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Fujitsu Technology Solutions

NFS (BS2000/OSD)

*2 Version 3.0A43

*2 November 2012

Release Notice

1 General

This Release Notice is a summary of the major extensions, dependencies and operating information with respect to NFS (BS2000) V3.0A under the BS2000/OSD[1] operating system.

*2 The release level is that of: November 2012

*1 Changes to release level April 2009 are marked with *1.

*2 Changes to release level August 2009 are marked with *2.

The Release Notice is shipped on the product delivery medium.

This and other current Release Notices are shipped on the SoftBooks DVD and are available online at http://manuals.ts.fujitsu.com/.

NFS (BS2000) V3.0A is a distributed file system for BS2000 (Network File System) based on TCP/IP. NFS (BS2000) V3.0A provides multi-platform distribution capabilities for file systems.

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

NFS (BS2000) V3.0A can be ordered from your local Fujitsu Technology Solutions sales office.

NFS (BS2000) V3.0A is subject to the general terms and conditions for the use and maintenance of software products.

1.2 Delivery

The NFS (BS2000) files are supplied via SOLIS.

Delivery Components	Product Description
SINLIB.NFS.030	Installation library
SYSSII.NFS.030	IMON information file for NFS
SYSFGM.NFS.030.D	Release Notice, German
SYSFGM.NFS.030.E	Release Notice, English

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

[1] BS2000/OSD (R) is a registered trademark of Fujitsu Technology Solutions.

1.3 Documentation

The following documentation is available for NFS (BS2000)V3.0A:

NFS V3.0 / NFS V1.2C (BS2000/OSD) Network File System

This and other BS2000/OSD documentation is available in German and English on DVD with the title BS2000/OSD SoftBooks.

The documentation is also available in the form of online manuals at http://manuals.ts.fujitsu.com or can be ordered at extra cost at http://manualshop.ts.fujitsu.com. In the manual shop only manuals are available for products which are still orderable.

The manuals may be supplemented with README files. These contain changes and extensions to the manual of the product concerned. The file names are made up as follows:

SYSRME.NFS.030.E (file with English text)

When printing the files, you should specify the CONTR-CHAR=EBCDIC operand in the PRINT-FILE command.

The manuals are shipped as PDF files on the product medium.

2 Software extensions

In the following section the extensions and improvements over the previous version NFS (BS2000) V1.2 are described.

2.1 File locking functionality

Processes that use shared files synchronize the access to such files via the NLM (Network Lock Manager) protocol. In NFS (BS2000) V3.0A, this protocol is implemented via the "lockdsrv" (NLM protocol server)and "lockdclnt" (NLM protocol client) daemons.

The previous version V1.2B of NFS (BS2000) supported only the file locking functionality as NFS server. NFS (BS2000) V3.0A now offers the full file locking functionality as NFS server and NFS client. This functionality is also available in the follow-up version V1.2C of NFS (BS2000).

2.2 Support for files larger than 2 gigabytes

With the 64-bit capability of NFS (BS2000) V3.0, files larger than 2 GB (large files) and file systems larger than 4 GB can be processed. The support for large files is extended to all types of access where data areas are addressed (reads, writes, queries, changes of the file size, and setting file locks).

2.3 Protocol version 3 of NFS

With NFS (BS2000) V3.0, the full power of version 3 of the Network File System protocol is available. Compared to protocol version 2 (implemented in the previous NFS (B2000) V1.2B), the performance has been substantially improved, mostly due to the elimination of calls to determine file attributes.

2.4 Secure asynchronous writing with commit

In the previous version 1.2 of NFS (BS2000), the so-called "close to open" semantics were implemented, where a file was closed by the client only after all data had been written to the NFS server.

This mode could lead to performance bottlenecks on servers with bad write performance on the disk. This synchronous write function was changed in NFS (BS2000) V3.0 with the new "commit" functionality to a "safer asynchronous write function". Multiple write calls are thereby transferred to the server cache "Commit" instructs the server to save the data to disk in a single step.

