
FUJITSU Software BS2000 ROBAR-SV

Version 7.0A
October 2016

Release Notice

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Release Notice ROBAR-SV V7.0A

1 General	3
1.1 Ordering	3
1.2 Delivery	3
1.3 Documentation	6
2 Software-extensions	7
2.1 Fixed Problems	9
2.1.1 ROBAR-SV V7.0A10	9
2.1.2 ROBAR-SV V7.0A11	9
2.1.3 ROBAR-SV V7.0A12	10
3 Technical information	11
3.1 Resource requirements	11
3.2 Software configuration	11
3.2.1 Necessary environment	11
3.3 Product installation	11
3.3.1 Installation on a ROBAR server	11
3.3.2 Installation of ROBAR-SV on SE Management Unit (MU) of SE Server	14
3.4 Product use	14
3.4.1 ROBAR-SV Rule-Files	14
3.4.2 Settings	15
3.4.3 Old ROBAR-SV configuration file	15
3.5 Discontinued functions	15
3.6 Incompatibilities	15
3.7 Restrictions	15
3.8 Procedure in the event of errors	16
4 Hardware requirements	17
4.1 Archive systems	17
4.1.1 Supported MTC archive systems:	17
4.1.2 Discontinued support	17
4.2 Tape devices	17
4.2.1 Supported tape devices	17
4.3 ROBAR-Server	19
5 Firmware levels	20

1 General

This Release Notice contains a summary of the major expansions, interdependencies and application notes pertaining to ROBAR-SV V7.0A¹.

*4 The release level is that of October 2016.

*4 Changes that have been made to the release level of August 2016 are indicated with *4.

*3 Changes that have been made to the release level of February 2016 are indicated with *3.

*2 Changes that have been made to the release level of September 2015 are indicated with *2.

*1 Changes that have been made to the release level of April 2015 are indicated with *1.

ROBAR consists of a client part for BS2000 (ROBAR-CL) and a server part for Linux platforms (ROBAR-SV).

ROBAR controls the library systems with two different interfaces:

- ABBA-interface
Scalar 10K and ETERNUS CS²
- SCSI-interface
Scalar i500 and Scalar i2000/i6000

Refer to the ROBAR-CL Release Notice for more information on the client part of ROBAR.

1.1 Ordering

ROBAR-SV can be ordered from your local distributors.

ROBAR-SV is subject to the general terms and conditions of the software product use and service agreement.

1.2 Delivery

The files for ROBAR-SV are delivered on a CD ROBAR-SV as Add-On Product with pre-defined structure supported from installation program YaST.

The Release Date is 10.2016 and contains the following:

.../

Signatures and licenses:

- * COPYING (GNU General Public License V2)
- * COPYING.de (GNU General Public License V2 (German))
- * COPYRIGHT (GNU Copying and Licenses)
- * COPYRIGHT.de (GNU Copying and Licenses (German))
- * EULA_de.TXT (End User License Agreement (German))
- * EULA_en.TXT (End User License Agreement)
- * gpg-pubkey-fd4fae40-49b790ea.asc (public key)

¹ ROBAR ® is a registered trademark of Fujitsu Technology Solutions GmbH

² The term ETERNUS CS includes explicitly all up to now supported predecessor-models of ETERNUS CS and all named ETERNUS systems in Chapter 4.1.1.

Information about the add-on product with signature and key files (used by YaST):

- * content (contains all product-specific data)
- * content.asc
- * content.key
- *4 * ROBAR-SV_V70A12-00 (empty file, product, version)

Information about the M2000 directory structure:

- .../M2000:
- *4 * MV.ROBAR-70A12-1.0.iso image file for the installation on SE Management Unit as Add-on product

Information about the media directory structure:

- * directory.yast

The media.1 directory includes basic information about the add-on media set:

- .../media.1:
- * directory.yast
- * media (contains a media description for identification purposes)
- * products (contains the directory names for each product contained on the media)
- * license.zip (license in different languages)
- * products.asc
- * products.key

The rpm directory stores all RPM packages of add-on product sorted into subdirectories by the architecture for which they are delivered:

.../rpm/i586: (for the 32-bit i586 Intel architecture)

