FUJITSU

FUJITSU Software BS2000 interNet Services

Version 3.4B
*16 June 2020

Release Notice

1   General

This Release Notice is a summary of the major extensions, dependencies and operating information with respect to interNet Services V3.4B under the BS2000.

*16   The release level is that of: June 2020.

Changes to release level January   2011 are marked with *1.
Changes to release level May   2011 are marked with *2.
Changes to release level October   2011 are marked with *3.
Changes to release level May   2012 are marked with *4.
Changes to release level October   2012 are marked with *5.
Changes to release level May   2013 are marked with *6.
Changes to release level October   2013 are marked with *7.
Changes to release level May   2014 are marked with *8.
Changes to release level October   2014 are marked with *9.
Changes to release level April   2015 are marked with *10.
Changes to release level November 2015 are marked with *11
Changes to release level April   2016 are marked with *12
Changes to release level June   2017 are marked with *13
Changes to release level June   2018 are marked with *14
Changes to release level June   2019 are marked with *15
Changes to release level November 2019 are marked with *16

This and other current Release Notices are shipped on the SoftBooks DVD and are available online at https://bs2manuals.ts.fujitsu.com/.

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

The following delivery groups are part of the interNet Services V3.4B delivery scope:
*16   -   MAIL   V3.4A**03**
*16   -   TCP-IP-AP   V5.3A**03**
*16   -   TCP-IP-SV   V3.3A**04**

MAIL contains the Internet Services:
-    SMTP   server (Simple Mail Transfer Protocol)
-    POP3   server (Post Office Protocol Version 3)
-    IMAP   server (Internet Message Access Protocol)
-    Mail reader BS2000-Program for reading a mail
-    Mail sender BS2000-Service for sending a mail

TCP-IP-AP contains the Internet Services:
-    FTP   (File Transfer Protocol)
-    TELNET

TCP-IP-SV contains the Internet Services:
-    DNS   resolver and server (Domain Name Service)
-    NTP   client and server (Network Time Protocol)
-    OPENSSH   secure shell

Functional overview

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 is 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.

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

With the Mail sender you can send asynchronously mails from BS2000 over SDF commands or subroutine interface.

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.

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

1.1   Ordering

interNet Services V3.4B can be ordered from your local distributors.

1.2   Delivery

The interNet Services V3.4B files are supplied via SOLIS.

The following delivery groups are part of the interNet Services V3.4B delivery scope:
*16	-	INETSERV	V3.4B**04**
*16	-	MAIL	V3.4A**03**
*16	-	TCP-IP-AP	V5.3A**03**
*16	-	TCP-IP-SV	V3.3A**04**

1.2.1   Delivery group INETSERV

The following delivery components are required regardless of the HSI:

SYSDOC.INETSERV.034.OSS	License text for interNet Services
SYSFGM.INETSERV.034.D	Release notice (German)
SYSFGM.INETSERV.034.E	Release notice (English)
SYSRME.INETSERV.034.D	Readme (German)
SYSRME.INETSERV.034.E	Readme (English)
SYSSII.INETSERV.034	IMON information file

1.2.2   Delivery group MAIL

The following delivery components are required regardless of the HSI:

SINLIB.MAIL.034.IMAP	Installation library for IMAP and POP3-server
SINLIB.MAIL.034.POSTFIX	Installation library for SMTP server (Postfix)
SYSDAT.MAIL.034.READER	Configuration file
SYSLIB.MAIL.034	Includes Mimelib and user.h, Tutorial MIME+ in PDF format, Macros / includes for Mail sender
SYSLNK.MAIL.034.BACKEND	Load module Mail sender backend
SYSMES.MAIL.034.MAILCLNT	Message file
SYSOML.MAIL.034.MIME	MIME module library
SYSOML.MAIL.034.READER	READER module library
SYSPRC.MAIL.034	Example procedure
SYSPRG.MAIL.034	Mail reader program
SYSSDF.MAIL.034	SDF syntax file (Mail reader)
SYSSDF.MAIL.034.MAILCLNT	SDF syntax file (Mail sender)
SYSSII.MAIL.034	IMON information file
SYSSSC.MAIL.034.MAILCLNT	Subsystem catalogue statements
SYSSSI.MAIL.034.MAILCLNT	Subsystem information file

