
FUJITSU Software BS2000 POSIX

Version V9.0A43
October 2015

Release Notice

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1 General

POSIX V9.0A43 comprises the following product components:

POSIX-BC V9.0A43	POSIX subsystem and basic shell
POSPRRTS V1.4A10	Runtime system for privileged POSIX applications
POSIX-SH V8.0A43	Extended Shell
POSIX-SOCKETS V8.0A43	Socket and XTI functions
POSIX-NSL V8.0A43	TLI, RPC and XDR functions
POSIX-ADDON-LIB V2.1A30	UNIX/BS2000-specific extensions to the POSIX library functions

This Release Notice is a summary of the major extensions, dependencies and operating information with respect to POSIX V9.0A43 under the BS2000/OSD operating system.

*1 The release level is that of: October 2015.

*1 Changes to release level November 2015 are marked with *1.

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

The product components of POSIX V9.0A43 (see above) are bunched together in a single technical supply unit. This technical supply unit cannot be ordered separately but is a component of the hardware-specific BS2000 packages BS2000/OSD-BC and OSD/XC.

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POSIX V9.0 supply unit:	BS2000 package:
*1 BS2GA.POSIX V9.0	BS2000/OSD-BC V9.0 (S-Server)
*1	OSD/XC V9.0 (SQ-Server)
*1	OSD/XC V9.5 (SE-Server)

1.2 Delivery

The POSIX files are delivered via SOLIS.

Release items of the POSIX V9.0A43 supply unit:

	SINDAT.POSIX-BC.090.ROOT	Generic root file system (for Initial installation)
	SINENT.POSIX-BC.090	Enter procedures for POSIX-BC
	SINLIB.POSIX-ADDON-LIB.021	POSIX ADDON header for POSIX file system
	SINLIB.POSIX-BC.090	Installation library for POSIX-BC
	SINLIB.POSIX-BC.090.INET	POSIX tools: rcp, rsh, ..
*1	SINLIB.POSIX-BC.090.OSSW	Installation library for Open Source Software Components of POSIX-BC
*1	SINLIB.POSIX-BC.090.ROOT	Privileged commands, shared objects, ..
	SINLIB.POSIX-BC.090.SHELL	Basic shell
	SINLIB.POSIX-SH.080	Extended shell
	SINLNK.POSIX-BC.090	Installation library for POSIX-BC
	SINPRC.POSIX-BC.090	Installation procedures for POSIX-BC
	SKMLIB.POSIX-NSL.080	NSL header and modules (X86)
	SKMLIB.POSIX-SOCKETS.080	Sockets header and modules (X86)
	SKMLNK.POSIX-BC.090	Load library for POSIX-BC (X86)
	SKMLNK.POSPRRTS.014	Load library for POSPRRTS (X86)
	SKULNK.POSIX-ADDON-LIB.021	ADDON C library functions (X86)
	SKULNK.POSIX-SOCKETS.080.PTH	Load library for SOCKETS PThread applications (X86)
	SYSENT.POSIX-BC.090	Enter for POSIX-BC
	SYSDOC.POSIX-ADDON-LIB.021.D SYSDOC.POSIX-ADDON-LIB.021.E	Readme files
*1	SYSDOC.POSIX-BC.090.OSS	Licenses for Open Source Software Components of POSIX-BC
*1		
	SYSFGM.POSIX-BC.090.D	Release Notice German
	SYSFGM.POSIX-BC.090.E	Release Notice English
	SYSLIB.POSIX-ADDON-LIB.021	POSIX-ADDON header
	SYSLIB.POSIX-SOCKETS.080	Sockets header and modules
	SYSLIB.POSIX-NSL.080	NSL header and modules
	SYSLNK.POSIX-ADDON-LIB.021	ADDON C library functions
	SYSLNK.POSIX-BC.090	Load libraries for POSIX-BC

