

Fujitsu Software BS2000 UDS/SQL and UDS-D

Version 2.9B

November 2024

Release Notice

All rights reserved, including intellectual property rights. Technical data subject to modifications and delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.

Copyright © 2024 Fujitsu

The Fujitsu brand and the Fujitsu logo are registered trademarks of Fujitsu Limited, Japan in Europe and other countries.

BS2000 is a trademark of Fujitsu Germany GmbH in Europe.

Release Notice UDS/SQL und UDS-D

1	General	3
1.1	Ordering	3
1.2	Delivery	4
1.3	Documentation	5
2	Software extensions	6
2.1	FIND-/FETCH-7 with DESCENDING KEYS	6
2.2	Record Reference in a COBOL program	6
2.3	Changing of ALOG settings	6
2.4	Changing restrictions for UNLINE-UTILITY	6
2.5	BRENAME with ALLOGGING	6
2.6	Specify the size of a DBTT extent	6
2.7	New Datatype: FIXED REAL BINARY 63	6
2.8	Loading small ListSets	7
2.9	BINILOAD of CSV files	7
2.10	BINILOAD with records of variable length	7
2.11	Default value for new fields in BALTER	7
2.12	Number of extents in DB-JV	7
2.13	News in UDS/SQL and UDS-D with SP 23.1	7
2.14	News in UDS/SQL and UDS-D with SP 23.2	7
2.15	News in UDS/SQL and UDS-D with SP 24.1	7
2.16	News in UDS/SQL and UDS-D with SP 24.2	7
3	Technical information	8
3.1	Resource requirements	8
3.2	Software configuration	8
3.3	Product installation	9
3.3.1	Installing with IMON parallel to operation	9
3.3.2	Special requirements	9
3.4	Product use	10
3.4.1	Information about converting to UDS/SQL V2.9	10
3.4.1.1	Using databases from UDS/SQL V2.8	10
3.4.1.2	Downgrade to UDS/SQL V2.8	10
3.4.2	Operating batch applications that have not been relinked	10
3.4.3	Applications in AMODE 24	10
3.4.4	UDS/SQL V2.9 tools	11
3.4.4.1	BINIPARAM	11
3.4.4.2	BPRIVACYPARAM	11
3.4.4.3	CHECKPARAM	11
3.4.4.4	RLOGPASS	11
3.4.4.5	UDSTRACE	12
3.4.4.6	DBSTRUKT	12
3.4.4.7	UDSSTAT	12
3.4.4.8	CSV-Tools	12
3.5	Discontinued functions (and those to be discontinued)	12
3.6	Incompatibilities	13
3.6.1	openUTM applications	13
3.6.2	CODASYL interface	13
3.7	Restrictions	13
3.8	Procedure in the event of errors	13
4	Hardware requirements	14
5	Firmware levels	15

1 General

This Release Notice is a summary of the major extensions, dependencies and operating information with respect to

*1 UDS/SQL (BS2000) V2.9B and
*1 UDS-D (BS2000) V2.9B

*6 The release level is that of: November 2024.

*6 The current release refers to UDS/SQL V2.9B84 and UDS-D V2.9B84.

*6 Changes to release level June 2024 are marked with *6.

*5 The current release refers to UDS/SQL V2.9B83 and UDS-D V2.9B83.

*5 Changes to release level November 2023 are marked with *5.

*4 The current release refers to UDS/SQL V2.9B82 and UDS-D V2.9B82.

*4 Changes to release level June 2023 are marked with *4.

*3 Changes to release level November 2022 are marked with *3.

*2 Changes to release level June 2019 are marked with *2.

*1 Changes to the correction delivery V2.9B00 are marked with *1 in the margin.

*2 This and other current Release Notices are available online at
*2 <https://bs2manuals.ts.fujitsu.com/>.

If one or more previous versions are skipped when this product version is used, the information from the Release Notices of the previous versions must also be noted.

