



Fujitsu Siemens Computers

interNet Services (BS2000/OSD)

Version 3.2A

*2 January 2008

Release Notice

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1 General

This Release Notice is a summary of the major extensions, requirements and operating information with regard to interNet Services V3.2A which runs under the BS2000/OSD *) operating system.

*2 The release level is that of January 2008.

This Release Notice is supplied as a file in uppercase and lowercase. Customers will receive an updated version of this file should any subsequent changes be made.

These changes are marked in the margin with numbers.

To print the file, use
/PRINT-DOCUMENT FROM-FILE=SYSFGM.INETSERV.032.E, -
/ DOC-FORM=*TEXT (LINE-SPACING=BY-EBCDIC-CONTR)
(English version)

This Release Notice is also available online
<http://manuals.fujitsu-siemens.com>

If one or more previous versions are skipped when this product version is used, the information from the Release Notices (and README files) for BS2000/OSD-BC of the previous versions must be noted.

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The delivery unit interNet Services V3.1A includes the following delivery groups:

- TCP-IP-AP V5.0A
- TCP-IP-SV V3.0B
- MAIL V3.1A

Delivery group TCP-IP-AP V5.0A contains the Internet Services:

- FTP (File Transfer Protocol)
- TELNET

Delivery group TCP-IP-SV V3.0B contains the Internet Services:

- DNS resolver and server (Domain Name Service)
- NTP client and server (Network Time Protocol)
- OPENSSH secure shell
- PRNGD random number generator
(Pseudo Random Number Generator Demon)

*) BS2000/OSD (R) is a registered trademark of Fujitsu Siemens Computers

Delivery group MAIL V3.0A contains the Internet Services:

- SMTP server (Simple Mail Transfer Protocol)
- POP3 server (Post Office Protocol Version 3)
- IMAP server (Internet Message Access Protocol)
- Mailreader BS2000/OSD-Program for reading a mail
- Mailsender BS2000/OSD-Service for sending a mail

Functional overview

TCP-IP-AP

FTP makes it possible to transfer files to and from computers running different operating systems.

TELNET makes it possible to work in dialog with computers running different operating systems.

TCP-IP-SV

DNS offers a name service that uses a distributed database system to provide information about the computers connected to a network. Sockets applications in particular can use this to map computer names and IP addresses to each other.

NTP allows a reference time to be distributed within a network.

OPENSSSH provides a series of tools as replacements for the non-encrypting rlogin and telnet, which provide secure access to POSIX-type systems.

PRNGD generates random numbers that are needed, for example, for cryptographic purposes.

MAIL

SMTP serves the transmission of messages (mails). The SMTP server can be used as a mail-relay-system or a mail-end-system. The SMTP server based on Postfix. In the standard configuration, the SMTP server works as a mail-end-system.

POP3 gives a client system access to the mail boxes.

IMAP enables a client system to access and administrate the mail boxes.

Mailreader is a program that makes it possible to fetch mails in BS2000/OSD using POP3 or IMAP and process them further. This processing can be made in BS2000/OSD via procedures or a C++ interface.

With the Mailsender you can send asynchrony mails from BS2000/OSD over SDF-commands or Subroutine-Interface.

1.1 Ordering

The delivery unit interNet Services V3.2A can be ordered from your local distributors and is subject to the general terms and conditions of the software product use and service agreement.

1.2 Delivery

The interNet Services V3.2A files are supplied via SOLIS.

The following delivery groups belong to the delivery scope of interNet Services V3.2A:

INETSERV V3.1A

SYSFGM.INETSERV.032.D	Release Notice (German)
SYSFGM.INETSERV.032.E	Release Notice (English)

