System Release Bulletin

Models ESTRELLA

Series 200, 300 and 700

AIX™ 4.3.2
Bull Enhancement 2.25

May 25th, 1999

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PART 1. General Information

1. About This SRB

Before installing a software on your system, we recommend you carefully read the System Release Bulletin (SRB) that comes with the software media.

The SRB provides release-specific information and instructions related to software installation. It also contains information it is important to be aware of, such as known limitations or special operational notes.

The present SRB applies to Estrella 200, 300 and 700 Series, running the AIX 4.3.2 and Bull Enhancement 2.25 software.

Note: Do not install AIX 4.3.2 and Bull Enhancement 2.25 on an Estrella Power Console.

2. List of Software Media

The following media are delivered with the systems:

Reference	Designation	Release	Format
76 723 717–001	AIX 4.3.2 Estrella 200 & 300 Series	4.3.2	3 CD-ROMs
76 723 725–001	AIX 4.3.2 Estrella 700 Series	4.3.2	3 CD-ROMs
76 723 698–001	AIX 4.3.2 Updates (for Estrella 700)	4.3.2	1 CD-ROM
76 723 712–001	Bull Enhancement 2.25	432_1	1 CD-ROM
76 723 684–001	Bonus Pack	4.3	2 CD-ROMs

3. Year 2000

The AIX 4.3.2 software is year 2000 ready.

4. Documentation

You will find, in the booklets enclosed with the CD-ROMs, useful information on:

- Consulting Documents,
- Installing Products from CD-ROM,
- Consulting SRB packages.

The "**Hypertext Library for AIX**" CD-ROM contains the online documentation for AIX and other products. You will find in the CD-ROM booklet, the step-by-step procedure to access this information.

Two paper documents, delivered with every system, are also very useful:

- AIX 4.3 Installation Guide (Reference: 86 A2 43GX)
- AIX 4.3 NIM Guide & Reference (Reference: 86 A2 17 HX)

Some information not included in the standard documentation is available in the file:
`/usr/lpp/bos/README`

Finally, you will find **technical information** on the following Bull Web site:
http://www–opensup.bull.com

Ordering Documentation

Paper documentation can be purchased separately:

- Write at "Bull Electronics Angers CEDOC", by providing the reference number of the document.
- Or connect to the Bull Web site *http://www.logistics.bull.net* and select "*Order your documentation software and freeware*".

5. List of Packages of the Bull Enhancement 2.25 CD-ROM

The Bull Enhancement CD-ROM contains the software for some products of the Bull catalog, such as adapters, disks, tapes, printers, disks subsystems, etc. This software is installed in complement of the AIX software.

76 723 712-001 Bull Enhancement 2.25 CD-ROM Contents

Package	Version	Description
ArrayGUIde	01.06.0007.0000	Disk Array Software
Bullcdrom	01.03.0000.0000	Bull SCSI CD-ROM Support
Bullcdrom_diag	01.06.0001.0000	Bull CD-ROM Diagnostics Support
Bulldisk	02.09.0001.0000	Bull SCSI Disks Support
Bulldisk_diag	02.09.0000.0000	Bull SCSI Disks Diagnostics Support
Bulltape	01.06.0003.0000	Bull SCSI Tapes Support
Bulltape_diag	01.05.0003.0000	Bull SCSI Tapes Diagnostics Support
BX11.Dt	01.03.0000.0000	AIXWindows Desktop Bull interactive console setup
DasEmail	01.00.0000.0002	Disk Array Software
DiskArray	04.12.0000.0000	Disk Array Software for SCSI and FC Adapters
PRTBull_mcode	01.00.0001.0000	Bull Printers Microcodes
PRTE42	02.10.0001.0000	Bull Printers
PRTE42.prts.obj	02.10.0001.0006	Bull Printers
TERM	02.03.0000.0000	Terminal BQ306
asrx.asrx	01.06.0003.0000	ASRX Client Side
bos.rte.odm	04.03.0002.0001	Object Data Manager
bullasync.base	01.08.0001.0000	Bull Common Asynchronous Adapter Software
bullasync.isa bullasync.isa.rte	01.08.0001.0000 01.08.0001.0004	Bull ISA Asynchronous Adapter Software
bullx25.adm bullx25.adm.conf bullx25.adm.cat bullx25.adm.rte	02.03.0005.0000 02.03.0005.0002 02.03.0005.0001 02.03.0005.0003	High Speed WAN Comm. Adapter SNMP Agent – Config
bullx25.board bullx25.board.rte bullx25.board.com bullx25.board.smit	02.03.0006.0000 02.03.0006.0001 02.03.0006.0001 02.03.0006.0005	High Speed WAN Comm. Board – Smit
bullx25.tcpip bullx25.tcpip.rte	02.03.0006.0000 02.03.0006.0002	High Speed WAN Comm. TCP
bullx25.xpi bullx25.xpi.rte	02.03.0006.0000 02.03.0006.0003	High Speed WAN Comm. XPI interface – Smit
devices.common.IBM.ethernet devices.common.IBM.hdlc devices.common.IBM.hdlc.sdlc devices.common.IBM.fddi devices.common.IBM.tokenring	04.03.0002.0000 04.03.0001.0000 04.03.0001.0001 04.03.0001.0000 04.03.0001.0000	
devices.csii devices.csii.all	02.00.0008.0000 02.00.0008.0001	Common Serial I/O Interface (CSII)
devices.nddutils devices.nddutils	06.03.0001.0000 06.03.0001.0001	Networking Device Driver Utilities
devices.pci.0a121101	02.00.0008.0000	1–Port PCI Serial I/O Board
devices.pci.0a124101	02.00.0008.0000	4–Port PCI Serial I/O Board

Package	Version	Description
devices.pci.11100200 devices.pci.11100200.rte	06.03.0001.0000 06.03.0001.0008	DEC 2104X Ethernet Adapter Software
devices.pci.11100900 devices.pci.11100900.rte	06.03.0001.0000 06.03.0001.0001	DEC 2114X Fast Ethernet Adapter Software
devices.pci.11101400 devices.pci.11101400.rte	06.03.0001.0000 06.03.0001.0001	DEC 21041 Ethernet Adapter Software
devices.pci.2b101905.rte devices.pci.2b101905.x11	04.02.0001.0000 04.02.0001.0000	
devices.pci.441000a4	04.03.0002.0000	SCSI RAID PCI Adapter
devices.pci.48110040 devices.pci.48110040.diag devices.pci.48110040.rte	06.03.0000.0000 06.03.0000.0001 06.03.0000.0003	PCI FDDI Adapter Software for EPC400
devices.pci.b8100120 devices.pci.b8100120.rte	06.03.0001.0000 06.03.0001.0001	SMC DEC 21140 Ethernet Adapter Software
devices.syn_sio.	02.00.0008.0000	1Port and 4Port Common CSII Provider
isdn_access isdn_access.syngate isdn_access.synway	01.01.0004.0000 01.01.0004.0005 01.01.0004.0010	Syneris ISDN
kermit	02.04.0000.0000	Kermit File Tranfer Support
ltcprint	02.04.0000.0000 02.04.0000.0001	LTC (BQ350) Printing Support
pswx25.wsm	02.00.0008.0000	
psx25.adm psx25.adm.all	02.00.0008.0000 02.00.0008.0002	Power Stream X25 SNMP Agent
psx25.hdlc psx25.hdlc.all	02.00.0008.0000 02.00.0008.0005	HDLC on Common Serial I/O Interface
psx25.ipx25 psx25.ipx25.all	02.00.0008.0000 02.00.0008.0006	TCP/IP on x25p Lines.
psx25.x25 psx25.x25.all	02.00.0008.0000 02.00.0008.0012	Power Stream X.25
rsf rsf.extended rsf.data rsf.rsflite rsf.rsflite.data	03.07.0000.0000 03.07.0000.0000 03.07.0000.0000 03.07.0000.0001 03.07.0000.0001	RSF Remote Services Facilities Extended Remote Services Facilities
smw.asrx	01.01.0013.0000	WatchWare SM: Tools for ASRX
smw.pages	01.01.0013.0000	WatchWare SM: HTML pages
smw.rsf	01.01.0013.0000	WatchWare SM: Tools for RSF
smw.server	01.01.0013.0000	WatchWare SM:HTTP Server
srb.BULLX25	02.03.0006.0000	SRB for High Speed WAN Comm. Adapter
srb.pack	02.03.0000.0000	Tools for SRB Management
unlock	01.01.0000.000	
xr_host	04.02.0118.0000	XRemote Host

6. List of Packages of the Bonus Pack CD-ROMs

The Bonus Pack CD-ROMs contain the following products:

- Netscape Navigator V4.06

- Web-based System Manager Security V4.3.2

- VisulaAge® for Java™ V2.0

- VisualAge® for Java™ Entry V2.0

- Ultimedia Services V2.2.1

- Techexplorer Hypermedia Browser V2.0 plug-in

- Novell Network Services 4.1 for AIX V2.2.1, Evaluation S.