- *4 * PCMX-6.0A90-05.i586.rpm
- *4 * robar_common-7.0A12-1.0.i586.rpm
- *4 * robar_abba-7.0A12-1.0.i586.rpm
- *4 * robar_scsi-7.0A12-1.0.i586.rpm
- * perl-Apache-Session-1.89-28.10.i586.rpm
- * perl-Authen-PAM-0.16-1.0.i586.rpm
- * perl-Cache-Cache-1.06-7.11.i586.rpm
- * perl-Crypt-RC4-2.02-15.1.i586.rpm
- * perl-Params-Validate-0.91-30.2.i586.rpm
- * shellinbox-2.14-1.0.i586.rpm

.../rpm/x86_64: (for the 64-bit Intel architectures)

- *4 * PCMX-6.0A90-05.x86_64.rpm
- *4 * robar_common-7.0A12-1.0.x86_64.rpm
- *4 * robar_abba-7.0A12-1.0.x86_64.rpm
- *4 * robar_scsi-7.0A12-1.0.x86_64.rpm
- * perl-Apache-Session-1.89-28.7.x86_64.rpm
- * perl-Authen-PAM-0.16-1.0.x86_64.rpm
- * perl-Cache-Cache-1.06-7.3.x86_64.rpm
- * perl-Crypt-RC4-2.02-15.1.x86_64.rpm
- * perl-Exception-Class-1.29-18.1.x86_64.rpm
- * perl-Params-Validate-0.95-1.1.x86_64.rpm
- * shellinbox-2.14-1.0.x86_64.rpm

*4 .../rpm/noarch: (for architecture-independent packages)

- * robar_ui-7.0A12-1.0.noarch.rpm
- * robar_ui-manual-7.0A09-1.0.noarch.rpm
- * perl-Class-Container-sl10-0.12-20.5.noarch.rpm
- * perl-Class-Container-sl11-0.12-20.1.noarch.rpm
- * perl-Class-Data-Inheritable-sl10-0.08-131.1.noarch.rpm
- * perl-Class-Data-Inheritable-sl11-0.08-131.1.noarch.rpm
- * perl-Devel-StackTrace-sl10-1.27-20.1.noarch.rpm
- * perl-Devel-StackTrace-sl11-1.27-20.3.noarch.rpm
- * perl-Error-sl10-0.17017-25.2.noarch.rpm
- * perl-Error-sl11-0.17017-33.1.noarch.rpm
- * perl-HTML-Mason-sl10-1.48-1.1.noarch.rpm
- * perl-HTML-Mason-sl11-1.48-1.4.noarch.rpm
- * perl-Log-Any-sl10-0.14-14.1.noarch.rpm
- * perl-Log-Any-sl11-0.14-14.1.noarch.rpm

.../rpm/src: (for source packages)

- * shellinbox-2.14-1.0.src.rpm

.../rpm/setup/descr: (contains the dependencies, size, MD5 checksums, and package descriptions of all packages in the installation source, as well as patterns for installation by YAST pattern)

- * directory.yast
- * packages
- * packages.DU
- * packages.en
- * patterns
- * ROBAR-SV.i586.pat
- * ROBAR-SV.x86_64.pat

The RPM-package robar_ui uses the public Software from the GNU-Project. Therefore all needed GNU-licenses are also on the ROBAR-CD.

licence_gpl_v3 (GNU GENERAL PUBLIC LICENSE Vers. 3)
 licence_lgpl_v3 (GNU LESSER GENERAL PUBLIC LICENSE Vers.3)

The RPM-packages are delivered with a signature.

Check signature validity.

*4 The validity of signatures can be checked with rpm --checksig, e.g.:
 rpm --checksig .../robar/noarch/robar_ui-7.0A12-1.0.noarch.rpm

The signature is implicitly checked by YAST.

1.3 Documentation

The manual for ROBAR is

ROBAR V7.0 Controlling MTC Archive Systems

The documentation is also available in the form of online manuals at

<http://manuals.ts.fujitsu.com> .

*1

Manuals displayed with an order number can be ordered as printed versions.