TCP-IP-AP V5.0A

SYSLNK.TCP-IP-AP.050	Load module library (S-server)
SPMLNK.TCP-IP-AP.050	Load module library (SX-server)
SYSLNK.TCP-IP-AP.050.TCPIP	Library for subsystem (S-Server)
SPMLNK.TCP-IP-AP.050.TCPIP	Library for subsystem (SX-Server)
SYSMES.TCP-IP-AP.050	Message file
SYSSDF.TCP-IP-AP.050	SDF syntax file
SYSRME.TCP-IP-AP.050.D	README file (German)
SYSRME.TCP-IP-AP.050.E	README file (English)
SYSDAT.TCP-IP-AP.050.CLIENTS	Code table assignment TELNET
SYSDAT.TCP-IP-AP.050.INSTALL	Configuration file FTP/TELNET
SYSDAT.TCP-IP-AP.050.SI	Communication data for Server/Child-Task
SYSSSC.TCP-IP-AP.050	Subsystem catalogue statements
SINLIB.TCP-IP-AP.050	Programs/procedures for SNMP
SYSLIB.TCP-IP-AP.050	Subagent and Posix-FTP/TELNET
	Includes/macros/module for exits and subroutine-interface (S-server)
SPUOML.TCP-IP-AP.050	Module for subroutine-interface (SX-server)
SYSSPR.TCP-IP-AP.050	Internal command procedure for start/stop SNMP
SYSSRC.TCP-IP-AP.050	Source text for exit routines and example procedures for file encryption

TCP-IP-SV V3.0B

SINLIB.TCP-IP-SV.030.DNS	Installation library for DNS resolver
SINLIB.TCP-IP-SV.030.NAMED	Installation library for DNS server
SINLIB.TCP-IP-SV.030.NTP	Installation library for NTP
SINLIB.TCP-IP-SV.030.OPENSSH	Installation library for OPENSSH
SINLIB.TCP-IP-SV.030.PRNGD	Installation library for PRNGD
SYSRME.TCP-IP-SV.030.D	Manual supplements (German)
SYSRME.TCP-IP-SV.030.E	Manual supplements (English)

MAIL V3.1A

SINLIB.MAIL.031.IMAP	Installation library for IMAP and POP3 server
SINLIB.MAIL.031.POSTFIX	Installation library for SMTP server (Postfix)
SPMLNK.MAIL.031.MAILCLNT	Load module for Mailsender (SX)
SYSDAT.MAIL.031.READER	Configuration file
SYSLIB.MAIL.031	Includes Mimedlib and user.h README file in PDF format
SYSLNK.MAIL.031.BACKEND	Load module library backend
SYSLNK.MAIL.031.MAILCLNT	Load module for Mailsender (S)
SYSMES.MAIL.031.MAILCLNT	Message file
SYSOML.MAIL.031.MIME	MIME module library Tutorial MIME++ (english)
SYSOML.MAIL.031.READER	READER module library
SYSRPC.MAIL.031	Migration procedure
SYSRPG.MAIL.031	Mailreader program
SYSRME.MAIL.031.D	README file (German)
SYSRME.MAIL.031.E	README file (English)
SYSSDF.MAIL.031	SDF syntax file (Mailreader)
SYSSDF.MAIL.031.MAILCLNT	SDF syntax file (Mailsender)
SYSSSC.MAIL.031.MAILCLNT	Subsystem catalogue statements
SYSSII.MAIL.031	IMON information file
SYSSSI.MAIL.031.MAILCLNT	Subsystem information file

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

1.3 Documentation

The following documentation is available for interNet Services V3.2A:

interNet Services V3.2A Administrationshandbuch	U41095-J-Z125-4
interNet Services V3.2A Administration Guide	U41095-J-Z125-4-76
interNet Services V3.2A Benutzerhandbuch	U41096-J-Z125-4
interNet Services V3.2A User Guide	U41096-J-Z125-4-76

Descriptions in PDF, HTML or TEXT format are available in the installation library for OPENSSSH, Postfix, IMAP or, after installing the packages, under
<installation path>/readme/TCP-IP-SV.openssh/<pdf,html,text>
<installation path>/readme/MAIL.postfix/<pdf,html,text>
<installation path>/readme/MAIL.imap/<html,text>

In addition to the above, the BS2000 basic configuration manuals are required to operate interNet Services.

The following documentation is additionally recommended for the data communication system:

BCAM V19.0A
Benutzer- und Referenzhandbuch

U22857-J-Z125-9

BCAM V19.0A
User Guide and Reference Manual

U22857-J-Z125-9-76

The BS2000/OSD documentation is also available under the title
BS2000/OSD SoftBooks in German and English on CD-ROM.

