

Fujitsu Software BS2000 M2000

Version 6.5A

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Release Notice

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1 General information

This Release Notice is a summary of the major extensions, dependencies and operating information about the delivery components of the Fujitsu software BS2000 M2000 V6.5A.

M2000 is running on the Management Unit (MU) which is integrated in the rack of the Fujitsu Servers BS2000 SE730 and SE330. It is used for administration, monitoring and operating of all components of the SE Server.

The contents correspond to the release level of May 2023.

The current release corresponds to the following delivery releases:

M2000 V6.5A0205	Release 05.2023
StorMan V10.1.0-0	Release 10.2022

The Release Notice is shipped on the docu CD.

The following Release Notices must also be taken into consideration for M2000 V6.5A:

- StorMan 10.1
- HNC V6.5A (if /390 Server Units are used)
- X2000 V6.5A (if x86 Server Units are used)
- ROBAR-SV V7.7B (optional)
- openSM2 V21.0 (optional)
- openUTM V7.0 (optional)
- NUX V1.0 (optional)

This and other current Release Notices are available online:

<https://bs2manuals.ts.fujitsu.com/>

If one or more previous upgrades are skipped when this product version is used, then the information from the Release Notices (and README files) for these previous versions must also be taken into account.

1.1 Ordering

The software M2000 V6.5A is supplied preinstalled on the Management Unit as a component of the SE Server hardware and cannot be ordered separately.

1.2 Delivery

M2000 V6.5A is part of the basic operating software for BS2000 SE Servers. M2000 V6.5A is either supplied pre-installed on the Management Unit (MU) or will be installed on already delivered Management Units by Fujitsu service.

The M2000 V6.5A files are delivered along with the hardware delivery as DVD media.

1.3 Documentation

The following manuals are part of the SE server documentation:

- SE specific manuals which describe concepts and the operation of a server of the SE series:
 - Fujitsu Server BS2000 SE Series Administration and Operation
 - Fujitsu Server BS2000 SE Series Quick Start Guide
 - Fujitsu Server BS2000 SE Series Security Manual

- White paper
 - Fujitsu Server BS2000 SE Series Cluster Solutions for SE Server

- Operating manual Fujitsu Server BS2000 SE series comprising the following modules
 - Fujitsu Server BS2000 SE Series Basic Operation Manual
 - Fujitsu Server BS2000 SE Series Operation Manual Server Unit /390
 - Fujitsu Server BS2000 SE Series Operation Manual Server Unit x86
 - Fujitsu Server BS2000 SE Series Operation Manual Additive Components

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

The corresponding HW documentation is required in order to use the HW peripheral devices.

2 Software extensions

M2000 V6.5A is a further development of M2000 V6.4A SP3 and offers the following main extensions and enhancements compared to the previous version:

- **Rebasing on SLES 15 SP4**
The basic system of the Linux appliance M2000 was rebased on SUSE Linux Enterprise Server 15 SP4.
- **New server line SE730**
The new server line SE730 is supported with a new hardware basis for Management Unit (MU M4), HNC (HNC M4) and NetUnit (Juniper EX3400-48T). Series SE730 models and their BS2000 performance are the same as Series SE710.
- **New server line SE330**
The new server line SE330 is supported, which is equipped with a new server generation SU330 and a new hardware basis for Management Unit (MU M4) and NetUnit (Juniper EX3400-48T).
- **New Application Units**
The new models AU25 M6 (PRIMERGY RX2540 M6) and AU47 M6 (RX4770 M6) are supported.
- **Extended role concept**
With M2000 V6.5A, a more finely graded role concept for the functions of the SE Manager is introduced. The following new basic roles are available: Read Only Administrator, Security Administrator, Hardware Administrator, Storage Administrator, Power Operator, IP Network Administrator, FC Network Administrator and Shadow Terminal Operator. In addition to the add-on-specific administrator roles, add-on-specific operator and info roles are also available for the add-ons of the Management Unit. In addition to these basic roles, user-specific roles can also be set up by combining the basic roles.
- **Uniform and extended storage representation in the SE Manager**
In the SE Manager, the tables for disks (BS2000 disks, multipath disks, CRD disks) and for FC paths on the device and hardware pages have been expanded to include information about the storage systems managed in StorMan. The new SEM page "BS2000 Paths" displays fabric and storage information for the BS2000 mnemonic ranges.
- **Display of the FC networks in the SE Manager**
The pages of the "FibreChannel Networks" functional area in the SE Manager have been revised and expanded. In addition to the information about fabrics and switches, detailed information about the connections both between the units of the SE server and the storage systems and between the storage systems themselves is output. Performance data on the ports of the FC switches and a graphic topology display are also available.
- **/390 device configuration via SE Manager**
For /390 systems, an IOGEN source file for the /390 device configuration can be created based on an IORSF file. Due to the existing function of IORSF generation and transfer to the SVP, the device configuration for /390 can be carried out completely in V6.5A via the SE Manager in the running system.