- TotalNET Advanced Server V5.3 Evaluation Software

- Lotus® Domino™ Go Webserver 4.6.2.5

- WorkGroup conferencing for AIX V1.1.0

- Tivoli Management Agent V3.2

76 723 684-001 Vol. 1 Bonus Pack Contents

Package	Version	Description
ipfx.msg	02.02	IPF Messages
ipfx.rte	02.02	Information Presentation Facility Runtime
internet_server.*	04.06.02.05	Lotus Domino Go Webserverr
devices.mca.dfe5.rte	04.03.02.00	AIX Ultimedia Services RISC Audio Device
devices.isa_sio.*	04.03.02.00	AIX Ultimedia Services New RISC PC Audio Device
dce.xdsxom.rte	02.01.00.01	X.500 API Library
dce.pthreads.rte	02.01	DCE Threads Compatability Library
dce.msg.*	02.01	DCE Messages
dce.doc.*	02.01	DCE Documentation Files
dce.dfs_server.rte	02.01	DCE DFS Base Server
dce.compat.*	02.01	DCE SMIT
dce.client.*	02.01	DCE DFS Client Filess
collab.help.msg.en_US.client	01.01.00.00	WorkGroup Conferencing Help HTML Files – U.S. English
collab.client.Dt	01.01.00.00	WorkGroup Conferencing Desktop Files
bos.crypto	04.03.02.00	40 Bit Encryption for IP Security
bos.adt.lib	04.03.02.00	Base Application Development Libraries
bos.som.*	04.01.03.00	SOM Files
dce.client.core.*	02.01	DCE Client Files
dce.tools.admin.rte	02.01.00.08	DCE Administration Tools
dce.cds.rte	02.01.00.19	DCE Cell Directory Services
dce.edfs.rte	02.01.00.19	DCE Enhanced DFS
dce.security.rte	02.01.00.24	DCE Security Services
dce.dfsnfs.rte	02.01.00.11	DCE NFS to DFS Authenticating Gateway
Netscape.nav.rte	04.00.07.00	Netscape Navigator Runtime Environment
Netscape.msg.*	04.00	Netscape Navigator Runtime Messages
Netscape.help.*	04.00.07.00	Netscape Navigator Help
Netscape.communicator–fr.rte	04.00.07.00	Netscape Communicator Runtime Environment (French)
NetQ.client.rte	01.01.00.00	Webserver Search Engine Client API
NetQ.client.sdk	01.01.00.00	Webserver Search Engine Client Development Toolkit
NetQ.rte.com	01.01.00.00	Webserver Search Engine Client/Server common files
NetQ.server.misc	01.01.00.00	Webserver Search Engine Admin Tools
NetQ.server.rte	01.01.00.00	Webserver Search Engine Server
NetQ.cgi.base	01.01.00.00	Webserver Search Engine CGI executables + icons
NetQ.cgi.*	01.01.00.00	Webserver Search Engine CGI executables + icons
UMS.info.en_US.user_gd	04.02.02.00	Ultimedia InfoExplorer Database – U.S. English
UMS.html.en_US.prog_gd	04.03.02.00	Ultimedia Programming – U. S. English
UMS.html.en_US.user_gd	04.03.02.00	Ultimedia User Guides – U. S. English

76 723 684-001 Vol. 2 Bonus Pack Contents

Package	Version	Description
IBMVJava.*	02.00.00.00	VisualAge for Java
jmf.html.	01.01.00.00	Java Media Framework Documentation – U.S. English
jmf.rte.*	01.01.00.00	Java Media Framework Runtime
ncps.sys.*	02.02.00.00	Novell Network Services Files
ncps.html.en_US.nns	04.03.02.00	Novell Network Services Guides – U. S. English
ncps.base.api	02.02.00.01	Novell Network Services API Support
ncps.base.cmd	02.02.01.02	Novell Network Services Commands
ncps.base.kernel	02.02.01.00	Novell Network Services Kernel Support
ncps.base.ldap	02.02.00.00	Novell Network Services LDAP Support
ncps.base.nls	02.02.00.00	Novell Network Services Base NLS Support
ncps.base.smit	02.02.00.02	Novell Network Services SMIT Panels
ipx.msg.*	04.03.00.01	IPX/SPX Protocol Suite Messages – U.S. English
ipx.base.lib	04.03.01.01	IPX/SPX Libraries
ipx.base.api	04.03.02.00	IPX/SPX API Support Files
ipx.base.smit	04.03.02.00	IPX/SPX SMIT Panels
ipfx.rte	02.02.00.00	Information Presentation Facility Runtime
ipfx.msg.*	02.02.00.00	IPF Messages
db2_05_00.repl	05.02.00.00	DB2 Replication
db2_05_00.odbc	05.02.00.00	Open Database Connectivity (ODBC) Support
db2_05_00.msg.*	05.02.00.00	DB2 Product Messages
db2_05_00.jdbc	05.02.00.00	Java Support
db2_05_00.html.*	05.02.00.00	DB2 Product Document (HTML)
db2_05_00.esrv	05.02.00.00	License Support for DB2 UDB Enterprise Edition
db2_05_00.db2.rte	05.02.00.00	DB2 Run–time Environment
db2_05_00.db2.engn	05.02.00.00	DB2 Engine
db2_05_00.db2.samples	05.02.00.00	DB2 Sample Database Source
db2_05_00.das	05.02.00.00	Administration Server
db2_05_00.cs.rte	05.02.00.00	DB2 Communication Support – TCP/IP
db2_05_00.cs.sna	05.02.00.00	DB2 Communication Support – SNA
db2_05_00.cs.drda	05.02.00.00	DB2 Communication Support – DRDA Application Server
db2_05_00.cs.ipx	05.02.00.00	DB2 Communication Support – IPX
db2_05_00.conv.*	05.02.00.00	Code Page Conversion Tables
db2_05_00.conn	05.02.00.00	DB2 Connect
db2_05_00.cnvucs	05.02.00.00	Code Page Conversion Tables – Uni Code Support
db2_05_00.client	05.02.00.00	DB2 Client Application Enabler
Tivoli_Management_Agent.client.rte	03.02.00.00	"Tivoli Management Agent runtime"
TAS.server	05.03.00.00	TotalNET Advanced Server
IMNSearch.rte.httpdlite	01.01.01.01	NetQuestion Local HTTP Daemon
IMNSearch.rte.SBCS	01.02.01.03	NetQuestion SBCS Search Engine
IMNSearch.rte.DBCS	01.02.00.04	NetQuestion DBCS Search Engine
IMNSearch.bld.SBCS	01.02.01.03	NetQuestion SBCS Buildtime Modules
IMNSearch.bld.DBCS	01.02.00.04	NetQuestion DBCS Buildtime Modules
IBMVJava.html.help	02.00.00.00	VisualAge for Java HTML Help Engine
IBMVJava.html.en_US.common	02.00.00.00	VA Java Documentation–U.S. English Common Files
IBMVJava.html.en_US.entry	02.00.00.00	VA Java Entry Documentation (HTML)–U.S. English
IBMVJava.html.common	02.00.00.00	VisualAge for Java Documentation (HTML)–Common Files
IBMVJava.html.SBCS	02.00.00.00	VisualAge for Java Documentation (HTML)—Single Byte Files
IBMVJava.dab.rte	02.00.00.00	VisualAge for Java Data Access Beans Runtime
IBMVJava.dab.adt	02.00.00.00	VisualAge for Java Data Access Beans
DB2V5SERV.Bnd	05.02.00.00	DB2 Server(s) Software Bundle
DB2V5CAE.Bnd	05.02.00.00	DB2 Client Application Enabler Software Bundle
Adobe.acrobat	03.00.01.00	Adobe acrobat reader

Note: In these lists of contents, items such as **ipx.msg.*** mean "all packages beginning with **ipx.msg**".