This Release Notice is available online under

<http://manuals.ts.fujitsu.com/>

(mainframes)

2 Software-extensions

1. **SE Management Unit as new platform**
ROBAR-SV Manager can be installed on a Management Unit of a SE Server as Add-on. The administration for the ROBAR-SV instances can be done in SE Manager.
2. **Integrate all needed menu features into the graphical user interface ROBAR-SV Manager.**
 - MANUAL-menu: now it is possible to send a command from ROBAR manager.
 - LIST-menu: on the logging files tab it is possible to see trace files from the /trace folder.
 - SAVE-menu: on the diagnostics tab a new section 'Diagnostic data' allows collecting diagnostic information.
 - DEFINES-menu: New section 'Rule file handling' allows editing and publishing rule files.
 - REPAIR-menu: on the 'diagnostics' tab a new section 'Device and volume error counters' allows observing and resetting errors appeared in ROBAR devices or ROBAR volumes.
 - New Console is based on html (AJAX) and does not require JAVA installed on user's PC.
3. **Upload and conversion of old configuration file**
Configuration file can be uploaded on the server and then create a new instance based on it.
4. **Step-by-step instance creation wizard**
It is possible to create an instance based on the uploaded configuration file and change parameters of that instance.
5. **Wizard for CMX setup**
CMX settings about the partners and local names can be created, deleted or changed by the administrator.
6. **User remark area**
User remark area is the new information about the server displayed on the top of ROBAR-SV Manager page.
7. **Edit general configuration file /etc/robar.conf**
The /etc/robar.conf general config file can be edited via the new tab 'Global configuration'.
8. **Option to turn on/off automatic data update**
Timeout values and session inactivity period can be changed in 'Configuration' tab.
9. **Changes of 'Messages for instance' section**
The table in the section 'Messages for instances' has a new column 'timestamp' added. Messages can be filtered and sorted in the table.
10. **New configuration file editor**
The new editor for configuration files is able to show different text in different colors (syntax highlighting). Comments and parameter areas can be fade in or fade out.
11. **Check configuration files for errors**
There is a new icon to check configuration file for errors.

12. Configuration data backup

In the graphical user interface configuration backup and restoration can be performed correspondingly. The files are saved as an archive in /var/opt/Fujitsu/robar/config_backup directory. Only one archive is possible, subsequent calls of BACKUP_ROBAR_CONF will remove all files and create a new archive.

Archive name format is <server_name>_ROBAR_conf_<yyyy-mm-dd_hh-mm-ss>.backup.tar.gz.

13. Use of Configuration Save and Restore (CSR) on SE Manager

If ROBAR-SV is installed as an add-on software to the SE Manager, the SE Managers' Configuration Save and Restore (CSR) function takes the ROBAR configuration into account.

Upon a configuration save /restore using CSR a (ROBAR) backup archive containing the current ROBAR configuration files will automatically be created / restored.

An already existing ROBAR backup archive will be overwritten.

14. Deleting of old trace files

ROBAR-SV performs trace file age checking. Deletion criterion is adjustable via parameter 'max_trace_file_age' defined in /etc/robar.conf file.

15. LDAP support

LDAP users can log into ROBAR-SV Manager in case they belong to robarsv group as local ROBAR users do.

16. General Instance Status

The display of the connection status was revised.

In the overview of the instances the connection status to the BS2000 is added. In tab 'Operation' only the 'Instance Status' is shown.

17. Support of LTO-U6

Support of LTO-U6 devices in library Scalar i6000 and Scalar i500 for S-Server,, SQ-Server and SE Server. For Scalar i6000 these devices are only connected directly, not via the I/O Blade.

Note: For S-Server it is supported as of KP 2/2013 with BS2000/OSD-BC V9.0 and ROBAR V6.5.

For SQ-Server it is supported as of X2000 V5.3A07 as of BS2000/OSD-XC V9.0.

18. Support of high capacity volumes in ETERNUS CS with emulation LTO-U4 and volumetype tape-u4

With LTO-U4 emulation in ETERNUS CS the volume type tape-u4 is supported with a capacity of up to $2^{32}-1$ tape blocks.

19. Increase line length of configuration file to 1024 characters

The line length of the configuration file was increased to 1024 characters so

ROBAR_ARCHIV variable can contain 4 times more vsn ranges.

