allows subsystems to report traces via a program interface. The trace manager also supports diagnostic data preparation (for CDUMP) and evaluation (for SODA and DAMP) for all connected traces.

Format

START-TRACE

TRACE-IDENTIFICATION = list-poss(51): <name 1..8>(...) / ***ALL**(...)

<name 1..8>(...)

| **SUBSYS**TEM**-NAME** = ***ALL** / <name 1..8> / ***NONE**

| ,**SUBSYS**TEM**-VERS**ION = ***ALL** / <product-version without-man-corr> /

| <product-version mandatory-man-corr>

***ALL**(...)

| **SUBSYS**TEM**-NAME** = ***ALL** / <name 1..8> / ***NONE**

| ,**SUBSYS**TEM**-VERS**ION = ***ALL** / <product-version without-man-corr> /

| <product-version mandatory-man-corr>

Operands

TRACE-IDENTIFICATION =
Specifies whether all or only specific traces from the list of switchable traces are to be activated.

Possible values are listed in the following table:

Trace ID	Brief description
CCOPY	CCOPY trace
CMSTRACE	CMS trace
CUIRTR	CUIR trace
DISKAI	Trace for disk attention interrupt processing
DIVTRACE	DIV trace
DLMTRACE	DLM trace
DPRTCOM	DPRINTCM communication trace
EMMIO	EMMIO trace
FITC	FITC trace
GSVOLEVT	Trace for GSVOL
MAILCEVT	Trace for mail sender (MAILCLNT subsystem)
MRSCAT	MRSCAT occupation trace
MSCFLOG	Trace for MSCF errors
NDVMTRAC	BAVOLMON I/O trace
PRNGDEVT	Trace for random number generator (PRNGD subsystem)
SM2EVENT	SM2 error trace
SM2FUNCT	SM2 trace for user call
TBOURSE	ETMBOWK trace
TDISAM	K-ISAM trace
TDISAMNK	NK-ISAM trace
TFASTPAM	Trace of the access method
TJLOGLOW	JMS trace
TJOBPOOL	JMS-JOBPOOL trace

TLOCK	Task lock management trace
TNDM#ALL *)	Trace for all NDM FE
TNDM#NKA	Trace for FE NKA module
TNDM#NKD	Trace for FE NKD module
TNDM#NKG	Trace for FE NKG module
TNDM#NKL	Trace for FE NKL module
TNDM#NKR	Trace for FE NKR module
TNDM#NKS	Trace for FE NKS module
TNDM#NKT	Trace for FE NKT module
TNDM#NKV	Trace for FE NKV module
TRFA	Remote file access trace
TRSOADM	RSO trace
TSSVADM	SPOOL trace
VMMALLOC	Trace for VM allocation

*) If the trace TNDM#ALL is switched on, all the other NDM traces (TNDM#...) are automatically set to the “ON” state. If any one of these traces is then deactivated by a STOP-TRACE, the NDM general trace TNDM#ALL is put into the “ON_OFF” state.

Table 171: Possible values for START-TRACE ID=*ALL

TRACE-IDENTIFICATION = list-poss(51): <name 1..8>(...)
Specifies the names of up to 51 traces to be activated. The specified traces must be OFF (deactivated) or ON/OFF (trace is only partially activated, i.e. it collects information on different events).
If the traces involved are not statically defined, they are assigned to a specific subsystem that can be defined in more detail in the following operands.

SUBSYSTEM-NAME =
Specifies the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = *ALL
The traces are to be activated in all cases, regardless of the subsystem to which they are assigned.

SUBSYSTEM-NAME = <name 1..8>
Exact specification of the subsystem to which the trace to be activated is assigned.

SUBSYSTEM-NAME = *NONE
Only statically defined traces that are not assigned to any subsystem are to be activated.

SUBSYSTEM-VERSION =
Specifies the version of the subsystem to which the trace is assigned.

SUBSYSTEM-VERSION = *ALL
The traces are to be activated for all versions of the selected subsystem.

SUBSYSTEM-VERSION = <product-version without-man-corr> / <product-version mandatory-man-corr>
Specifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "SDF syntax representation").

TRACE-IDENTIFICATION = *ALL(...)
All traces are to be activated.
If the traces involved are not statically defined, they are assigned to a specific subsystem that can be defined in more detail in the following operands.

SUBSYSTEM-NAME =
Specifies the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = *ALL
The traces are to be activated in all cases, regardless of the subsystem to which they are assigned.

SUBSYSTEM-NAME = <structured-name 1..8>
Exact specification of the subsystem to which the trace to be activated is assigned.

SUBSYSTEM-NAME = *NONE
Only traces that are not assigned to any subsystem are to be activated.

SUBSYSTEM-VERSION =
Specifies the version of the subsystem to which the trace is assigned.

SUBSYSTEM-VERSION = *ALL
The traces are to be activated for all versions of the selected subsystem.

SUBSYSTEM-VERSION = <product-version without-man-corr> / <product-version mandatory-man-corr>
Specifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "SDF syntax representation").

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	Specified traces are already “on”
2	0	PDT0201	One of the specified traces is already “on”
	32	CMD0221	Internal error
1	32	PDT0203	Specified trace not switchable
2	32	PDT0203	One of the traces specified in the list is not switchable
1	32	PDT0210	Invalid on/off pattern for the specified trace
2	32	PDT0210	Invalid on/off pattern for one of the traces specified in the list Specified trace does not exist
1	64	PDT0200	One of the traces specified in the list does not exist
2	64	PDT0200	Trace is of type PERMANENT
1	64	PDT0202	Trace is of type PERMANENT
2	64	PDT0202	One of the traces specified in the list is of the type PERMANENT
	64	PDT0209	No authorization for command
1	64	PDT0214	Activation of some traces was rejected with different error messages; no action taken
2	64	PDT0214	Activation of some traces was rejected with different error messages; other specified traces were activated

7.63 STOP-ACCOUNTING

Close accounting file and terminate accounting system

Component:	BS2000
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	TSOS

Function

The STOP-ACCOUNTING command enables systems support staff to terminate the accounting system.
The collection of the selected accounting records is terminated and the current accounting file is closed. Insofar as they differ from the default values, any values specified when the accounting system was activated or the accounting file changed have to be specified anew using the START-ACCOUNTING command if the accounting file is subsequently restarted. This applies to values such as the following:

- accounting file attributes
- selection of the accounting records
- list of the continuation file names
- cycle of the periodic accounting interval
- selection of monitored job classes

Format

STOP-ACCOUNTING

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No error, but no action
2	0	NAM3001	Requested action performed, but linked with a warning
	1	CMD0202	Syntax error
	32	CMD0221	Internal system error
	64	NAM0012	No authorization for the command
	128	CMD2280	Temporarily unable to execute the command

7.64 STOP-CONFIGURATION-UPDATE

Stop dynamic I/O configuration change

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

With the STOP-CONFIGURATION-UPDATE command, systems support terminates the dynamic I/O configuration changes that was started with the START-CONFIGURATION-UPDATE command.

Configuration modifications made in the course of a dynamic I/O configuration changes are first performed in the active IORSF (Input/Output Resource File). In order to have the modified input/output configuration available for the next session, the current IORSF can be saved on the SVP hard disk using the IORSF-UPDATE operand. The DEVICE-RESERVE operand can be used to ensure that a free reserve area is created for later extensions when the data is written back. By default, the size of the active IORSF is not changed when writing back (an IORSF created with IOGEN creates a reserve area for 512 entries).
If the system crashes before this has been done, any modifications made to the configuration will not be lost in the next IPL, since the BS2000 input/output tables are derived from the active IORSF when the system is started.
The command can be entered more than once, i.e. if the user forgets to back up the active IORSF at a particular level on entry then the backup can be performed subsequently by entering a further, corrected STOP-CONFIGURATION-UPDATE command.

When the dynamic I/O configuration change has been concluded successfully, the ADD-IO-UNIT, REMOVE-IO-UNIT and MODIFY-IO-UNIT reconfiguration commands are no longer accepted.

Format

STOP-CONFIGURATION-UPDATE

```
IORSF-UPDATE = *NO / *YES(...)

    *YES(...)

        |    LEVEL = <integer 0..15>

        |    ,DEVICE-RESERVE = *UNCHANGED / <integer 16..2048>
```

Operands

IORSF-UPDATE = *NO / *YES(...)
Specifies whether the IORSF is to be updated on the SVP hard disk.

IORSF-UPDATE = *YES(...)
The active IORSF is to be updated on the SVP hard disk.

LEVEL = <integer 0..15>
Defines the level for the IORSF to be written back.

DEVICE-RESERVE = *UNCHANGED / <integer 16..2048>
Number of devices for which a reserve area for later extensions is to be created in the IORSF.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKR0006	Syntax error
	64	CMD0216	User does not have authorization
1	64	NKR0169	System error
4	64	NKR0169	Dynamic I/O configuration change is not supported
12	64	NKR0169	Dynamic I/O configuration change was not started

7.65 STOP-FILE-CACHING

Stop PFA caching for file

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING TSOS

Function

The STOP-FILE-CACHING command terminates caching for an open file or for a closed file for which data is still stored in the cache for further processing (see CLOSE-MODE=*KEEP-DATA-IN-CACHE in the ADD-FILE-LINK command). The data in the cache will be written back, except in the case of read-only caching, and will then be invalidated.

This requires the file to be on a pubset for which a cache configuration is defined in the MRSCAT and the cache to be active, i.e. PFA caching has to be activated for the pubset. The command caller must have access authorization for the file.
The pubset where the file is stored must be accessible on the local host.

Format

STOP-FILE-CACHING
FILE-NAME = <filename 1..54>

Operands

FILE-NAME = <filename 1..54>
Name of the file for which caching is to be terminated.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CMD0001	The desired state had already been reached
	1	CMD0202	Syntax error
	32	DMS1D0E	MSCF connection error
	32	DMS1D10	Internal error
	64	DMS1D03	User does not have access authorization for the file
	64	DMS1D05	File not open (on the local host)
	64	DMS1D06	No cache available
	64	DMS1D0A	File not allowed (or not available)
	64	DMS1D0D	Storage bottleneck
	64	DMS1D0F	Error during catalog management call
	64	DMS1D11	'DAB' subsystem not found
	80	DMS1D0C	Error during file update/invalidation

7.66 STOP-HARDWARE-AUDIT

Terminate hardware AUDIT mode and release hardware AUDIT table

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

The STOP-HARDWARE-AUDIT command terminates the recording of branch instructions (hardware AUDIT mode previously activated with START-HARDWARE-AUDIT or RESUME-HARDWARE-AUDIT) and releases the hardware AUDIT table along with any existing backup table.

Privileged functions

Systems support (TSOS privilege) can exempt all tasks from AUDIT control.

Format

STOP-HARDWARE**-AUDIT**

SCOPE = ***OWN-JOB** / ***ALL-JOBS** / ***TID**(...) / ***TSN**(...)

***TID**(...)

| TID = <alphanum-name 1..8>

***TSN**(...)

| TSN = <alphanum-name 1..4> / <c-string 1..4>

,STATE = ***USER** / ***SYS**TEM

Operands

SCOPE = *OWN-JOB / *ALL-JOBS / *TID(...) / *TSN(...)
Scope of the hardware AUDIT function.

SCOPE = *OWN-JOB
The request applies to TU actions in the user's own task (in which the command was issued).

SCOPE = *ALL-JOBS
*This value is only allowed in conjunction with STATE=*SYSTEM.*
Release of AUDIT control is to include all jobs in the system. This presupposes that AUDIT has been activated with SCOPE=*ALL-JOBS.

SCOPE = *TID(...)
Only the task identified here by its internal task identifier (TID) is released from AUDIT control. Nonprivileged users can only specify tasks running under their own user ID.

TID = <alphanum-name 1..8>
Task identifier of the task.

SCOPE = *TSN(...)
Only the task identified here by its task sequence number (TSN) is released from AUDIT control. Nonprivileged users can only specify tasks running under their own user ID.

TSN = <alphanum-name 1..4> / <c-string 1..4>
Task sequence number of the task.

STATE =
Processor state to which the scope specified in the SCOPE operand is to relate.

STATE = *USER
The hardware AUDIT is to be stopped for the nonprivileged processor state TU.

STATE = *SYSTEM
Only privileged users are allowed to select this operand value.
The hardware AUDIT is to be stopped for the privileged processor state TPR.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	CMD2201	Specified task does not exist
	64	CMD0216	User does not have required authorization
	64	IDA0001	Hardware AUDIT not active
	64	IDA0003	Hardware AUDIT table not created
	64	IDA0011	User not privileged
	64	IDA0023	Hardware AUDIT not available because user entry does not contain authorization
	64	IDA0024	Hardware AUDIT not available due to the current test option settings for the active task

7.67 STOP-HEL-LOGGING

Deactivate hardware error logging

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	HARDWARE-MAINTENANCE TSOS

Function

The STOP-HEL-LOGGING command deactivates hardware error logging and closes the logging file.
Logging can be reactivated with the START-HEL-LOGGING command. Logging is automatically reactivated the next time the system is started up.