SYSLNK.POSIX-BC.090.INIT	
SYSLNK.POSIX-BC.090.SHELL	
SYSLNK.POSIX-SOCKETS.080.PTH	Load Library for SOCKETS PThread applications
SYSLNK.POSPRRTS.014	Load library for POSPRRTS
SYSMES.POSIX-BC.090	Message file for POSIX-BC
SYSRME.POSIX-BC.090.D	Readme files
SYSRME.POSIX-BC.090.D	
SYSRME.POSIX-NSL.080.D	
SYSRME.POSIX-NSL.080.E	
SYSRME.POSIX-SOCKETS.080.D	
SYSRME.POSIX-SOCKETS.080.E	
SYSRMS.POSIX-BC.090	RMS delivery set for POSIX-BC
SYSSDF.POSIX-BC.090	System syntax for POSIX-BC
SYSSPR.POSIX-BC.090.POSSTAT	SDF command procedure for POSIX-BC
SYSSSC.POSIX-BC.090	Subsystem declaration for POSIX-BC
SYSSSC.POSPRRTS.014	Subsystem declaration for POSPRRTS
SYSSSI.POSIX-BC.090	Parameter file for POSIX-BC

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

1.3 Documentation

The following documentation is available for POSIX:

- 1 POSIX Basics for User and System Administrator
- 2 POSIX Commands
- 3 POSIX Sockets/XTI
- 4 POSIX BS2000 file system bs2fs
- 5 Loading shared objects in POSIX (PDF document)

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

The documentation is also available on the internet at <http://manuals.ts.fujitsu.com>. Manuals which are displayed with an order number can also be ordered in printed form.

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

2 Software extensions

The main innovations and extensions of POSIX V9.0A43 with respect to the previous correction level (A41) are described below.

You will find a detailed description of all new functions in the POSIX manuals listed in section 1.3.

2.1 logrotate command, syslog-daemon

POSIX programs (central services and daemons) output their system messages via the CRTE interface `syslog()`.

Until POSIX Correction Version A41, these message outputs were entered directly into the protocol file `/var/adm/messages` by the POSIX programs themselves. This led to bottlenecks in the var file system because it was not possible to change this protocol file during running operation, but only via a POSIX restart. Furthermore, only privileged operational programs could save their log data to the protocol file unless this file was made globally accessible for writing.

A new command called “logrotate” exists of POSIX A43. This command can be used by the POSIX administrator to change the POSIX protocol file during operation (similar to `/CHANGE-CONSLOG` in the BS2000).

To make this possible, logging is handled by a new daemon “syslogd” on behalf of the programs reporting. The message outputs of the syslogd daemon are now entered into the protocol file `/var/adm/syslog` by default. The logrotate command triggers the syslogd daemon to close and rename the protocol files, and to open new protocol files.

A configuration file (`/etc/syslog.conf`) is used to filter the message outputs as required (e.g. according to severity level or program type) and to distribute them over various protocol files. The output to the BS2000 console or only to the CONSLOG file is possible via the POSIX files `/dev/console` or `/dev/conslog`.

The previous protocol file `/var/adm/messages` is retained as a fall-back measure, in case the syslogd daemon fails or an application has completely integrated an older CRTE (< V2.7E10, V2.8D10).

2.2 NFS support of bs2fs file systems

This function requires the new correction version A43 of the purchasable product NFS V3.0 (release parallel to POSIX V9.0A43).

The NFS command “share” is used to enable bs2fs file systems for NFS clients. This permits transparent access via any clients (POSIX-BS2000, Solaris, Linux, Windows) to BS2000 files and PLAM library elements.

The new share option “bs2conv” activates an automatic character set conversion for ASCII clients.

The new share option “bs2nameconv” is used to convert typical special characters, which are not supported in the BS2000 file names (tilde, leading point) in order to process bs2fs files.