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2.1 Fixed Problems

2.1.1 ROBAR-SV V7.0A10

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Correction	Description
PM A0604992	Config file modified in MENU and then in UI has incorrect permission
PM A0604882	repetition_count has no affect for single AMU TCP/IP library (ABBA)
PM A0605267	ABBA instance based on the uploaded file has incorrect TCP/IP
PM A0605305	ROBAR delay for messages when terminal is open in SEM
PM A0605333	in SEM there is name of logging file for cmx robar.resp not correct
PM A0605370	input for filter is deleted when refresh is running
PM A0605472	change error message if cmx transport address already exists in SEM
PM A0605463	ROBAR-SV V7 install previous version have to completely uninstalled
PM A0605724	robar-sv v7 cmx configuration tns prscx display

2.1.2 ROBAR-SV V7.0A11

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Correction	Description
PM A0607969	ROBAR-SV V7.0 MU SE-Server RESTART Option=YES error RSV1001
PM A0608117	cronjob robardm fails to start due to error Your password has expired

2.1.3 ROBAR-SV V7.0A12

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Correction	Description
PM A0608327	ROBAR_ARCHIV parameter has invalid VSN range
PM A0608850	Internet Explorer does not update messages in the start/stop dialog
PM A0608856	ROBAR menu segfaults on long FQDN
PM A0608863	Return code=139 when ROBAR_ARCHIV variable is 990 characters long, 1024 allowed
PM A0609023	In messages&devices the filter for direction is not correct
PM A0609086	Freepool VSN's WE\$#90-WE\$#99 doesn't show the correct VSN's afterwards
PM A0609226	In create instance after device delete it moves to beginning of list
PM A0609254	Collecting diagnostic data abort file changed
PM A0609610	Start instance rsv1233 host name is too long, partner=ABG211BME
PM A0609480	SEM switch MU2 MU1 message ROB0SER

3 Technical information

3.1 Resource requirements

Please note the configuration regulations and special technical notes in the release notice of ETERNUS CS system.

3.2 Software configuration

3.2.1 Necessary environment

1. S-Server :BS2000/OSD-BC as of V8.0A
 SQ-Server: OSD/XC as of V4.0
 SE Server: OSD/XC as of V8.5 as guest with VM2000, native as of V9.5.
 LTO-U6 are supported with S-Server as of BS2000/OSD-BC V9.0A with KP 2/2013.
 LTO-U6 are supported with SE Server as of OSD/XC V9.5.

2. ROBAR-CL V7.0A on BS2000
 ROBAR-CL V6.5A on BS2000

3. Linux
 SUSE SLES10; 32-Bit:
 SUSE Linux Enterprise Server 10 with Service Pack 4 for x86

or
 SUSE SLES11, 64-Bit
 SUSE Linux Enterprise Server 11 with Service Pack 3 for x86_64.

or
 SUSE Linux Enterprise Server 11 with Service Pack 4 for x86_64.

ROBAR specific packets needed for SAS Server can be found on the SAS-DVD (as of 6.0)

4. required software
 PCMX as of V6.0A90 included on installation CD.
5. Graphical user interface Internet Explorer ,Firefox, Chrome
 Internet Explorer as of Version 10 and higher
 Mozilla Firefox Version 17 (ESR) and higher

3.3 Product installation

3.3.1 Installation on a ROBAR server

3.3.1.1 Installation of Linux before the product installation

A standard installation of Linux (obtainable/subscription via Novell) on the hardware released or recommended for the ROBAR server is carried out. The SUSE SLES versions as named in the chapter Software configuration, necessary environment Linux can be installed.

Mirror disks should be configured on the ROBAR server if possible. The set up must be performed in BIOS. An example is described in the PRIMERGY manual PRIMERGY TX200 Server Technical Manual

<http://manuals.ts.fujitsu.com/> (Industry standard servers, System boards and BIOS)

During disk partitioning, select system type "ext3" as the file type for the Linux partition(s). An adequately sized swap area (1 to 2 GB) must be reserved.

Network configuration: A physical LAN connection to the BS2000 host as well as to the ABBA interface of the archive system has to be configured.