Format

STOP-HEL-LOGGING

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command successfully executed
1	0	CMD0001	Hardware error logging is already disabled
	32	HEL0100	Internal error
	32	HEL0102	Resources cannot be released
	32	HEL0105	Bourse problems
	32	HEL0107	DMS error
	64	HEL0110	Privilege error

Example

See the SHOW-HEL-LOGGING command.

7.68 STOP-JOB-STREAM

Terminate job stream and associated job scheduler

Component:	BS2000
Functional area:	Job processing
Domain:	JOB
Privileges:	TSOS OPERATING
Routing code:	J

Function

Using this command, the system administration can terminate a job stream, and hence implicitly also the job scheduler. The command is normally issued only if, in the JMU statement DEFINE-JOB-STREAM for this job stream,

- the STOP operand contains the value *BY-OPERATOR
- a stream termination time was specified which is now to be changed.

When a job stream is terminated the job scheduler is also terminated. Jobs are still accepted but are no longer started. They are placed in the ‘dormant queue’ of the stream.

Format

STOP-JOB-STREAM
STREAM-NAME = <name 1..8>

Operands

STREAM-NAME = <name 1..8>
Name of the job stream to be terminated.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	CMD0221	System error
	64	JMS0630	Semantic error
	64	JMS0640	Command cannot be executed

7.69 STOP-LINKAGE-AUDIT

Terminate linkage AUDIT mode and release linkage AUDIT table

Component:	BS2000
Functional area:	AUDIT mode control
Domain:	PROGRAM
Privileges:	STD-PROCESSING TSOS

Function

This command terminates the subroutine trace (linkage AUDIT mode) that was activated with the START-LINKAGE-AUDIT command.

Privileged functions

Systems support (TSOS privilege) can also deactivate the linkage AUDIT mode for the processor states TPR and SIH.

Format

STOP-LINKAGE**-AUDIT**

STATE = ***USER** (...) / ***SYS**TEM(...) / ***PROCES**SOR(...)

***USER**(...)

| SCOPE = ***OWN-JOB** / ***TID**(...) / ***TSN**(...)

| ***TID**(...)

| | TID = <alphanum-name 1..8>

| ***TSN**(...)

| | TSN = <alphanum-name 1..4> / <c-string 1..4>

***SYS**TEM(...)

| SCOPE = ***OWN-JOB** / ***ALL-JOBS** / ***TID**(...) / ***TSN**(...)

| ***TID**(...)

| | TID = <alphanum-name 1..8>

| ***TSN**(...)

| | TSN = <alphanum-name 1..4> / <c-string 1..4>

***PROCES**SOR(...)

| SCOPE = ***INTERRUPT-HANDLING** / ***SYS**TEM**-LEVEL**

Operands

STATE = *USER(...) / *SYSTEM(...) / *PROCESSOR(...)
Processor state for which the linkage AUDIT is to be deactivated.

STATE = *USER(...)
The linkage AUDIT is to be deactivated for the nonprivileged processor state TU. Nonprivileged users can only specify tasks running under their own user ID.

SCOPE = *OWN-JOB / *TID(...) / *TSN(...)
Scope of the linkage AUDIT function.

SCOPE = *OWN-JOB
The request applies to the user's own task.

SCOPE = *TID(...)
Only a task that is identified by means of the specified internal task number (TID) is to be released from monitoring by linkage AUDIT.

TID = <alphanum-name 1..8>
Task identifier that is assigned to the task for which monitoring is to cease.

SCOPE = *TSN(...)
Only a task that is identified by means of the specified task sequence number (TSN) is to be released from monitoring by linkage AUDIT.

TSN = <alphanum-name 1..4> / <c-string 1..4>
TSN that is assigned to the task for which monitoring is to cease.

STATE = *SYSTEM(...)
Only privileged users are allowed to select this operand value.
The linkage AUDIT is to be deactivated for the privileged processor state TPR.

SCOPE = *OWN-JOB / *ALL-JOBS / *TID(...) / *TSN(...)
Scope of applicability of the linkage AUDIT function.

SCOPE = *OWN-JOB
The request applies for the user's own (TSOS) job.

SCOPE = *ALL-JOBS
All the jobs currently in the system are no longer to be monitored by linkage AUDIT.

SCOPE = *TID(...)
A single task, identified by its internal task number (TIN) is to be released from monitoring by linkage AUDIT.

TID = <alphanum-name 1..8>
The task identifier assigned to the job which is no longer to be monitored.

SCOPE = *TSN(...)
A single task, identified by its task sequence number (TSN) is to be released from monitoring by linkage AUDIT.

TSN = <alphanum-name 1..4> / <c-string 1..4>
The assigned TSN of the job which is no longer to be monitored.

STATE = *PROCESSOR(...)

Only privileged users are allowed to select this operand value.

The linkage AUDIT is to be deactivated for the local processor only, for the privileged processor states SIH and TPR.

SCOPE = *INTERRUPT-HANDLING / *SYSTEM-LEVEL

Scope of applicability of the linkage AUDIT function.

SCOPE = *INTERRUPT-HANDLING

The request applies for the processor state SIH.

SCOPE = *SYSTEM-LEVEL

The request applies for both privileged processor states, SIH and TPR.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	64	CMD0216	User does not have required authorization
	64	IDA0030	Linkage AUDIT not active
	64	IDA0032	Linkage AUDIT table not assigned
	64	IDA0038	Specified task does not exist
	64	IDA0044	Linkage AUDIT running with STATE=*SYSTEM; STATE=*PROCESSOR rejected
	64	IDA0052	Linkage AUDIT not available because the user entry does not contain an authorization
	64	IDA0053	Linkage AUDIT not available because the current test option settings for the active task
	64	IDA0060	AUDIT functions globally not available in this session

7.70 STOP-PRINTER-OUTPUT

Cancel printer assignment

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING OPERATING PRINT-SERVICE-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	S

Function

The STOP-PRINTER-OUTPUT command cancels the assignment of printers. Nonprivileged users (STD-PROCESSING) can issue the command only when acting as RSO device administrators. The specified printer will cease to be available once any spoolout job currently running on it has been completed. Print jobs scheduled for printing only on the specified device (as specified in the PRINT-DOCUMENT command, for example) are maintained in a job queue and are not printed until the device administrator responsible for the device assigns it again for these jobs.
The administration parameters of a device which has already been assigned can be changed with the MODIFY-PRINTER-OUTPUT-STATUS command.

> Starting with BS2000 OSD/BC V11.0, printers that are connectable to the channel are no longer supported. However, print jobs for “local” printers defined in SPOOL are still accepted and can be forwarded to real, LAN-connected high performance printers by using a SPOOL add-on product (e.g. ROUTER by Océ).
> The STOP-PRINTER-OUTPUT command does not terminate this forwarding. Although it is still accepted for local printers, it only has an effect on RSO printers and virtual devices.

Privileged functions:

RSO device administrators and spool and cluster administrators can cancel the assignment of any device that they manage. For more information on these user groups see the manuals “RSO” [32], “SPOOL” [43] and “Distributed Print Services” [10].

Format

STOP-PRINTER-OUTPUT

DEVICE-NAME = ***ANY-LOC**AL**-PRINT**ER(...) / ***RSO-PRINT**ER(...)

***ANY-LOC**AL**-PRINT**ER(...)

| UNIT = list-poss(8): <alphanum-name 1..8>

| ,STOP = ***STD** / ***IMMED**IATE

***RSO-PRINT**ER(...)

| NAME = list-poss(8): <alphanum-name 1..8>

| ,STOP = ***STD** / ***IMMED**IATE

Operands

DEVICE-NAME =
Types of printer to be disconnected.

DEVICE-NAME = *ANY-LOCAL-PRINTER(...)
For privileged users only (see “Privileges” above).
Local printers are to be disconnected.

UNIT = list-poss(8): <alphanum-name 1..8>
Mnemonic device names or device names of the local printers which are to be disconnected.

STOP = *STD / *IMMEDIATE
Specifies whether printout is to be terminated immediately or a currently active job is to be completed first.

DEVICE-NAME = *RSO-PRINTER(...)
Not for nonprivileged users other than RSO device administrators.
RSO printers are to be disconnected.

NAME = list-poss(8): <alphanum-name 1..8>
Names of the RSO printers which are to be disconnected.

STOP = *STD / *IMMEDIATE
Specifies whether printout is to be terminated immediately or a currently active job is to be completed first.

Return codes

(SC2)	SC1	Maincode	Meaning /Guaranteed messages
	0	CMD0001	No error Guaranteed message: SPS0B06
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	32	SRO0174	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value
	64	SRO0175	No authorization for command
	64	SRO0176	Invalid operand value
	128	SCP0896	Subsystem not loaded/ready Guaranteed message: SCP0896

7.71 STOP-PUBSET-CACHING

Deactivate PFA cache area during session

Component:	BS2000
Functional area:	Caching media control Pubset and MRSCAT management
Domain:	MULTI-CATALOG-AND-PUBSET-MGMT
Privileges:	TSOS

Function

Systems support staff can use this command during a session to withdraw (deactivate) a cache area activated with the START-PUBSET-CACHING command (or implicitly with IMPORT-PUBSET) from an imported SF pubset or from a volume set in an imported SM pubset.
The write data in the PFA cache area is written out to disk and PFA caching is deactivated for the pubset/volume set.

Systems support can obtain information about the currently applicable cache configuration by using the command SHOW-PUBSET-CACHE-ATTRIBUTES (and also SHOW-PUBSET-PARAMETERS).

This command is also supported for shared pubsets.
In a shared pubset network, the command can be issued on the master system or on a slave. A system message refers to the system which is issuing the command, unless it is preceded by message DMS136D, which then includes the name of the system (master or slave) on which the error has occurred. If the command is issued on a slave system, the system name may also be the local host name.

Format

STOP-PUBSET-CACHING

PUBSET = <cat-id 1..4>

,**PUB**SET**-TYPE** = ***SINGLE-FEATURE** / ***SYS**TEM**-MANAG**ED(...)

***SYS**TEM**-MANAG**ED(...)

| **VOL**UME**-SET** = <cat-id 1..4>

Operands

PUBSET = <cat-id 1..4>
ID of the SF pubset from which the cache area is to be withdrawn or of the SM pubset.

PUBSET-TYPE = *SINGLE-FEATURE / *SYSTEM-MANAGED(...)
Indicates whether the pubset is an SF pubset or an SM pubset.

PUBSET-TYPE = *SINGLE-FEATURE
The pubset is an SF pubset. The cache is directly assigned to the SF pubset.

PUBSET-TYPE = *SYSTEM-MANAGED(...)

The pubset is an SM pubset. The cache is assigned to a single volume set.

VOLUME-SET = <cat-id 1..4>

Identifies the volume set to which the cache is assigned.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
1	0	DMS1357	No cache area active
	32	DMS1351	Pubset management parameter error
	32	DMS135F	Internal system error
	32	DMS1398	Reconfiguration no longer possible
	64	DMS1352	Not authorized to use command
	64	DMS1353	MRSCAT entry not found
	64	DMS1354	Pubset not locally imported
	64	DMS1358	Function is not supported
	64	DMS135E	Cache handler not available
	64	DMS1364	Cache area still active, data not written out to disk, disk or cache error
	64	DMS1381	Volume set conflict
	64	DMS138D	Pubset type conflict
	64	DMS1390	Earlier reconfiguration job not yet completed
	64	DMS1397	Reconfiguration by partner system not supported
	64	DMS139D	Volume not accessible
	128	DMS1363	Class 4/5 memory shortage
	128	DMS1389	Error in transmission to partner system
	128	DMS139A	Other pubset reconfiguration job still active
	128	DMS139B	Volume or volume set is reserved
	128	DMS139C	Pubset configuration file still locked

7.72 STOP-RESOURCE-COLLECTION

Stop collector selection

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	J

Function

This command terminates the selection of a collector task by the system from the time of command input.

Note

If a task is the collector at the time of command input, it does not lose its collector characteristic. If a task is made the collector at this time, the command likewise has no influence on it. The characteristics of the tasks in the secure queue also remain unaffected.

Format

STOP-RESOURCE-**COLL**ECTION

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	64	NKS0041	Control task for SECURE queue with TSN=NKS not active. Command not executed.