The following delivery components are required additionally on S-Servers:

SYSLNK.MAIL.034.MAILCLNT	Load module for Mail sender subsystem

The following delivery components are required additionally on SQ-Servers:

SKMLNK.MAIL.034.MAILCLNT	Load module for Mail sender subsystem

The following delivery components are required additionally on SE-Servers:

SKMLNK.MAIL.034.MAILCLNT	Load module for Mail sender subsystem

1.2.3   Delivery group TCP-IP-AP

The following delivery components are required regardless of the HSI:

SINLIB.TCP-IP-AP.053	Programs /procedures for SNMP-Subagent and POSIX FTP/TELNET
SIPLIB.TCP-IP-AP.053.OS-097	OpenSSL module and header for other products
SKUOML.TCP-IP-AP.053	Module for subroutine interface
SYSDAT.TCP-IP-AP.053.CLIENTS	Code table assignment TELNET
SYSDAT.TCP-IP-AP.053.INSTALL	Configuration file FTP/TELNET
SYSDAT.TCP-IP-AP.053.SI	Communication data for Server / Child-Task
SYSLIB.TCP-IP-AP.053	Include / Macros for exits, Include / module for subroutine interface (S-Server)
SYSMES.TCP-IP-AP.053	Message file
SYSSDF.TCP-IP-AP.053	SDF syntax file
SYSSII.TCP-IP-AP.053	IMON information file
SYSSPR.TCP-IP-AP.053	Internal command procedure for start / stop SNMP, procedures for certificates
SYSSRC.TCP-IP-AP.053	Source text for exit routines an example procedures for file encryption
SYSSSC.TCP-IP-AP.053	Subsystem catalogue statements

The following delivery components are required additionally on S-Servers:

SYSLNK.TCP-IP-AP.053	Load module library
SYSLNK.TCP-IP-AP.053.TCPIP	Library for subsystem

The following delivery components are required additionally on SQ-Servers:

SKMLNK.TCP-IP-AP.053	Load module library
SKMLNK.TCP-IP-AP.053.TCPIP	Library for subsystem

The following delivery components are required additionally on SE-Servers:

SKMLNK.TCP-IP-AP.053	Load module library
SKMLNK.TCP-IP-AP.053.TCPIP	Library for subsystem

1.2.4   Delivery group TCP-IP-SV

The following delivery components are required regardless of the HSI:
SINLIB.TCP-IP-SV.033.DNS   Installation library for DNS resolver
SINLIB.TCP-IP-SV.033.NAMED   Installation library for DNS server
SINLIB.TCP-IP-SV.033.NTP   Installation library for NTP
SINLIB.TCP-IP-SV.033.OPENSSH   Installation library for OPENSSH
SYSSII.TCP-IP-SV.033   IMON information file

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

1.3   Documentation

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

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

In the installation library for DNS and NAMED or, after installation the package, under
<installation path>/readme/{html,text}
are additional descriptions in HTML and text available.

In the installation library for NTP or, after installation the package, under
<installation path>/readme/TCP-IP-SV.ntp/html
is additional description in HTML available.

In the installation library for OPENSSH or, after installation the package, under
<installation path>/readme/TCP-IP-SV.openssh/{pdf,html,text}
are additional descriptions in PDF, HTML and text available.

In the installation library for Postfix and IMAP or, after installation the package, under
<installation path>/readme/MAIL.postfix/{pdf,html,text}
<installation path>/readme/MAIL.imap/{pdf,html,text}
are additional descriptions in PDF, HTML and text available.

2 Software extensions

Only the extensions and improvements over the previous version interNet Services V3.3A and correction packages are describe in the following section.

*16 ## 2.1 Extensions SP 1.2020

*16 ### 2.1.1 Extensions Mail V3.4A03
*16
*16 - Upgrade service Postfix 3.2.12 and OpenSSL 1.1.1d
- Upgrade service IMAP 2000f

*16 ### 2.1.2 Extensions TCP-IP-AP V5.3A03
*16
*16 - Upgrade services FTP and TELNET with OpenSSL 1.1.1f
*16 - Any corrections for service FTP

*16 ### 2.1.3 Extensions TCP-IP-SV V3.3A04
*16
*16 - Correction for service OpenSSH
*16 - Upgrade service NTP 4.2.8p13 and OpenSSL 1.1.1d

*15 ## 2.2 Extensions SP 2.2019

*15 ### 2.2.1 Extensions TCP-IP-AP V5.3A02
*15
*15 1 correction.