7. Requirements and Environment

7.1 Firmware

The minimum firmware level required is indicated in the following table:

Model	Minimum Firmware	Latest Firmware Upgrade
200	PPC 1 BUG 1.9	PPC 1 BUG 1.9
300	OF 1.2 RM 06	OF 1.2 RM 11
350	OF 1.2 RM 08	OF 1.2 RM 11
700	97251 DOR	98153 DOR

7.2 Disk and Memory Space: Basic System Disk

The given figures include a paging space of 160 MB of disk space:

- AIX itself requires a minimum of 32 megabytes of physical memory.

- AIX requires the initial paging space (`/dev/hd6`) to be a minimum of 64 megabytes in size.

- Installing the AIX bundled software delivered on the CD-ROM requires about 600 MB of disk space.

- Be aware that if the disk is completely **full**, you may not be able to increase the size of the **/tmp** or **/etc** if they are too small. If this is the case, make a backup (smit mksysb), and restore with the shrink option.

- A **Full Install** would require more than 3 GB for AIX 4.3.2.

8. Installation of the Software

Choose one of the following installation operations:

- *Install from Scratch: New and Complete Overwrite* on page 1-9

- *Install Additional Device Software* on page *1-16*

- *Migration from AIX 4.1.x or 4.2.x to AIX 4.3.2* on page 1-16

For detailed information refer to the *AIX 4.3 Installation Guide* (Ref. 86 A2 43GX)**.**

The list of the installed packages is given by: # `lslpp -L`

Note: It is recommended to make a **backup** copy of the software when the installation operations are completed. You can later restore it in case of problem, rather than re-install a complete system from scratch. The following command will create a bootable backup:

```
# smit mksysb
```

Note: Do not install IBM AIX PTF (Uxxxx) on Estrella 200 and Estrella 300 systems without the formal agreement of your Bull representative.

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9. Install from Scratch: New and Complete Overwrite

Install from scratch is a long operation (2 or 3 hours), which completely overwrites the data of the system disk.

Synopsis of an Install from Scratch

To install:	Use the CD-ROM:	Use the procedure:
AIX runtime 1	AIX 4.3.2 Vol. 1	Define the CD-ROM as boot device, and boot the system.
bundle AIX descriptor	Bull Enhancement 2.25	`smit install_latest` and select the bundle name
AIX runtime 2	AIX 4.3.2 Vol. 1	`smit easy_install_bundle` and select the bundle name
AIX 4.3.2 PTFs (on Estrella 700 only)	AIX 4.3.2 Updates	`smit update_all`
Bull Enhancement packages	Bull Enhancement 2.25	Depending on your system: `smit install_all` or `smit install_latest`
PTFs for OSI	Bull Enhancement 2.25	`smit update_all`
To optionally install:	**Use the CD-ROM:**	**Use the procedure:**
Bonus Pack packages	Bonus Pack 4.3	`smit install_all`
Other applications	CD-ROM of application	`smit install_latest`

9.1 Install 4.3.2 AIX System

Note About Multiple Volume CD–ROMs

AIX 4.3 has added the "multiple volume CD–ROMs" function. If you ask to install a fileset or a bundle of filesets, you may be prompted to insert another CD–ROM volume to complete the installation. If you do not wish to be prompted, or do not have the other volumes available, set the **Process multiple volumes?** field in SMIT to no (it is set to yes by default). If using the command line to call installp, specify the **–S** flag to not process multiple volumes. If the CD volume is already mounted as a filesystem at the time of the installation, multiple volume processing is disabled.

Note: You will not be asked to switch CD–ROMs during a Base (BOS) Installation of AIX. Multiple volume CD–ROMs are only enabled after the operating system has rebooted.

<u>**1st Phase: define the CD-ROM as boot device**</u>

This operation depends on the model of your system.

1. Insert the AIX Vol. 1 CD–ROM.

2. Turn on the system.

3. **For Estrella 200 Systems:**

   – Type ESC each time it is requested.
   – A menu is displayed. Select 3 then return.
   – PPC1–Diag prompt is displayed. Type: ioi
   – The CLU and DLUN of the CD-ROM are displayed (usually 0 50). To boot from the CD-ROM type: pboot 0 50

4. **For Estrella 300 Systems:**

- – Type ESC each time it is requested.
- – The Main menu is displayed. Select Administrative Option
- – Select Invoke the command line prompt
- – The OK> prompt is displayed. Type: boot cdrom

5. **For Estrella 700 Systems:**

The System Management Services (SMS) is used to define the boot device. This operation can be performed on a graphic or an ASCII console:

With a graphic console:

- – Initialization icons appear at the bottom of the screen: press the F1 key when the keyboard icon appears
- – Click on the Boot Icon
- – Click on the Default Icon
- – Exit from SMS

With an ASCII console:

- – The keyboard text symbol is displayed, press 1 on the ASCII console.
- – In the screen that appears, select: Select Boot Devices
- – Select Default Settings
- – Exit from SMS

2nd Phase: installation of the basic AIX

From the "Base Operation System Installation and Maintenance" menu, you have to select some parameters for the installation, in particular:

- – the language,
- – the installation method: **New and Complete Overwrite**
- – the destination disk.

Select 0 to start the installation. When the operation is completed the "Installation Assistant" menu is displayed. Fill in the fields that you need and exit the menu with the option "**Tasks Completed – Exit to AIX Login**".

3rd Phase: installation of the AIX bundle packages

1. **Go to the AIX prompt and load the AIX bundle:**

- – Insert the Bull Enhancement 2.25 CD-ROM.
- – Log in as root.
- – Type: smit install_latest
  and select:
  ```
  INPUT device/directory for software: [/dev/cd0]
  SOFTWARE to install:    [bundle_aix432]
  ```

2. **Once the AIX bundle list is loaded:**

- – Insert the AIX Vol.1 CD-ROM
- – Press F3–Esc3 to exit smit menu
- – Enter: smit easy_install_bundle
  and select: INPUT device/directory for software: [/dev/cd0]
- – Select the bundle to install:
  AIX_4.3.2_ESTRELLA
- – Follow the instructions given on the screen
- – When the procedure is completed exit smit (F10–Esc0)

3. **Reboot the System:**

```
# shutdown –Fr
```

4th Phase for Estrella 700 only: installation of the AIX PTFs

Note: Perform this operation on Estrella 700 only. The "AIX 4.3.2 Updates" CD-ROM does not apply to Estrella 200 and 300.

Note: To install the fileset **X11.loc.ZH_CN.base.rte 4.3.2.1** it is necessary to install the fileset **X11.fnt.ucs.ttf_CN 4.3.2.0** which is on the CD-ROM Volume 3 of AIX 4.3.2.

Follow this procedure:

1. Insert the "AIX 4.3.2 Updates" CD-ROM and enter:

   ```
   smit update_all
   ```

   Make sure to select the following options ("no" commitment is mandatory):

   ```
   INPUT device/directory for software:    [/dev/cd0]
   COMMIT software updates                 no
   ```

2. When this operation is completed de-install the `bos.rte.tty` fileset; enter:

   ```
   smit maintain_software
   ```

   Select:

   ```
   Reject Applied Software Updates
   ```

   Select these options:

   ```
   SOFTWARE name              [bos.rte.tty]
   REJECT dependant software        yes
   ```

3. Get the following PTFs from the *www–opensup.bull.com* Bull server (or contact your Bull representative):

   - U461248 bos.atm.atmle
   - U461454 bos.mp
   - U461208 bos.rte.tty
   - U461236 bos.up
   - U461423 dev.pci.14107c00.com

4. Install these PTFs on your system.

5th Phase: Reboot the System:

```
# shutdown –Fr
```

9.2 Install Bull Enhancement Packages

Note: To install **isdn_access** packages, you must stop synway; enter: `smit synway` then select `stop` in the menu.

Note: To install **bullx25** packages make sure that no application is running using `/usr/sbin/dat_x25` or `/etc/datx25tcpd`.

1. Insert the Bull Enhancement 2.25 CD-ROM.

2. According to your Estrella system (200/300 or 700) apply one of the following procedures:

   On Estrella 200/300:

   ```
   # smit install_all
   ```

   Make sure to select the following options:

   ```
   INPUT device/directory for software:    [/dev/cd0]
   SOFTWARE to install                     [all]
   AUTOMATICALLY install requisite software?      no
   OVERWRITE same or newer versions?       yes

   # smit update_all

   INPUT device/directory for software:    [/dev/cd0]
   ```

On Estrella 700:

```
# smit install_latest
```

Make sure to select the following options:

```
INPUT device/directory for software:    [/dev/cd0]
SOFTWARE to install                     [all_latest]
```

3. **Reboot the system:**

```
# shutdown -Fr
```

<u>Note for the PCI FDDI Adapters</u>

The **devices.pci.48110040** package present on the Bull Enhancement CD-ROM is dedicated to the PCI FDDI adapters that are marked with the label B5-3, B5-4, or B5-5. If your system has a PCI FFDI adapter without one of these labels, you have to load the **devices.pci.48110040** package from a separate media delivered with the adapter.