7.73 STOP-SERSLOG

Deactivate software error logging

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS OPERATING
Routing code:	A

Function

The STOP-SERSLOG command terminates the SERSLOG system function, which is used to log software errors. If SERSLOG is not active, the command is rejected.
The command terminates the SERS task and closes the current SERSLOG file $TSOS.SYS.SERSLOG.yyyy-mm-dd.xxx.nn. Errors suitable for logging can no longer be collected until the function is restarted (START-SERSLOG command).

The START-SERSLOG command will be rejected until the SERS task has been fully terminated (all jobs which have already been issued must be completed).

Format

STOP-SERSLOG

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	NER0000	Internal error
	32	CMD0221	System error
	32	NER0000	Internal error
	64	NER1070	Task termination currently being processed
	64	NER1000	No authorization for the command
	64	NER1040	DMS error
	128	NER1010	A SERSLOG command is currently being processed
	129	NER1020	SERSLOG function is not active

7.74 STOP-SUBSYSTEM

Deactivate subsystem

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	OPERATING SUBSYSTEM-MANAGEMENT
Routing code:	R

Function

This command enables systems support staff to deactivate a subsystem. The command functions in the following sequence:

1. The subsystem in question is locked for all new callers.
2. The subsystem is deactivated as soon as all jobs connected to it have terminated normally.
   When the FORCED=*YES operand is specified, the subsystem is unloaded without waiting any further for the connected jobs. Any attempt of these jobs to obtain access later results in an error. In the case of privileged subsystems it leads either to a user dump or, if defined, to the corresponding STXIT contingency being called and the reaction programmed there.
   However, FORCED=*YES will be accepted only if the STOP-SUBSYSTEM command has already been issued with FORCED=*NO and failed to terminate the tasks.
3. The subsystem is unloaded.
4. All occupied resources are released.

The STOP-SUBSYSTEM command is rejected if:

- the subsystem cannot be found in the dynamic subsystem catalog
- subsystems that have already been activated or are in the process of being activated are dependent on the subsystem to be deactivated
- subsystems that have already been activated or are in the process of being activated are linked to the subsystem to be deactivated.
- FORCED=*YES is used without a previous attempt to terminate using FORCED=*NO.

Format

STOP-SUBSYSTEM

SUBSYSTEM-NAME = <structured-name 1..8>

,**VERSION** = ***STD** / <product-version mandatory-man-corr> / <product-version without-man-corr> / ***HIGHEST**

,**SUBSYS**TEM-**PAR**AMETER = ***NONE** / <c-string 1..254>

,**FORCED** = ***NO** / ***Y**ES

,**SYNCH**RONOUS = ***NO** / ***Y**ES

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Name of the subsystem to be deactivated.

VERSION = *STD / <product-version mandatory-man-corr> / <product-version without-man-corr> / *HIGHEST
Specifies the version number.
If a version number is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also the description of the data type "SDF syntax representation").

VERSION = *STD
If only **one** version of the loaded subsystem exists, this version is selected. If **more than one** matching version exists, the version must be specified.

VERSION = *HIGHEST
Selects the highest version of the subsystem entered in the static subsystem catalog.

SUBSYSTEM-PARAMETER = *NONE / <c-string 1..254>
Specifies whether special parameters which can be interpreted only by the specified subsystem may be processed.

FORCED =
Determines the behavior and urgency of command processing.

FORCED = *NO
The system waits for all tasks connected to the subsystem to be disconnected. When a task releases its connection depends on the subsystem. A connection to a nonprivileged subsystem (e.g. EDT) is released as soon as the program terminates.
The system waits for all tasks that access the subsystem to be processed and terminated normally.

FORCED = *YES
Immediate unloading of the subsystem is forced.
In the case of a privileged subsystem, this can lead to system dumps of the tasks which are still connected; in the case of a nonprivileged subsystem, this can lead to user dumps or to the execution of the STXIT error handling routine which is offered by DSSM.

SYNCHRONOUS =
Permits a choice between synchronous and asynchronous processing.

SYNCHRONOUS = *NO
The command is to be processed asynchronously, i.e. without waiting for its execution before further input. Once the syntax of the command has been checked, the calling task is sent message ESM0216. No error messages relating to the execution of the command are output.

SYNCHRONOUS = *YES
Execution of the command must be awaited.
Accompanying error messages are output.
In the event of a version change, this specification applies only to the new version. Deactivation of the other, “old” version always runs asynchronously.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	No action necessary; subsystem is no longer active
	1	ESM0414	Syntax error: invalid version specified
	32	ESM0224	Command not processed
	32	ESM0228	Command terminated abnormally

Notes

- In order to ensure a high degree of parallelism and data integrity, time-consuming administrative jobs are not executed under the control of the calling task but are transferred to a DSSM task.
  As a rule only the check of the requested function is performed **synchronously** (i.e. in conjunction with a wait state for the calling task). However, DSSM performs the actual processing **asynchronously** and independently of the calling task.
- STOP-SUBSYSTEM with the FORCED=*YES operand is accepted only if the command has previously been issued with FORCED=*NO and the subsystem only has to wait for the deactivation of the occupying tasks.
  The FORCED function cannot guarantee the “normal” behavior of tasks connected to a privileged subsystem.
  Tasks connected to a nonprivileged subsystem can initiate an error routine that permits resumption of the program.
  However, since DSSM does not wait for completion of this routine, a START-SUBSYSTEM command issued in the meantime may result in these tasks being reported as still linked to the subsystem.

7.75 STOP-TAPE-OUTPUT

Cancel assignment of tape devices

Component:	SPOOL
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	OPERATING PRINT-SERVICE-ADMINISTRATION
Routing code:	S

Function

The STOP-TAPE-OUTPUT command cancels the assignment of a tape device at the end of the current spoolout job.

Format

STOP-TAPE-OUTPUT
UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>

Operands

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic names of the tape devices to be deactivated.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value

7.76 STOP-TAPE-REPLAY

Cancel assignment of tape devices after replay tape processing

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	OPERATING PRINT-SERVICE-ADMINISTRATION
Routing code:	S

Function

The STOP-TAPE-REPLAY command cancels the assignment of tape devices (for replay tape processing) at the end of the current spoolout job.

Format

STOP-TAPE-REPLAY
UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>

Operands

UNIT = list-poss(8): <alphanum-name 2..2> / <alphanum-name 4..4>
Mnemonic names of the tape devices for replay tape processing to be deactivated.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	CMD0202	Syntax error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value

7.77 STOP-TASK-MEASUREMENT

Exclude task from SM2 task statistics

Component:	openSM2
Functional area:	Program control
Domain:	PROGRAM
Privileges:	all privileges bar HARDWARE-MAINTENANCE OPERATING

Function

The STOP-TASK-MEASUREMENT command allows users to exclude their tasks from SM2 task statistics (see the START-TASK-MEASUREMENT command). Withdrawal of authorization for task monitoring by the SM2 primary administrator (MODIFY-USER-ADMISSION TASK=*INHIBIT) and unloading of SM2 (STOP-SUBSYSTEM SUBSYSTEM-NAME=SM2) also terminate any current user task measurements.

Privileged functions

Privileged users (SW-MONITOR-ADMINISTRATION privilege) can terminate monitoring for any task (see TSN operand).

Format

STOP-TASK-MEASUREMENT
TSN = ***OWN** / <alphanum-name 1..4>

Operands

TSN =
Specifies the task for which monitoring is to cease.

TSN = *OWN
Monitoring of the task calling the command is terminated.

TSN = <alphanum-name 1..4>
Monitoring of the task with the specified TSN is terminated. The nonprivileged user can only terminate SM2 monitoring for tasks running under his own user ID.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	32	NPS0050	System error in SM2 modules. Command rejected
	64	NPS0044	No authorization to monitor task. Command rejected
	64	NPS0045	Task already being monitored by SM2
	64	NPS0046	Task monitoring not initiated by START-TASK-MEASUREMENT. Command rejected
	64	NPS0047	Specified task does not exist
	64	NPS0051	Specified task cannot be monitored by the user
	64	NPS0065	No further tasks can be monitored
	64	NPS0066	Invalid file attributes on the user-specific SM2 output file
	64	NPS0067	DMS code ‘(&00)’ on macro call ‘(&01)’ for the user-specific SM2 output file

7.78 STOP-TRACE

Deactivate trace

Component:	BS2000
Functional area:	Error logging
Domain:	ERROR-LOGGING
Privileges:	TSOS OPERATING
Routing code:	R

Function

This command deactivates a previously activated trace listed as “active” in the trace address list and places it in the “initialized” state.
Switchable, temporary traces serve to store brief information on all operations of a functional unit in the order of their execution.

Format

STOP-TRACE

TRACE-IDENTIFICATION = list-poss(51): <name 1..8>(...) / ***ALL**(...)

<name 1..8>(...)

| **SUBSYS**TEM**-NAME** = **_*ALL_** / <name 1..8> / ***NONE**

| ,**SUBSYS**TEM**-VERS**ION = **_*ALL_** / <product-version without-man-corr> /

| <product-version mandatory-man-corr>

***ALL**(...)

| **SUBSYS**TEM**-NAME** = **_*ALL_** / <name 1..8> / ***NONE**

| ,**SUBSYS**TEM**-VERS**ION = **_*ALL_** / <product-version without-man-corr> /

| <product-version mandatory-man-corr>

Operands

TRACE-IDENTIFICATION =
Specifies whether all or only selected traces from the list of switchable traces are to be deactivated.

TRACE-IDENTIFICATION = list-poss(51): <name 1..8>(...)
Specifies the names of up to 51 traces that are to be deactivated. The specified traces must be ON (activated) or ON/OFF (trace is only partially active, i.e. it collects information on different events).

If the traces involved are not statically defined, they are assigned to a specific subsystem that can be defined in more detail in the following operands.
See the START-TRACE command for the names of possible traces.

SUBSYSTEM-NAME =
Specifies the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = *ALL
The traces are to be deactivated in all cases, regardless of the subsystem to which they are assigned.

SUBSYSTEM-NAME = <name 1..8>
Exact specification of the subsystem to which the trace to be deactivated is assigned.

SUBSYSTEM-NAME = *NONE
Only statically defined traces that are not assigned to any subsystem are to be deactivated.

SUBSYSTEM-VERSION =
Specifies the version of the subsystem to which the trace is assigned.

SUBSYSTEM-VERSION = *ALL
The traces are to be deactivated for all versions of the selected subsystem.

**SUBSYSTEM-VERSION = <product-version without-man-corr> /
<product-version mandatory-man-corr>**
Specifies the version.
If a version is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "product-version" (SDF syntax representation)).

TRACE-IDENTIFICATION = *ALL(...)
All traces that are to be deactivated.
If the traces involved are not statically defined, they are assigned to a specific subsystem that can be defined in more detail in the following operands.

SUBSYSTEM-NAME =
Specifies the subsystem to which the trace is assigned.

SUBSYSTEM-NAME = *ALL
The traces are to be deactivated in all cases, regardless of the subsystem to which they are assigned.

SUBSYSTEM-NAME = <name 1..8>
Exact specification of the subsystem to which the trace to be deactivated is assigned.

SUBSYSTEM-NAME = *NONE
Only traces that are not assigned to any subsystem are to be deactivated.

SUBSYSTEM-VERSION =
Specifies the version of the subsystem to which the trace is assigned.

SUBSYSTEM-VERSION = *ALL
The traces are to be deactivated for all versions of the selected subsystem.

**SUBSYSTEM-VERSION = <product-version without-man-corr> /
<product-version mandatory-man-corr>**
Specifies the version.

If a version is specified, the format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "SDF syntax representation").

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	0	CMD0001	Specified traces are already ON
2	0	PDT0208	One of the specified traces is already OFF
	32	CMD0221	Internal error
1	32	PDT0203	Specified trace is not switchable
2	32	PDT0203	One of the traces specified in the list is not switchable
1	32	PDT0210	Invalid ON/OFF pattern for the specified trace
2	32	PDT0210	Invalid ON/OFF pattern for one of the traces specified in the list
1	64	PDT0200	Specified trace does not exist
2	64	PDT0200	One of the traces specified in the list does not exist
1	64	PDT0202	Trace is of the type PERMANENT
2	64	PDT0202	One of the traces specified in the list is of the type PERMANENT
	64	PDT0209	No authorization for command
1	64	PDT0214	Deactivation of some traces was rejected with different error messages; no action taken
2	64	PDT0214	Deactivation of some traces was rejected with different error messages; other specified traces were deactivated

7.79 STORE-ALIAS-CATALOG

Store user alias catalog entries in file

Component:	ACS
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING ACS-ADMINISTRATION SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The STORE-ALIAS-CATALOG command stores the user entries of the current alias catalog in an AC file. These stored user entries can be reloaded into the alias catalog by the user with the LOAD-ALIAS-CATALOG command. The actual file name of the AC file must be specified by the user, since neither alias substitution nor prefix insertion is performed in this case.