A stricter BS2000 access protection in comparison to the UNIX NFS world is guaranteed. The share command for bs2fs file systems does not permit implicit access rights; the POSIX administrator must always define the access rights for the clients explicitly:

- Every client, which is to receive access rights to the bs2fs file system, must be specified explicitly with
-o rw=*client[:client]...* or
-o ro=*client[:client]...*
- Client processes with a UID which is different to the POSIX user number of the bs2fs owner only have access to the bs2fs file system, if the new option “bs2anon” has been used in the share command. Using this option, the POSIX administrator can agree exactly one BS2000 identifier; with the rights of that user identification the client processes can access the files of the respective bs2fs file system.
- For security reasons, the options “root” and “anon” are not supported for bs2fs file systems.

2.3 Own job classes for POSIX tasks

Numerous POSIX subtasks can be created via the fork mechanism of the POSIX subsystem. With BS2000/OSD-BC V9.0 and POSIX V9.0A43, these POSIX tasks can be controlled independently of the other batch and dialog jobs.

The new JMU statement SET-POSIX-JOB-CLASS-DEFAULT is used to assign a standard job class for POSIX tasks either to a single user identification or to all users. This job class must have been defined beforehand via DEFINE-JOB-CLASS. If no POSIX standard job class is assigned, then the behavior with POSIX-fork tasks is as before.

Example

```
JMU
//...
//SET-POSIX-JOB-CLASS-DEFAULT NAME=JCBPSX1, ACTION=*ADD, USER=*ALL
//SET-POSIX-JOB-CLASS-DEFAULT NAME=JCBPSX2, ACTION=*ADD -
//                               , USER=(SYSROOT, TSOS)
```

With USER=*ALL, a system standard class is agreed for POSIX tasks, which are initially valid system-wide for all users. If other POSIX standard job classes are valid for specific users, this can be agreed with further SET-POSIX-JOB-CLASS-DEFAULT statements (NAME=jobclass, ACTION=*ADD, USER=list-poss ...).

If specific users are to be completely excluded from the POSIX standard job classes, this will only be possible if no POSIX system standard class (USER=*ALL) is agreed with SET-POSIX-JOB-CLASS-DEFAULT.

With classic standard class building (SET-JOB-CLASS-DEFAULT), and depending on its definition (JOB-TYPE=), a job class becomes the default for batch or dialog tasks. This differentiation is not made in the case of POSIX jobs, the job class type is discretionary. The POSIX tasks generated with fork inherit the task type of the parent task, but take the category from the job class in which they are operating – in this case, the POSIX standard job class. This is then the same category for dialog and batch subtasks.

The standard job class for POSIX is only valid for fork tasks. POSIX accesses from batch or dialog user jobs are started in the job classes assigned to these categories.

For example, a POSIX shell session (program SH) initiated with START-POSIX-SHELL in a dialog job, runs in the standard job class for dialog jobs.

2.4 Improved online help (man command)

The new “man” command offers an online help for all commands described in the manual “POSIX commands” (German or English).

<code>man <i>command</i></code>	outputs the complete description for <i>command</i> from the manual
<code>man -x <i>command</i></code>	outputs the syntax overview for <i>command</i> from the manual

Numerous commands can be specified for each man command call.

The output or processing of man text is done by the tool defined in the variable PAGER (“more -d” per default). German or English language is defined via the variable LANG.

2.5 Improved control of the automatic posdbl cache

Using the POSIX loader posdbl, shell commands (non-built-in) can be automatically preloaded to a global program cache. Up to now, only the libraries SINLIB.POSIX-BC.<version>.SHELL and SINLIB.POSIX-SH.<version> were considered.

As of POSIX A43, the POSIX administrator can agree additional PLAM libraries, from which programs can be automatically loaded when called for the first time.

Examples:

<code>posdbl -A <i>library</i></code>	Adds <i>library</i> to the list of libraries to be considered
<code>posdbl -R <i>library</i></code>	Removes <i>library</i> from the list of libraries to be considered
<code>posdbl -L</code>	Outputs a list of the considered libraries

Only those programs are automatically preloaded which are not installed in the POSIX file system as LLM, but as a reference to an element in a PLAM library. This is the case, for instance, with all commands and tools delivered via POSIX-BC.