Consequently, if you have PCI FDDI adapters without the label B5-3, B5-4, or B5-5, the **devices.pci.48110040** package has been wrongly installed during the installation of the Bull Enhancement CD-ROM. You must:

- De-install the package:

  enter `smit remove` and select:

  ```
  SOFTWARE Name    [devices.pci.48110040]
  PREVIEW only?    no
  ```

- Install the package from the FDDI media as described in the special notes on page 2-7.

9.3 Install Bonus Pack Packages

Using SMIT you can install the packages that you need from the Bonus Pack CD-ROM.

Remark:

If the **/etc/tftpaccess.ctl** file was not used, the installation of the **netstation** package adds the following lines in the **/etc/tftpaccess.ctl** file:

```
allow:/usr/netstation
allow:/usr/netstation/configs
allow:/usr/netstation/mods
allow:/usr/netstation/fonts/pcf/100dpi
allow:/usr/netstation/fonts/pcf/dw100dpi
allow:/usr/netstation/fonts/pcf/misc
allow:/usr/netstation/fonts/pcf/ns3270
allow:/usr/netstation/fonts/pcf/java
```

This allows to load the netstation package through tftp without login authorization, but preventing access to all the other files of the system.

Restrictions:

- The IPX/SPX Backward Compatibility Package **ipx.rte** contains older level IPX/SPX protocol suite. This package is included in AIX Version 4.3 to handle the rare case when an existing IPX/SPX application is not binary compatible with AIX Version 4.3 IPX/SPX (**ipx.base** package). The **ipx.rte** package cannot be installed on a system that has **ipx.base** installed.

- It is not possible to install the **UMS.info.en_US.user_gd** since the **bos.info.*** prerequesites are no more delivered with AIX 4.3.2.

9.4 Install SNA Packages and PTFs

Using SMIT you can install the packages that you need from the SNA CD-ROM.

When the packages installation is performed you need to install the PTFs that are present on the SNA CD-ROM. Leave the SNA CD-ROM in the drive and proceed as follows:

```
# mount -rv cdrfs /dev/cd0 /mnt

# cd /mnt/PTF

# smit update_all

INPUT device/directory for software: .

# umount /mnt
```

9.5 Install OSI Packages

The Bull OSI COM 2.3.6 CD-ROM contains the Bull Communications packages. To install the OSI packages please refer to the OSI SRBs which are available on the CD-ROM.

Note: A failure message may be displayed during the installation of the OSI CD-ROM, if the **ROSE** and **XAP** products are missing. ROSE and XAP are optionnal products delivered on 2 separate CD-ROMs. If you don't use ROSE and XAP, do not take care of the messages related to the **osi_api.rose.adt** and **xap_api.adt** filesets.

In addition, you must install OSI PTFs from the Bull Enhancement 2.25 CD-ROM. Insert this CD-ROM and run the following commands:

```
# mount -rv cdrfs /dev/cd0 /mnt

# cd /mnt/PTF

# smit update_all

INPUT device/directory for software: .
SOFTWARE to update?            _update_all

# cd

# umount /mnt
```

9.6 Install Additional Products from Other Media

- **Hypertext Information Base Library CD-ROM**
  Refer to the procedure described in the corresponding CD–ROM booklet.

- **Netscape SuiteSpot**
  You cannot install it using SMIT or install_assist. Refer to the associated documentation.

9.7 Continue the AIX Installation

- The **install_assist** function does not set the time. If you use the **install_assist** function, you have to set the time with the `time` command.

- Install the **X11** package, especially if you intend to use **NetBackup** graphic management.

- Install **AIX Server number of licensed users**.

  Run the following command: `# smit chlicense`. It specifies the maximum number of fixed licenses to which you are entitled on the system. This will be taken into account at next reboot.

- Install the products related **iFOR/LS licences** when required. Follow the procedure provided with the licence diskette.

- **Set the Time Zone**

  The Time Zone variable is not set correctly for changes between summer and winter time in Europe. To correct it, set TZ using `smit chtz` and set, for example for France:

  ```
  Time Zone [MET-01:00:00EET-02:00:00,M3.5.0/02:00:00,M10.5.0/03:00:00]
  ```

  `M3.5.0/02:00` means "change time on last Sunday of March at 02h00" (day 0 of 5th week of 3rd month).

  `M10.5.0/03:00` means "change time on last Sunday of October at 03h00" (day 0 of 5th week of 10th month).

9.8 Installing a Graphic Display

Refer to `/usr/lpp/X11/README.MGA.Bull` file to use your PCI High–Resolution Graphics adapter with more than 8 bits per pixel.

Estrella 700: Configuration rules

– If one board GXT110P: GXT110P in Slot 1

– If one board GXT110P + one board GXT255P: GXT110P in Slot 1, GXT255P in Slot 2

– If one board GXT255P: GXT255P in Slot 2

– If a second board GXT255P: the second GXT255P in Slot 1

All Estrella Series:

An additional PCI graphics board may be plugged in your system.

– Choose a display type to select a set of possible resolution:

```
smit devices
-> Graphic Displays
-> Select the Display Type
```

– Configure the correct resolution and refresh rate:

```
smit devices
-> Graphic Displays
-> Select the Display Resolution and Refresh Rate
```

Choose the parameters in the following table:

Serie	Display	Display Type	640 x480	800 x600	1024 x768	1280 x1024	1600 x1280	Board
200	DMUG012	PanaSync_5A	60	60	75			Mother Board
200	DMUG013	PanaSync_5A	60	60	75	60 *		Mother Board
200	DMUG014	PanaSync_5A	60	60	75	60 *		Mother Board
200	DMUG012	IBM_15V	75	75	75			GTFG037
200	DMUG012	IBM_15V	75	75	75			GTFG037
200	DMUG014	POWER display 20	75	75	75	75	60	GTFG037
300	DMUG012	LM15FST	60	60	75			PCI SVGA Graphics Cirrus
300	DMUG013	LM17FST	60	60	75	60		PCI SVGA Graphics Cirrus
300	DMUG014	PanaSync_5A	60	60	75	75		PCI SVGA Graphics Cirrus
300	DMUG012	LM_15FST	60		75			GTFG043
300	DMUG013	LM_17FST			75	60		GTFG043
300	DMUG014	Panasync_5A			75	75	60	GTFG043
700	DMUG012	IBM_15V	75	75	75			GTFG041/042
700	DMUG013	POWER display 17	75	75	75	60		GTFG041/042
700	DMUG014	POWER display 20	75	75	75	75	60	GTFG041/042
700	DMUG014	Standard	**	**	**	**	**	GTFG041/042

Notes:

* 2 MByte DRAM needed.

** Plug & Play: Automatically choosen: VESA DDC1/2B compliant.

Estrella Series 200 only:

- When one or several PCI graphics boards are plugged, you can have difficulties to continue to use the planar graphics subsystem (the Cirrus controller): refer to `/usr/lpp/X11/README`.

- If 3 PCI graphics boards are plugged, the planar graphics subsystem must not be used in the same time.
  Modify the file `/usr/lpp/X11/defaults/xserverrc` in setting the variable `EXTENSIONS` with the standard AIX Server `–P gga<n>` flags for each graphic adapter.

  See the X Server start–up flags for more information about the –P gga<n> flag.

- It is not possible to test the graphics controller on the mother board (cvga0) by PPC1–Diag (VGA543X) if a PCI graphics adapter is plugged in.

  As soon as the PCI adapter has been unplugged, PPC1–Diag runs fine.

- There is no possibility under `PPC1.bug` to detect the available graphic RAM. When you configure the resolution display 1280x1024 60Hz, you must use **xdpyinfo** to know the exact graphic configuration.

10. Install Additional Device Software

If you want to install an add-on device ordered separately, you need to perform the following operation:

- **Insert the Bull Enhancement 2.25 CD-ROM**

Note: You must use a Bull Enhancement CD-ROM release **2.25 or later** to install additional software on AIX 4.3.2. (For example do not use release 2.23 on AIX 4.3.2).