*15 ### 2.2.2 Extensions TCP-IP-SV V3.3A03
*15
*15 - Upgrade service OpenSSH 8.0p1.
*15 - Upgrade service DNS and NAMED to BIND 9.11.10.

*14 ## 2.3 Extensions SP 1.2019

*14 ### 2.3.1 Extensions MAIL V3.4A02
*14
*14 Compared with the previous version MAIL V3.4A01 the following functional exten-
*14 sions have been made:
*14
*14 - Upgrade OpenSSL 1.0.2r Mail-Reader / Mail-Sender

*14 ### 2.3.2 Extensions TCP-IP-SV V3.3A02
*14
*14 Compared with the previous version TCP-IP-SV V3.3A01 the following functional ex-
*14 tensions have been made:
*14
*14 - Upgrade OpenSSH 7.9p1 with OpenSSL 1.1.1b

*13 ## 2.4 Extensions correction package 2018
*13
*13 The description of the extended functionality for interNet Services V3.4B01 is
*13 available on the internet at https://bs2manuals.ts.fujitsu.com as a **readme**.

*13 **2.4.1 Extensions MAIL V3.4A01**
*13
*13   Compared with the previous version MAIL V3.4A00 the following functional exten-
*13   sions have been made:
*13
*13   -   Additional options LOCK-FILE and DELETE-FILE with mail sending.
*13
*13   -   Upgrade service Postfix 3.2.5

*13 **2.4.2 Extensions TCP-IP-AP V5.3A01**
*13
*13   Compared with the previous version TCP-IP-AP V5.3A00 the following functional ex-
*13   tensions have been made:
*13
*13   -   Upgrade OpenSSL 1.0.2k for FTP and TELNET

*13 **2.4.3 Extensions TCP-IP-SV V3.3A01**
*13
*13   Compared with the previous version TCP-IP-SV V3.3A00 the following functional ex-
*13   tensions have been made:
*13
*13   -   Upgrade service NTP 4.2.8p10

2.5   Extensions correction package I/2017

*12   The description of the extended functionality for interNet Services V3.4B is availa-
*12   ble on the internet at https://bs2manuals.ts.fujitsu.com. A summary is available in
*12   the chapter "Changes compared to the previous version".

*12 **2.5.1 Extensions MAIL V3.4A00**
*12
*12   Compared with the previous version MAIL V3.3A09 the following functional exten-
*12   sions have been made:
*12
*12   -   Upgrade service Postfix 3.1.2 with OpenSSL 1.0.2h
*12   -   Upgrade OpenSSL 1.0.2j for Mail reader / Mail sender
         -

*12 **2.5.2 Extensions TCP-IP-AP V5.3A00**
*12
*12   Compared with the previous version TCP-IP-AP V5.2A11 the following functional ex-
*12   tensions have been made:

*12   -   The so far not yet implemented features / commands TVFS, MLSD and MLST
*12   of the RFC 3659 standard for the support of graphic FTP clients have been
*12   added. Therefor FileZilla support is provided.
*12
*12   -   Upgrade OpenSSL 1.0.2.j for FTP and TELNET

*12 **2.5.3 Extensions TCP-IP-SV V3.3A00**
*12
*12   Compared with the previous version TCP-IP-SV V3.2A08 the following functional ex-
*12   tensions have been made:
*12
*12   -   Upgrade service OpenSSH 7.3p1 with OpenSSL 1.0.2h
*12   -   Upgrade service DNS and NAMED to BIND 9.10.4-P2