2.6 Force the file system check (fsck) with POSIX startup

New subsystem parameters are offered when starting the POSIX subsystem via which a check and, where necessary, restore of the consistency of file systems (“fsck”) can be forced even if this includes file systems with “journaling”.

```
/START-SUBSYSTEM POSIX, SUBSYSTEM-PARAMETER= 'CHECK-SYSTEM-FS'
```

The root and var file systems are checked. If there is a user-defined opt file system, it will be checked, too.

```
/START-SUBSYSTEM POSIX, SUBSYSTEM-PARAMETER= 'CHECK-ALL-FS'
```

All file systems are checked which are automatically mounted during the POSIX start (AUTOMOUNT=YES).

2.7 Accelerate POSIX shutdown

Tuning measures have been taken to optimize POSIX scheduling both in STOP-SUBSYSTEM POSIX and SHUTDOWN. This is a potential time gain of up to 30 seconds.

2.8 IPV6-compatible ping command

The command “ping” can send echo request packages to IPV4 and IPV6 partners. In addition to which, all IPV4 and IPV6 addresses can be determined for a processor name using a “lookup” function.

2.9 Back-up of bs2fs files after close errors

If a bs2fs file cannot be copied back into the BS2000 (close() fails) after write accesses, it remains as a POSIX file in the bs2fs container and is moved to a special bs2fs_lost+found directory.

The user can list the files stored in this way via a special command (bs2fs_recover), and copy them, e.g. using a modified name, to the BS2000 and/or erase them in the bs2fs_lost+found directory.

This task can also be performed by the system administrator.

2.10 Other extensions and implemented change requests

2.10.1 POSIX installation program maintains IMON file \$SYSROOT.POSIX.CONFIGURATION

The file POSIX.CONFIGURATION, under the ID SYSROOT on the home pubset, is the basis for an automatic POSIX package installation by IMON-BAS. The creation and updating of this file was so far only performed by IMON-BAS when starting or ending POSIX. IMON-BAS had to be installed in POSIX.

POSIX A43 ensures that this file is always up-to-date via the POSIX installation program. The CONFIGURATION file is updated after each package installation or de-installation during operation (batch or dialog).

It is thus always possible, even in POSIX operation and with post-installed POSIX installation of IMON-BAS, to initiate the automatic package installation with a SOLIS delivery of a POSIX satellite

2.10.2 Official release and documentation of several shell commands

The following hitherto only unofficially available shell commands are now an official part of the commands delivered and documented with POSIX-BC ("POSIX Commands" manual and man pages):

ping	Send echo-request packages to network components
fuser	Display file user
last	Display recently registered users
su	Change user ID

2.10.3 Changes in the command /ADD-POSIX-USER

The new operand value *DEFAULT replaces the previous value *STD.

With the operands USER-NUMBER, GROUP-NUMBER, PROGRAM and HOME-DIRECTORY, the value *DEFAULT represents the respective currently valid standard attribute for POSIX users (see the command SHOW-POSIX-USER-DEFAULTS).

2.10.4 New console message POS1040 with BCAM termination

See section **Fehler! Verweisquelle konnte nicht gefunden werden. (Fehler! rweisquelle konnte nicht gefunden werden.)**.

2.10.5 Dependency declaration for POSIX -> POSPRRTS in the subsystem catalog

POSIX requires POSPRRTS. Until POSIX A41 this dependency was not declared in the SSC of POSIX. With effect from POSIX A43, the subsystems are always replaced by IMON in the correct sequence.

3 Technical information

3.1 Resource requirements

3.1.1 Disk storage space

Approximately 100,000 PAM pages are required for the POSIX product files. The root file system requires at least 20,000 PAM pages on the HOME pubset and at least 10,000 PAM pages are recommended for the var file system. These sizes include an installation of the POSIX-SH extended shell.