- Run these commands:

```
# smit update_all

INPUT device/directory for software:      [/dev/cd0]

# smit cfgmgr
```

- **If necessary reboot the System:**

```
# shutdown –Fr
```

The list of the installed packages is given by: `# lslpp –L`

11. Migration from AIX 4.1.x or 4.2.x to AIX 4.3.2

The migration of AIX 4.1.x or 4.2.x to AIX 4.3 is a complex operation, subject to frequent updates. This is the reason why the present SRB does not provide the migration procedure.

In order to have the complete and up-to-date migration procedure, please contact your Bull representative.

Note: Do not install IBM AIX PTF (Uxxxx) on Estrella 200 and Estrella 300 systems without the formal agreement of your Bull representative.

PART 2. Special Notes Concerning Packages

This part of the SRB gives special notes related to some software pakages such as:

- Special installation procedures
- Special requirements
- Restrictions and limitations.

Only the packages for which a special note is necessary, are described. The packages are listed by alphabetical order, and not by function.

1. ArrayGUIde, DiskArray, DasEmail – *(DAS Storage Systems)*

1.1 Functions

Note: For **ATF** (Application-Transparent Failover) software operations refer to the ATF SRB (reference 86 A2 70WF).

The **DiskArray** package supports the DAS 3500, DAS 3200, DAS 2900. It contains:

– **basic software** to support the subsystem
– **dassmgr** software to monitor the DAS
– **flare95602_das2900.bin**: LIC firmware for the DAS 2900
– **flare95602_das3200.bin**: LIC firmware for the DAS 3200
– **flare94602_das3500.bin**: LIC firmware for the DAS 3500
– **shell scripts** for reconfiguration at system level.

There are two possibilities for monitoring the DAS 3500, DAS 3200, DAS 2900 Models:

1. **dassmgr** which can run on any system console. You need to connect the RS232 interface of one SP to your system. **dassmgr** is automatically installed with the DiskArray lpp, but you do not need to configure it if you choose to monitor the DAS with ArrayGUIde.

2. **ArrayGUIde** which can only run on Graphical terminals. The Graphical terminal does not need to be directly connected to the system. You do not need to install ArrayGUIde if you choose to monitor the DAS with dassmgr.

1.2 Requirements and Compatibility

- **ArrayGUIde** requires the minimum flare Firmware versions to be previously installed: 8.55 (DAS 2900 and 3200) or 9.45 (DAS 3500).

- **ArrayGUIde** requires ATF release 2.1.7 if this software is installed on the system.

- **DasEmail** requires ArrayGUIde 1.6.3.2 minimum.

- **dassmgr** and **ArrayGUIde** can both be installed, but they must not run simultaneously.

    – Before using ArrayGUIde, you must close all the dassmgr windows.
    – Before using dassmgr, you must stop the CLARiiON agent by the command:
      `/etc/clariion-server stop`

- **dassmgr** and **ArrayGUIde** must both be installed before to install **Navisphere**.

1.3 Installing DiskArray, ArrayGUIde, and DasEmail Softwares

1.3.1 Before you begin your installation

If you want to install both ArrayGUIde and ATF softwares, you have to install ArrayGUIde first.

If ATF software is already installed, and if you want to change the version of DiskArray, you should:

- de–install ATF
- update DiskArray
- re–install ATF.

If ATF is already installed, and if you want to change the version of ArrayGUIde:

- de–install ATF
- update ArrayGUIde
- re–install ATF.

1.3.2 Installation

1. Start by installing or updating the lpps **DiskArray, ArrayGUIde, DasEmail**:

   ```
   # smit install_latest
   ```

   Execute the procedure described in the "Configuring and Managing a DAS" manual.

2. If your DAS subsystem does not yet have the latest **LIC Firmware 9.xx** release installed, you must download it. Refer to the DAS documentation.

   It is mandatory to disable cache and to verify there are no dirty pages before installing a new version of flare Firmware.

   After downloading a new version of flare Firmware, you should update the PROM code.

1.3.3 Notes After Installation

- If for any reason you need to disconnect the Y SCSI cable from your system, do not forget to reinstall the terminators on the adapter board, or your system will not reboot.

- In a random I/O application with Raid5, it is recommended to configure 8 MB in Write Cache for better performance.

- We recommend that you reboot the host after successfully binding the DAS disks.

- LUN **Auto-assign** parameter — The storage-system Auto-assign value for each LUN must be **disabled**. You can use your storage system manager to make sure that each LUN has its Auto-assign option disabled.

- ArrayGUIde implements a configuration editor to edit and create a configuration file (type the edit_cfg command).

- Do not leave dassmgr running if you do not need it, **because it is CPU consuming.**

1.4 DiskArray Restrictions and Limitations

- Do not add any LUN in **rootvg** .

- **Changing the console baud rate** menu must not be used: only the default baud rate (9600 bauds) is valid.

- The file systems that were working during an SP failure, need a complete **fsck**. Sometimes disks will be rebuilt; in this case, it is necessary to wait for the end of the rebuilding process before running **fsck**.

- "**Read Cache Statistics**" are updated only when "Write Cache" is enabled. They are not updated when only "Read Cache" is enabled.

1.5 ArrayGUIde Restrictions and Limitations

- The ArrayGUIde agent is not automatically launched at reboot.

- The mail notification is operational only if arraymgr is working.

- A remote user cannot modify the DAS configuration.

- If a "busy" error is displayed when you try to de-configure an AIX hdisk or to create a volume group, you should stop both the arraymgr and the agent before the de-configuration operation.

- When you use ATF, and if there is a failover, the ArrayGUIde agent stops until the failure is repaired.

- Changing LUN parameters can only be done for LUNs seen by the system.

1.6 DiskArray Warning

- The capacity of a disk drive bound as a hot spare must not be lower than the disk it might replace.

- If there are outstanding writes when the SP owner is changed, a background verify automatically starts.

- If an `UNDETERMINED ERROR` is reported on a SCSI adapter, check that:
  - the SCSI cabling is correct,
  - each SCSI bus connector is firmly latched in place,
  - each SCSI–bus is terminated with the proper differential terminator.

- Before upgrading a **DAS 2900** flare firmware, you should:
  - make a backup of your data,
  - unbind your RAID3 LUN,
  - upgrade the flare,
  - bind your RAID3 LUN,
  - restore your data.

- **Documentation Erratum:** "Using DASSMGR" (86 A2 56JX)

  The designations *Physical Disk Unit* and *Physical Unit* that are displayed in the screens of the "*Using DASSMGR to Configure and Manage a DAS*" manual (86 A2 56JX) have to be replaced respectively by *Logical Disk Unit* and *Logical Unit*.

1.7 ArrayGUIde Warning

- At least **one Logical Disk Unit** must be configured to enable ArrayGUIde to access DAS. Use `dassmgr` and an asynchronous port to create the first Logical Disk Unit.

- If you use ATF and ArrayGUIde, you must use `sp` objects in the ArrayGUIde configuration file instead of `hdisks` as devices to access the DAS Subsystem.

- ArrayGUIde and dassmgr differently display the **disk capacities**:

  ArrayGUIde displays *available disk capacities,* whereas dassmgr displays *raw disk capacities.*

2. asrx – *(Automatic Site behavior Reporter for uniX)*

ASRX (Automatic Site behavior Reporter for uniX) is a software tool that provides metrics on the dependability of Unix machines.

2.1 Installation

The package **BX11.Dt** is mandatory for all machines with a Graphic system console.

The package **bos.sysmgt.serv_aid** (errpt command) is mandatory at installation (prerequisite).

If 'WatchWare' is installed, ASRX is automatically installed, configured, and started.

2.2 Restrictions and Limitations

In order to record the cause of a system stop, an ASRX menu appears after a reboot. This menu waits 15 minutes for an answer.

The processor number given in the reports has no relationship with its logical or physical number; it is definitely not the slot number in which they are plugged.

Only one "`asrx_rpt`" command must be used at the same time, otherwise unpredictable results may be produced.

PSDs may be lost (not sent) if RSF dial–out is disabled.

asrx_rpt must be used with LANG set to "En_US" or "en_US".

3. Bulldisk, Bulldisk_diag – *(Disks)*

These packages provide software for Bull disks Differential and Single Ended Fast/Wide, and Ultra/Wide. This software allows to use the functions of the AIX Diagnostics Subsystem for Bull disks:

- Disk diagnostics

- From the Tasks and Service Aids diagnostics functions, access to format and certify commands, and to disk error log report analysis.

Restrictions and Limitations

- For all STxxx disks (in the upper table), the **diag** command format is aborted after some time; run again the same command to format disk properly.