UDS-D is a supplement to the UDS/SQL database system and enables transaction-secured access to UDS databases across multiple computers. UDS-D eliminates the strict assignment of databases and UDS applications to the same computer. The data can be maintained on the computer where it is mainly needed. UDS applications on remote computers can query and modify this data if necessary.

UDS-D monitors distributed transaction processing with network-wide deadlock detection and resolution and corresponding deadlock analysis. If an error occurs during a UDS transaction, UDS-D makes sure that during a warm start the data consistency of all databases is maintained on the computers involved.

1.1 Ordering

*1 UDS/SQL V2.9 and UDS-D V2.9 can be ordered from your local distributors.

1.2 Delivery

*1 The UDS/SQL V2.9 and UDS-D V2.9 files are supplied via SOLIS.

The table below lists the release units that are supplied with a particular delivery unit.

Delivery unit	Release unit
UDS/SQL	UDS-SQL UDS-SQL-T
UDS-D	UDS-D

The following delivery components are required regardless of the HSI:

Release unit UDS-SQL:

SYSLNK.UDS-SQL.029	Module library containing the modules for UDS/SQL
SYSLIB.UDS-SQL.029	Macro library for UDS/SQL
SYSSDF.UDS-SQL.029	SDF system syntax file for UDS/SQL und UDS-D
SYSSDF.UDS-SQL.029.USER	SDF user syntax file for UDS/SQL und UDS-D
SYSSSC.UDS-SQL.029	Subsystem definition for UDS/SQL
SYSMES.UDS-SQL.029	Message file for UDS/SQL und UDS-D
SYSSII.UDS-SQL.029	File for installation of the release unit UDS-SQL with IMON

Release unit UDS-SQL-T:

SIPPRG.UDS-SQL-T.029	Library for class B tools (e.g. BTRANS24, UDSSTAT, ...)
SIPLIB.UDS-SQL-T.029	Library with procedures for class B tools (e.g. P.BINIPARAM, ...)
SIPDAT.UDS-SQL-T.029.D	Library with tool information in German (e.g. INFO.BINIPARAM, ...)
SIPDAT.UDS-SQL-T.029.E	Library with tool information in English
SYSSII.UDS-SQL-T.029	File for installation of the release unit UDS-SQL-T with IMON

Release unit UDS-D:

SYSLNK.UDS-D.029	Module library containing the modules for UDS-D
SYSSSC.UDS-D.029	Subsystem definition for UDS-D
SYSSII.UDS-D.029	File for installation of the release unit UDS-D with IMON

A CD-ROM with the following contents is delivered with the release unit UDS-SQL (the relevant directory names are in parentheses):

- Release Notices in German and English in pdf format (Produktinfo)
- Tools for processing the output of utility programs in csv format, e.g. EXCEL macros (Tools\csv\EXCEL) and Perl scripts (Tools\csv\CSV2XML) and a description of UDSSTAT (Tools\UDSSTAT) including an EXCEL macro for processing the output from UDSSTAT.
- Frequently asked questions in HTML format (FAQ).

The current file and volume characteristics are listed in the SOLIS2 delivery cover letter.

1.3 Documentation

- *2 The documentation is available on the internet at <https://bs2manuals.ts.fujitsu.com/>.
- *2 There you will find both individual manuals and (under the "Softbooks" tab) the ISO image of a
- *2 DVD with the entire inventory.

2 Software extensions

The extensions and improvements compared to the previous version UDS/SQL V2.8A are described in the following section.

2.1 FIND-/FETCH-7 with DESCENDING KEYS

Up to UDS/SQL V2.8 in a FIND-/FETCH-7 statement a DESCENDING KEY is not used for direct access, if a condition for the concerning field is specified.

As of UDS/SQL V2.9A a DESCENDING KEY is used for direct access in FIND- resp. FETCH-7, too. Hence with this improvement the execution of such a statement is much faster.

2.2 Record Reference in a COBOL program

In UDS/SQL V2.9A in the IMPLICITLY-DEFINED-DATA-NAMES of the SUBSCHEMA SECTION a new field and condition names for every record type contained in the subschema are created. Thus a COBOL program can access the record references, if it is needed e.g. with STORE.