Providing there are no security aspects, it is recommended to permit the function "Administration from a remote processor" in "Network services", and in "Network services (xinetd)"

sftp
login
shell
ssh
vnc1
vnchttpd1

can also be activated (by clicking "Toggle status(On or Off)").

The prerequisites for RPM package robar_ui are:

apache2
apache2-mod_perl
perl
perl-URI
perl-gettext
perl-TimeDate
perl-Net-Daemon
perl-HTML-Parser
perl-libwww-perl

openssl
sg_utils
diffutils
/usr/bin/lsscsi (in SLES 11 lsscsi provides it, in SLES 10 lscsi)
gawk
grep
syslog
sudo

These required components should be installed from the SLES installation CD/DVD before the installation of ROBAR-SV V7.0A Add-On.

If the firewall is activated, the services ssh and https must be allowed as services.

Note:

The services must be activated and allowed before the apache2 is started.

3.3.1.2 Special requirements for XenVMs of SQ-Servers

Linux SLES10 (32 Bit) or SLES11 (64 Bit) paravirtualized must be installed for the XenVm.

Take notice for the following parameter:

- number of real CPUs >= 2
- main memory >= 2048 MB
- harddisc memory >= 36 GB

3.3.1.3 Installation of ROBAR-SV

Starting from version V7.0 the ROBAR-SV software is distributed as Add-On Product, which is installed by the configuration and installation tool for the SUSE Linux Enterprise distributions - YaST.

The installation steps are as follows:

1. Insert ROBAR-SV V7.0A Add-on CD into the CD drive or produce an ISO image from this CD and copy it to a directory of the ROBAR-SV server.
2. Use the YaST Control Center (as superuser) and choose menu option “*Software*” and “*Add-On Products*”
 - choose “*Add*”
 - choose either the “*CD*” and “*Next*” then “*Continue*”

or

 - on SLES10 choose “*Local Directory*” and “*Next*” then type the directory path to the ISO image and click to “*ISO Image*” and “*OK*”
 - on SLES11 choose “*Local ISO Image*” and “*Next*” then type the directory path to the ISO image and “*Next*”
3. Agree to the License Agreement and click “*Next*”
4. Choose “*Robar Server*” in the Archive Software category and click “*ACCEPT*”
5. The installation process is shown, all rpm packages are installed.
6. optional start script

During installation of the ROBAR-SV software an automatic start script for ROBAR-SV is installed in the directory /etc/init.d. In the file /etc/robar.conf all ROBAR-instances (the instance-name) for the automatic restart must be included (root authorization required).

```

insserv robar          (enable the robar script)
chkconfig robar on/off (activate/ deactivate the robar script)
service robar start/stop (start/stop of robar-instances)

```

For deinstallation of packages use YaST Control Center (root authorization required)

1. Use the YaST Control Center (as superuser) and choose menu option “*Software*” and “*Software Management*”.
2. In the field Filter choose “*Patterns*” Now all installed robar packages are shown.
3. Here you can deinstall robar partly or completely.

After the deinstallation of the robar_common the file /etc/robar.conf is saved in the file /etc/robar.conf.rpmsave, if the file /etc/robar.conf was changed before. After the installation of robar_common the file /etc/robar.conf.rpmsave can be copied for further use on the file /etc/robar.conf.

Note:

If ROBAR V7.0 has already been installed, these packages must be deleted, before ROBAR V7.0 is installed once more.

3.3.2 Installation of ROBAR-SV on SE Management Unit (MU) of SE Server

*2 The Add-on Package for the installation of ROBAR-SV on MU is included on the ROBAR
*4 V7.0A12 CD.

The installation steps are the following:

1. Insert ROBAR-SV V7.0A Add-on CD into the DVD drive of the Management Unit (MU) or in the drive of your PC.
2. Use the graphical user interface of the SE Manager (as service) and choose the menu option "*Hardware*".
 - Choose "*Server*" then "*...(MU)*" then "*Service*"
3. Now you can download the ROBAR package
 - with the button "update from CD/DVD to disk" if the CD is in DVD drive of the MU or
 - "upload add-on package" if CD is in the DVD drive of your PC into the SE Manager.
- *2 4. Now you can click the button "*install*" in the menu option "*add-on packs*" for the
*4 ROBAR-70A12-1.0.