Additional space is required for installing the following products:

POSIX product	Storage space in root file system	Comments
*1 CRTE V9.0	approx. 3,6 MB	Installation only
*1 POSIX-HEADER V1.9	approx. 1,1 MB	needed with program
*1 POSIX-ADDON-LIB V2.1	approx. 0,3 MB	production in the shell
*1 COBOL85/COBOL2000	approx. 6 KB	in /opt - " -
*1 CPP V3.2	approx. 0,2 MB	in /opt - " -
*1 POSIX-NSL V8.0	approx. 9 MB	- " -
*1 POSIX-SOCKETS V8.0	approx. 6,1 MB	- " -
*1 JENV V8.0	approx. 117 MB	in /opt
*1 openNet Server V3.6	approx. 0,04 MB	
*1 interNet Services V3.4		
*1 TCP-IP-SV V3.2:		
*1 NTP package	approx. 2,0 MB	
*1 DNS package	approx. 0,2 MB	in /opt
*1 NAMED package	approx. 4,6 MB	in /opt
*1 OPENSSSH package	approx. 1,6 MB	in /opt
*1 MAIL V3.3:		
*1 Postfix package	approx. 9,8 MB	in /opt
*1 Imap package	approx. 2,0 MB	in /opt
*1 APACHE V2.2		
*1 Basic package	approx. 39,2 MB	in /opt
*1 HTTPD package	approx. 15,5 MB	in /opt
*1 HTTPD-D package	approx. 13,4 MB	in /opt
*1 MODPERL package	approx. 13,8 MB	in /opt
*1 MODPERL-D package	approx. 22,0 MB	in /opt
*1 MODPHP package	approx. 16,6 MB	in /opt
*1 MODPHP-D package	approx. 77,7 MB	in /opt
*1 PERL V5.8	approx. 85,8 MB	in /opt
*1 TOMCAT V5.5	approx. 18,0 MB	in /opt
*1 SNMP Management:		
*1 SBA-BS2 V6.2	approx. 0,8 MB	
*1 SSC-BS2 V6.0	approx. 1 KB	
*1 SSA-oUTM-BS2 V5.0	approx. 0,12 KB	
*1 SSA-SM2-BS2 V5.0	approx. 0,12 KB	
*1 WebTA V7.5	approx. 42 MB	in /opt

3.1.2 Main memory requirements with a large number of POSIX processes

If a large number of processes are connected to POSIX that do not carry out any actions in POSIX, you must reckon on approximately the following requirements of resident main memory pages:

class 3: approx. 3 pages per process

class 4: approx. 2 pages per process

3.2 Software configuration

*1 POSIX V9.0A43 will run under BS2000/OSD-BC V9.0 and OSD/XC V9.0 and V9.5.

Additional software is required for using some functions:

EDT as of V17.0A

The product EDT is required for editing files in the POSIX shell on block-oriented terminals and terminal emulations requires.

NFS as of V3.0A43

NFS V3.0 as of correction version A43 is required for the sharing of bs2fs file systems for NFS clients (share command).

3.3 Product installation

POSIX is installed in two steps:

1. Installation in BS2000 using the IMON/SOLIS procedure
2. Installation in the POSIX file system

You must follow the information concerning installation in the delivery cover letter and in the 'POSIX Basics' manual as well as the information in this Release Notice.

The necessary inputs and the sequence of the IMON installation are described in detail in the IMON documentation.

3.3.1 Installation in BS2000 using the IMON/SOLIS procedure

The SOLIS delivery is installed in BS2000 with the installation monitor IMON. After installing the SOLIS delivery (e.g. with the IMON-BAS //INSTALL-UNITS statement), the delivery has to be activated. You activate a new POSIX delivery as follows:

- unlock the POSIX release units (UNLOCK-PRODUCT-VERSION)
- update the subsystem catalogue
- activate the new message and SDF syntax files for POSIX-BC

Activation is then automatic when BS2000 is restarted. However, you can also do this during operation, without restarting BS2000. The IMON-BAS //ACTIVATE-UNITS statement is provided for this purpose.