The documentation is available as online manuals under
<http://manuals.fujitsu-siemens.com>
or can be ordered in printed form at extra cost under
<http://FSC-manualshop.com>

2 Software extensions

2.1 interNet Services V3.2A

Extensions or enhancements over the previous version interNet Services V3.1A

2.1.1 MAIL V3.1A

The following functional extensions have been made with respect to the previous version MAIL V3.0A:

- Mailsender:

New mail client for sending mails out of BS2000/OSD over SDF-commands or Subroutine-interface. Important characteristics are asynchronous interfaces, which can call from subprograms too, delivery of via S/MIME encrypt and/or signed mails, security of the connection to the mail server via TLS/SSL, support of IPv6 and a central logging of that mails.

- Mailreader:

Extension of the Mailreader around the support for TLS/SSL security of the connection to the POP3/IMAP-server, the support of IPv6 connections and the support for S/MIME signed and/or encoded mails.

3 Technical information

3.1 Resource requirements

3.1.1 TCP-IP-AP

The following resources are required for TCP-IP-AP V5.0A:

BS2000 disk storage space:
approx. 50 MB (S-Server)
approx. 93 MB (SX-Server)

The space required in the user address space depends on the number of connections. If the security functions are used, an ADDRESS-SPACE-LIMIT of at least 32 MB is advisable.

3.1.2 TCP-IP-SV

The following resources are required for TCP-IP-SV V3.0B:

BS2000 disk storage space:
approx. 183 MB

Virtual user address space, static requirement:

DNS resolver	1.3 MB
DNS server	4.4 MB
NTP daemon	2.4 MB
OPENSSE daemon	5.0 MB
PRNGD daemon	1.0 MB

These values represent minimum requirements, which may increase depending on the application (e.g. due to the DNS server cache buffer).

POSIX resources:

DNS package	0.208 MB
NAMED package	1.948 MB
NTP package	0.064 MB
OPENSSE package	2.700 MB
PRNGD package	0.188 MB

An ADDRESS-SPACE-LIMIT of at least 32 MB is required for the SYSROOT user ID for using OPENSSE and PRNGD.

3.1.3 MAIL

The following resources are required for MAIL V3.1A:

BS2000 disk storage space:
approx. 230 MB

Virtual user address space, static requirement:

Mail daemon	8.0 MB
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POSIX resources:

Postfix package	11.0 MB
IMAP package	3.0 MB

An ADDRESS-SPACE-LIMIT of at least 32 MB is required for the SYSROOT user ID.

In the Posix file system the mailboxes are filed under /var/mail/USER. If there is a large number of a user, we recommend that you create a separate file system for /var/mail.

3.2 Software configurations

The runtime environment for interNet Services V3.2A is as follows

<u>Product</u>	<u>Version</u>
BS2000/OSD-BC	as of 5.0C
OSD/XC	as of 1.1A
openNet Server	as of 2.0A (S-Server)
openNet Server	as of 3.0A (SX-Server)
SOCKETS	as of 2.0A22
ASTI	1.0A (BS2000-GA, correction package II/2006)

If the security functions for FTP/TELNET, OPENSSH and Postfix are used, release unit PRNGD must be installed. It is a component part as of openNet Server V2.0A.

If the Mailsender is used, release unit ASTI (BS2000-GA) must be installed and started.

TCP-IP-AP additionally requires the following products:

<u>Product</u>	<u>Version</u>	
openFT	as of V7.0A	if FTAC is used
openFT-AC	as of V7.0A	if FTAC is used
JV	as of V13.0A	if FTAC is used or with command monitoring via job variables
SDF-P	as of V2.1	with command monitoring via SDF-P variables

The following POSIX versions / correction levels are required:

<u>BS2000 version</u>	<u>POSIX correction level</u>
BS2000/OSD-BC V5.0A	as of 5.0A35

The following products / correction levels are required for using the Pthreads variant of the DNS name server NAMED:

<u>Product</u>	<u>Version</u>	
BS2000/OSD-BC	as of V4.0A	
BLSSERV	as of V2.3B	
CRTE-BASYS	as of V1.4C02	(2), (3)
POSIX-BC	as of V4.0A35	
POSIX-SOCKETS	as of V4.0A35	(1), (3)
PTHREADS	as of V1.0C01	(1)

(1) Release level as of correction package II/2003

(2) Release level as of correction package I/2004.