Privileged functions

The privileged ACS administration can choose whether to store the system entries from its alias catalog, or the user entries, or all entries (SELECT operand). When each entry is saved, its type (USER or SYSTEM) is included with the copy. If the ACS administration then reloads the catalog entries, using LOAD-ALIAS-CATALOG, they retain their original type.

Format

STORE-ALIAS-CATALOG	Alias: **STAC**

TO-FILE = <filename 1..54 without-gen-vers>

,**USER-INF**ORMATION = ***NONE** / <name 1..8>

,**DESCRIPTOR** = ***NONE** / <alphanum-name 1..8>

,**SEL**ECT = ***USER-ENTRIES** / ***ALL** / ***SYS**TEM**-ENTRIES**

Operands

TO-FILE = <filename 1..54 without-gen-vers>
Actual name of the AC file in which the user entries of the current alias catalog are to be stored. If the specified file does not exist, a new file is created; otherwise, the existing file is overwritten, provided write access is permitted for it. AC files are created as SAM files.

USER-INFORMATION = *NONE / <name 1..8>
Enters a name into the AC file for documentation purposes. The name specified by the user here is displayed in the output of the SHOW-ACS-OPTIONS command and in the ACS0001 load message that is displayed after an AC file is loaded with the LOAD-ALIAS-CATALOG command.

USER-INFORMATION = *NONE
No name is defined.

USER-INFORMATION = <name 1..8>
Name to be entered into the AC file.

DESCRIPTOR = *NONE / <alphanum-name 1..8>
Allows the user to enter an additional descriptor into the AC file for documentation purposes; for example, a version ID to identify the current update. This descriptor is displayed along with the name specified for USER-INFORMATION in the output of the SHOW-ACS-OPTIONS command and in the load message that is issued after an AC file is loaded with the LOAD-ALIAS-CATALOG command.

DESCRIPTOR = *NONE
No descriptor is defined.

DESCRIPTOR = <alphanum-name 1..8>
Additional information (descriptor) to be entered into the AC file.

SELECT = *USER-ENTRIES / *SYSTEM-ENTRIES / *ALL
Only available to users with ACS-ADMINISTRATION privilege.
Specifies which entries from the administration's current alias catalog are to be stored.

SELECT = *USER-ENTRIES
The only entries to be stored in the file specified by the TO-FILE operand are the user entries (type USER).

SELECT = *SYSTEM-ENTRIES
The only entries to be stored in the file specified by the TO-FILE operand are the system entries (type SYSTEM).

SELECT = *ALL
All the entries in the current catalog are to be stored in the file specified by the TO-FILE operand.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed normally
2	0	ACS0006	Warning: AC entries not found
	32	CMD0221	Internal error
	64	ACS0011	Error when accessing file
	64	ACS0017	Error: alias catalog is not active
	128	ACS0018	ACS is not available

Examples

For examples, see the ADD-ALIAS-CATALOG-ENTRY and LOAD-ALIAS-CATALOG commands.

7.80 TURN

Output logging file

Component:	BS2000
Functional area:	Error logging
Domain:	not allocated
Privileges:	OPERATING
Privileges:	E

Function

This command enables the operator or an authorized user program to request an information dump from the current logging file (SYS.CONSLOG...).

The day, time, destination and source selection criteria allow the issuer of the command to match the message output to information requirements. After the TURN command has been issued, 5 messages are listed. Then the following message appears:

```
&tsn-akz.hhmmss % EXC0432 PROCESSING of /TURN TO BE CONTINUED? REPLY
                  (Y=YES;N=NO)?
```

The operator’s answer is in the form “tsn-jid:Y” or “tsn-jid:N”, where:

<tsn> is the task sequence number of the job in the form 'nnnn'.

<jid> is the job ID assigned when the command is entered. If you do not assign a job ID when entering the command, you do not have to give one for the response. The default job ID '000' can therefore be omitted for the response.

No more than three failures to answer correctly are allowed. A fourth incorrect answer causes the TURN command to be terminated.

Note

It is not possible to process several TURN commands at the same time. A second TURN command will be rejected with the following message:

```
EXC0431 PROCESSING OF AN EARLIER /TURN NOT YET COMPLETED. RETRY COMMAND LATER
```

The output messages of the file SYS.CONSLOG... are not logged.

Format

TURN
DAY = ***TODAY** / <integer 1..31> ,**TIME** = ***LOG-START** / <integer 0..235959> ,**SRC** = ***NO** / list-poss(2000): <alphanum-name 2..4> ,**DEST** = ***NO** / list-poss(2000): <alphanum-name 1..4> ,**DESTALL** = ***NO** / list-poss(2000): <alphanum-name 2..4>

Operands

DAY=
Outputs messages recorded in the current log file on a specific day.

DAY = *TODAY
Outputs the messages for the current day of the system session.

DAY = <integer 1..31>
Day of the month. The day specified must have been reached within the log file.

TIME=
Outputs messages logged from a specific time onwards.
If the TIME operand is specified together with the DAY operand, the messages logged on the specified day after the specified time are output.

TIME = *LOG-START
Outputs messages from the start of the current log file or of the specified day onwards.

TIME = <integer 0..235959>
Time (hhmmss) within the current system session as of which the logged messages are to be output (hh = hour, mm = minute, ss = second).

SRC=
Selection of information (commands, messages and responses which have been input) according to the sender. The sender can be an operator terminal (console), a DCAM application or a task.

SRC= *NO
All the messages sent from the operator terminal (console) or authorized user program from which the TURN command originated are to be output.

SRC = list-poss(2000): <alphanum-name 2..4>
Selection can be based on:

- mnemonic device name (2 characters) of the operator terminal (console). The messages sent from this console are to be output.
- authorization name (4 characters) of a DCAM application
- task sequence number (4 characters).
  Information sent by this task is to be output.

DEST=
Selection of information (commands, messages and responses which have been input) according to the receiver. The receiver can be an operator terminal (console) or an authorized user program.

DEST= *NO
All the messages received by the operator terminal (console) or authorized user program from which the TURN command originated are to be listed.

DEST = list-poss(2000): <alphanum-name 1..4>
All messages directed to the specified receiver are to be listed: The following values are possible:

- the mnemonic device name (2 characters) of a physical operator terminal (console)
- a routing code (1 character)
- the authorization name (4 characters) of an authorized user program

DESTALL=
Selects messages with the routing codes assigned to the specified consoles. The receiver can be an operator terminal (console) or an authorized user program

Note

If the DESTALL operand has a value other than *NO, there are two different cases to consider:

1. DEST = *NO:
   Only the messages selected by DESTALL are displayed.
2. Otherwise:
   The complete set of messages selected by DEST and DESTALL is displayed.

DESTALL= *NO
All messages selected by the DEST operand are displayed.

DESTALL = list-poss(2000): <alphanum-name 1..4>
Selection is based on the complete set of routing codes of the specified consoles.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	EXC0428	Input abbreviated, processing continued
	1	CMD0202	Syntax error
	32	EXC0425	System deadlock
	64	EXC0254	CONSLOG not yet created
	64	EXC0433	Execution aborted
	130	EXC0424	Not enough memory
	130	EXC0431	Previous TURN not completed

Examples

1. A session commenced at 10 p.m.; at 6 a.m. the following command is issued:

   ```
   turn time=030000
   ```

   This causes all messages to be listed which occurred between 3 and 6 a.m.

2. A session commenced at 11:50:58, and at 11:52:25 the following command is issued:

   ```
   turn time=110000
   ```

   The specified time of 11 a.m. (when the session had not yet started) causes the command to terminate; no other messages are output.

3. A session commences at 8 p.m., and at 11 p.m. the next day the following command is issued:

   ```
   turn time=220000
   ```

   The messages which occurred after 10 p.m. on the second day are listed.

7.81 UMOUNT-NET-STORAGE

Disconnect Net-Storage

Component:	BS2000
Functional area:	Net-Storage administration
Domain:	DEVICE STORAGE-MANAGEMENT
Privileges:	TSOS OPERATING
Routing code:	G

Function

The UMOUNT-NET-STORAGE command disconnects the Net-Storage from the BS2000 system. In this case the connection to the net server and net client is cleared. On the net client side the directory which corresponds to the Net-Storage is unmounted.

A Net-Storage should be disconnected only when all pubsets which contain files on this Net-Storage have been exported. While such pubsets remain imported, BS2000 tasks can still occupy the Net-Storage. The command is rejected if such occupancy exists. The SHOW-NET-STORAGE-OCCUPATION command provides information on Net-Storage occupancy. If it is essential, execution of the command can be forced with the FORCE=*YES operand. In this case any existing occupancy is ignored and inconsistencies can arise as files are not closed properly.

Information on the Net-Storage available in BS2000 can be requested using the SHOW-NET-STORAGE command.

Fundamental information on the use of Net-Storage in BS2000 is provided in the “Introduction to System Administration” [14]. How to work with files on Net-Storage is described in the "Introductory Guide to DMS" [13].

Format

UMOUNT-NET-STORAGE

DIRECTORY = ***BY-MOUNT-ID**(...) / <c-string 1..64 with-low>

***BY-MOUNT-ID**(...)

| **MOUNT-ID** = <integer 1..16777215>

,**SERVER** = ***BY-SYSTEM** / <composed-name 1..256 with-under> / <c-string 1..256 with-low> /

***IP-ADDR**ESS(...)

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39> / <x-string 7..32>

,**CLIENT** = ***BY-SYSTEM** / <composed-name 1..8 with-under> / <c-string 1..8> / ***DNS**(...) /

***IP-ADDR**ESS(...)

***DNS**(...)

| **DNS-NAME** = <c-string 1..256 with-low>

***IP-ADDRESS**(...)

| **IP-ADDR**ESS = <composed-name 7..15> / <c-string 2..39>

,**FORCE** = ***N**O / ***Y**ES

Operands

DIRECTORY =
Specifies the directory name of the Net-Storage released on the net server.

DIRECTORY = *BY-MOUNT-ID(...)
The mount ID unambiguously specifies the connection to the Net-Storage which is to be cleared. In this case SERVER and CLIENT need not be specified explicitly (the defaults for *BY-SYSTEM are sufficient). The mount ID can be determined with the SHOW-NET-STORAGE command.

MOUNT-ID = <integer 1..16777215>
Mount ID of the connection to the Net-Storage.

DIRECTORY = <c-string 1..64 with-low>
Name of the directory to be separated.

SERVER =
Specifies the net server which makes the Net-Storage available. An explicit specification is also verified when the connection has already been unambiguously specified using the mount ID.

SERVER = *BY-SYSTEM
The explicit specification of the net server is not necessary when the mount ID is specified in the DIRECTORY operand or when the net server is defined unambiguously by the directory name.

SERVER = <composed-name 1..256 with-under> / <c-string 1..256 with-low>
Host name or fully qualified domain name of the net server.

SERVER = *IP-ADDRESS(...)
IP address of the net server.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>)
Specifies the IP address of the net server in IPv4 or IPv6 format.

CLIENT =
Specifies the net client on which the Net-Storage (more precisely: the released directory) is mounted. For SUs /390 and S servers this is an HNC. For SUs x86 X2000 performs this role.
An explicit specification is also verified when the connection has already been unambiguously specified using the mount ID.

CLIENT = *BY-SYSTEM
The explicit specification of the net client is not necessary when the mount ID is specified in the DIRECTORY operand or when the net client is defined unambiguously by the directory name.

CLIENT = <composed-name 1..8 with-under> / <c-string 1..8>
Internal BCAM name of the net client.

CLIENT = *DNS(...)
Domain name of the net client.

DNS-NAME = <c-string 1..256 with-low>
Specifies the fully qualified domain name of the net client.

CLIENT = *IP-ADDRESS(...)
IP address of the net client.

IP-ADDRESS = <composed-name 7..15> / <c-string 2..39>
Specifies the IP address of the net client in IPv4 or IPv6 format.

FORCE = *NO / *YES
Specifies whether the Net-Storage is also to be disconnected if it is still occupied by tasks. The default *NO causes the command to be rejected in this case.

FORCE = *YES
The Net-Storage directory is always disconnected. If it is still occupied, this is ignored. In this case data can be lost because files cannot be closed properly.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error
	1	NKAN003	Syntax error in the input
	32	CMD0221	system error
	32	NKAN004	Error in command execution
	64	NKAN007	Net-Storage directory does not exist
	64	NKAN009	Leading slash in directory name missing
	64	NKAN010	Directory name is not unique
	64	NKAN011	Mount ID does not exist

7.82 UNLOAD-TAPE

Unload magnetic tape or magnetic tape cartridge

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	T

Function

The UNLOAD-TAPE command enables a magnetic tape or magnetic tape cartridge to be unloaded.