Please refer to section below for activating during operation.

Activating the POSIX supply unit during operation

The IMON-BAS ACTIVATE-UNITS statement can also be used to carry out activation during operation.

In addition to the actions mentioned (remove lock, update subsystem catalog and MSG and SDF syntax files) AKTIVATE-UNITS also stops and restarts the POSIX subsystem.

In case POSIX cannot be completely stopped you are presented with a message on the console during execution of ACTIVATE-UNITS that must be acknowledged and gives you the option of stopping the POSIX subsystem. After successful POSIX termination, the message can be acknowledged with REPEAT.

Dependencies between the POSIX and CRTEBASY subsystems (supply unit BS2GA.CRTE-BAS)

CRTEBASY is not mandatory for POSIX, but is used by most POSIX processes when it is running. Consequently, the CRTEBASY subsystem cannot be exchanged as long as the POSIX subsystem is running.

Prior to exchanging the CRTEBASY subsystem (e.g. by activating the supply unit BS2GA.CRTE-BAS with ACTIVATE-UNITS), the POSIX subsystem must therefore be stopped first.

3.3.2 Installation in the POSIX file system

A separate POSIX installation program is provided to set up the POSIX environment, and is started with the command /START-POSIX-INSTALLATION. The POSIX installation program can be called either via a dialog or automatically (i.e. controlled with a parameter file).

Either a POSIX initial installation or a POSIX upgrade installation is carried out.

- With an initial installation, the POSIX root and var file systems are completely rewritten.
- The POSIX upgrade installation is required if you have already installed POSIX and wish to retain any changes made in the root and var file systems.

All the main information for installing the product in POSIX can be found in the manual 'POSIX Basics', chapter 5.

Among other things, you will find information there on the POSIX installation program itself and the process steps that must be observed for an initial or upgrade installation.

Supplementary upgrade installation information

- A package installation of POSIX-BC and POSIX-SH must always be carried out.
- The POSIX loader posdbl must be deactivated for the upgrade installation! Before the upgrade installation, the new POSIX subsystem is booted with the old root file system and this contains program modules that are unsuitable for the POSIX loader. Therefore, before starting the new POSIX subsystem the DBLSTATE parameter in the POSIX parameter file (SYSSSI.POSIX-BC.090) must be checked and if necessary reset from 1 to 0. The parameter can be set back to 1 before the POSIX subsystem is restarted after successful package installation of POSIX-BC and POSIX-SH.

- To prevent the customer-specific modifications in configuration files, the new files from an upgrade installation of POSIX-BC are stored with the FSC suffix:
/etc/group.FSC
/etc/inet/inetd.conf.FSC
/etc/syslog.conf.FSC

*1 The OpenSSL libraries are installed in /usr/local only, if sufficient space is
*1 available in the file system. Otherwise a warning is displayed in the installation
*1 dialog and on the system console.

3.3.3 Automatic POSIX package installation with IMON

With IMON, the package installation into the POSIX file system can also be performed during SOLIS/IMON installation.

Prerequisite for automatic package installation of a POSIX supply unit (as for all supply units with items of type *PS) is that

1. IMON-BAS is installed in POSIX
2. "POSIX processing" is enabled when generating the installation procedure with INSTALL-UNITS or in menu mode for the supply unit.

Please observe the information in the manual „POSIX Basics“, section “Notes on the automatic POSIX package installation via IMON”.

3.4 Product use

3.4.1 Changed tuning parameters

The tuning parameters for POSIX are set via the POSIX information file (SYSSSI.POSIX-BC.090). An existing POSIX information file is not overwritten after the POSIX product files have been installed with SOLIS/IMON. The supplied POSIX information file is stored under the name SYSSSI.POSIX-BC.090.NEW.

No new tuning parameters have been introduced into POSIX V9.0A43 with respect to the previous version. The values for minimum and standard also remain unchanged.