The generation of this field can be controlled by the new option GENERATE-REC-REF of the DDL-Compiler.

2.3 Changing of ALOG settings

As of UDS/SQL V2.9A the placement and size of ALOG files can be changed, even if the database is processed by the DBH.

2.4 Changing restrictions for UNLINE-UTILITY

As of UDS/SQL V2.9A the relocation of data pages with RELOCATE-TYPE = *INDEX-LEVEL-TABLE-PAGES can be executed with usage mode UPDATE. Thus relocation can be executed parallel to the normal transaction processing.

2.5 BRENAME with ALOGGING

As of UDS/SQL V2.9A the renaming of database objects (BRENAME, BALTER) can be done, even if writing of ALOG is switched on.

With that a logging gap can be avoided and no additional copy for backup must be done.

2.6 Specify the size of a DBTT extent

As of UDS/SQL V2.9A the number of DBTT entries, for which the DBTT should be extended in a DBTT extension, can be specified. For that the new operand EXT in the DAL command ACT DBTT-INCR can be used.

2.7 New Datatype: FIXED REAL BINARY 63

In UDS/SQL V2.9A the data type FIXED REAL BINARY 63 from COBOL is supported for the first time. Thereby such fields can be stored in the data base directly.

*1 **2.8 Loading small ListSets**

*1 Until now when loading records with BINILOAD small ListSets (lists containing only a few
*1 records) were stored each in an own DB page. Thereby a considerable increased requirement
*1 of space compared to the originally storing could occur.
*1 As of UDS/SQL V2.9B when small ListSets are loaded by BINILOAD several small ListSets
*1 are stored into a DB page, as BALTER does since UDS/SQL V2.5.

*1 **2.9 BINILOAD of CSV files**

*1 As of UDS/SQL V2.9B BINILOAD can read data from CSV files, too. The order of the columns
*1 in the CSV file can differ from that of the fields in the database.

*1 **2.10 BINILOAD with records of variable length**

*1 As of UDS/SQL V2.9B BINILOAD can load records, which contain a field of variable length.

*1 **2.11 Default value for new fields in BALTER**

*1 As of UDS/SQL V2.9B when restructuring a database with BALTER, a new field can be
*1 initialized in existing records by specifying a default value for this field.

*1 **2.12 Number of extents in DB-JV**

*1 As of UDS/SQL V2.9B the number of the extents of the ALOG file is stored in the database
*1 jobvariable, too.

*3 **2.13 News in UDS/SQL and UDS-D with SP 23.1**

*3 SP 23.1 contains the following improvements and corrections:
*3 - BINILOAD: Corrections in handling of CALCKEYs
*3 - UDSMON: Changes in time interval for output on printer
*3 - Sub-Control: Improvements in task switch with openUTM

*4 **2.14 News in UDS/SQL and UDS-D with SP 23.2**

*4 SP 23.2 contains the following improvements and corrections:
*4 - DBH: Corrections when storing a record with the maximum RSQ
*4 - Sub-Control: Withdrawal of the correction in SP 23.1 for the task switch with openUTM
*4 - BINILOAD: Improvement in processing CSV files with unsigned numeric numbers

*5 **2.15 News in UDS/SQL and UDS-D with SP 24.1**

*5 SP 24.1 contains the following improvements and corrections:
*5 - BCHECK and other utility routines: Corrections in processing the maximum RSQ
*5 - UDSMON: Improvement in handling of counter overflows
*5 - BINILOAD: Improvement in handling of small list sets with long SEARCH- and CALC-
*5 KEYS

*6 **2.16 News in UDS/SQL and UDS-D with SP 24.2**

*6 SP 24.2 contains the following improvements and corrections:
*6 - BMODTT: Corrections in processing the maximum RSQ
*6 - DBH: Corrections in processing the maximum RSQ

3 Technical information

3.1 Resource requirements

- *1 In UDS/SQL V2.9 and UDS-D V2.9 the requirement of resources are not significantly increased with respect to the previous version.