Format

UNLOAD-TAPE
UNIT = ***ALL** / list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>

Operands

UNIT =
Specifies the devices to be unloaded.

UNIT = *ALL
The volumes of all tape devices which have the following attributes are unloaded:

- CONF-STATE = ATTACHED or DETACH-PENDING
- ACTION = NO ACTION
- PHASE not equal MOUNT and PHASE not equal IN-USE.

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Specifies the mnemonic device names of the devices to be unloaded. A maximum of 10 devices can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
1	1	NKV0001	Syntax error
4	64	NKV0004	Command partially processed
5	64	NKV0005	Command not processed for an object
6	64	NKV0006	Command not processed
2	130	NKVT002	Tape monitor unavailable

Note

I/O errors are logged via message `NKVT098`.

7.83 UNLOCK-DEVICE

Cancel hardware reservations

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	G

Function

The UNLOCK-DEVICE command cancels a hardware reservation for one or more devices.

Before issuing the UNLOCK-DEVICE command, users should ensure that no other UNLOCK attempt is being made on the same device from a different system. Injudicious use of this command may result in the cancellation of a reservation for a different system.

Format

UNLOCK-DEVICE
UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>

Operands

UNIT = list-poss(10): <alphanum-name 2..2> / <alphanum-name 4..4>
Specifies the mnemonic device name of the hardware unit for which a device reservation is to be canceled. Up to 10 units may be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
12	64	NKR0...	Internal check negative
16	64	NKR0...	Caller error
20	64	NKR0...	Software error

If there is an error in command termination, the maincode contains the message code of the message output during command processing.

Notes

- The UNLOCK-DEVICE command should be issued in the following cases:
  - The magnetic tape cartridge device is “detached” on all other systems and an ATTACH command was rejected with the messages

    ```
    NKR0044 DEVICE=mn ATTACHMENT REJECTED
    NKR0111 DEVICE=mn ASSIGNED ELSEWHERE
    ```

  - It was not possible to release the hardware reservation after a DETACH/REMOVE command (message NKR0115).
- The UNLOCK-DEVICE command will be rejected if the tape device has the status “attached”, “attach pending”, “detached implicitly” or “detach pending implicitly”.
- The command may be required for disk devices if message EXC0857 is issued with the insert “... DEVICE/BUSY /RESERVED ...”. Before issuing it you should check that no other system is accessing the disk and that the reservation is authorized.
- The following messages signal successful execution of the command:

  ```
  NKR0102 DEVICE=mn UNLOCK-DEVICE PROCESSED
  NKR0114 DEVICE=mn UNASSIGNED
  ```

Example

Cancel the hardware reservation for device CA

```
/UNLOCK-DEVICE UNIT=CA
```

or

```
/UNLOCK-DEVICE CA
```

7.84 UNLOCK-DISK

Clear system allocation log

Component:	BS2000
Functional area:	Device management
Domain:	DEVICE
Privileges:	OPERATING
Routing code:	D

Function

This command causes the system allocation log (list of systems occupying disk space in the standard volume label) of a disk to be cleared of catalog IDs no longer working with the disk. For both private disks and pubsets any file locks of the catalog ID still existing are reset. The command can also be executed for all a pubset's disks (UNIT=*PUBSET-DEVICES). The operator is responsible for ensuring that no system is removed which is still working with the disk.

Important note on shared pubset operation

You must not issue the command without first making sure that the pubset in question has not been imported by the sharer or sharers (see Notes).

Format

UNLOCK-DISK

UNIT = ***VOL**UME(...) / ***PUB**SET**-DEV**ICES(...) /

list-poss(10): <alphanum-name 2..2>(...) / <alphanum-name 4..4>(...)

***VOL**UME(...)

| **VOL**UME = list-poss(10): <vsn 1..6>

***PUB**SET**-DEV**ICES(...)

| **PUB**SET = <cat-id 1..4> / ***BY-PUBRES-DEV**ICE(...)

| *__BY-PUBRES-DEV__ICE(...)

| | **UNIT** = <alphanum-name 2..2> / <x-text 4..4>

<alphanum-name 2..2>(...) / <alphanum-name 4..4>(...)

| **FORCE** = **__*NO__** / ***Y**ES

| ,**CHECK-VSN** = **__*NO__** / <vsn 1..6>

,**SYS**TEM**-ID**ENTIFIER = ***ALL** / ***UNKNOWN** / list-poss(16): <integer 0..255> / <name 1..1>

Operands

UNIT =
Specifies the disks whose system allocation log is to be cleared.

UNIT = *VOLUME(...)
Specifies the volume serial numbers of disks whose system allocation log is to be cleared.

VOLUME = list-poss(10): <vsn 1..6>
Specifies the volume serial numbers (VSN, up to 6 characters) of one or more disks whose system allocation log is to be cleared. A maximum of 10 disks may be specified.

UNIT = *BY-PUBSET-DEVICES(...)
Specifies that the system allocation log is to be cleared for a pubset's disks. Since the mnemonic device names (MNs) of the associated disks are administered in the SVL of the system disk, the latter must be entered in the MRS catalog. The entry is made by means of /ADD-MASTER-CATALOG-ENTRY PUBRES-UNIT=<mn> and whenever the pubset is imported or exported and whenever its composition is changed (see MODIFY-PUBSET-PROCESSING).

PUBSET =
Designates the pubset for whose disks the system allocation log is to be cleared. The pubset can be specified via its catalog ID or the device code of its system disk.

PUBSET = <cat-id 1..4>
Catalog ID of the pubset for whose disks the system allocation log is to be cleared. There must be a corresponding entry in the MRS catalog. If there is no such entry then the command can only be executed if the system disk is specified (see PUBSET=*BY-PUBRES-DEVICE).

PUBSET = *BY-PUBRES-DEVICE(...)
Specifies the pubset's system disk (pubres).

UNIT = <alphanum-name 2..2> / <x-text 4..4>
Mnemonic device code (MN) of the pubres.

UNIT = list-poss(10): <alphanum-name 2..2>(...) / <alphanum-name 4..4>(...)
Specifies the mnemonic device names (2 or 4 alphanumeric characters; see notes) of one or more disks whose system allocation log is to be cleared.
A maximum of 10 disks may be specified.

FORCE =
Specifies whether the option of terminating processing is available.

FORCE = *NO
Before the command is executed message NKVD072 is issued offering the operator the option of terminating processing.

FORCE = *YES
Message NKVD072 is suppressed if the VSN of the mounted disk is specified in the CHECK-VSN operand.

CHECK-VSN =
Determines whether, in addition to the entry of the mnemonic device name that was specified in the UNIT operand, NDM is to check whether a particular disk specified by means of its VSN is mounted on the device.

CHECK-VSN = *NO
The VSN of the disk is not to be checked.

CHECK-VSN = <vsn 1..6>
If the disk whose VSN is specified here is mounted on the device, message NKVD072 is suppressed. In this case, since the disk device and VSN are identified uniquely, the operator can no longer prevent the command from being executed.

SYSTEM-IDENTIFIER =
Specifies the systems for which the UNLOCK operation is to be performed.

SYSTEM-IDENTIFIER = *ALL
All foreign systems occupying disk space are removed from the SVL. In addition, all file locks still maintained by foreign systems are reset; this also applies to systems that are not stored in the SVL.

SYSTEM-IDENTIFIER = *UNKNOWN
Resets all file locks of systems which are not entered to the SVL of the disk. This function is required if, for example, tasks of a system were not able to reset their file locks due to their abortion via FORCE-JOB-CANCEL and the disk was subsequently released by the system.

SYSTEM-IDENTIFIER = list-poss(16): <integer 0..255> / <name 1..1>
Resets the allocation for the specified system in the SVL of the disk and cancels all its existing file locks. A maximum of 16 catalog IDs can be specified.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
	1	NKV0001	Syntax error
	64	NKV0004	Command partially processed
	64	NKV0005	Command not processed for an object
	64	NKV0006	Command not processed
	130	NKVD002	Disk monitor unavailable

Notes

- When the UNLOCK job is processed the operator is prompted to re-enter the VSN of the disk as confirmation of the job. This is a precautionary measure to prevent an UNLOCK operation being executed for a system that is still active. As soon as the system in question recognizes the unauthorized UNLOCK attempt, it initiates a CANCEL operation for the disk.
- If the UNLOCK-DISK command is issued for an imported shared pubset on one or all sharers, the sharer systems will be deleted from the SVL of one volume. This will make the NDM administration data inconsistent among the volumes of the shared pubset. If a system whose SYSID is no longer present in the sharer list now accesses the SVL of one of these volumes, that volume will be canceled by the disk monitor on the accessing system and will thus no longer be accessible in the current BS2000 session.

Example

The system allocation log is to be cleared for devices A1 with disk WK0001 and A2 with disk WK0002. If the specified disks are mounted then the command is to be executed without any query.

```
/unlock-disk unit=(a1(force=*yes,check-vsn=wk0001),
                  a2(force=*yes,check=wk0002)), sys-id=*all
```

7.85 UNLOCK-FILE-LINK

Cancel lock on file link name

Component:	BS2000
Functional area:	File processing
Domain:	FILE
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT

Function

The UNLOCK-FILE-LINK command cancels a lock which was applied to an entry in the task file table (TFT) using a LOCK-FILE-LINK command. If there is a current REMOVE-FILE-LINK command which applies to this entry, it will then be processed, i.e. the TFT entry will be deleted as specified in the REMOVE-FILE-LINK command, and the private devices linked to it will be released.

Format

UNLOCK**-FILE-LINK**
LINK-NAME = ***FIRST-BLANK** / <filename 1..8 without-gen>

Operands

LINK-NAME = *FIRST-BLANK / <filename 1..8 without-gen>
The file link name of the TFT entry for which the LOCK-FILE-LINK status is to be canceled.

LINK-NAME = *FIRST-BLANK
If *FIRST-BLANK is specified, the first TFT entry in which the file link name consists of blanks will be processed (see the SHOW-FILE-LINK command).

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
2	0	DMS0662	Specified LINK name is invalid or does not exist
	1	CMD0202	Syntactical or semantic error in command
	64	DMS06FF	BCAM connection severed

Examples

See the LOCK-FILE-LINK command.

7.86 UNLOCK-PRODUCT-VERSION

Release a product version lock

Component:	IMON-GPN
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

Systems support can use the UNLOCK-PRODUCT-VERSION command to release the lock placed on the product version of an installation unit. The product version is then once again available for all users.

The lock for a product is set either explicitly by systems support using the LOCK-PRODUCT-VERSION command or implicitly by IMON when the product is installed.

Format

UNLOCK-PRODUCT-VERSION

```
PRODUCT-NAME = <text 1..30 without-sep>(...)

    <text 1..30 without-sep>(...)

        |       VERSION = <product-version mandatory-man-corr>
```

Operands

PRODUCT-NAME = <text 1..30 without-sep>(...)
Specifies the name of the IMON installation unit corresponding to the locked software product.

VERSION = <product-version mandatory-man-corr>
Specifies the product version. The specification must include the release version and correction status.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed successfully
	32	IMO9101	Command terminated abnormally (system error in external call; internal error in IMON-GPN)
	64	CMD0216	Privileges error
	64	IMO9100	Product or version not found, invalid product name

7.87 UNLOCK-SUBSYSTEM

Change subsystem state from LOCKED to NOT-CREATED

Component:	DSSM
Functional area:	Subsystem management
Domain:	SYSTEM-MANAGEMENT
Privileges:	SUBSYSTEM-MANAGEMENT

Function

This command enables systems support to switch a locked subsystem (a subsystem in the LOCKED state) back to a state which has been declared but not activated (NOT-CREATED state). This unlocks the subsystem for the current session. Up to DSSM V3.5, once a subsystem had been locked it remained unavailable until shutdown. Thus, UNLOCK-SUBSYSTEM supports interrupt-free BS2000 operation.

A subsystem can be switched to the locked state by its INIT, DEINIT, STOPCOM or CLOSE-CTRL routines. These routines either directly request DSSM to lock the subsystem or they generate a memory dump and initiate a holder task restart which can then not be performed correctly (RESTART-REQUIRED=*NO or - with *YES - maximum permitted number of attempts exceeded).
If subsystem locking occurs during the activation phase (INIT routine), it will not subsequently be possible to run UNLOCK-SUBSYSTEM and the subsystem will remain unavailable until shutdown and the ensuing restart.

Note that not all subsystems can easily be unlocked and that a subsystem restart is not achievable in all cases. For information see the "Notes".