Further details for installation of ROBAR-SV on SE Management Unit can be found in the online-help or in the manual.

3.3.2.1 Save of configuration files on SE Manager

Configuration files of ROBAR can be saved into a ROBAR backup archive. There are also upload and download functions. This function is also available for an installation on a ROBAR server.

Upon a configuration save/restore of the SE Management Unit using CSR function a ROBAR backup archive containing the current ROBAR configuration files will automatically be created / restored. An already existing ROBAR backup archive will be overwritten.

3.4 Product use

3.4.1 ROBAR-SV Rule-Files

Only the ROBAR rule files delivered with ROBAR-SV V7.0 are covered by the Fujitsu maintenance warranty in the framework of the supported functions and hardware/software configuration. Customers may modify ROBAR responses in the files "message_file", "message_resp" and "message_xref" to suit their requirements according to the inline comments in these files. Such modifications are covered by Fujitsu maintenance warranty.

Support of customized ROBAR Rule Files can be offered by Fujitsu within the context of a consultancy contract or a dedicated project outside the standard Fujitsu maintenance support and product scope.

Malfunctions caused by modified rule files are neither diagnosed nor corrected in the framework of the standard Fujitsu maintenance warranty. Only malfunctions that occur with the standard rule files are covered by the standard Fujitsu maintenance warranty. Other malfunctions must be diagnosed and corrected by the author of the modification.

If rule files of software suppliers other than Fujitsu are installed, Fujitsu has no liability for robot malfunctions caused by these rule files. The customer must make sure that the related warranties are included in the contract with the separate software suppliers.

Additional support can be offered by Fujitsu for non-official rule files within the context of a dedicated customer project or consultancy contract.

3.4.2 Settings

At parameterization, the environment variable LANG can be set correctly in ROBAR user file .profile for the language support. The first two characters must be 'de' or 'en'. If LANG 'C' is used, then the English language is chosen.

3.4.3 Old ROBAR-SV configuration file

The ROBAR-SV config files of older version can be uploaded in graphical user interface and afterwards a new instance is created with this config file.

3.5 Discontinued functions

none

3.6 Incompatibilities

none

3.7 Restrictions

1. ROBAR-SV is not suitable for running on a platform where realtime software has been installed or a heavy load is running. If heavy load is running there might be delays resulting in the job processing of ROBAR.
2. The run of MBK devices with equal device types but different usage of media requires their assignment to different locations (BS2000 and MAREN). For that purpose ROBAR-SV needs different instances (one for each location).
3. More than 99 devices cannot be defined by numeric reference ("numbered topologic form"). This leads to an undefined result.
If more than 99 devices are configured in ROBAR-SV, they must be defined in the archive system and in ROBAR with the mnemonic device name defined in BS2000.
4. Messages for ROBAR FREEPOOL (belongs to ABBA-interface)
The BS2000 console messages processed by ROBAR for the support of the FREEPOOL function are restricted to the messages described in the ROBAR User Guide.
The support of application-specific messages must be managed and programmed by the customer in the ROBAR Rule files. These extensions are not covered by Fujitsu in the framework of a customer-specific project.
5. Support of tape drives by ROBAR
Error of hardware and software components which are not –or cannot- be reported by BS2000 console messages, cannot be handled by ROBAR either. Such errors must be recovered by the operator and/or reported to Fujitsu (e.g. tape subsystems, BS2000/OSD-BC software subsystems), if an applicable maintenance warranty exists.
The support of MBK-devices with BS2000 outside the archive system

The support of a device by ROBAR requires that the combination of the hardware, firmware and software components has reached the appropriate level of reliability to support continuous robot operation without interruption of the tape processing. Therefore the Fujitsu warranty only covers robot configuration with tape devices which are explicitly announced as supported by ROBAR.

6. Multiprocessing

If several devices are operated simultaneously it is useful to have as many cleaning cartridges as devices.

7. Scalar i6000 features not supported

Only functions in Scalar i6000 are supported that are supported by IBM drives.

- MeDIA Test Report is not supported as the required LTO drives are not released for BS2000.
- Storage Networking is not supported as the required LTO drives are not released for BS2000.