3.2 Software configuration

- *1 For UDS/SQL V2.9 und UDS-D V2.9
BS2000/OSD-BC as of V10.0A
is required.

Other Software required for production operation:

- *1 CRTE as of V10.0A
SORT as of V8.0A

Software recommended for backups on tapes:

- *1 ARCHIVE as of V10.0A
*1 HSMS as of V10.0A

Optional software products for specific functions:

- | | | | |
|----|-----------|--------------|--|
| | UDS-D | only V2.9 | own configuration |
| | UDS-D | as of V2.6A | external configuration |
| | UDS-IQS | as of V4.0A | the new datatype FIXED REAL BINARY 63 is currently not supported by UDS-IQS. |
| | JV | as of V15.0A | |
| | SDF-P | as of V2.5A | |
| *1 | COBOL85 | as of V2.3A | |
| | COBOL2000 | as of V1.5A | |
| | openUTM | as of V6.3A | |
| | openSM2 | as of V8.0A | |

3.3 Product installation

- *1 Installation of the product UDS/SQL V2.9 and UDS-D V2.9 with the IMON installation monitor is mandatory. You must follow the information concerning installation in the delivery cover letter and in the product documentation as well as the information in this Release Notice.

Before starting IMON, you have to perform the following actions, if the installation does not run parallel to operation (see 3.3.1):

- *1
- The databases must be brought into a consistent state before updating to UDS/SQL V2.9. This is best achieved by stopping all UDS sessions in an orderly manner.
 - UTM applications linked to UDS/SQL should also be shut down correctly with "KDCSHUT N".

After these actions have been executed you have to install the product with IMON. The necessary inputs and the sequence of the installation are described in the IMON documentation.

After successful installation of the product with IMON you have to carry out the following actions:

- If the UDS subsystem is to be used, it must be reactivated after installation (/START-SUBSYSTEM).

3.3.1 Installing with IMON parallel to operation

- *1 UDS/SQL V2.9 can also be installed with IMON while current operation is in progress.

However, in order to be able to continue working correctly with a UDS session and other applications that are currently running, all running DBH and user processes must have their version selected with the SELECT-PRODUCT-VERSION command. (cf. 'UDS/SQL V2.9 – Database Operation' manual)

3.3.2 Special requirements

After successful installation of the product with IMON you have to carry out the following actions:

1. If the call via START-EXECUTABLE-PROGRAM is used instead of the UDS-START commands, the following file names must be matched to the new names in the procedures used

the UDS message file	(SYSMES.)
the UDS SDF syntax file	(SYSSDF.)
the UDS module library	(SYSLNK.)

2. The file SYSMES.UDS-SQL.029 is taken over into BS2000-MIP during installation with IMON. If different UDS versions are run in parallel, a version-specific message file can also be assigned e.g. via a LOGON-USER procedure as follows:

```
/MODIFY-MSG-FILE-ASSIGNMENT -
/      ADD-FILE = $<user-id>.SYSMES.UDS-SQL.<version>
```

with <user-id> = storage ID of the UDS message file
and <version> = version 'nnn' of the Product

Example:

```
/MODIFY-MSG-FILE-ASSIGNMENT -
/      ADD-FILE = $.SYSMES.UDS-SQL.029
```

3. A SDF-USER syntax file called SYSSDF.UDS-SQL.029.USER is supplied for user-specific use. Use this file if system-wide use is not desired. Assign the file as follows.

```
/MODIFY-SDF-OPTIONS -
/ SYNTAX-FILE = *ADD ( -
/      ADD-NAME = $<user-id>.SYSSDF.UDS-SQL.<version>.USER )
```

Example:

```
/MODIFY-SDF-OPTIONS -
/ SYNTAX-FILE = *ADD ( -
/      ADD-NAME = $.SYSSDF.UDS-SQL.029.USER )
```

However, the USER syntax file does not support the UDS-START commands.