- The **mkvg** command, after formatting STxxx disks, gives an error like: `bad pvid....`

  Use the **chdev** command to give a new pvid:

  `# chdev –l hdiskX –a pv=yes`

  and perform the **mkvg** command again.

- If you have already connected disks recognized as "`Other SCSI Disk Drives`", reboot the system after installing the Bulldisk package.

- The `lsdev` command prints a 4.3 GB capacity for disk drives model ST3437X. This value is a rounded value; the capacity usable under AIX is given by the `lspv` command.

4. devices.pci.11100200 & devices.pci.0d111200 – *(PCI Ethernet 10/100 Mbps Adapters)*

Known Problems

It is not possible to use the adapter 76730263–001 (label **B5-M**) in a point-to-point connection (i.e. with a crossover table) to the Ethernet-on-board of a Estrella 300 platform at 100 Mbps: the adapter reports loss of signals that prevents correct operation. The behaviour is correct when both equipments (the 76730263–001 adapter and the ethernet-on-board of the Estrella 300) are connected to a 100 Mbps Ethernet hub (or switch).

5. devices.pci.48110040 – *(PCI FDDI Adapters)*

The **devices.pci.48110040** package provides software and diagnostic tests to connect FDDI Adapters Fibre Single Ring, UTP Single Ring and Fibre Dual Ring.

This package is present on the Bull Enhancement CD-ROM for the PCI FDDI adapters that are marked with the label B5-3, B5-4, or B5-5.

The PCI FFDI adapters without the label B5-3, B5-4, or B5-5 are delivered with a separate diskette or CD-ROM containing the package. You must install the **devices.pci.48110040** from this media and not from the Bull Enhancement CD-ROM.

5.1 Installation

1. Install the board.

2. You must install the `devices.common.IBM.fddi.rte` package:

   – Insert the AIX CD–ROM:
   – # smit devinst
   ```
   INPUT device / directory for software           [/dev/cd0]
   SOFTWARE to install           [devices.common.IBM.fddi.rte]
   PREVIEW only?                                    no
   Include corresponding LANGUAGE filesets?      yes
   ```

3. If your FDDI adapter is marked with the label B5-3, B5-4, or B5-5, insert the Bull Enhancement CD-ROM.

   If your FDDI adapter has not the label B5-3, B5-4, or B5-5, insert the diskette or CD-ROM containing the **devices.pci.48110040** package.

4. Type: `# smit devinst`

   ```
   INPUT device / directory for software   [/dev/cd0] (for CD-ROM)
                                      or  [/dev/fd0] (for diskette)
   SOFTWARE to install                 [devices.pci.48110040]
   PREVIEW only?                                    no
   Include corresponding LANGUAGE filesets?      yes
   ```

5. In the case of a first installation of the package, reboot is not necessary. (The software has been installed and configured at the same time.)

   In the case of a software update, reboot the system.

5.2 Restrictions

Boot from a FDDI adapter is not supported.

6. devices.pci.441000a4 – *(SCSI RAID PCI Adapter)*

This package provides the software to support the SCSI RAID (Redundant Array of Inexpensive Disks) PCI adapter. It includes the board driver and the DPT storage manager for the configuration and the management of RAID volumes.

Refer to the "SCSI RAID Adapter, Installation & Configuration Guide" (Ref: 86 A1 44HX), for more information.

6.1 Restrictions and Limitations

- If the Storage manager, during a "Set System Configuration" displays the message `ODM could not be updated`, please reboot to complete the operation.

- Using the Storage Manager program, the click on the buttons of the mouse function becomes ineffective if **num_lock** mode is set.

- After software installation (either the first time, or with a PTF), the firmware of the board is automatically updated, if necessary, at next reboot time.

- The first boot after first installation may lead to duplicate disk definitions in ODM bases: you may find a set of disks in `defined` state. No functional issues. Just delete these objects with `rmdev -dl hdisk<x>` command to clean up the bases.

- Do not use direct AIX commands or smit menus to manage disks in RAID Array (**rmdev**, **mkdev**, etc...). These actions are safely performed through the Storage Manager program.

- To launch the Storage Manager program in curses mode, change to **/usr/lpp/dpt** directory, then issue the **dptmgrac** command for the curses version, and **dptmgram** command for the graphical Motif version.

- If newly created RAID volumes are not seen after RAID building, update the ODM objects with the **cfgmgr** command.

6.2 Storage Manager on Graphical Motif Mode

When using the Motif program, the Num Lock key must be unlocked. There is incompatibility between this key and mouse button operations.

6.3 Device Write Caching Configuration

The Write Through mode is the default mode supported on all the drives. It is the only mode supported on the disk drives with rootvg. The Write Cache mode must be selected on physical drives before the creation of RAID arrays.

6.4 Operations on RAID Arrays

Before inserting, modifying or deleting a drive in an array, check that the drive is not AIX active and not used (varyoffvg).

Operations on arrays using the Storage Manager must be considered as low–level hardware modification of the disk configuration, at the same level as disk formatting operations.

6.5 Errlog from SCSI RAID Adapter

Sometimes the errors logged by the SCSI RAID adapter are incorrectly time–stamped in the ASCII formatted message. Prefer the Errlog head date which is accurate.

The Error Recovery Procedure results in the logging of some SRA (SCSI RAID Adapter) name errors but these have no impact on data operations.

7. kermit – *(File Transfer)*

The Kermit File Transfer program moves files between machines having different operating systems and architectures.

7.1 kermit with the VIP3X Package

For file transfer between PC and AIX systems, the following environment is suggested:

- PC emulator configured as VIP7800
- File Transfer Configuration as [7 bit Kermit...]
- Port configured for 7bits

In order to run the "file transfer" functions, the PC must become an AIX system terminal. Then, the user must run kermit on the AIX system: refer to the *Kermit User's Guide.*

7.2 kermit with the VIP5 Package

For file transfers between PC and Escala systems, the following environment is suggested:

- PC emulator configured as VIP7800
- File Transfer Configuration as [UNIX]
- Line configured for 7bits

Note: In order to avoid problems, it is advisable to use the complete pathname instead of using only the filename. It is advisable to exchange one binary file only, between Host and PC during a kermit session.

7.3 Restrictions and Limitations

When you use kermit connections – except on 16 port board –, you cannot use "–s" or "–r" option.

If you want to transfer files, you must use interactive commands send and receive on the kermit prompt.

If you have problems with `set line /dev/tty1` or `cu –l /dev/tty1`, reconfigure the STTY attributes:

```
# smit chgtty
Select STTY attributes for RUN time:
add clocal, and suppress hupcl
```

8. Itcprint – *(BQ350 Printing Support)*

Itcprint is the package used by BQ350 remote printers.

BQ350 configuration parameters must be chosen according to your own printer type, and network environment.
If incorrect values are specified, unpredictable print request processing might occur (such as undetected spool level printer problems).

Please refer to the *Terminals and Printers Configuration Guide* (86 A1 22 WE)

Restrictions and Limitations

If there are 2 Ethernet boards on your machine, and if LTC print queues are configured with:

```
TCP connection queuing supported: yes
```

then problems might occur with static routes.

In such a case, you simply have to add static routes to explicitly specify the printer address and the gateway to use.

9. PRTE42, PRTBull_mcode – *(Printers Management)*

These packages are used for Bull printers management. PRTE42 is for AIX 4.2 and higher, PRTBull_mcode is to upgrade microcode printers.

For more information refer to *Terminals and Printers Installation and Configuration Guide* (86 A1 22WE)

9.1 List of the Supported Printers

The following table lists the supported printers.