3.4.2 Using journaling

If a file system is operated with journaling, additional disk I/O accesses are required for transferring metadata changes into the journal. This can therefore lead to minor performance degradations if there are high I/O loads.

In addition, an area of at least 1 MB is reserved on the file system for the journal.

3.4.3 BCAM dependencies when starting and stopping POSIX

The POSIX subsystem can only be started after 'BCAM READY'. If BCAM is restarted, the POSIX subsystem must also be stopped and restarted.

The message POS1040 on the console indicates the necessity of also having to restart the POSIX subsystem when ending and starting BCAM.

The message is shown with /SHOW-PENDING-MESSAGES (/STATUS MSG), but cannot be answered by the operator. The message is automatically answered when POSIX is ended.

3.4.4 Requirements for remote access to POSIX, at and cron

The remote computer must be known to the BCAM transport system for the commands rcp and rsh.

A default account number (POSIX-RLOGIN-DEFAULT) must be assigned to user IDs which require remote access to POSIX (access via rlogin or telnet, rsh and rcp commands) or which wish to use at, crontab or batch. This can, for instance be done with the command

```
/MODIFY-USER-ATTRIBUTES <userid>,ACCOUNT-ATTRIBUTES= -  
/*MODIFY(ACCOUNT=<accountno>,POSIX-RLOGIN-DEFAULT=*YES)
```

If SECOS is used, BATCH access must be enabled for using at, crontab and batch:

```
/MODIFY-LOGON-PROTECTION ...,BATCH-ACCESS=*YES
```


3.4.5 Direct access to POSIX via TELNET

It is not possible to operate TELNET from the supply unit interNet Services ('BS2000-TELNET') and TELNET from POSIX in parallel, because the standard port number 23 is used in both cases. For this reason, TELNET under POSIX is only started if the comment character '#' is removed from in front of the 'telnet' entry in the inetd configuration file /etc/inetd.

For further information, see the manual "POSIX Basics", section "Accessing the POSIX shell".

3.4.6 Setting up and mounting file systems

- While mounting file systems with the POSIX installation tool, no mount commands should be issued in parallel in the shell.
- The /usr directory should not be used as an entry point for a file system.
- The HOME directories of POSIX users should not be located in the root file system (/), to avoid an overflow caused by user files.

3.4.7 posdbl

There are two ways of activating the POSIX loader:

- Automatically when the POSIX subsystem is started up
To do this, the tuning parameter DBLSTATE must be set to 1 in the POSIX information file (SYSSSI.POSIX-BC.090).
- Dynamically with the posdbl command
(see also the manual 'POSIX Commands')

If the DBLSTATE parameter in the SYSSSI parameter file is set to 0, the POSIX loader can be activated with the shell command posdbl. The following command has the same effect as automatic activation: posdbl -e both

In the first case, the DBLPOOL parameter in the SYSSSI parameter file must be set to a value greater than 0. In the second case, the value can also be set dynamically with the usp command.

A value of 30 (MB) has proved successful and is to be recommended. Otherwise, the values are dependent on the available main memory and the extent of the explicit load statements (user programs).

3.4.8 POSIX package installation of add-on products when changing the main versions

If the main version of a product already installed in POSIX (POSIX-HEADER, CRTE etc.) changes (for example from 018 to 019), you must deinstall the old product version (using the function 'Delete packages from POSIX' in the POSIX installation tool) before installing the new product version under POSIX.

This deinstallation is only possible with the scripts from the old product files (file SINLIB.<product>.<oldversion>). You can then delete the old product files and install the new product version in POSIX.

3.4.9 Tuning measures

For performance reasons, when working with POSIX the CRTE-BASYS subsystem should generally be preloaded. The subsystem is administered by DSSM under the name CRTEBASY.

The performance when working with the POSIX commands of the basic and extended shells can be optimized with the following measures:

- either speed up the accesses to the basic and extended shell with DAB: SINLIB.POSIX-BC.090.SHELL or SINLIB.POSIX-SH.080
- or use the POSIX loader posdbl / pdbl.