Format

UNLOCK**-SUBSYS**TEM
SUBSYSTEM-NAME = <structured-name 1..8> ,**VERSION** = <product-version mandatory-man-corr> / <product-version without-man-corr>

Operands

SUBSYSTEM-NAME = <structured-name 1..8>
Subsystem name.

VERSION = <product-version mandatory-man-corr> / <product-version without-man-corr>
Version of the above-named subsystem. The format specified here must be identical to the format used when the subsystem was defined (release and correction status mandatory or not allowed; see also "SDF syntax representation").

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No errors
	1	ESM0414	Syntax error: invalid version specified
	32	ESM0228	Command abnormally terminated
	64	ESM0224	Command not processed

Notes

The subsystem being unlocked must be in the LOCKED state.
There are restrictions on the use of the UNLOCK-SUBSYSTEM command:

- Some subsystems cannot be regularly terminated and restarted during a session. Execution of the STOP- and HOLD-SUBSYSTEM commands must be allowed for the subsystem which is being unlocked, which means that the subsystem must not have been defined with the attribute SUBSYSTEM-HOLD=*FORBIDDEN (see also the restrictions on the STOP-SUBSYSTEM command).
- Owing to interdependencies with other subsystems, the UNLOCK-SUBSYSTEM command may result in inconsistencies in the subsystem catalog.
  To prevent this from happening, all subsystems associated with the subsystem which is being unlocked must be deactivated (STOP-SUBSYSTEM command) and then restarted (START-SUBSYSTEM command) together with the unlocked subsystem.
- Even if the subsystem can be restarted from any state and all interdependencies with other subsystems - if any - have been allowed for (see above), after execution of the UNLOCK-SUBSYSTEM command there is no guarantee that the subsystem will be active after the next START-SUBSYSTEM command. This restriction particularly applies if there are any problems or situations for which the subsystem itself is responsible.

7.88 UNLOCK-USER

Grant locked-out user access to system

Component:	SRPMNUC
Functional area:	User management
Domain:	USER-ADMINISTRATION
Privileges:	STD-PROCESSING USER-ADMINISTRATION
Routing code:	$

Function

Using this command, systems support can specify that a user ID should be permitted to access the system again. The temporary access lock for a user ID that was specified using the LOCK-USER command is canceled and the corresponding entry in the user catalog is updated. If the access lock applied to the home pubset, in which logon validation is carried out, the user's access to the system (which was blocked) is enabled again.

Format

UNLOCK**-USER**
USER-IDENTIFICATION = <name 1..8> ,**PUBSET** = ***HOME** / <cat-id 1..4>

Operands

USER-IDENTIFICATION = <name 1..8>
ID of the user whose access lock is to be canceled.

PUBSET = *HOME / <cat-id 1..4>
Cancels the access lock for the user in the user catalog of the specified pubset.

PUBSET = *HOME
Specifies the user catalog of the home pubset.

Grant locked-out user access to system

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SRM6001	Command executed with a warning
	1	SRM6010	Syntax error
	32	SRM6020	System error during command processing
	64	SRM6040	Semantic error
	130	SRM6030	Command cannot temporarily be executed

Example

User ID *COGNI1* is temporarily locked out of the system. This is indicated by the value of *YES in the *USER-LOCKED* output field of the user entry displayed by the SHOW-USERATTRIBUTES command. Then the lock is removed again and the user entry is redisplayed (the value in the *USER-LOCKED* output field is now *NO).

`/show-user-attr cogni1`

```
%SHOW-USER-ATTRIBUTES --- PUBSET 1OSH - USER COGNI1         2017-01-28 17:35:01
%-------------------------------------------------------------------------------
%USER-ID                        USER1          PUBLIC-SPACE-USED               0
%GROUP-ID                   *UNIVERSAL         PUBLIC-SPACE-LIMIT              0
%DEFAULT-PUBSET                  2OSG          PUBLIC-SPACE-EXCESS           *NO
%MAX-ACCOUNT-RECORDS             100           TEMP-SPACE-USED                 0
%DEFAULT-MSG-LANGUAGE                          TEMP-SPACE-LIMIT       2147483647
%                                              FILES                           0
%PROTECTION-ATTRIBUTES...                      FILE-NUMBER-LIMIT        16777215
%LOGON-PASSWORD                  *YES          JOB-VARIABLES                   0
%PASSWORD-MGMT     *BY-LOGON-PROTECT           JV-NUMBER-LIMIT          16777215
%TAPE-ACCESS             *PRIVILEGED           RESIDENT-PAGES              32767
%FILE-AUDIT                       *NO          ADDRESS-SPACE-LIMIT           256
%                                              DMS-TUNING-RESOURCES        *NONE
%TEST-OPTIONS...                               CSTMP-MACRO-ALLOWED           *NO
%READ-PRIVILEGE                     1          CODED-CHARACTER-SET      EDF03IRV
%WRITE-PRIVILEGE                    1          PHYSICAL-ALLOCATION           *NO
%MODIFICATION            *CONTROLLED           USER-LOCKED                  *YES
%                                              CRYPTO-SESSION-USED             0
%AUDIT...                                      CRYPTO-SESSION-LIMIT          128
%HARDWARE-AUDIT             *ALLOWED           NET-STORAGE-USAGE        *ALLOWED
%LINKAGE-AUDIT              *ALLOWED           NET-CODED-CHAR-SET            *ISO
%
%PROFILE-ID  *NONE
%MAIL-ADDRESS  HOLL              INCOGNITO GMBH-OS-114    1230         MCH-P/AL
%EMAIL-ADDRESS alfred.holl@incognito.de,
%              joachim.vogi@incognito.de,
%              johannes.kuli@incognito.de,
%              mathias.reh@incognito.de
%
%+---------+-----------+---------+--------+------------+-------+------+------+
```

```
%!ACCOUNT-#! CPU-LIMIT !SPOOLOUT-!MAX-RUN-!MAX-ALLOWED-!NO-CPU-!START-!INHIB-!
%!         !           !  CLASS  !PRIORITY!  CATEGORY  ! LIMIT ! IMMED! DEACT!
%+---------+-----------+---------+--------+------------+-------+------+------+
%! 89001   ! 2147476225!     1   !   255  !     STD    !   NO  !   NO !   NO !
%+---------+-----------+---------+--------+------------+-------+------+------+
%DEFAULT-ACCOUNT-# FOR LOGON:        *NONE
%DEFAULT-ACCOUNT-# FOR REMOTE-LOGIN: *NONE
%
%DEFAULT-JOB-CLASS FOR BATCH-JOBS:   JCB05000
%DEFAULT-JOB-CLASS FOR DIALOG-JOBS:  JCDSTD
%LIST OF JOB-CLASSES ALLOWED:
%JCBNACHT JCBSHUT  JCB00050 JCB00200 JCB02000 JCB05000 JCB10000 JCB32000
%JCDSTD
%-------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER COGNI1   ON PUBSET 1OSH
```

/unlock-user cogni1
/show-user-attr cogni1

```
%SHOW-USER-ATTRIBUTES --- PUBSET 1OSH - USER COGNI1         2017-01-28 17:35:28
%-------------------------------------------------------------------------------
%USER-ID                        USER1          PUBLIC-SPACE-USED               0
%GROUP-ID                  *UNIVERSAL          PUBLIC-SPACE-LIMIT              0
%DEFAULT-PUBSET                 2OSG           PUBLIC-SPACE-EXCESS           *NO
%MAX-ACCOUNT-RECORDS             100           TEMP-SPACE-USED                 0
%DEFAULT-MSG-LANGUAGE                          TEMP-SPACE-LIMIT       2147483647
%                                              FILES                           0
%PROTECTION-ATTRIBUTES...                      FILE-NUMBER-LIMIT        16777215
%LOGON-PASSWORD                  *YES          JOB-VARIABLES                   0
%PASSWORD-MGMT     *BY-LOGON-PROTECT           JV-NUMBER-LIMIT          16777215
%TAPE-ACCESS             *PRIVILEGED           RESIDENT-PAGES              32767
%FILE-AUDIT                       *NO          ADDRESS-SPACE-LIMIT           256
%                                              DMS-TUNING-RESOURCES        *NONE
%TEST-OPTIONS...                               CSTMP-MACRO-ALLOWED           *NO
%READ-PRIVILEGE                     1          CODED-CHARACTER-SET      EDF03IRV
%WRITE-PRIVILEGE                    1          PHYSICAL-ALLOCATION           *NO
%MODIFICATION            *CONTROLLED           USER-LOCKED                   *NO
%                                              CRYPTO-SESSION-USED             0
%AUDIT...                                      CRYPTO-SESSION-LIMIT          128
%HARDWARE-AUDIT             *ALLOWED          NET-STORAGE-USAGE        *ALLOWED
%LINKAGE-AUDIT              *ALLOWED          NET-CODED-CHAR-SET            *ISO
%
%PROFILE-ID  *NONE
%MAIL-ADDRESS  HOLL              INCOGNITO GMBH-OS-114    1230         MCH-P/AL
%EMAIL-ADDRESS alfred.holl@incognito.de,
%              joachim.vogi@incognito.de,
%              johannes.kuli@incognito.de,
%              mathias.reh@incognito.de
%
%+---------+-----------+---------+--------+------------+-------+------+------+
%!ACCOUNT-#! CPU-LIMIT !SPOOLOUT-!MAX-RUN-!MAX-ALLOWED-!NO-CPU-!START-!INHIB-!
%!         !           !  CLASS  !PRIORITY!  CATEGORY  ! LIMIT ! IMMED! DEACT!
%+---------+-----------+---------+--------+------------+-------+------+------+
%! 89001   ! 2147476225!     1   !   255  !     STD    !   NO  !   NO !   NO !
%+---------+-----------+---------+--------+------------+-------+------+------+
%DEFAULT-ACCOUNT-# FOR LOGON:        *NONE
%DEFAULT-ACCOUNT-# FOR REMOTE-LOGIN: *NONE
%
```

```
%DEFAULT-JOB-CLASS FOR BATCH-JOBS:   JCB05000
%DEFAULT-JOB-CLASS FOR DIALOG-JOBS:  JCDSTD
%LIST OF JOB-CLASSES ALLOWED:
%JCBNACHT JCBSHUT  JCB00050 JCB00200 JCB02000 JCB05000 JCB10000 JCB32000
%JCDSTD
%------------------------------------------------------------------------------
%SHOW-USER-ATTRIBUTES           END OF DISPLAY FOR USER COGNI1   ON PUBSET 1OSH
```

7.89 WAIT-EVENT

Put job on hold waiting for event

Component:	BS2000
Functional area:	Job variables
Domain:	JOB-VARIABLES USER-ADMINISTRATION
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

With the WAIT-EVENT command, the user can make the time at which a job runs dependent on user switch settings and time specifications (in procedures or batch jobs only) or on the status of a job variable (JV).

User switches

The user switch settings for the user’s own ID or for another user ID can be interrogated. If the desired switch settings are obtained before the specified time limit (TIME-LIMIT operand) is exceeded, the waiting job is continued with the following command. If the time has elapsed, spin-off is initiated. In a non-S procedure, processing branches to one of the following commands: SET-JOB-STEP, EXIT-JOB, CANCEL-PROCEDURE, END-PROCEDURE or EXIT-PROCEDURE.
In an S procedure, processing branches to the next error handling block (see IF-BLOCK-ERROR command, description of SDF-P error handling).
If no user switches are specified (ON or OFF), any time specification (TIME-LIMIT) is ignored and processing is resumed immediately with the next command.

Time specifications

Time specifications can be entered in the form of a time period or a specific time. After the specified time has elapsed, the waiting job is continued with the next command. This is still the case if the time specification for the waiting is “zero”. If the specified time is in the past, however, the command will be rejected.

Job variables (JV)

The user defines a condition (CONDITION) and sets a time limit (TIME-LIMIT). In addition, the user can specify that the condition is checked if one of the job variables affected by it is modified during the wait time (CHECK-CURRENT-VALUE operand). If the condition is satisfied before the time limit is reached, the waiting job is continued with the next command. If the time has elapsed, processing is continued at the branch destination specified by TIMEOUT-LABEL (if any) or spin-off is initiated.

Format

WAIT-EVENT

UNTIL = ***USER-SW**ITCHES(...) / ***PER**IOD(...) / ***DATE**(...) / ***JV**(...)