- **Security monitoring of the LINUX base**
During the boot process and at regular intervals, security monitoring is carried out on the LINUX appliance based on the benchmarks published by the Center for Internet Security (CIS). If security gaps are identified, the SecMon component generates a WARNING or CRITICAL event and the service center is notified.
- **Open console messages**
The open console messages for the BS2000 systems are displayed in SEM. The dashboard has been expanded by a tile for the status of open console messages.
- **Enhancement of the remote service functionality (AIS)**
Active AIS Connect sessions of the service are displayed in the SE Manager. The sessions can be ended by the customer. AIS Connect Shell and Video session logs can be downloaded and cleared individually.
- **Maintenance Mode**
The maintenance mode, i.e. the operating mode Maintenance, can be set to support maintenance work and to inform all users. This is visible in all windows of the SE Manager but otherwise has no effect on the functionality.
- **C2H data in SE Manager**
In the SE Manager, BS2000 configuration data (C2H reports) of the BS2 systems can be displayed and downloaded, which were previously created in BS2000 with the "FT-PARTNER=*M2000" option.
- **Tracking of asynchronous operations**
The status display for systems and units is more differentiated. For the asynchronous operations of switching units on/off and starting/shutting down BS2000 systems and AU systems, corresponding intermediate states (STARTING, SHUTTING DOWN, ...) are displayed in the SE Manager.
- **Simplified FW update as add-on**
With the new add-on SEFW, actual firmware for units of the type MU, SUx86 and HNC is made available for an automated, faster update by Fujitsu Service.
- **AU-optimized menu in the SE Manager**
In the AU-optimized menu there is only one node System AU per SE server in the main menu Systems or only one node Unit AU in the main menu Hardware -> Units. The system or unit can be selected from a list in the corresponding windows.

3 Technical information

3.1 Resource requirements

M2000 is installed on the internal mirrored disks of the MU, which have a preset partitioning.

For SE Servers with a redundant Management Unit resp. in a SE Cluster configuration a disk/LUN with a capacity of at least 8 GB must be available as external configuration disk.

Remark:

For disks in an ETERNUS DX disk storage system the host response profile "BS2000" must be activated. Additional information can be found in the document "Fujitsu Storage ETERNUS DX, ETERNUS AF Configuration Guide -Server Connection-" which is available under

<https://sp.ts.fujitsu.com/dmsp/Publications/public/p3am-5672-en.pdf>

3.2 Software configuration

SW base SE Server

- HNC V6.5A (if /390 Server Units are used)
- X2000 V6.5A (if x86 Server Units are used)

- Add-on software:
 - STORMAN V10.1.0-0 (storage manager)
 - ROBAR V7.7B01-1.0 (ROBAR-SV server)
 - OPENS2 V21.0.3.0 (openSM2 - performance monitor)
 - OPENUTM V7.0A26-3.0 (openUTM-server administration)
 - SEHABASIS V1.2.0.0-0 with SEHAMONITOR V1.1.1-0.1 (implementation of a monitoring solution as part of a service offering)
 - NUX V1.0.0-6.0 (Extension of the Net Unit by CISCO lan switches)
 - SEFW V1.0A01-1.0 (Firmware for MU, SUx86 and HNC)

BS2000 system versions native and VM2000 mode

- BS2000 native
 - BS2000 OS DX V1.0
 - OSD/XC V11.0B (not on SU330)

- VM2000 V12.0
 - BS2000 OS DX V1.0 as monitor or guest system
 - OSD/XC V11.0B as guest system

- Prerequisites for Live Migration (LM):
 - BS2000 OS DX V1.0 or OSD/XC V11.0B
 - VM2000 V12.0 in VM mode (LM on SU /390 in VM mode only)

The support of OSD/XC V11.0B, BS2000 OS DX V1.0 and VM2000 V12.0 is supplied as of service pack SP22.2 each.

Linux is not released for use on M2000

The Linux appliance M2000 is a scaled down Linux system exclusively designed to run on the Management Unit of a SE Server. This is why the use of Linux on M2000 is not released for customer applications.