The performance gain results mostly from the fact that data that is to be written to the hard disk as the result of the client's commit command has already been written by the server.

With NFS on POSIX as server, this is possible with the swap-out mechanism of the buffer cache.

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2.5 Sharing of bs2fs file systems

As of POSIX-BC V8.0A43 and NFS (BS2000) V3.0A43 bs2fs file systems can be made available for NFS client access, too. For that the new options bs2anon, bs2conv and bs2nameconv have been introduced to the share command. More details on that are described in the manual "POSIX BS2000 file system bs2fs".

3 Technical information

3.1 Resource requirements

Using NFS (BS2000) V3.0A requires approximately 22 MB of static disk space. Dynamic disk space is not required.

The requirement for virtual memory space is approximately 19 MB (memory class 6). This value applies to the standard setting with the number of NFS daemons specified in the shipped startup script.

3.2 Software configuration

BS2000/OSD-BC as of version 3.0A is required for NFS (BS2000) V3.0A.

For the network connection (LAN), openNet Server V1.0 or higher is required.

3.3 Product installation

Installation of the product NFS (BS2000) V3.0A 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.

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

For NFS (BS2000) V3.0A a POSIX-Package-Installation has to be performed in the TSOS ID. The installation program is started with the BS2000 command "/START-POSIX-INSTALLATION" (see Section 3 in the NFS manual).

The software is installed in the following POSIX directories:

/etc/rc2.d
/etc/rc0.d
/etc/fs/nfs
/usr/sbin
/usr/lib/nfs

The POSIX-Package-Installation requires the prior installation of POSIX-BC. The POSIX subsystem must be active.

*1 As of POSIX-BC A41 the NFS daemons are started automatically after Package-
*1 Installation.

If Version 1.2 of NFS (BS2000) is already in use, it must be uninstalled with the "Delete packages from POSIX" menu item in the POSIX installation tool prior to the installation of NFS V3.0A.

3.4 Product use

NFS (BS2000) V3.0A starts automatically when POSIX starts up. The INIT task of POSIX calls the "S20nfs" script that is stored in "/etc/rc2.d". The NFS daemons are started in the BS2000 as batch tasks in the SYSROOT ID. The job name of these tasks is the same as the job name of the calling task "POSIX". All together, 13 batch tasks are generated for NFS (BS2000).

If NFS (BS2000) is started interactively by manually calling the "/etc/rc2.d/S20nfs" script, dialog tasks are generated for the daemons. This characteristic is important for the job class control.

3.5 Discontinued functions (and those to be discontinued)

- None -

3.6 Incompatibilities

- None -

3.7 Restrictions

- None -

3.8 Procedure in the event of errors

Possible errors and diagnostics are described in the manual for NFS (BS2000) V3.0A.

*2 The NFS daemons log error messages and warnings to the file
*2 /var/adm/messages resp. the syslog-file (as of POSIX-BC A43).

NFS uses RPC (Remote Procedure Call) services for network communication. The RPC interface is provided by the "rpcbind" daemon (the "rpcbind" daemon is part of POSIX-BC). Error messages and warnings from the "rpcbind" daemon are output to the console (or CONSLOG file).

In case of an error, the following documentation is required for diagnostic purposes:

- Precise description of the error situation and information if and how the error can be reproduced.
- Any memory dumps that may be available. Since the NFS daemons run as BS2000 tasks under the SYSROOT ID, memory dumps for the NFS daemons are generated under this ID.
- CONSLOG file.

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- /var/adm/messages resp. the syslog-file (as of POSIX-BC A43).

- Any network traces (BCAM traces on BS2000, SMS network monitor traces on Windows NT).

For severe errors that can be traced to errors in the NFS or in POSIX, generate a SLED.

4 Hardware requirements

NFS (BS2000) V3.0A runs on all business servers supported by BS2000/OSD-BC as of V3.0A.

5 Firmware levels

- Not Relevant -