FUJITSU Software BS2000 SHC-OSD

Version 14.0A
April 2020

Release Notice

1 General

This Release Notice is a summary of the major extensions, dependencies and operating information with respect to SHC-OSD V14.0A under the BS2000 operating system.

The release level is that of SHC-OSD V14.0A: April 2020

The SHC-OSD (STORAGE-HOST-COMPONENT) software product is the BS2000 host component for storage systems. SHC-OSD makes storage management functions available to the BS2000 operating system for the storage systems ETERNUS DX and ETERNUS AF of FUJITSU resp. Symmetrix® [1], VMAX® and VMAX3®/VMAX AFA™ of EMC Corporation.

SHC-OSD implements information services and control commands for local and remote replication functions of the storage systems. Support is offered for following replication functions of the storage systems:

- Equivalent Copy (EC), QuickOPC, SnapOPC+, Remote Equivalent Copy (REC) and Storage Cluster Option (SCO) for ETERNUS DX/AF.
- TimeFinder/Clone, TimeFinder/Snap resp. TimeFinder SnapVX and Symmetrix-Remote-Data-Facility (SRDF™) for EMC storage systems.

SHC-OSD supports the functions Thin Provisioning and Advanced Storage Tiering on ETERNUS DX/AF and offers support of Virtual Provisioning on EMC storage systems.

This and other current Release Notices are shipped on the SoftBooks DVD and are available online at 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 (and README files) of the previous versions must also be noted.

1.1 Ordering

SHC-OSD V14.0 can be ordered from your local distributors.

This software product is supplied subject to a single payment or payment by instalments.

1.2 Delivery

The SHC-OSD V14.0 files are supplied via SOLIS2.

The StorMan V9.0 files are supplied on CD-ROM/DVD with installation instructions.

The following delivery groups are part of the SHC-OSD V14.0 delivery scope:

SHC-OSD	V14.0
STORMAN-CD	V9.0

[1] Symmetrix®, VMAX®, VMAX3®, VMAX AFA™, SRDF™, TimeFinder™ and Enginuity™ are trademarks or registered trademarks of EMC Corporation, Hopkinton/MA (USA).

Release Unit SHC-OSD V14.0:

The following delivery components are required regardless of the HSI:

SINLIB.SHC-OSD.140	Library for POSIX functions
SIPLIB.SHC-OSD.140	Library with privileged macros
SYSDMP.SHC-OSD.140	PRODAMP procedures (for compatibility reasons only)
SYSENT.SHC-OSD.140	Enter file for SHC-OSD user task
SYSFGM.SHC-OSD.140.D	Release Notice (German)
SYSFGM.SHC-OSD.140.E	Release Notice (English)
SYSMES.SHC-OSD.140	Message file
SYSPAR.SHC-OSD.140	Parameter file for SHC-OSD
SYSPAR.SHC-OSD.140.PTH	Parameter file for PTHREAD options
SYSPRG.SHC-OSD.140	Program file SHC-OSD
SYSREP.SHC-OSD.140	REP file for SHC-OSD
SYSRMS.SHC-OSD.140	RMS delivery quantity
SYSSDF.SHC-OSD.140	SDF syntax file
SYSSII.SHC-OSD.140	IMON installation information
SYSSMB.SHC-OSD.140	DAMP symbol file (for compatibility reasons only)
SYSSPR.SHC-OSD.140	Start procedure for SHC-OSD user task
SYSSSC.SHC-OSD.140	Subsystem declarations

The following delivery components are only required on servers with /390-architecture:

SYSLNK.SHC-OSD.140	Load module library

The following delivery components are only required on servers with x86-architecture:

SKMLNK.SHC-OSD.140	Load module library

Release Unit STORMAN-CD V9.0:

StorMan V9.0.0-0 for Windows, Linux and M2000, as of Release 04.2020

Information about installation is available on the StorMan CD in file readme_en.html.