8. Naming for ROBAR configuration file

If the file name contains characters with a special meaning for a command shell (*, -, \$, #, &, |, ', ", etc), some ROBAR processes (robar_abba, robar_mon, robar_nbs2, robar_vbs2, varying in different cases) fail to start properly and are forced to terminate. The name space is limited with alphanumeric characters and '_', '.', '@' symbols.

*3

9. SAS computer

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The support for ETERNUS CS with SLES 11 SP4 was in E08/2016. The supported hardware RX2540 M1 is supported as of SLES11 SP3.

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3.8 Procedure in the event of errors

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

- Diagnostic data from BS2000 system concerning ROBAR-CL
- Diagnostic data from ROBAR server concerning ROBAR-SV
- Diagnostic data from TCP/IP connection (ABBA interface)

How to produce the documentation relevant for diagnosis is described in the ROBAR Manual Controlling MTC Archive Systems.

For errors which occur during device control, additional diagnostic information from BS2000 must be delivered (see Release notice of ROBAR-CL)

4 Hardware requirements

4.1 Archive systems

4.1.1 Supported MTC archive systems:

- QUANTUM Corp. Systems Scalar 10K, Scalar i2000, Scalar i6000 and Scalar i500.

ETERNUS CS High End (ETERNUS CS HE) V5.0 and V5.1

ETERNUS CS500, CS500 DL, CS1000, CS1500,
CS1500 DL, CS2000, CS3000, CS4000, CS5000
ETERNUS CS50

ETERNUS CS8000 V6.0 and V6.1

ETERNUS CS8200, CS8400, CS8800
ETERNUS CS900 Entry

(see more information in the manual ETERNUS CS and in the release notice)

4.1.2 Discontinued support

CentricStor Virtual Tape Appliance VTA-xxxx-
CentricStor Virtual Tape Controller VTC
CentricStor Smart Backup Unit SBU-BS2

4.2 Tape devices

4.2.1 Supported tape devices

Tape devices supported by ROBAR in MTC archive systems (BS2000 terms). See more information about the supported tape devices in the release notice for BS2000.

ABBA-interface:

- Scalar 10K (with fibre channel)

- LTO-U2 up to BS2000/OSD-BC V9.0 with S-Servers
up to BS2000/OSD-XC V9.0 with SQ-Servers
up to BS2000/OSD-XC V9.5 with SE Servers
- LTO-U3 as of BS2000/OSD-BC V6.0B with S-Servers
as of BS2000/OSD-BC V4.0 with SQ-Servers
as of BS2000/OSD-XC V8.5 with SE Servers
- LTO-U4 as of BS2000/OSD-BC V8.0 with S-Servers
as of BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.2A04
as of BS2000/OSD-XC V8.5 with SE Servers
- LTO-U5 as of BS2000/OSD-BC V8.0 with S-Servers
as of BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.3A
as of BS2000/OSD-XC V8.5 with SE Servers

- ETERNUS CS

- 3590-E as of BS2000/OSD-BC V8.0A with S-Servers
as of BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V3.0A09
as of BS2000/OSD-XC V8.5 with SE Servers
- LTO-U4 as of BS2000/OSD-XC V10.0 with SE Servers

SCSI-interface:

- Scalar i2000 (with fibre channel)
 - LTO-U2 up to BS2000/OSD-BC V9.0A with S-Servers
up to BS2000/OSD-XC V9.0 with SQ-Servers
 - LTO-U3 as of BS2000/OSD-BC V6.0B with S-Servers
as of BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.2A04
 - LTO-U4 as of BS2000/OSD-BC V8.0A with S-Servers
as of BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.2A04

- Scalar i6000 (with fibre channel)
 - LTO-U3 with BS2000/OSD-BC V6.0B with S-Servers
with BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.2A04
with BS2000/OSD-XC V8.5 with SE Servers
 - LTO-U4 with BS2000/OSD-BC V8.0A with S-Servers
with BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.2A04
with BS2000/OSD-XC V8.5 with SE Servers
 - LTO-U5 with BS2000/OSD-BC V8.0A with S-Servers
with BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.3
with BS2000/OSD-XC V8.5 with SE Servers
 - LTO-U6 with BS2000/OSD-BC V9.0A with S-Servers
with BS2000/OSD-XC V9.0A with SQ-Servers >= X2000 V5.3A07
with BS2000/OSD-XC V9.5 with SE Servers