2.6   Extensions correction package I/2016

*11   MAIL V3.3A09
*11   -   Upgrade OpenSSL 1.0.2g for IMAP
*11
*11   TCP-IP-AP V5.2A11
*11   -   Upgrade OpenSSL 1.0.2g for FTP and TELNET
*11
*11   This correction release contains new functions and changes:
*11   -   Using OpenSSL version 1.0.2g with removed SSLv2 support
*11   -   Ephemeral Diffie-Hellman cipher suites now use 2048 bit parameter as default
*11   -   MAKE.CERT procedure now creates certificates signed with SHA256
*11
*11   TCP-IP-SV V3.2A08
*11   -   Upgrade service OpenSSH 7.2p2
*11   -   Upgrade service NTP 4.2.8p6
*11   -   Upgrade service DNS and NAMED to BIND 9.9.8-P4
*11   -   Upgrade OpenSSL 1.0.2g for OpenSSH, NTP, DNS and NAMED

2.7   Extensions correction package II/2015

*10   MAIL V3.3A08
*10   -   Upgrade service Postfix 2.11.6
*10   -   Upgrade OpenSSL 1.0.2d for all services
*10   -   Support of TLSv1.1 and TLSv1.2 for all services
*10   -   Official release of the Mail sender backend configuration option
*10   smtpReadMaxWaitTime
*10
*10   TCP-IP-AP V5.2A10
*10   -   Upgrade OpenSSL 1.0.2d for FTP and TELNET
*10   -   Support of Last Byte Pointer (LBP) for FTP
*10   -   Support of High Availability for FTP and TELNET
*10   -   Support of TLSv1.1 and TLSv1.2 for FTP and TELNET
*10
*10   TCP-IP-SV V3.2A07
*10   -   Upgrade service NTP 4.2.8p3
*10   -   Upgrade OpenSSL 1.0.2d for NTP

2.8   Extensions correction package I/2015

*9   TCP-IP-AP V5.2A09
*9   -   Fixes; no upgrade

2.9   Extensions correction package II/2014

*8   MAIL V3.3A07
*8   -   1 fix
*8   -   Upgrade service Postfix 2.11.1
*8   -   Upgrade OpenSSL 1.0.0n for Postfix and IMAP
*8
*8   TCP-IP-AP V5.2A08
*8   -   Fixes; no upgrade
*8
*8   TCP-IP-SV V3.2A06
*8   -   Upgrade service OpenSSH 6.6p1
*8   -   Upgrade OpenSSL 1.0.0n for OpenSSH
*8   -   Upgrade service DNS and NAMED to BIND 9.9.5

2.10   Extensions correction package I/2014

*7   MAIL V3.3A06
*7   -   Fixes; no upgrade
*7   -   Two new options for the configuration file Mail sender backend:
*7   smtpRetryTimeBase
*7   smtpRetryTimeMaxExp
*7
*7   TCP-IP-AP V5.2A07
*7   -   Fixes; no upgrade
*7
*7   TCP-IP-SV V3.2A05
*7   -   Fixes for sftp
*7   -   Upgrade OpenSSL 1.0.0l for OpenSSH

2.11   Extensions correction package II/2013

*6   TCP-IP-AP V5.2A06
*6   -   1 fix; no upgrade

2.12   Extensions correction package I/2013

*5   MAIL V3.3A05
*5   -   Upgrade service Postfix 2.7.13
*5   -   Upgrade OpenSSL 1.0.0k for Mail sender and Mail reader
*5   -   Upgrade OpenSSL 1.0.0k for Postfix and IMAP
*5
*5   TCP-IP-AP V5.2A05
*5   -   Upgrade OpenSSL 1.0.0k for FTP and TELNET

2.13   Extensions correction package II/2012

*4   MAIL V3.3A04
*4   -   Upgrade OpenSSL 1.0.0j for Mail sender and Mail reader
*4
*4   TCP-IP-AP V5.2A04
*4   -   Upgrade OpenSSL 1.0.0j for FTP and TELNET
*4
*4   TCP-IP-SV V3.2A04
*4   -   Upgrade service BIND 9.7.6
*4   -   Upgrade service NTP 4.2.6p5