***USER-SW**ITCHES(...)

| USER-IDENTIFICATION = ***OWN** / <name 1..8>

| ,ON = ***NONE** / list-poss(32): <integer 0..31>

| ,OFF = ***NONE** / list-poss(32): <integer 0..31>

| ,TIME-LIMIT = ***SHUTDOWN** / <integer 0..9999999 *minutes*>

***PER**IOD(...)

| **SECONDS** = **0** / <integer 0..9999999 *seconds*>

***DATE**(...)

| **DATE** = ***TODAY** / ***TOMORROW** / <date>

| ,**TIME** = <time>

***JV**(...)

| **COND**ITION = ***NONE** / <text 0..1800 with-low *cond-expr*>

| ,**TIME-LIM**IT = **600** / <integer 1..65535 *seconds*>

| ,**TIMEOUT**-LABEL = ***NONE** / <name 1..8>

| ,**CHECK-CUR**RENT-**VAL**UE = ***YE**S / ***NO**

Operands

UNTIL =
Type of event.

UNTIL = *USER-SWITCHES(...)
The job is to wait dependent on user switch settings. If user switches are not specified in the ON and OFF operands, any time specification in the TIME-LIMIT operand is ignored and processing resumes immediately with the following command.

USER-IDENTIFICATION = *OWN / <name 1..8>
User ID whose user switches are to be interrogated. The default value is *OWN, i.e. the user switches of the user ID under which the current job is running are interrogated.

ON = *NONE / list-poss(32): <integer 0..31>
User switches. The job is continued as soon as the specified switches are set to ON and the switches specified in the OFF operand are set to OFF.
The default value is *NONE, i.e. the user switches are not checked to see whether they are set to ON.

OFF = *NONE / list-poss(32): <integer 0..31>
User switches. The job is continued as soon as the specified switches are set to OFF and the switches specified in the ON operand are set to ON.
The default value is *NONE, i.e. the user switches are not checked to see whether they are set to OFF.

TIME-LIMIT = *SHUTDOWN / <integer 0..9999999 *minutes*>
Time limit in minutes. Maximum time the job is to wait for the event to occur.

UNTIL = *PERIOD(...)
The job is to wait a specific time.

SECONDS = 0 / <integer 0..9999999 seconds>
Time specified in seconds. If the time specification for waiting is “zero”, the command will be rejected.

UNTIL = *DATE(...)
The job is to wait until a specific time. If the time specified is in the past, the command is rejected.

DATE = *TODAY / *TOMORROW / <date>
Date specification.

TIME = <time>
Time specification.

UNTIL = *JV(...)
The length of time that the job waits is to be dependent on the state of a JV.

CONDITION = *NONE / <text 0..1800 with-low *cond-expr*>
Conditional expression (enclosed in parentheses). The job is continued as soon as the condition is satisfied. The permitted specifications are described in section "Conditional expressions (job variables)". Special job variables are not allowed.

TIME-LIMIT = 600 / <integer 1..65535 *seconds*>
Time limit in seconds. Maximum time the job is to wait for the event “condition satisfied” to occur, the time of the check being determined by the CHECK-CURRENT-VALUE operand. Time values greater than 65280 seconds are interpreted as unlimited waiting times.

TIMEOUT-LABEL = *NONE / <name 1..8>
Branch destination. Name of the non-S mark specifying the command with which processing is to continue if the specified time elapses and the event has not yet occurred.
If no branch destination is defined, spin-off is initiated when the time has elapsed. In dialog, specification of a branch destination is ignored and a warning issued.
If WAIT-EVENT was issued within a procedure, the branch destination must also be contained within this procedure, otherwise the procedure is aborted. If the branch destination appears within a CJC command sequence (see the ADD-CJC-ACTION command), it will not be recognized.

CHECK-CURRENT-VALUE = *YES / *NO
Specifies whether the condition should be checked immediately.
The default *YES specifies an immediate check of the condition. If *NO is specified, the condition is checked only if write access takes place to a job variable affected by the condition.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
1	0	CJC0022	UNTIL=*JV: Waiting time expired, no branch label specified (TIMEOUT-LABEL=*NONE)
1	0	CMD0001	UNTIL=*USER-SWITCHES: Command executed without error, but the condition did not occur before timeout
2	0	CMD0002	UNTIL=*USER-SWITCHES: The user switch was set, but an error occurred while the WHEN queue was being searched (SYSOUT message EXC0823)
	1	CMD0202	Syntax error, error in the condition, branch label not found, or branch label of the WAIT-EVENT command
	32	CMD0221	Internal error
	32	EXC0041	System error
	64	CMD0025	JV catalog exported
	64	EXC0868	User ID not found
	64	EXC0869	Command aborted
	64	EXC0878	Branch destination not found
	130	CJC0002	JV cannot be accessed
	130	CJC0003	Memory saturation
	130	CMD2282	SHUTDOWN or CANCEL-JOB active, user ID locked or file open
	140	CMD2382	SHUTDOWN or CANCEL-JOB active, program loaded, user ID locked or file open

Notes

- The wait state for a job pended by a WAIT-EVENT command (with UNTIL=*JV(...)) can be temporarily suspended to allow execution of CJC command sequences. Thereafter, the job returns to the wait state.
- When the command is processed (with UNTIL=*USER-SWITCHES, *PERIOD or *DATE set), all the job's system resources that were previously requested either implicitly or with a SECURE-RESOURCE-ALLOCATION command are released, i.e. the device requests must be repeated.
- The period preceding the branch destination must not be inserted by expression replacement, because then the branch destination as such will no longer be found.

7.90 WRITE-ACCOUNTING-RECORD

Identify job section for accounting system

Component:	BS2000
Functional area:	Accounting system control
Domain:	ACCOUNTING
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE

Function

The WRITE-ACCOUNTING-RECORD command

- generates and identifies a UDAT accounting record
- generates and identifies a UACC accounting record

As identification, a character string is to be specified, which is to be placed into the accounting records.
For UDAT and UACC accounting records see the “Introduction to System Administration” [14]. The user can ascertain the maximum permissible number of user-specific accounting records from his entry in the user catalog (see the *MAX-ACCOUNT-RECORDS* output field of the SHOW-USER-ATTRIBUTES command).

Format

WRITE-ACCOUNTING-**REC**ORD

RECORD-**TYPE** = ***USER-DATA** (...) / ***USER-ACC**OUNTING-**STEP**(...) / <c-string 1..254>

***USER-DATA**(...)

| **TEXT** = <c-string 1..254>

***USER-ACC**OUNTING-**STEP**(...)

| **INF**ORMATION = <c-string 1..8> / <x-string 1..16>

Operands

RECORD-TYPE =
Type of identification.

RECORD-TYPE = *USER-DATA(...)
Generates a UDAT accounting record for the current job.

TEXT = <c-string 1..254>
Character string to be entered into a UDAT accounting record for the job. The character ‘&’ must not be used.

RECORD-TYPE = *USER-ACCOUNTING-STEP(...)
Generates a UACC accounting record for the current job.

INFORMATION = <c-string 1..8> / <x-string 1..16>
Character string with which the accounting record for the job is to be identified.

RECORD-TYPE = <c-string 1..254>
Character string to be entered into a UDAT accounting record for the job. The character '&' must not be used.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed
	1	CMD0202	Syntax error
	32	CMD0221	Internal error
	64	NAM3003	Semantic error

Example

```
/write-acc-rec rec-type=user-acc-step(inf=c'test #01') ——————————— (1)
/write-acc-rec rec-type=user-data(text=c'projekt #01 testruns') ———— (2)
```

(1) A UACC accounting record is written, into which the string "*TEST #01*" is entered.

(2) A UDAT accounting record is written, into which the string "*PROJECT #01 TESTRUNS*" is entered.

7.91 WRITE-IOCF

Write IOCF

Component:	IOCFCOPY
Functional area:	System control and optimization
Domain:	SYSTEM-MANAGEMENT
Privileges:	TSOS

Function

Systems support can write an IOCF which is stored as a PAM file on a BS2000 disk to the hard disk of the service system with the WRITE-IOCF command.

The input file has to be available in the form of a PAM file. The system checks whether the file contains an IOCF. If the IOCF does not suit the system type the write job is rejected with the message IOF0126.

The command cannot be issued on an VM2000 guest system.

The SHOW-IOCF command provides information on existing IOCFs. An IOCF can be written from the hard disk of the service system to a PAM file with the READ-IOCF command.

Format

WRITE-IOCF
FILE-NAME = <filename 1..54> ,**LEVEL** = **0** / <integer 0..9>

Operands

FILE = <filename 1..54>
Name of the BS2000 file.

LEVEL = 0 / <integer 0..9>
Level number of the IOCF to be written. The value range covers all existing ranges. The active IOCF cannot be overwritten.
The maximum number of levels is hardware-dependent.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Specified IOCF is empty
2	0	IOF0125	Bus configuration, no IOCF
	1	CMD2201	Parameter error: At least one value from the command call is incorrect (e.g. file does not exist, incorrect format or incorrect file contents, level number does not exist, etc.). The exact cause of the error is contained in a preceding message.
	32	CMD0221	Internal error: A system interface which was called reports an error. The exact cause of the error is contained in a preceding message.
	64	CMD0216	User does not have authorization
	64	IOF0119	Function not possible in the current HSI or not permitted.

7.92 WRITE-SPOOL-TAPE

Output files to tape

Component:	SPOOL
Functional area:	Controlling spoolout job
Domain:	SPOOL-PRINT-ADMINISTRATION
Privileges:	STD-PROCESSING PRINT-SERVICE-ADMINISTRATION HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION
Routing code:	$

Function

The system creates a separate spoolout job which runs independently of the job issuing the command (own TSN). A SAM tape file with standard labels is generated as the output file and is assigned the following name:

```
{ S.tsn. / S.pname. } { [hhmmss.]filename / EAMno }
```

where:

S.tsn.	tsn is the task sequence number of the SPOOL job
S.pname.	job name if the SPOOLOUT-NAME operand is specified
filename	name of the cataloged input file
hhmmss.	time of day if several files are output under the same job and file names
EAMno	EAM file number if SYSLST or SYSOUT has been specified as the input file.

SPOOL creates an MF set (multifile tape) if

- a tape containing more than one file
- file generations
- partially qualified file names

are to be output. This tape file can be output to a printer by means of PRINT-DOCUMENT; it cannot be output to tape.

Format

WRITE**-SPOOL-TAPE**

FILE**-NAME** = ***LIB**RARY**-ELEM**ENT(...) / list-poss(16): ***OMF** / ***SYSLST** / ***SYSLST-NUM**BER(...) /

***SYSOUT** / <filename 1..54 with-wild(80)> / <integer 1..65535>

***LIB**RARY**-ELEM**ENT(...)

| **LIB**RARY = <filename 1..54 without-vers>

| ,**ELEM**ENT = <composed-name 1..64 with-under with-wild(80)>(...)

| <composed-name 1..64 with-under with-wild(80)>(...)

| | **VERSION** = ***HIGH**EST**-EXIST**ING / ***UP**PER**-LIM**IT /

| | <composed-name 1..24 with-under with-wild(40)>

| ,**TYPE** = <alphanum-name 1..8 with-wild(12)>

| ,**CRE**ATION**-DATE** = ***LATEST** / ***RANGE**(...) / <date>(...)

| ***RANGE**(...)

| | **FROM** = ***FIRST** / <date>

| | ,**TO** = ***LAST** / <date>

| <date>(...)

| | **FROM** = ***FIRST** / <time>

| | ,**TO** = ***LAST** / <time>

***SYSLST-NUM**BER(...)

| **SYSLST-NUM**BER = <integer 1..99>

,**MONJV** = ***NONE** / ***STD** / <filename 1..49 without-gen-vers>

,**JV-PASS**WORD = ***NONE** / <c-string 1..4> / <x-string 1..8> / ***SECRET**

,**START-SPOOL** = ***IMMED**IATE / ***CLOSE** / ***NO**

,**LOCK-F**ILE = ***STD** / ***Y**ES / ***NO**

,**DEL**ETE**-FILE** = ***NO** / ***Y**ES / ***DESTROY**

,**SP**OOLOUT**-NAME** = ***STD** / <alphanum-name 1..8> / <c-string 1..8>

,**SP**OOLOUT**-PRIO**RITY = ***JOB-PRIO**RITY / <integer 30..255>

,**DEV**ICE**-TYPE** = ***ANY** / <alphanum-name 1..8>

,**VOL**UME = ***ANY** / list-poss(4): <alphanum-name 1..6>

,**RET**ENTION**-PER**IOD = ***STD** / <integer 0..999>

Operands

FILE-NAME = *LIBRARY-ELEMENT(...) / list-poss(16): *SYSLST-NUMBER(...) / *OMF / *SYSLST / *SYSOUT / <filename 1..54 with-wild(80)> / <integer 1..65535>
Names of the files to be output.

FILE-NAME = *LIBRARY-ELEMENT(...)
The specified element is to be output from a PLAM library. An element is fully defined by its name, its type and its version.