3.4 Product use

3.4.1 Information about converting to UDS/SQL V2.9

The following information applies for converting from UDS/SQL V2.8. When converting from a version smaller than 2.8 the Release Notices of the original versions must be observed.

3.4.1.1 Using databases from UDS/SQL V2.8

The conversion from UDS/SQL V2.8 to UDS/SQL V2.9 is not linked with a higher DB layout version. Existing databases from UDS/SQL V2.8 can also be used in UDS/SQL V2.9 without any problem. When using older databases, please note the information in the manual "Creation and Restructuring"

3.4.1.2 Downgrade to UDS/SQL V2.8

As the supported DB layout versions in contrast to UDS/SQL V2.8 have not changed, a downgrade to UDS/SQL V2.8 is possible at any time. For this purpose, the status of the databases has to be consistent.

However, it must be considered that subschemata containing fields of the new data type FIXED REAL BINARY 63 cannot be processed in UDS/SQL V2.8 and older. This is declined with the status code 145 and the message UDS0296.

3.4.2 Operating batch applications that have not been relinked

Batch applications that have been linked with an old, version-independent link module UDSLNKx before UDS/SQL V2.2, require a library UDS.MODLIB for reloading the connecting module. There are three alternatives for this:

1. A UDS.MODLIB library is created in the local ID of the application and the object modules UDSBCCON (for independent DBH) and LCCONCT (for linked-in DBH) from SYSLNK.UDS-SQL.029 are then copied into it.
2. An empty UDS.MODLIB library is created in the local ID of the application. A link to the installed product library SYSLNK.UDS-SQL.029 is created with a TASKLIB assignment.
3. ACS is used to create an alternative catalog entry UDS.MODLIB in the local ID that points to the installed product library SYSLNK.UDS-SQL.029.

3.4.3 Applications in AMODE 24

If UDS/SQL is loaded as a subsystem (above 16MB) and an application is started in AMODE 24, messages may be issued by the linker-loader system because connection to a subsystem loaded above 16 MB is not possible. These messages can be ignored since UDS/SQL subsequently loads the relevant module into the task local address space.

***1 3.4.4 UDS/SQL V2.9 tools**

Various tools are supplied with UDS/SQL (libraries SIPPRG.UDS-SQL-T.029 and SIPLIB.UDS-SQL-T.029 or on the UDS/SQL V2.9 CD-ROM). These tools, which are mainly intended for service purposes, are not part of the contract and are not included in the maintenance obligations. The tools are not described in the manuals.

If nothing else is specified in the following overview, detailed descriptions are in the library SIPDAT.UDS-SQL-T.029.D under INFO.<toolname> (German) or SIPDAT.UDS-SQL-T.029.E under INFO.<toolname>.E (English).

3.4.4.1 BINIPARAM

This procedure supplements the BOUTLOAD outputs with the subschema name and writes for each record type BINILOAD statement in its own output file.

Call with the command:

```
/CALL-PROCEDURE FROM-FILE = *LIBRARY-ELEMENT ( -
/      LIBRARY = SIPLIB.UDS-SQL-T.029, -
/      ELEMENT = P.BINIPARAM )
```

3.4.4.2 BPRIVACYPARAM

The output of a SHOW-USER-GROUP statement with USER-GROUP-NAME = *ALL of the utility BPRIVACY is converted to BPRIVACY statements, with which these BPRIVACY specifications can be saved.

Call with the command:

```
/CALL-PROCEDURE FROM-FILE = *LIBRARY-ELEMENT ( -
/      LIBRARY = SIPLIB.UDS-SQL-T.029, -
/      ELEMENT = P.BPRIVACYPARAM )
```

3.4.4.3 CHECKPARAM

The procedure P.CHECKPARAM generates from the result of a CHECK SUMMING run a procedure which starts a CHECK SORTING run corresponding to the result.