(3) Installed with the libraries for Pthreads.

When using NTP the following optional object correction must not be in use: A0321012 (BS2000/OSD V1-compatible TODR behaviour)

3.3 Product installation

The product is installed using the installation monitor IMON. The information concerning installation in the delivery cover letter and in the product documentation must be followed as well as the information in this Release Notice.

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

3.3.1 Special notes for TCP-IP-AP

A previously installed TCP-IP-AP version should be removed from the system.

It is recommended to install the product under the TSOS user ID. The server tasks must be started under the TSOS ID.

Installation parameters for the TELNET and FTP servers are set and modified with the SDF command /SET-FTP-TELNET-PARAMETER. The SYSENT.TCP-IP-AP.050... files are created when this SDF command is executed.

The FTP/TELNET servers are started with the SDF command /START-TCP-IP-DEMON or /START-FTP-DEMON, /START-TELNET-DEMON. If the SOC6 or SOC6-SP subsystem is not active, the server tasks are stopped. The FT and FTAC subsystems must be started if the enter job for the FTP server is configured for using FTAC.

3.3.2 Special notes for TCP-IP-SV

The product is split into five packages, which can be installed and deinstalled separately with the POSIX installation program. POSIX-SH must be installed for this.

The following packages are offered:

<u>Package</u>	<u>Service</u>
DNS	DNS resolver
NAMED	DNS server
NTP	NTP client and server
PRNGD	Random number generator
OPENSSSH	Secure shell

Before installing any packages in POSIX, any previously installed versions of TCP-IP-SV must be deinstalled with the POSIX installation program. The required components of TCP-IP-SV can then be installed as POSIX program packages with the POSIX installation program. The procedure is described in section "Installing the services without FTP and TELNET" in the Administration Guide.

Special features of PRNGD und OPENSSSH:

*1 For the use of PRNGD is recommended to start the BS2000 PRNGD-subsystem.

*1 Before installing OPENSSSH the package PRNGD must be installed. The packages PRNGD and OPENSSSH start the respective POSIX background processes (prngd or sshd) automatically during installation.

To do this, the SYSROOT ID must have a POSIX-RLOGIN-DEFAULT account set, otherwise the start fails and the background processes are not started until the next POSIX start.

In addition, OPENSSH requires that a user ID SYSSSHD is set up beforehand with at least the following properties:

- Preset name: SYSSSHD
- ADDRESS-SPACE-LIMIT: at least 32 MB
- CPU-LIMIT: *MAX
- ACCOUNT: selectable; STD: SYSACC
- POSIX-RLOGIN-DEFAULT account: *YES for standard account
- POSIX user ID: 22
- POSIX group ID: 22
- POSIX home directory: /var/empty
- POSIX shell program: /bin/false

If no SYSSSHD user ID is detected during installation (and the installing user ID has the rights for adding users), it is automatically set up with these properties.

3.3.3 Special notes for Mail

Before installing Postfix or IMAP the package PRNGD must be installed and a DNS server placed in the file /etc/resolv.conf. The Mail server starts the respective POSIX background processes (qmgr, pickup, master) automatically during installation. To do this, the SYSROOT ID must have a POSIX-RLOGIN-DEFAULT account set, otherwise the start fails and the background processes are not started until the next POSIX start

An existing comment for the user ID in POSIX (/SHOW-POSIX-USER-ATTRIBUTES) is used to complete the address of the sender of the mail if the command sendmail or mailx is used. If you need an own name, you must set the environment variable NAME.

Before BCAM is restarted, the Mail-Service in BS2000/OSD must be stopped and after BCAM is ready restarted.