1.3 Documentation

The BS2000 documentation is available in German and English on DVD with the title BS2000 SoftBooks.

The documentation is also available on the internet at https://bs2manuals.ts.fujitsu.com.

The manuals may be supplemented with README files. These contain changes and extensions to the manual of the product concerned. The README files are available on the SoftBooks-DVD or online under https://bs2manuals.ts.fujitsu.com

2 Software extensions

The following section describes the extensions and improvements over the previous version SHC-OSD V13.0.

2.1 New ETERNUS DX/AF storage systems

SHC-OSD V14.0 supports the storage systems
- ETERNUS DX500 S5
- ETERNUS DX600 S5
- ETERNUS AF650 S3

as of OSD/XC V10.0 on SE Server with SE-SW as of V6.2SP1.

2.2 Changed commands

All SHOW commands support wildcards for the MN specification in the operand UNIT.

RESTART-CLONE-SESSION with CLONE-TYPE=*COPY
- if error NDE1120 occurs during renaming (NEW-PUBSET=...) the clone VSN is deleted to avoid duplicate VSNs

SHOW-CLONE-SESSION-STATUS
- INFORMATION = *CONTINUOUS-COPY
  also displays the cluster name, cluster phase and cluster status

SHOW-SHC-ENVIRONMENT
- displays for all management instances of a StorMan Server the interface type

SHOW-STORAGE-CONFIGURATION
- INFORMATION=*STD also displays the number of BS2000 volumes in the storage system

START-CLONE-SESSION
- specification of an MN list for UNIT is possible
- with CLONE-TYPE=*COPY
  - if error NDE1120 occurs during renaming (NEW-PUBSET=...) the clone VSN is deleted to avoid duplicate VSNs
  - the clone unit can be larger than the original unit

START-REMOTE-COPY
- specification of an MN list for UNIT is possible
- the target unit can be larger than the source unit

Following commands have been dropped:
- ADD-SYMMETRIX-RA-GROUP
- MODIFY-SYMMETRIX-RA-GROUP
- REMOVESYMMETRIX-RA-GROUP

The operand UNIT=*BY-CONTROLLER is omitted in following commands:
- HOLD-REMOTE-COPY
- MODIFY-REMOTE-COPY-PARAMETER
- RESUME-REMOTE-COPY
- SET-REMOTE-COPY-ACCESS
- SHOW-CLONE-SESSION-STATUS
- SHOW-REMOTE-COPY-STATUS
- SHOW-SNAP-SESSION-STATUS
- SHOW-SYMMETRIX-CONFIGURATION
- SHOW-SYMMETRIX-DEVICE-CONFIG
- STOP-REMOTE-COPY
- SWAP-REMOTE-COPY

3 Technical information

3.1 Resource requirements

The address space in the user catalogue must be set for the user TSOS and SYSROOT at least to 512 MB.
Approx. 200 MB must be provided for SHC-OSD in the POSIX /var file system.
The paging area should be extended at least by 512 MB.

These values only meet minimum requirements.

3.2 Software configuration

SHC-OSD V14.0 requires OSD/XC as of V10.0.

The respective current correction level of BS2000 must be used. At least required is:
- OSD/BC V10.0A or OSD/XC V11.0B
  as of service pack SP19.2, release date November 2019

Using ETERNUS DX/AF requires:
- StorMan V9.0,
  as of correction level 9.0.0-0, release date April 2020

The products SHC-CM-LR and SH-CM-RR (BS2000 licenses for the replication functions of ETERNUS DX/AF) are no longer required.

Using EMC storage systems with SHC-OSD requires an external management server with „Solutions Enabler“ or „Unisphere for VMAX“.

3.3 Product installation

Install and configure StorMan (ETERNUS DX/AF) resp. SYMAPI (EMC storage systems) on the external SYMAPI server, before installation of SHC-OSD in BS2000.