- Scalar i500 (with fibre channel)
 - LTO-U3 with BS2000/OSD-BC V6.0B with S-Servers
with BS2000/OSD-XC V4.0 with SQ-Servers >=X2000 V5.2A04
with BS2000/OSD-XC V8.5 with SE Servers
 - LTO-U4 with BS2000/OSD-BC V8.0A with S-Servers
with BS2000/OSD-XC V4.0 with SQ-Servers >=X2000 V5.2A04
with BS2000/OSD-XC V8.5 with SE Servers
 - LTO-U5 with BS2000/OSD-BC V8.0A with S-Servers
with BS2000/OSD-XC V4.0 with SQ-Servers >= X2000 V5.3
with BS2000/OSD-XC V8.5 with SE Servers >= X2000 V6.0A
 - LTO-U6 with BS2000/OSD-BC V9.0A with S-Servers
with BS2000/OSD-XC V9.0 with SQ-Servers >= X2000 V5.3A07
with BS2000/OSD-XC V9.5 with SE Servers >= X2000 V6.0A

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The devices are supported without stacker.

A FC-switch is assumed for Scalar i2000/i6000 and Scalar i500.

LTO-6 devices are only supported directly (without I/O Blade) with Scalar i6000.

If the Scalar i6000/i2000 is being rebooted during usage with SQ-Server or SE Server, the device knots are lost in the server. Therefore the device knots are reactivated with the command in the server with user service
scanPciSlot -v --scan port=xx:xx.x lun=0-32

4.3 ROBAR-Server

Hardware platforms supported:

- Management Unit of SE Server
Note: The installation on a Xen-VM of SU x86 in SE Server or an application unit is not supported.

- PRIMERGY TX200 S6
- PRIMERGY RX200 S6
- PRIMERGY RX200 S7
- PRIMERGY RX200 S8

- SAS-computer in ETERNUS CS (details see ETERNUS CS Release Notice (Linux))

Hardware-basis RX300 S5 and RX300 S7 and RX300 S8 and RX2540 M1

- Linux guest on SQ server (supported Linux Versions see Chapter product installation)

For Linux SLES 10 some actions must be done in advance to support the SCSI-Interface with fibre-channel.

1. The command
echo "options lpfc lpfc_use_msi=0">/etc/modprobe.d/lpfc-pciback
must be entered in the XenVM.
2. Stop the XenVM in the SQ-Manager with "Shut down VM".
The PCI-ControllerPort is added with the X2000-command pciConf by the service technician to the pciback-driver.

Example:

```
"pciConf pciback 64:00.1"
```

3. Assign the dedicated port of the pciback-driver with the X2000-command vmManage to the XenVM.

Example:

```
„vmManage vm-pci-add -d XlinuxC -device=64:00.1"
```

The dedicated port 64:00.1 is assigned to the XenVM XlinuxC

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5 Firmware levels

Tested library and tape firmware

Scalar 10K Library Firmware: 330A-00002
Scalar DLC Software 2.8
Drive (IBM) LTO-U3 Firmware 93GM
Drive (IBM) LTO-U4 Firmware 94D4
Drive (IBM) LTO-U5 Firmware A6SA

Scalar i500 Library Firmware: 648G.GS005
Drive (IBM) LTO-U3 Firmware 93GM
Drive (IBM) LTO-U4 Firmware C7QH
Drive (IBM) LTO-U5 Firmware E6Q6
Drive (IBM) LTO-U6 Firmware E6R6

Scalar i6000 Library Firmware: 656Q-GS01501
Drive (IBM) LTO-U3 Firmware M69Z
Drive (IBM) LTO-U4 Firmware C7QH
Drive (IBM) LTO-U5 Firmware E6Q6
Drive (IBM) LTO-U6 Firmware F3J8

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More information about the order numbers of the drives can be found in the
White Paper: Fibre Channel on S Series BS2000/OSD Business Servers

<https://partners.ts.fujitsu.com/com/products/servers/bs2000/media/wp/Pages/default.aspx>