3.4 Product use

If the POSIX functionality is used in TCP-IP-AP, a check must be made before use to see whether the user ID in POSIX has been assigned the desired directory and user number (command: /MODIFY-POSIX-USER-ATTRIBUTES).

After installing a TCP-IP-SV package, the configuration files have to be modified to suit the actual requirements. This is done by editing the configuration files under the POSIX shell. The procedure is described in the relevant sections of the Administration Guide.

The packages POSTFIX, PRNGD and OPENSSH are running without special configuration and start up automatically with default settings after installation. They are also started automatically with each POSIX subsystem startup.

For using the Mail server the automatic configuration extension must be switched on in BCAM (BCAM manual, Automatic configuration extension). If you work in the controlled server mode, you must allow open access to the TCP port number of Postfix in the local and in the remote systems.

Execute the following command after every BCAM startup, e.g. in the start option file (SOF):

```
/BCOPTION ADD-SERVER-PORT=25,ADD-REMOTE-SERVER-PORT=25
```

Same applies for IMAP/POP3 server (port 143/110) and 993/995 when TLS is used.

When accessing an user mailbox via remote user agent based on POP3 or IMAP, you must ensure that the user has an account number for accounting a POSIX remote login session.

If the OPENSsh server has to be reachable by ssh clients that are not entered in the BCAM host tables the ssh port must be enabled with

```
/BCOPTION ADD-SERVER-PORT=22
```

It is additionally possible to configure a finer access control based on individual TCP/IP addresses by using the built-in TCP wrapper interface. You will find information on this in the Administration manual. If ssh servers have to be accessible on hosts that are not entered, this must be enabled with

```
/BCOPTION ADD-REMOTE-SERVER-PORT=22
```

The ssh server option UsePrivilegeSeparation is enabled by default. The authorization therefore runs in a separate process that slows down the ssh login.

If this additional security is not needed, the ssh login can be accelerated by setting "UsePrivilegeSeparation no" in the configuration file /etc/ssh/sshd_config.

To get the information it needs, the DNS name server consults other name servers that cannot be predicted. It is also conversely consulted itself by non-predictable name servers. The automatic configuration extension must therefore be enabled in BCAM. If you do this in controlled server mode, you must allow open access to the IP port number used by the DNS server in the local and the remote computers by executing the following command after each BCAM startup, e.g. in the Start Option File (SOF):

```
/BCOPTION ADD-SERVER-PORT=53,ADD-REMOTE-SERVER-PORT=53
```

3.5 Obsolete functions (and those to be discontinued)

*1 Installing FTP and TELNET via FHS masks.

3.6 Incompatibilities

Mailreader:

An existing configuration file must be copied to SYSDAT.MAIL.031.READER.

The produced procedures are deleted after the execution.

The interval for the query on new messages was raised to 900 seconds.

Mailsender:

The previous Mailsender (LLM-modul SENDER) is delivered further, but no more do corrections.

For the change on the new Mailsender, a procedure (SENDMAIL.SDFP) is available in the library SYSPRG.MAIL.031.

Procedures that use the previous Mailsender must be adapted if the Logical-ID SYSPRG is not used. (SYSPRG.MAIL.030 change in SYSPRG.MAIL.031).

3.7 Restrictions

3.7.1 TCP-IP-AP

To encrypt the data connection, the FTP client must support SSL encryption too and also allow the SSL "Session Resumption" feature (using identical SSL session data/keys for control and data connection). An FTP client containing this functionality for BS2000 is provided with TCP-IP-AP. On Solaris systems, the FTP client provided with the product openInternetServices can be used. If an FTP client does not support the SSL "Session Resumption" feature, the encryption can be restricted on the control connection, as long as the FTP client supports this option.

TCP-IP-AP with ACS (Alias Catalogue Service):

The product ACS is not supported, i.e. only real files names can be specified to access files.

If the installation parameters for station identification are used, among other things job names are created from the processor name and a sequential number. If logon exit routines are used, they may have to be modified accordingly.

The access to the server computer when using the FTAC function is restricted to some degree. Some commands (e.g. quote site) are rejected with the error message "500 Requested action not taken." Please refer to the relevant information in the User Guide.