The installation of the product SHC-OSD with the installation monitor IMON is mandatory. You must follow the information concerning installation in the delivery cover letter and in the product documentation.

In case of migration to SHC-OSD V14.0 and ETERNUS DX/AF usage, an upgrade to the current release of StorMan V9.0 is required in advance.

3.3.1 Installation/Configuration of external components

3.3.1.1 StorMan (ETERNUS DX/AF)

The installation of the StorMan delivery components takes place on one or more external servers (Management Unit (MU), Linux or Microsoft Windows Server).
LAN (TCP/IP) is used for communication between SHC-OSD and StorMan.
StorMan needs a LAN connection to the managed storage systems.
CIMOM server settings (IP address and access data of the SMI-S provider) must be configured in StorMan.
For more details see corresponding manuals of SHC-OSD V14.0 and StorMan V9.0.

3.3.1.2 SYMAPI (EMC storage systems)

EMC demands a management server with „Solutions Enabler“ resp. „Unisphere for VMAX“. This server needs FC connections to the Symmetrix systems and the gatekeeper devices.
LAN (TCP/IP) is used for communication between SHC-OSD (SYMAPI client) and the SYMAPI server. Only the IPv4 protocol is approved by EMC for BS2000 usage.

The SYMAPI server hast to accept unencrypted connections from the SYMAPI client:

SYMAPI_SECURITY_LEVEL= ANY
in file .../EMC/SYMAPI/config/options.

To allow the modification of diagnostic settings by SHC-OSD:

Set storsrvd:permit_symapi_debug = CLIENT
in file .../EMC/SYMAPI/config/daemon_options.

More details see manual SHC-OSD V14.0.

3.3.2 Installation/Configuration of the BS2000 components

In case of product upgrade stop the subsystem SHC-OSD before calling IMON.

1) Installation with IMON.
   Install SHC-OSD V14.0 on BS2000 and POSIX.
   ETERNUS DX/AF:
   Remove, if applicable, the software licences CM-LR and/or CM-RR of a previous version from POSIX.

2) Customize SYSPAR.SHC-OSD.140.
   ETERNUS DX/AF:
   Parameters STORMAN-HOST, …
   Remove, if applicable, the parameter SYMAPI-HOST=127.0.0.1 of a previous installation.

   EMC storage systems:
   Parameters SYMAPI-HOST, …

3) Activation of the release unit SHC-OSD:
   a) by means of IMON (POSIX must be started, no BS2000 shutdown required)
      //ACTIVATE-UNITS UNIT-NAME=*SUPPLY-UNIT(UNIT-NAME=SHC-OSD)
   b) alternatively /SHUTDOWN and restart of BS2000 and POSIX

3.4 Product use

There are HW-dependent differences between EMC storage systems and ETERNUS DX/AF at the replication functions. Please observe the manual SHC-OSD V14.0 when changing the hardware platform of the disk storage system.
If BS2000 volumes on TDEV/FDEV of ETERNUS DX/AF or BS2000 volumes on VMAX3/VMAX AFA are to be used for automatic assignment as snap units, especially in Snapset scenarios, they must be initialized in advance with the VOLIN utility and attached to the specific system. The special notation S#<mn> must be used as VSN for these volumes, e.g. S#5234, where <mn> is the device mnemonic.

TimeFinder SnapVX doesn't support mixed operation of the native SnapVX function and TimeFinder/Clone (emulated by TimeFinder SnapVX) on the same logical volume of VMAX3/VMAX AFA.

Note on VM2000:

- During a BS2000-VM migration no SHC-OSD actions should be performed in the guest system.

Notes on the Storage Cluster Option (SCO):

- BS2000 OSD/XC V10.0 requires additional optional rep corrections when using the Storage Cluster Option on SU / 390. Please note the release note of OSD/BC V10.0.
- Replication actions (Clone, Snap, Remote Copy) during storage cluster failover/failback should be avoided for volumes of this cluster.