2.14   Extensions correction package I/2012

*3   MAIL V3.3A03
*3   -   Upgrade service Postfix 2.7.8 and OpenSSL 1.0.0h
*3   -   Upgrade OpenSSL 1.0.0i for Mail sender and Mail reader
*3   -   Upgrade OpenSSL 1.0.0h for Postfix and IMAP
*3
*3   TCP-IP-AP V5.2A03
*3   -   Upgrade OpenSSL 1.0.0i for FTP and TELNET
*3
*3   TCP-IP-SV V3.2A03
*3   -   Upgrade service BIND 9.7.5
*3   -   Upgrade OpenSSL 1.0.0h

2.15   Extensions correction package II/2011

*2   MAIL V3.3A02
*2   -   New option for the configuration file Mail sender backend:
*2   maxQueueLifetime <lifetime>
*2   < lifetime>
*2   Maximum lifetime of an e-mail, during a failed e-mail delivery is being re-
*2   peated.
*2   Default: 5 days
*2   Attention: The option retryLimit is therefore ineffective.
*2   -   Upgrade services Postfix 2.7.5 and IMAP 2007f
*2   -   Upgrade OpenSSL 1.0.0e for Mail sender and Mail reader
*2   TCP-IP-AP V5.2A02
*2   -   Upgrade OpenSSL 1.0.0e for FTP and TELNET
*2
*2   TCP-IP-SV V3.2A02
*2   -   Upgrade service BIND 9.7.3-P3
*2   -   Upgrade OpenSSL 1.0.0e

2.16   Extensions correction package I/2011

*1   -   Upgrade services:
*1   OpenSSH 5.6p1, BIND 9.7.1-P2, NTP 4.2.6p3, Postfix 2.7.3
*1   -   Upgrade OpenSSL 1.0.0d

2.17   Extensions MAIL V3.3A

Compared with the previous version MAIL V3.2A the following functional extensions
have been made:

-   Upgrade services:
    Postfix 2.7.0 and IMAP 2007e
-   Upgrade OpenSSL 1.0.0c

2.18   Extensions TCP-IP-AP V5.2A

Compared with the previous version TCP-IP-AP V5.1A the following functional exten-
sions have been made:

-   CCC command for FTP Client/Server
    Disabling TLS/SSL encryption the control connection.
-   Upgrade OpenSSL 1.0.0c
-   Support files > 32 GB in FTP Client/Server

2.19   Extensions TCP-IP-SV V3.2A

Compared with the previous version TCP-IP-SV V3.1A the following functional exten-
sions have been made:

-   Upgrade services:
    OpenSSH 5.5p1, BIND 9.7.1, NTP 4.2.6
-   Upgrade OpenSSL 1.0.0c
-   Improvement in the installation and uninstallation.
    The installations of individual services are similarly. Improved the check of exist-
    ing versions, auto start, create needed file /etc/resolv.conf and error handling.
    Backup concept of uninstallation process has been standardized and improved.

3   Technical information

3.1   Resource requirements

3.1.1   Resource requirements MAIL V3.4A

BS2000 disk storage space:
```
ca. 340 MB
```

Virtual user address space, static requirement
```
Postfix        15.2 MB
IMAP           11.9 MB
POP3           11.7 MB
```

POSIX resources:
```
Postfix         9.8 MB
IMAP            2.0 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. If there are a large number of users, we recommend that you create a separate file system for /var/mail. The Postfix package installation requires at least 15 MB free space for /var/mail.

3.1.2   Resource requirements TCP-IP-AP V5.3A

BS2000 disk storage space:
```
approx.  70 MB (S-Server)
approx.  96 MB (SQ-/SE-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.

3.1.3   Resource requirements TCP-IP-SV V3.3A

BS2000 disk storage space:
```
ca. 391 MB
```

Virtual user address space, static requirement
```
DNS-Resolver  3.2 MB
DNS-Server   18.0 MB
NTP          10.8 MB
OPENSSH       8.9 MB and 10.8 MB for each user session
```

These values represent minimum requirements, which may increase depending on the application.

POSIX resources:
```
DNS            0.2 MB
NAMED          4.6 MB
NTP            2.0 MB
OPENSSH        1.6 MB
```

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

3.2   Software configuration

*12   BS2000 as of version V9.0A is required for interNet Services V3.4B.
*12
*12   In addition must be openNet Server as of version V3.4A and POSIX correction state
*12   A43 provided.