3.3 Product installation

The SE Server is delivered with M2000 preinstalled, including add-on STORMAN. Any new correction levels for M2000 that may be required are supplied as part of the hardware service contract and are installed by Fujitsu service.

For an installation of V6.5A on SE Cluster configurations and Servers with MU redundancy, the release V6.4A SP3 is a prerequisite on all MUs. Even on single-MU SE Servers, the release V6.4A SP3 is a prerequisite for the installation of V6.5A.

3.4 Product use

SE Manager

Operation takes place via a web-based graphic user interface called SE Manager (SEM). Local access is possible via a web browser that is started in M2000 on the rack console integrated in the SE rack.

Remote operation and administration takes place via PC workplaces that can access the SE Manager via a web browser.

To ensure that all SE Manager functions can be used, an up-to-date web browser is required.

- Supported browsers:
 - Mozilla Firefox as of version 102.5.0 ESR
 - Google Chrome
 - Microsoft Edge
- Browser settings:
 - JavaScript is permitted
 - Cookies are permitted
 - If you intend to open a large number of BS2000 console windows or dialog windows simultaneously, the maximum number of server connections must be configured accordingly.
- Global Session
The following prerequisites must be met in order to establish a global session covering multiple MUs:
 - The MUs are embedded in an external DNS within the same net domain.
 - The domain configured on the MU is the same as the external one.
 - The connection to the SE Manager has been made by entering MU's DNS name in browser.
- Device configuration of a SU /390:
If the I/O configuration has been changed in BS2000 (IORSF file is changed), the IORSF file list must be actualized in SE Manager in order to be able to assign new devices to the BS2000 VMs.

SE Cluster: Automatic configuration merge

The configuration of a Management Cluster will be done by the service.

When the Cluster is set up, the configuration regarding accounts, alarm management, and FC networks will be merged into the central cluster configuration. As a preparation phase for this, the configuration should be made unambiguous.

An instruction for this is contained in the white paper

"Fujitsu Server BS2000 SE Cluster Solutions for SE Server" (see chapter 1.3).

Inhomogeneous SE Cluster: Restrictions

Limited in time for version upgrading on existing customer systems, an inhomogeneous SE Cluster with one Server running V6.4A SP3 is released.

The administration of devices and units should be done via a MU of the corresponding SE server.

Due to the changed role concept, there are severe limitations in operation in a cross-MU session when changing from a V6.5A-MU to a V6.4A-MU via the menu in the SEM header area. Therefore, switching to a remote MU in a SEM session is not recommended. Before switching to the remote MU, the session should be ended by logging off.

On a V6.4A-MU, only accounts with the Administrator role may be set up.

Accounts of roles other than administrator that were set up on a V6.5A MU cannot be used on a V6.4A MU.

Application Units: Supported operating systems

The following native operation systems and hypervisors are supported to run on PRIMERGY based Application Units (AU25, AU47):

- Microsoft Windows Server 2016, 2019
- Microsoft Windows Hyper-V Server (Version upon request)
- SUSE Linux Enterprise Server 12, 15
- VMware vSphere® ESXi 7.0U3, 8.0

The following hypervisor platforms are supported to run on PRIMEQUEST based Application Units (AUQ38E, DBU38E):

- Microsoft Windows Hyper-V Server (Version upon request)
- VMware vSphere® ESXi 7.0U3, 8.0

Additional operating systems and virtualization products can be qualified for Application Units upon request.

Application Units: Embedding in the SE Manager

Hints concerning PRIMEQUEST AUs:

- If an already configured PRIMEQUEST AU is extended by an additional partition, the AU must be registered again in SE Manager. Please ask your service technician for support.
- In SE Manager the access to MMB's WEB-UI is linked via the unencrypted HTTP protocol. This link can only be used if access via HTTP protocol is enabled in MMB's configuration.

As a prerequisite for embedding an AU in the SE Manager and in the remote service concept of the SE Server, ServerView components must be installed in the operating system of the AU. The required software will either be shipped with the SE Server or can be downloaded from Fujitsu's support pages via the following link:

<https://support.ts.fujitsu.com>

See the online help of the SE Manager for further information.

VMware vSphere

In order to install an ESXi server on an AU the corresponding Fujitsu Custom ISO image for ESXi should be used, because the necessary ServerView components for SE integration are already contained in this image. Information about Fujitsu Custom ISO images can be viewed on the internet pages of Fujitsu Support (<https://support.ts.fujitsu.com>).