In addition, tuning parameters in the POSIX information file that affect the performance should be adjusted accordingly. You will find further information in section "Tuning measures" in the appendix of the manual "POSIX Basics".

3.4.10 Tool for converting from 2K fragmented file systems into 4K fragmented file systems (convfrags)

For historical reasons, file systems may be in use that were generated with a fragment size of 2K instead of the standard fragment size of 4K. The new journaling and file system extension functions cannot be used with 2K fragmented file systems. For this reason, the tool convfrags (shell script under /sbin) is provided for converting 2K fragmented file systems into 4K fragmented ones.

There are two formats for the call:

```
convfrags -i [mountpoint]
convfrags -c mountpoint [ -p pubsetid]
```

Format 1 outputs information about the fragment size of one or all file systems. Conversion is carried out with format 2, where the newly created file can also be in a different pubset.

- Format 1:

If a mount point is specified, information about the file system mounted there is output.

If no mount point is specified, information about all mounted file systems is output.

- Format 2:

If format 2 is used, the conversion is actually carried out, with the following sequence:

1. A second file system is created (suffix .TEMP.CF) and mounted.
2. The contents of the first file system is copied into the second one.
3. The first file system is unmounted and deleted (a backup copy of the container file in BS2000 is retained with the suffix .SAVE.CF)
4. The second file system is mounted in place of the first one. This makes a file system available with 4K fragments under the same name and device number.

Note:

Depending on the number of files, the newly created file system may be larger than the old one. This depends on how many files there are in the old container that have an uneven number of (2K) fragments.

3.4.11 Monitor job variable \$.SYS.POSIXSTATUS

The attribute USER-ACCESS=*ALL-USERS must be set in order to use the monitor job variable for monitoring the POSIX subsystem. This is the default if the MONJV is implicitly set up newly when POSIX is started with the call:
/START-SUBSYSTEM POSIX,MONJV=\$.SYS.POSIXSTATUS

If this MONJV was previously created explicitly, the attribute value may have to be changed with the following command:
/MOD-JV-ATTR JV=\$.SYS.POSIXSTATUS,PRO=*PAR(USER-ACCESS=*ALL-USERS)

3.5 Discontinued functions (and those to be discontinued)

none

3.6 Incompatibilities

none

3.7 Restrictions

- The new journaling and file system expansion functions cannot be used for file systems with 2K fragmenting. An appropriate message is output to the console on such file systems with each mount process. A tool convfrags (see section 3.4.10) is provided for converting these file systems to standard 4K fragmenting.
- /START-POSIX-SHELL in dialog or /ENTER procedures:
When changing into the POSIX environment within a BS2000 procedure (dialog or batch) with /START-POSIX-SHELL, I/Os to the terminal are carried out via SYSFILE mechanisms and not via POSIX. I/O via the terminal is therefore not possible for tasks created with 'fork'. For this reason, it is recommended that you use /EXECUTE-POSIX-CMD in BS2000 procedures as the restriction does not apply in this case.
- Shared objects in C++:
Terminate is called if an exception is triggered when initializing a shared object under dlopen() from the constructor call for a global object. Terminate is also called if an exception is triggered when finalizing a shared object under dlclose() from the destructor call for a global object. If no special terminate handler was declared, the application terminates with abort() in these cases.

3.8 Procedure in the event of errors

Depending on the particular situation, the following documents are needed:

- SLED (after a system crash)
- System dump (after a system dump message)
- USERDUMP
- Diagnostic dump (IDIAS call: DIAG DUMP, TASK=Taskid)
- SERSLOG file
- CONSLOG file
- SYSTEMREPFIL
- /var/adm/syslog
- /var/adm/messages
- /var/sadm/pkg/insterr

If functional errors occur, full details of commands, program inputs, etc. are essential.

4 Hardware requirements

POSIX V9.0A43 runs on all business servers supported by BS2000 as of V9.0.

5 Firmware levels

Not relevant