Type	Emulation	RS232C	RS422A	Centro	Notes
Compuprint 200	HP–Deskjet+	–	–	Yes	–
Compuprint 300	HPPCL3 Deskjet+	–	–	Yes	b
Compuprint 415	HPPCL5, PostScript	Yes	Yes	Yes	a
Compuprint 914N	Epson, IBM Proprinter	Yes	–	Yes	–
Compuprint 925	Epson, IBM Proprinter	Yes	–	Yes	–
Compuprint 925N	Epson, IBM Proprinter	Yes	–	Yes	–
Compuprint 956	Epson, IBM Proprinter	Yes	Yes	Yes	–
Compuprint 1225	HPPCL5, PostScript Lev2	Yes	Yes	Yes	–
Compuprint 1645e	HPPCL5, PostScript Lev2	Yes	Yes	Yes	–
SIGNUM 2043	Epson, IBM Proprinter	Yes	Yes	Yes	–
SIGNUM 2048	Epson, IBM Proprinter	Yes	Yes	Yes	–
BULL PR800	Serial Matrix	Yes	–	Yes	–
BULL PR800–vfu	P.Series	Yes	–	Yes	–
BULL PR900	Serial Matrix	Yes	–	Yes	–
BULL PR900–vfu	P.Series	Yes	–	Yes	–
BULL PR701 / 702	Serial Matrix	Yes	–	Yes	c
BULL PR801 / 802	Serial Matrix	Yes	–	Yes	c
BULL PR901 / 902	Serial Matrix	Yes	–	Yes	c
BULL PR701–vfu BULL PR702–vfu	P.Series	Yes	–	Yes	c
BULL PR801–vfu BULL PR802–vfu	P.Series	Yes	–	Yes	c
BULL PR901–vfu BULL PR902–vfu	P.Series	Yes	–	Yes	c

Legend for the table (Notes)

a   To use these printers with the RS422 interface, a special cable must be used. Its reference is CBLG023–1800.

b   No available cable for the serial link.

c   No available cable for the RS422 link

9.2 Installing a Compuprint 2043, 2048, 914, 925 or 956

The **Proprinter IBM emulation (asc)** requires the prior installation of the package `printers.ibm4207-2.rte`.

9.3 In Case of Installation problems

In case of problems with printer management after a system upgrade, or *if you did not follow the procedure previously described*, proceed as follows:

- Remove *printer queues and devices:*

  ```
  # smit lprint
  ```

- Remove *Bull printer package* `PRTE*`:

  ```
  # smit install_remove
  ```

  or the command:

  ```
  # installp -u PRTE*
  ```

- Remove all *AIX printer packages:* `printers*` and `bos.rte.printers`:

  ```
  # installp -u printers*
  ```

  ```
  # installp -u bos.rte.printers
  ```

- From AIX CD–ROM, re–install *AIX printer packages*:

  ```
  # smit printerinst
  ```

- Install `bos.rte.printers` from AIX CD–ROM:

  ```
  # smit install_latest
  ```

- Install *Bull printer package* `PRTE` from Bull Enhancement CD-ROM:

  ```
  # smit install_latest
  ```

- Re–configure *printer queues* and *devices:*

  ```
  # smit lprint
  ```

9.4 Restrictions and Limitations

Mode limitations:
- PM200 does not work with the 12–pitch (–p12) option.

Other limitations:
- No message is delivered before printing a job if the printer is powered off.

- PostScript emulation: the –w flag cannot be changed.

- Commands used in **printer filters** scripts do not take into account NLS environment variables such as `LOCPATH`, `NLSPATH` for security reasons. Default values are used. For example, the `iconv` command does not use `LOCPATH` but `/usr/lib/nls/loc` to access converter files.

10. psx25 – *(Power Stream X.25)*

The **psx25** packages allow the use of the 1 port synchronous communication adapter and of the 4 port synchronous communication adapter with the OSI stack & Bull MAX3 proprietary API Application Programming Interface, TCP/IP, XTI & XX25 or SNA/QLLC

psx25.hdlc	HDLC on Common Serial I/O Interface
psx25.ipx25	TCP/IP on x25p lines
psx25.x25	Power Stream X.25
psx25.adm	Power Stream X.25 – SNMP Agent
psx25.wsm	Power Stream X.25 – Web SM

The X.25 Documentation is delivered on the documentation CD–ROM, but it can also be ordered as a paper book: *Power Stream X.25 Installation & Service Guide (86 A2 95AT)*

10.1 Installation

1. **Insert the Bull Enhancement CD-ROM:**

   ```
   smit install_selectable_all
   INPUT device / directory for software: [/dev/cd0]
   ```

   Select all

   ```
   AUTOMATICALLY install requisite software?       no
   OVERWRITE same or newer versions?       yes
   ```

2. **If you use XTI/XX25 on Multi–protocol Serial I/O adapters:**

   if the bullx25 product is already installed on your system, change the default XX25 path:

   – for bullx25: `#xtiselectx25 bullx25`
   – for psx25: `#xtiselectx25 psx25`

3. **Reboot the system.**

10.2 License key management (IFOR/LS)

psx25 uses the iFOR/LS encrypted license keys. (Key type nodelock only.) The following iFOR/LS keys are supported by the product:

– OSI–MP bundle (unlock a single X.25 line)
– 1 line
– 2 to 4 lines (1 line or OSI–MP bundle must also be installed)
– 5 to 8 lines (2 to 4 lines key must also be installed)
– 9 to 32 lines (5 to 8 lines key must also be installed)
– More than 32 lines.

The key is checked at run time only. The installation can be done without the presence of the key. If the key becomes wrong during exploitation:

– An error is logged and can be seen using the errpt command.
– The X.25 links are disconnected and connections already established are broken.

To know the status of the key, run the command:

```
x25pstatus –n
```

10.3 Restrictions and Limitations

- For an X.25 line, if a PVC is attached to the OSI stack it is possible to configure it in an IP/x25p Host Entry, but the PVC cannot work with TCP/IP. Only one stack over X25 (or application using X25) can use a configured PVC of an X.25 line.

- The NLS messages are only printed when environment variable LANG=`en_US`

11. rsf – *(Remote Services Facilities)*

RSF, which stands for *Remote Services Facilities*, is a software package dedicated to system monitoring and remote maintenance operations. It provides a link between the customer's system and a Bull Customer Service center.

RSF is delivered to customers who have an appropriate maintenance contract.

Note: The customer service will use the `uname -m` to print out a 12–digit number that will be used as a machine serial number.

11.1 Restrictions and Limitations

Be careful when you change the Configuration of the Remote Service Line. Do not modify TTY parameters (Service Line Speed and Remote Terminal Type).

Help on line under SMIT RSF is available only if the "`LANG`" environment variable is set to `En_US, en_US, it_IT, es_ES, Es-ES, fr_FR, de_DE, or De_DE`.

If you have installed all the packages of RSF and the snmpd daemon is not running, some warning may appear on the console.

Even in a cluster configuration, the "Send Test Message to Station" function is not possible when "Remote Service Support" flag is disable.

11.2 Installing RSF

If 'WatchWare' is installed, RSF (without **rsf.extended**) is automatically installed, configured, and started.

12. smw – *(WatchWare)*

WatchWare Server Monitor is a user–friendly supervision application that gives you a comprehensive insight of your system. Refer to the *WatchWare Server Monitor User's Guide* (reference 86 A2 62GX) for more information.

Restrictions and Limitations

- In **WatchWare Management**, if you redirect the System Console to get console messages, you may have problems at boot or shutdown phase, and also in using a LFT (Low Function Terminal). Read the Help page.

  Boot phase: the login prompt may be interlaced with the boot messages that are displayed late after the boot. Type the <Enter> or <Return> key several times to clear the display.

  Shutdown phase: the Halt Completed message does not appear when the machine is stopped.

- The **Local file System** page may be impossible to build if the nobody user is not able to launch the **df** command without an error message.

- In the **System Load** page, the number of processes may not appear if the **w –u** command returns an error (because the date was corrupted).

- In the **System Status** page, the given number of Processors (Nx PowerPC...) is the number of available processors, not the number of processor physically present on the machine.

- In the **System Status** page, the type of the processors is displayed as:

  Nx PowerPC XXX.

  Sometimes, the XXX info (e.g. 604, 604e, ...) is not present.

- In the **System Description** page, the Number of Disks information is the number of disks physically present on the machine, while the Total Disk Capacity is the total size of all available disks.

  This size is computed by dividing the total number of bytes by 1024*1024*1024: it is the real size.

- The **/var** file system must have a sufficient size. 10 MB of free space is a minimum.

- If you have a problem with CDE (*cde does not start*), run it in fail–safe mode.

- If **/tmp** is full, WatchWare cannot be run.

- If the Server Monitor Status is yellow and the Alarms Service is inoperative, you can use the **WatchWare Management** page in order to restart RSF.

- If the following message is displayed when installing WatchWare or when restarting RSF (in the case of the Server Monitor Status is yellow and the Alarms Service is inoperative):

  ```
  Fatal: Could not access source's action: over
  rsfd: Fatal: A fatal error was detected
  chrsf: Warning: Could not start daemon: rsfd
  ```

  Type the following commands under root autority:

  ```
  # addent –n over –t s null
  # chrsf –s
  ```

- If, when asking for a WatchWare page, you get a message like:

  ```
  Can't fork: too many processes
  ```

  check that the number of max processes for the user nobody is sufficient.