Application Units: Limitations:

- A maximum number of 255 Application Units are supported per SE Server with NUX configuration. Thereof up to 5 PRIMEQUEST models (PQ3800E) are supported.
- The physical partitioning into up to 4 partitions is supported for PRIMEQUEST AUs. Extended partitioning is not supported.
- The SE Manager is able to represent up to 1500 virtual machines running on Application Units.

Please consult your sales representative if you need to run a configuration which exceeds these limitations.

REWAS as subsystem in BS2000 for BS2000 functionality in the SE Manager

The subsystem REWAS realizes the BS2000 specific functions for Server Units in the SE Manager. For this purpose the subsystem REWAS must be running on each BS2000 system.

As a prerequisite for the communication between REWAS and SE Manager a BCAM configuration which is based on the provided templates must be activated on the BS2000 systems and on the VM2000 monitor system.

Special note regarding the BS2000 hostname

The minimum length for the BS2000 hostname is 4 characters.
The following special characters are supported in principle: # @
We recommend not to use special characters.

BS2000 operating using the Linux shell

In addition to the terminals which are integrated in the SE Manager, the commands bs2Console, bs2Dialog and svpConsole (for server with SU /390) are available in the Linux shell of the Management Unit. If called with suitable parameters these commands open the corresponding terminal instances at the specified Server Unit.

We recommend to use the SSH-client PuTTY for accessing the shell on the Management Unit. You may use PuTTY as of version 0.72.

If you use a different tool the functionality of bs2Console, bs2Dialog and svpConsole cannot be guaranteed.

Shell commands for the roles operator and BS2000 administrator:

- For accounts of the roles BS2000 operator and BS2000 administrator the connection to BS2000 console, BS2000 dialog and SVP console is possible via the commands bs2Console, bs2Dialog and svpConsole which are intended to be executed as "remote command" in PuTTY (in case of operator accounts depending on the individual rights). This also applies to the operator and BS2000 administrator roles as sub-roles of a user-defined role.

The use of PuTTY is described in the manual "Fujitsu Server BS2000 SE Administration and Operation".

New CLI command

Administrators can use the lanSwitchShow command in the LINUX shell to determine the configuration and status of the Net Unit.

Extended information of a Net Unit of the type Juniper can be determined with the command juniperSwitchShow.

Connecting the NetUnit to the customer LAN

For the uplink ports of the public networks (e.g. MANPU, DANPU<nn>) no spanning tree protocol should be configured at the switch on customer site.

3.5 Obsolete (and discontinued) functions

SW configuration:

- On Application Units the operation system Oracle Linux and the hypervisor Oracle VM server is no longer supported.
- With software updates, a distinction is no longer made between security fixes and hot fixes. Corrections will be provided as an update.

3.6 Incompatibilities

Role concept in SE Manager

The authorizations of the standard roles BS2000 operator, BS2000 administrator and AU administrator have been reduced due to the more finely graded role concept.

However, the old operator and administrator roles can be recreated by setting up user-defined roles.

In addition, the individual permission for the operator role has been changed:

The console authorization no longer refers to KVP devices, but to BS2000 systems.

In addition, a system-related dialog authorization has also been added.

The manual "SE Series Administration and Operation" contains a detailed description of the roles and the associated tasks

Changed CLI commands

The options for the commands `bs2Dialog` and `bs2Console` have changed due to the modified authorization model for the BS2000 operator role.

New:

```
bs2Dialog      -s <system> [-u <unit>] [-l <loclan>]
bs2Console     -s <system> [-u <unit>] [-m <console>] [-k <kvp>]
```

Old:

```
bs2Dialog      [-u <unit>] -l <loclan>
bs2Console     [-u <unit>] -k <kvp> [-m <console-mn>]
```

Navigation in SE Manager

In the SEM navigation, the "Service" menu entry has been moved from the "Hardware -> Units ->[Server->] -> <Unit>" submenu to the new "Service" main menu.

The table AIS Connect Sessions has been moved to the main menu „Service“ as main page „Remote Service Sessions“.

3.7 Restrictions

- Microsoft Edge and Google Chrome browser
Depending on the used version and update of Edge, a warning message referring to ssl certificate is being displayed when opening SEM pages. The certificate has to be approved each time.
As workaround the CA certificate of this MU has to be imported into MS Edge under "Trusted Root Certification Authorities".

The CA certificate of the MU can be downloaded via SEM's main window "Authorizations -> Certificates -> <mu> (MU)".

As an alternative an official certificate signed by a trusted certification authority (CA) or an own SSL certificate in combination with an own CA certificate can be uploaded and activated via the same SEM page.