3.5 Discontinued functions (and those to be discontinued)

Already since SHC-OSD V13.0 the following functions are no longer supported:

- TimeFinder/Mirror (BCV)
- BS2000 Snapsets at the SRDF target of EMC storage systems
- ENABLE-REMOTE-LINK-DIRECTOR / DISABLE-REMOTE-LINK-DIRECTOR

SHC-OSD V14.0 no longer supports:

- S-Servers
- ETERNUS DX S2 storage systems

3.6 Incompatibilities

The term CIMOM-SERVER has been replaced by MANAGEMENT INSTANCE in all messages and outputs of SHC-OSD.

3.7 Restrictions

The functions eManagement (usage of the embedded „Solutions Enabler“) and SRDF-Metro are not supported by SHC-OSD.

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.
- If a general error occurs in BS2000, please pay attention to the regarding instructions in the OSD/BC resp. OSD/XC release notice.
- In case of SHC-OSD problems, please refer to chapter diagnostic aids of the corresponding SHC-OSD manual.
- The error must be reported to the appropriate service provider.
  An incident will be opened with Second Level Support.

An AIS Connect connection is essential for diagnostics. [If this is not available, the service provider is entitled to invoice additional services rendered.]

4 Hardware requirements

SHC-OSD V14.0 runs on SE Server as of OSD/XC V10.0.

4.1 Requirements for X2000

SHC-OSD V14.0 can be used with all current versions as of SE-SW V6.2SP1.

4.2 Disk storage systems

SHC-OSD V14.0 supports the following ETERNUS DX/AF models:

Model	Remarks
DX500 S3/S4/S5	
DX600 S3/S4/S5	
DX8700 S3	
AF650 S2/S3	

Appropriate hardware licenses are required in the ETERNUS storage system for the use of "Thin Provisioning", "Automated Storage Tiering" and “Storage Cluster Option“.
In order to use replication functions, all the ETERNUS storage systems require the "Hardware Advanced Copy" license.

SHC-OSD V14.0 supports the following EMC storage models:

Model	Remarks
VMAX	
VMAX 20K	
VMAX 40K	
VMAX3	
VMAX AFA	

In order to use TimeFinder and SRDF functions, you need the respective licenses for all storage systems which use them.
A license is required to use SHC-OSD with SYMAPI. It is installed directly in the storage system by EMC Support.
In order to use virtual provisioning, no separate license is required.

5 Firmware levels

5.1 ETERNUS DX/AF

With ETERNUS DX/AF following FW levels are required at least:

ETERNUS DX S3 storage systems

Model	FW level as of
DX500 S3	V10L88 SAN
DX600 S3	V10L88 SAN
DX500 S3	V10L89 Unified
DX600 S3	V10L89 Unified
DX8700 S3	V10L88 SAN

ETERNUS DX S4 and ETERNUS AF S2 storage systems

Model	FW level as of
DX500 S4	V10L88 SAN
DX600 S4	V10L88 SAN
AF650 S2	V10L88 SAN

ETERNUS DX S5 and ETERNUS AF S3 storage systems

Model	FW level as of
DX500 S5	V11L30 SAN
DX600 S5	V11L30 SAN
AF650 S3	V11L30 SAN

5.2 EMC storage systems

The following Enginuity resp. HYPERMAX OS and SYMAPI versions will be supported:

VMAX storage systems

Model	Enginuity	SYMAPI as of
VMAX	e5876*[1]	V9.1
VMAX 20K	e5876*[1]	V9.1
VMAX 40K	e5876*[1]	V9.1

*[1] For SRDF connections to VMAX3 or VMAX AFA a suitable correction level should be coordinated with EMC support.

VMAX3, VMAX AFA

Modell	HYPERMAX OS as of	SYMAPI as of
VMAX3	5978	V9.1
VMAX AFA	5978	V9.1