           If the Mail sender is used, release unit ASTI as of version V2.0A (BS2000-GA) must
           be installed and started.

           TCP-IP-AP additionally requires the following products:
           openFT   if FTAC is used
           openFT-AC   if FTAC is used
           JV   if jobvar command is used
           SDF-P   if svar command is used

           If the security functions for FTP/TELNET, OPENSSH, Postfix, IMAP/POP3, Mail
           sender, Mail reader and DNS are used, the subsystem PRNGD must be started.

3.3   Product installation

           Installation of the product interNet Services 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 Re-
           lease Notice.

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

3.3.1   Special notes for MAIL

*12   So that the users must not rename their available user option files with the change
*12   on MAIL 034, it recommends changing the option defaultOptionFileName in the
*12   SYSSSI file to the existing file name.

           Before installing Postfix a DNS server should be placed in the file /etc/resolv.conf.

           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 must be stopped and after
           BCAM is ready restarted.

           The created backups of configuration files when uninstalling are copied back to
           the appropriate paths.

3.3.2   Special notes for TCP-IP-AP

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

           Installation parameters for the TELNET and FTP servers are set and modified with
           the SDF command /SET-FTP-TELNET-PARAMETER.
12   The SYSENT.TCP-IP-AP.053. files are created when this SDF command is exe-
           cuted.

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-X8) 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.

*12   To support SAM node files, the LLM elements FTP-11 and FTPDC-11 from the
*12   S//LNK.TCP-IP-AP.053 library must replace the corresponding FTP or FTPDC
*12   elements. However, this replacement is only recommended if the installation of
*12   TCP-IP-AP is used **exclusively** on BS2000 V11.0.

3.3.3   Special notes for TCP-IP-SV

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

Package	Service
DNS	DNS resolver
NAMED	DNS server
NTP	NTP client and server
OPENSSH	Secure Shell

Before installing any packages in POSIX, any previously installed versions of TCP-IP-SV must be uninstalled 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, TELNET and MAIL" in the Administration Guide.

An immediate start of services (dnsd, named, ntpd, sshd) to enable, SYSROOT ID must have a POSIX-RLOGIN-DEFAULT account set.

Special features of NTP

First installing NTP requires a subsequent configuration file /etc/ntp.conf.

*1   Time synchronization occurs only if the difference is less than 900 seconds.

Special features of OPENSSH

In addition, OPENSSH requires that an 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/emtpy
- 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.

The backups of configuration created files when uninstalling are copied back to the appropriate paths.

3.4   Product use

After installing a TCP-IP-SV package, the configuration files have to be modified to suit the current 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. If possibly created backups are restored it is not necessary.

The packages POSTFIX and OPENSSH are runnable without special configuration and start up if necessary automatically with default settings after installation. For POSTFIX and OPENSSH is it important that the file /etc/resolv.conf exists and points to a valid DNS server.

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 implicit TLS is used).

When accessing a 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
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   Discontinued functions (and those to be discontinued)

*12   The crypto hardware is no longer supported. This eliminates the options
*12   *tlsUseCryptoHardware* and *-Z UseCryptoHardware* and the configuration parame-
*12   ter *USE-CRYPTO-HARDWARE* in the SET-FTP-TELNET-PAR command.
*12
*12   POSIX prngd daemon is no longer delivered.
*12
*12   SSH protocol version 1 and SSL/TLS protocol version SSLv2 are no longer sup-
*12   ported.

3.6   Incompatibilities

*12	If TVFS (Trivial Virtual File System) is activated for the FTP server, then files in the
*12	DVS are addressed via a virtual directory /% BS2000. The /% BS2000 directory
*12	contains subdirectories of the form: <catid>: $ <userid>, which then contain only
*12	the corresponding BS2000 file names, but no further subdirectories. Thus, unlike
*12	the non-TVFS case, there is no subdirectory emulation of partially qualified file
*12	names ending with a point.
*12	Only if FTP clients with a graphical interface are used to connect to the FTP serv-
*12	er, you should activate TVFS.