In some situations the message "session has expired" is displayed erroneously when opening a SEM page. In this case all browser instances must be closed and browser must be restarted.

- SE Manager

Deleting all AIS Connect logging files using the "Delete all logging files" button on the "Sessions and files" page does not work.

Workaround: The logging files can be deleted individually using the "Delete" icon.

For SE730 servers, components of type CHE Box are not displayed in the Rack view of the "HW inventory" menu.

For Servers with a redundant Net Unit, the HW status WARNING with the information "ISL_int ISL-S Up 1" is displayed for both switches on the "Hardware -> IP Networks -> Switches" page in the "IP Switch Status" table.

Unexpected web server restart can cause console devices (KVPs) and tape emulation on disk (tape devices of type EMFILE) for SU730 to be ended on the Management Unit. In this case, the affected KVP and tape devices of the SU730 must be restarted via SEM:

Icon „Restart“ in table „KVP devices“ („Devices -> <Name> (SU730) -> KVP“) or in table „Tape devices“ („Device -> <Name> (SU730) -> Tape devices“).

Alternatively the Management Unit can be rebooted.

3.8 Procedure in the event of errors

General instructions for creating documents

For successful diagnostics and elimination of software problems, sufficient error documentation must be created or saved as soon as possible.

If possible, error report documentation should be supplied in the form of files so that it can be analysed with diagnostic tools. For reproducible errors the user should include detailed information on how to generate the error condition.

If an error situation occurs, the generation of diagnostic data can be initiated by the administrator or operator via the SE Manager on the Management Unit by way of the "Diagnostics" tab in menu

Service -> Units (SEnnn) -> <Name> (MU) -> Diagnostics.

The file can either be downloaded or sent directly via File Transfer by a member of Fujitsu Service using AIS Connect.

In case of problems which are visible in SE Manager depending on the situation the following diagnostic data should be created:

- meaningful screenshots
- Relevant output at browser's console (text copy or screenshot)

Hints regarding browser consoles:

Browser	Keyboard shortcut
Firefox 63	Ctrl+Shift+I, F12
Chrome	F12
Edge	F12

4 Hardware requirements

M2000 V6.5A is intended to be installed only on Management Units of the BS2000 SE Servers.

4.1 Supported Application Units

The following Application Units are supported in M2000 V6.5A:

<i>AU model</i>	<i>HW basis</i>
AU25	PRIMERGY RX2530 M4 PRIMERGY RX2540 M4 ¹⁾ / M5 / M6
AU47	PRIMERGY RX4770 M3 / M5 / M6
AUQ38E / DBU38E ²⁾	PRIMEQUEST PQ3800E

¹⁾ Upon special release

5 Firmware levels

Firmware levels of the Management Unit (minimum levels)

The following minimum firmware levels should be used on the Management Unit. They are installed during system installation in the factory.
Any new firmware levels that may be required are provided as part of the hardware service contract and installed by Fujitsu service.

MU M4 with HW base RX2530 M6

Component	FW version
BIOS	V1.0.0.0 - R1.19.0
iRMC	03.45P_SDR03.36
SAS RAID Ctrl PRAID EP680i	5.215.00-4112
Fibre Channel LPe 31002	14.0.326.17
LAN contr. PLAN EP X710- DA4 / -T4 (10Gb SFP+ / 10GBASE-T)	6.01 / 6.01

Firmware levels of the Net Unit

The following firmware levels are delivered with M2000 V6.5A. Any new firmware levels that may be required are provided as part of the hardware service contract and installed by Fujitsu service.

Switch	FW-Version
Juniper EX3400-48T 1 Gbit LAN Switch	32.23.1R1.8

Recommended firmware levels of Application Units

PRIMERGY based Application Units:

AU-Modell	HW base	BIOS	iRMC / sdr
AU25	PY RX2530 M4	R1.60	3.49P_sdr03.56
	PY RX2540 M4	R1.60	3.49P_sdr03.87
	PY RX2540 M5	R1.34	3.49P_sdr03.68
	PY RX2540 M6	R1.19	3.45P_sdr03.36
AU47	PY RX4770 M3	R1.26	9.62F_sdr03.22
	PY RX4770 M5	R1.32	3.42P_sdr03.25
	PY RX4770 M6	R1.15.0	3.42P_sdr03.33

PRIMEQUEST based Application Units

AU-Modell	HW base	Unified Firmware Version
AUQ38E / DBU38E	PQ PQ3800E	PA22101