Notes

- Access to the directory of the library is executed via command validation, i.e. you must have access authorization for the library at this time; otherwise, the command is rejected.
- The library which contains the elements to be output cannot be locked until the spoolout job is executed. A global setting LOCK-FILE = *YES in the SPOOL parameter file (MODIFY-SPOOL-PARAMETERS) is ignored.
- PAM elements of element type X cannot be processed.

LIBRARY = <filename 1..54 without-gen>
The name of the PLAM library from which an element is to be output.

ELEMENT = <composed-name 1..64 with-under with-wild(80)
The name of the element which is to be output from the specified PLAM library.

> **VERSION = *HIGHEST-EXISTING / *UPPER-LIMIT / <composed-name 1..24 with-under with-wild(40)>**
> The version of the element which is to be output. Default is *HIGHEST-EXISTING, i.e. the last element in alphabetical order.
> If the version is specified in wildcard format, and if there are library elements with the same names to which the wildcard specification applies, then all of these library elements are output.

TYPE = <alphanum-name 1..8 with-wild(12)>
The type of the library element to be output.

CREATION-DATE =
The creation date with which elements are selected for output.

CREATION-DATE = *LATEST
By default, the last library element created is output.

> **CREATION-DATE = *RANGE(...)**
> Library elements created within the specified time range are to be output.
>
> > **FROM = *FIRST / <date>**
> > Specifies the first day of the possible creation period for the library element.
> > By default, FIRST is assumed, i.e. the creation date of the library element which was created first.
>
> > **TO = *LAST / <date>**
> > Specifies the last day of the possible creation period for the library element.
> > By default, LAST is assumed, i.e. the creation date of the library element which was created last.

Note

If the two digits for the century are not specified, the following defaults are used:

- 19 if the last two digits of the year number lie between 50 and 99;
- 20 in all other cases.

FROM = *FIRST / <time> CREATION-DATE = <date>(...)
The date on which the desired library elements were created.

The earliest time of day at which elements in the specified library must have been created in order to be printed.
The default is FIRST, i.e. 00:00:00 hours.

TO = *LAST / <time>
The latest time of day at which elements in the specified library must have been created in order to be output.
The default is LAST, i.e. 23:59:59 hours.

FILE-NAME = *OMF
Specifies the temporary EAM object module file of the current job. The following defaults apply to this job:

- OMF is not locked (LOCK-FILE=*NO)
- OMF is deleted after execution of the output (DELETE-FILE=*YES).

The temporary EAM object module file *OMF may be combined in any manner with the system files SYSLST and SYSOUT in one WRITE-SPOOL-TAPE command, for example, WRITE-SPOOL-TAPE (*OMF,*SYSLST, *SYSOUT). It must not, however, be combined with an EAM file number or a cataloged file.

FILE-NAME = *SYSLST
Outputs the SYSLST system file. Unless otherwise specified, the following points apply to output:

- SYSLST is not locked (LOCK-FILE=*NO)
- SYSLST is deleted at the end of output (DELETE-FILE=*YES).

System file SYSLST may be combined in any sequence with the temporary EAM object module file *OMF and system file SYSOUT in a WRITE-SPOOL-TAPE command, e.g. WRITE-SPOOL-TAPE (*OMF,*SYSLST, *SYSOUT). It must not, however, be combined with an EAM file number or a cataloged file.

FILE-NAME = *SYSLST-NUMBER(...)
Specifies system file SYSLST-nn.

SYSLST-NUMBER = <integer 1..99>
Two-digit number nn to be used to form the SYSLSTnn file name. A maximum of 11 different SYSLSTnn system files can be specified in a list (in parentheses and separated by commas). All the specified operand values then apply to each of these system files.

FILE-NAME = *SYSOUT
Outputs system file SYSOUT.
System file SYSOUT may be combined in any sequence with the temporary EAM object module file *OMF and

system file SYSLST in the same WRITE-SPOOL-TAPE command, e.g. WRITE-SPOOL-TAPE (*OMF,*SYSLST, *SYSOUT).
It must not, however, be combined with an EAM file number or a cataloged file.

FILE-NAME = <filename 1..54 with wild(80)>
Name of the file to be output to tape.
PAM files must not be specified in batch mode.

The WRITE-SPOOL-TAPE command is rejected if the specified file

- is a newly cataloged file to which no data has yet been written
- has already been opened in output mode

If the file does not belong to the user's own user ID, read access must be allowed (see the SHOW-FILE-ATTRIBUTES command).

The following points should be noted in connection with the output of cataloged files:

- A spoolout job is generated even if the file to be output is reserved by a SECURE-RESOURCE-ALLOCATION command. However, this reservation must be canceled before the spoolout job is processed, otherwise, the job cannot be executed. The file to be output is locked until the end of the session the operand LOCK-FILE=*YES was specified in the WRITE-SPOOL-TAPE command and the job could not be executed because of the reservation.
- The *OMF, *SYSLST and *SYSOUT files cannot be specified together with a cataloged file in a spoolout job.

FILE-NAME = <integer 1..65535>
Number of the EAM file to be output. See also the PRINT-DOCUMENT command.

START-SPOOL =
Determines when the *SYSLST file is to be output before the end of the job.

START-SPOOL = *IMMEDIATE
The spoolout job is to be generated and processed immediately after the command is entered.

START-SPOOL = *CLOSE
The spoolout job is to be processed immediately after the system file is closed. A system file is closed:

1. for a primary assignment: by an EXIT-JOB (or LOGOFF) command or by CANCEL-JOB (from another ID), i.e. at the end of the job
2. if assigned to a cataloged file:
   - by an EXIT-JOB (or LOGOFF) command or by CANCEL-JOB (from another ID), i.e. at the end of the job
   - by another ASSIGN-SYSFILE command (change of assignment) issued for the same system file
   - in a procedure run after procedure level 0 has been reached.

START-SPOOL = *NO
Any previously defined CLOSE option is canceled. Any other operands are rejected.

MONJV =
Specifies the job variable in which information on job processing is to be stored. See also the PRINT-DOCUMENT command.

MONJV = *NONE
No job variable is to be linked to the job.

MONJV = *STD
The job variable will be given the name of the file to be printed (without catalog ID and without user ID). It is created under the user ID and catalog ID of the caller.

MONJV = <filename 1..49 without-gen-vers>
The job variable should contain the specified name. If the job contains several files, the following suffix is added to the name of the job variable:

- a consecutive number <1..9999> if FAMILY=*YES is also specified;
- the TSN of the spoolout job if FAMILY=*NO or START-SPOOL=<integer 1..2147483639> is also specified.

JV-PASSWORD = *NONE / <c-string 1..4> / <x-string 1..8> / *SECRET
Specifies the password with which the job variable is protected.
See also the PRINT-DOCUMENT command.

LOCK-FILE = *STD / *YES / *NO
Locks the files so that changes cannot be made until the end of output. This protection remains in force while the spoolout job is in the job queue (T4); the file is automatically protected during output (T5) (even if LOCK-FILE=*NO is specified).

LOCK-FILE = *STD
The value defined in the SPOOL parameter file (*YES or *NO).

DELETE-FILE =
Specifies whether the file is to be deleted at the end of output and if so, whether its data are to be overwritten with X'00'.
Default: the file is not deleted after printing and not overwritten with binary zeros. The user must have write access to the file.
If the file to be output belongs to a file generation group (see FILE-NAME operand), the DELETE-FILE operand is ignored. This operand must not be specified in conjunction with *SYSLST, *SYSLSTnn or *SYSOUT.

DELETE-FILE = *NO
The file is not to be deleted after printing (unless it is an EAM or system file).

DELETE-FILE = *YES
The file is to be deleted as soon as output has been completed.

DELETE-FILE = *DESTROY
Specifies that once the file has been printed its data are to be overwritten with binary zeros. This operand value is invalid for EAM and cataloged system files.

SPOOLOUT-NAME = *STD / <alphanum-name 1..8> / <c-string 1..8>
Job name for the spoolout job.
The job name can be formed from a maximum of 8 characters from the set (A,...,Z,0,...9,@,#,$,.,-) but must not start with a hyphen or end with a period. It may only start with a period if this is followed by an alpha character; in this case, the period itself as part of the job name is not printed on the header page.
The job name is printed on the header page in the third outsize line and also appears in the output of the SHOW-JOB-STATUS command. If this operand is omitted the job name from the SET-LOGON-PARAMETERS command is used instead.

SPOOLOUT-NAME = *STD
No separate job name for the spoolout job. If a job name has been assigned to the job issuing the command (in the SET-LOGON-PARAMETERS command) this name is printed in the third outsize line on the header page.

SPOOLOUT-NAME = <alphanum-name 1..8>
Job name which is to be assigned to the spoolout job (and which will overwrite any job name already assigned to the job issuing the command).

SPOOLOUT-PRIORITY =
Specifies the priority (urgency) with which this spoolout job is started relative to other spoolout jobs.

SPOOLOUT-PRIORITY = *JOB-PRIORITY
The spoolout job is to have the same priority as the job issuing the command; default value.

SPOOLOUT-PRIORITY = <integer 30..255>
Priority to be assigned to the spoolout job.
The highest priority you can assign is defined in the user catalog and can be displayed by means of the SHOW-USER-ATTRIBUTES command.
If an invalid operand is specified (or if the operand is omitted), the spoolout job is assigned the same priority as the job issuing the command.

DEVICE-TYPE = *ANY / <alphanum-name 1..8>
Device type to which the required tapes are assigned.

DEVICE-TYPE = *ANY
Any device type. The highest available recording density is used for output.

VOLUME = *ANY / list-poss(4): <alphanum-name 1..6>
Volume labels of the required tapes.

VOLUME = *ANY
Scratch tapes supplied by the operator are used for output.

RETENTION-PERIOD = *STD / <integer 0..999>
Specifies the period in days during which the output file cannot be updated or deleted.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	No error
2	0	SCP0829	Command registered
2	0	SCP0862	Not file owner. DELETE-FILE ignored
2	0	SCP0863	FGG file. DELETE-FILE ignored
2	0	SCP0864	File protected by read access. DELETE-FILE ignored
2	0	SCP0865	File protected by write access. DELETE-FILE ignored
2	0	SCP0866	File protected by EXPIRATION-DATE. DELETE-FILE ignored
2	0	SCP0930	HP/SPOOLFILE not available
2	0	SCP0971	RECORD-CLASS 164 not accessible (PLAM)
2	0	SCP1000	JV access error. MONJV ignored
	1	CMD0202	Syntax error
	1	SCP0973	Semantic error
	32	SCP0974	System error. Command rejected
	64	SCP0975	No authorization for command
	64	SCP0976	Invalid operand value
	128	SPS0266	SPOOL administrator task not available
	128	SCP0896	Subsystem not loaded/ready
	128	SCP0996	JV subsystem not loaded/ready

7.93 WRITE-TEXT

Write text to SYSOUT or SYSLST

Component:	SDF
Functional area:	Job processing
Domain:	JOB PROCEDURE SDF
Privileges:	STD-PROCESSING HARDWARE-MAINTENANCE SAT-FILE-EVALUATION SAT-FILE-MANAGEMENT SECURITY-ADMINISTRATION

Function

The WRITE-TEXT command outputs the specified text to SYSOUT or SYSLST.

In programs with an SDF interface, WRITE-TEXT is available as a standard statement with identical syntax and functionality.

Format

WRITE**-TEXT** Alias: **WRTX**

```
TEXT = ' ' / <c-string 1..1024 with-low>

,OUTPUT = *SYSOUT / *SYSLST(...)

    *SYSLST(...)

        | SYSLST-NUMBER = *STD / <integer 1..99>
```

Operands

TEXT = ' ' / <c-string 1..1024 with-low>
Text to be output to SYSOUT or SYSLST. The default value is a string containing a blank.

OUTPUT = *SYSOUT / *SYSLST(...)
Specifies where the information is to be output.

OUTPUT = *SYSOUT
The information is output to the system file SYSOUT.

OUTPUT = *SYSLST(...)
The information is output to the system file SYSLST.

SYSLST-NUMBER = *STD / <integer 1..99>
Specifies whether the information is to be output to the system file SYSLST or to a SYSLST file from the set SYSLST01 through SYSLST99. The default is *STD, i.e. output is directed to the system file SYSLST.

Return codes

(SC2)	SC1	Maincode	Meaning
	0	CMD0001	Command executed without error

Example

A procedure file (PROC.1) begins with the following commands:

```
/BEGIN-PROC PAR=*YES(PROC-PAR=(&FILE=))
/WRITE-TEXT 'procedure for linking'
...
...
...
/WRITE-TEXT 'procedure ended without error'
/END-PROC
```

When the procedure is run, the text specified in WRITE-TEXT will be output to SYSOUT:

/call-proc name=proc.1

```
procedure for linking
 .
 .
 .
procedure ended without error
```