3.7.2 TCP-IP-SV

The current implementation of dnssec-signzone creates zone files that are incompatible to the future, DS-based DNSSEC standard.

namedpth: Incremental zone transfer (IXFR) is only restricted usable in the Pthreads variant of the DNS name server.

ssh: the ssh client program can only be used within a remote login session (i.e. logged in to POSIX with the rlogin, ssh, or slogin command). It can be used in \$DIALOG or TELNET sessions only if stdin, stdout and stderr are redirected to a file or POSIX pipe. This restriction exists only for POSIX-BC less than A39)

sshd: restarting a running sshd to read in a changed configuration file with "kill -HUP" does not work in OSD/POSIX as long as an sshd session is still active, because this occupies the TCP port.

ssh, sshd: rsh and the rlogin daemon primarily used the BCAM host tables and then accessed a locally configured name server for host / name resolving, but the OPENSSH program suite uses the BIND resolver library from the DNS package for this. This means that by default the DNS name server is initially queried and then a possibly local host file is searched, but not the BCAM host tables. It must therefore be ensured that /etc/resolv.conf exists and refers to a valid name server, and that BCAM host names without a DNS entry are copied into the /etc/hosts file.

As an alternative to this, a file /etc/irs.conf can be created with the following content:

```
# Map      Access      Flag
Hosts     dns          continue
Hosts     local       continue
Hosts     bcam
```

The order of host/name resolving can be controlled by permutation the three access sources "dns" (name server), "local" (/etc/hosts file) and "bcam" (BCAM host tables). However, such a change has effects on all POSIX programs that use the BIND resolver (NAMED, OPENSSE, APACHE,...). Many of these programs have problems when an address resolution returns a host name without a domain as the result.

sshd: the rlogin daemon always asks for a password, even if an user ID does not have one, but sshd behaves in the same way as the rsh command in OSD/POSIX also does: it does not offer a password prompt if the password is empty.

sshd: by default it is not possible to login to an user ID via ssh without a password (in contrast to using rlogin). However, the access can still be allowed by setting the configuration directive "PermitEmptyPasswords yes" in the file /etc/ssh/sshd_config and restarting the sshd program.

3.8 Procedure in the event of errors

In case of errors, a detailed description of the error condition, indicating whether and how the error can be reproduced will be required for diagnostic purposes.

If the software can be started correctly (no errors during startup, all tasks run properly), a check should be made to see if the problems lie within interNet Services or in the transport system (e.g. with the PING call).

3.8.1 Additional error documentation with TCP-IP-AP

If TCP-IP-AP is used, the following additional error documentation will be required:

- Log of the error by activating the appropriate traces.
- Configuration files: enter job files and option files
- Information of the "/SHOW-FTP-TELNET-STATUS" command if the error occurred after successful server startup.
- Information of the "/SHOW-FT-LOG" command if the error occurred with an FTAC connection.

3.8.2 Additional error documentation with TCP-IP-SV

If TCP-IP-SV is used, the following additional error documentation will be required:

- Logging file /var/adm/messages
- Logs in /tmp for problems during installation
- Configuration files of the daemons involved:
 - /etc/resolv.conf
 - /etc/named.conf
 - /etc/ntp.conf
 - /etc/ssh/sshd_config and ssh_config

With reproducible problems, the diagnose options in the TCP-IP-SV configuration files should be set before starting the daemons concerned. (refer to the interNet Services Administration Guide)

Note: The file /var/adm/messages can grow very large when diagnose options are activated.

3.8.3 Additional error documentation with MAIL

If MAIL is used, the following additional error documentation will be required:

- Logging file /var/adm/messages
- Logging files from Mail-Service
- affected mail
- returned mail
- Configuration files /etc/postfix/master.cf and main.cf
- Configuration file SYSDAT.MAIL.031.READER
- Configuration file SYSDAT.MAIL.031.SERVICE.OPT
- Configuration file SYSDAT.MAIL.031.USER.OPT
- System environment: BS2000/OSD, POSIX, Remote computer

4 Hardware support

All central processors supported as of BS2000/OSD V5.0A



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