<u>Mail server</u>

*10 The unofficially introduced configuration option with MAIL V3.3A04 'smtpRead-
*10 MaxWaitTime' of the Mail sender backend had the default 0, i.e. the waiting time
*10 for a response from the SMTP server was not limited. Practice has shown that in
*10 general a limit on the waiting time is advisable. For this reason the default of the
*10 waiting time is changed with MAIL V3.3A08 to 5 minutes.

<u>FTP</u>

*10 Up to TCP-IP-AP V5.2A09 the 1:1 transfer of a PAM file doesn't add a string
*10 "C-DATEIENDE" for marking the exact file end if the source file itself doesn't con-
*10 tain such a marker. I.e. the default setting 'on' of the 'setfile datend' option had with
*10 1:1 transfers no effect.
*10 With the support of Last Byte Pointer in FTP as of TCP-IP-AP V5.2A10 a
*10 "C-DATEIENDE" string is removed after reading the source file and only added
*10 again to the destination file when "setfile datend on" (or "quote site SFIL datend
*10 on") is set.
*10 If the file is then reprocessed by programs that have difficulty handling with this
*10 marking "C-DATEIENDE", the appending of this marker must be disabled or be
*10 evaded by the use of Last Byte Pointer.

<u>Mail sender</u>

*2 As of MAIL V3.3A02 (correction package II/2011) the option retryLimit of the con-
*2 figuration file for the Mail sender backend is replaced by the option maxQueueLife-
*2 time (default 5 days). The option retryLimit is therefore ineffective.

*12 So that the users must not rename their available user option files with the change
*12 to MAIL 034, it recommends changing the option defaultOptionFileName in the
*12 SYSSSI file to the existing file name.

An existing configuration file for the Mail sender must be renamed to
*12 SYSDAT.MAIL.034.SERVICE.OPT or must be refer to the existing file in the
SYSSSI file using the option backendConfigurationFileName.

<u>Mail reader</u>

*12 An existing configuration file must be copied to SYSDAT.MAIL.034.READER.

<u>NTP and NAMED</u>
Any existing backups taken from a previous version are not restored during the ini-
tial installation. Thus, an unique adaptation to individual needs by editing configu-
ration file /etc/ntp.conf or /etc/named.conf is necessary.

3.7   Restrictions

3.7.1   Restrictions for TCP-IP-AP

To encrypt the data connection, the FTP client must support SSL encryption too
and also allow the SSL "Session Resumption" feature for secure data connection

(using identical SSL session data/keys for control and data connection). Establishing a new TLS session for the data connection is not supported. An FTP client containing this functionality for BS2000 is provided with TCP-IP-AP. If an FTP client does not support the SSL "Session Resumption" feature for secure data connection, the encryption can be restricted to 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 exec) are rejected with the error message "500 Requested action not taken." Please refer to the relevant information in the User Guide.

3.7.2 Restrictions for TCP-IP-SV

sshd: restarting a running sshd to read in a changed configuration file with "kill -HUP" does not work in 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 permuting 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, OPENSSH, 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 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 MAIL

- System environment
  BS2000, POSIX, Remote computer, Mail server
- affected mail, returned mail

Mail sender
- Configuration file SYSDAT.MAIL.034.SERVICE.OPT
- Configuration file SYSDAT.MAIL.034.USER.OPT
- Subsystem information file SYSSSI.MAIL.034.MAILCLNT
- Logging files from Mail-Service
- Logging file from user of Mail sender

Mail reader
- Configuration file SYSDAT.MAIL.034.READER
- Trace file

Postfix, POP3/IMAP
- Logging file /var/adm/messages and /var/adm/syslog
- Configuration files /etc/postfix/master.cf and main.cf

3.8.2   Additional error documentation with TCP-IP-AP

- 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.

3.8.3   Additional error documentation with TCP-IP-SV

- Logging file /var/adm/messages and /var/adm/syslog
- Logs in /tmp for problems during installation.
- Configuration files of the daemons involved:
- /etc/resolv.conf
- /etc/named.conf
- /etc/ssh/sshd_config und ssh_config
- /etc/default/TCP-IP-SV. {dns, named, ntp, openssh}

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 resp. /var/adm/syslog can grow very large when diagnose options are activated.

4   Hardware requirements

*12   interNet Services V3.4B runs on all business servers supported by BS2000 as of
*12   V10.0A.