Call with the command:

```
/CALL-PROCEDURE FROM-FILE = *LIBRARY-ELEMENT ( -
/      LIBRARY = SIPLIB.UDS-SQL-T.029, -
/      ELEMENT = P.CHECKPARAM )
```

3.4.4.4 RLOGPASS

RLOGPASS is used to set the password for the RLOG files. The user enters (requested via prompting) the time stamp of the RLOG file. RLOGPASS calculates the password and issues it.

Attention: The password is to prevent the RLOG files from overwriting or deleting by mistake and must not be set normally. UDS/SQL sets the password when processing the RLOG files.

Start the program with the command:

```
/START-EXECUTABLE-PROGRAM FROM-FILE = *LIBRARY-ELEMENT ( -
/      LIBRARY = SIPPRG.UDS-SQL-T.029, -
/      ELEMENT = RLOGPASS )
```

3.4.4.5 UDSTRACE

The UDS trace is used to gather detailed knowledge about the runtime behaviour of the UDS applications. It can always be used if applications are not running satisfactorily, e.g. bad response times, too many disables, deadlocks, etc. However, it can also be used in application development in order to uncover programming weak-points at an early stage or for documentation purposes.

Call with the command:

```
/CALL-PROCEDURE FROM-FILE = *LIBRARY-ELEMENT ( -  
/      LIBRARY = SIPLIB.UDS-SQL-T.029, -  
/      ELEMENT = P.UTA )
```

3.4.4.6 DBSTRUKT

This description provides the user with information about technical details which go beyond that provided in the manuals. The parts are copied from the technical description so that there is only a German version. This description does however have parts in German.

3.4.4.7 UDSSTAT

UDSSTAT is used to evaluate UDSMON files.

The description is on the CD-ROM (see Tools/UDSSTAT/udsstat.pdf).

3.4.4.8 CSV-Tools

Sample scripts are offered which facilitate further processing of the outputs of utilities in CSV format.

A description is on the CD-ROM (see Tools/csv/readme-csv-tools.pdf) and as inline documentation in the procedure P.GEN-FILE-BPGSIZE in the library SIPLIB.UDS-SQL-T.029.

3.5 Discontinued functions (and those to be discontinued)

None

3.6 Incompatibilities

*1 UDS/SQL V2.9 has the compatibility behaviour described below:

3.6.1 openUTM applications

UTM-DB applications must only be linked again when the version-dependent connection module UDSCON of a version < V2.9 is integrated (see manual "Program applications", section "Cooperation with a UDS/SQL-openUTM application"). If they are regenerated e.g. due to integrated version-dependent UDS components, the corresponding KDCDB macro must be used when compiling KDCROOT from the UDS macro library SYSLIB.UDS-SQL.029.

*1 3.6.2 CODASYL interface

*1 The programs using the CODASYL interfaces are upward-compatible with respect to UDS/SQL V2.8. Existing applications continue to run after a UDS version change without any modifications.

3.7 Restrictions

None

3.8 Procedure in the event of errors

If an error occurs, the following error documents are needed for diagnostics:

- A detailed description of the error condition, indicating whether and how the error can be reproduced.
- The error must be reported to the appropriate service provider.
A PERLE error report will be opened for Second Level Support.
- UDS/SQL applications should be started with
/MODIFY-JOB-OPTIONS LOGGING = *PARAMETERS (LISTING = *YES)
in order to detect user errors.
- To get the diagnostic information needed in case of an error, the applications should as a rule run with
/MODIFY-TEST-OPTIONS DUMP = *YES
and the DBH session should be logged in a file.
- With most errors, a current BPSIA/BPSQLSIA log of the schema and of the subschema used is required as additional error documentation together with the dump.

Errors with high priority can also be diagnosed remotely, provided the technical equipment is available.

4 Hardware requirements

- *1 UDS/SQL V2.9 und UDS-D V2.9 runs on all business servers supported by BS2000 as of
- *1 OSD/BC V10.0 or OSD/XC V10.0.

5 Firmware levels

This section is not relevant for UDS/SQL.