  When a Netscape Proxy or Enterprise Server is running, 40 is not enough.

13. srb.pack – *(SRB Management Tools)*

This package comprises the tools for the SRB management and is a prerequisite for all the **srb.<ProductName>** packages. It gives tools to manage the SRBs contained on various Bull Specific CD–ROMs.

Once this package has been installed, you have access to the following: `# smit SRB`

The following menu will be proposed:

- Load SRB from media

- Print installed SRB

- List installed SRB

- View installed SRB

Note: It is possible to view an SRB without the use of those tools, since SRB files are in the `/usr/share/man/mann` directory once they are installed, by using `vi` or `pg`.

Restrictions and Limitations

`Load SRB from media` runs only on AIX 4.1. On AIX 4.3.2 load it by the smit command:

    # smit install_selectable_all

Choose the desired srb package (all srb package names begin with 'srb').

All other menus of srb pack are then available.

`LANG=en_US` must be set before calling `Read SRB`.

14. xr_host – *(XRemote Host)*

The lpp **xr_host** contains the Xremote utility from NCD. Xremote allows the X11 protocol to be used efficiently over a serial link. Thus a PC running PC Xware can be used as a Graphic Console for an Escala machine without having to purchase a dedicated graphic adapter and screen.

Xremote is an NCD proprietary protocol supported by NCD. Please refer to your usual NCD support contact if you have any problem using this product. Updates and more information are available via the NCD FTP server, at

```
ftp://ftp.ncd.com/
```

PC Xware must be ordered separately.

14.1 Installation

xr_host is installed from the Bull Enhancement CD-ROM. X11.apps and X11.motif filesets are requested.

After installation, type `xterm.` If not found, enter:

```
rm –r /usr/bin/X11

ln –s /usr/lpp/X11/bin /usr/bin/X11
```

The path of the command **xinitremote** is **/usr/lpp/X11/bin/ncd/bin**

For installation with an X Terminal manager refer to *Installing the X Terminals* on page 3-4.

14.2 Restrictions and Limitations

• If you are logged under AIX via the serial line of your PC using PC–Xware, to start a graphic console, enter:

```
cd /usr/lpp/X11/bin/ncd/bin
PATH=$PATH:.
xinitremote
```

• Between 2 `xinitremote`, you must exit and login again.

PART 3. Miscellaneous

1. AIX Restrictions and Limitations

Estrella all series:

- **LFT terminals:** "Low Function Terminal" are not intended to support all of the features of other ascii terminals, in particular the "**tput bold**" function is not supported.

- **telnetd：** Do not use the **–a** option (performance) in `inetd.conf` file.

- **smit minarg** requires that disks be already included in the Volume group in order to be used.

- **shutdown:** after a `# shutdown –m` (mono–user), execute `# shutdown –Fr` to restart all the processes.

- When you run **netls_config** with the variable LANG=fr_FR: for a message of the form "`question (Y/N)`" you must reply "`O`" for "Y" and "`N`" for "N".

- The **lex** command incorrectly manages `LANG=fr_FR`. Use `LANG=C` instead

- The **svmon** command does not return the right number of free frames.

- **aixterm** has not been enhanced to support locale thai or vietnamese, or any of the new UTF-8 locales added in AIX 4.3.2. Please use **dtterm** for these locales.

Estrella series 200 only:

- The dump on tape with block_size = 0 is not possible.

- With the graphics controller on the mother board (`cvga0`), do not change the default values for the monitor type (Display type): `PanaSync_5A` using the command `smit g_display`

2. Suggestions and Recommendations

Estrella all series:

- The **default login method** is `dtlogin`. If you log in using xdm to invoke the X Display Manager, the PATH variable is changed. As a result, some SMIT commands will not work. To prevent this problem add the following lines to your `$HOME/.profile`:

```
PATH=$PATH:/usr/sbin
export PATH
```

- When a **tty line** is opened you can update only the `Enable LOGIN` and `TERMINAL type` line attributes with the `smit chgtty command`

  If you try to change other attributes when the line is opened, you get the following error:

```
Method error (/etc/methods/chgtty):
0514–062 Cannot perform the requested function because
888–409–092 the specified device is busy.
```

  To change the other attributes proceed as follows:

  – check if the tty<x> is already in use,
  – if the **getty** program alone is running enter:
```
# pdisable tty<x>
# smit chgtty
# penable tty<x>
```
    (where <x> is the number of your line.)

- **make** command: All AIX commands must have their options set before the arguments; so, for the make command use the syntax: `make –f <makefile> <target>`

  The syntax `make <target> –f <makefile>` accepted by most UNIX systems is not accepted by AIX 4.x.

- The **root** user account can be locked (by the root user) using: `# smit lockuser` but cannot be unlocked because root cannot log in anymore!

  In such a situation, you need to:

  – boot in SERVICE mode from a bootable media (CD–ROM, system backup...),
  – access **rootvg** from maintenance shell,
  – edit `/etc/security/user`
  – for `root`, change: stanza `account_locked = true`
    to: `account_locked = false`

- **setmaps –t** (or **–i**, **–o**) cannot be run by non–root users to load map files.
  As a workaround use:

  `# chown root /usr/bin/setmaps`

  `# chmod u+s /usr/bin/setmaps`

- **If you do not have a Graphic Adapter**, you will get an error label GRAPHICS recorded in the error log at each system reboot.

  To avoid it, you can remove the fileset devices.graphics.com using:

  `# chmod –x /usr/lib/methods/startlft`

- In order to improve the performance of products using **iFOR/LS** (Fortran compiler, C compiler, Bull OSI communications) we strongly advise you to configure iFOR/LS with:

  – `/usr/lib/netls/conf/auto_config` (if only nodelocked keys are used)

  or:

  – `/usr/lib/netls/conf/netls_config` (if concurrent keys are used).

- During some update or migration operations, the **nodelock** file containing the licenses is renamed **nodelock.V2**. To recover the licenses already installed, it is necessary to copy the **/usr/lib/netls/conf/nodelock.V2** in **/usr/lib/netls/conf/nodelock**.

- Before a **tcopy** command is performed, check that both tapes are configured with the same block size values.

  The default "block size" for tape is different on Escala or DPX/20 (512) and Estrella (1024). On Estrella, when you use a tape created on Escala or DPX/20, make sure the block_size for the tape drives are identical.

Estrella series 300 only
- **OpenFirmware 1.2**

  To boot from DAT 4mm or QIC TDC4222, enter the following command at OpenFirmware command line prompt：

  `boot tape`

- If you get the following error: `ERROR "CANNOT OPEN DEBLOCKER PACKAGE"`, you must use the `boot tape` command under the OpenFirmware prompt (the operation takes about 15 minutes).

- **Reset button**

  By default, the Reset Button is used to reboot the System. If you want to start a dump with the Reset Button, and automatically reboot after, enter:

  ```
  sysdumpdev –k
  chdev –l sys0 –a autorestart=true
  ```

Estrella series 200 and 300 only:

- It is recommended to enable the option ″`Automatically REBOOT system after a crash`″. Proceed as follows:

  `# smit system`

  Select ″`Change/Show Characteristics of the Operating System`″

  Set the ″`Automatically REBOOT system after a crash`″ option to `TRUE`.

3. Localization

You can choose the language of the messages.

- When installing a software product using `smit install_latest` the messages associated to this product are installed according to the `MESSAGES` environment variable (in `/var/adm/ras/bosinst.data` file).

  For example, installing AIX Common Desktop Environment (CDE) fileset `X11.Dt.rte` will install `X11.msg.en_US.Dt.rte` if `MESSAGES=en_US`

- Suppose that the messages corresponding to the products already installed are in American (`en_US`), and you want those messages to be in French (`fr_FR`); proceed as follows:

  `# smit mlang`

  Select: `Additional Language Environment`, and enter:

  ```
  CULTURAL convention to install          fr_FR
  LANGUAGE translation to install         fr_FR
  INPUT device/directory for software     /dev/cd0
  ```

  This will install message filesets for all already installed products.

  Be careful: that means that both messages in American and in French can be displayed according to the `LANG` *variable of each user: if you do not change the* `LANG` *variable, messages will continue to be displayed in American.*

- Suppose you want messages in a particular language for some, not all, products (for example `X11.Dt` in French), proceed as follows:

  `# smit mlang`

  Select: `Change/Show Applications for a Language`
  Then select: `Add Language for Applications already Installed`, and enter:

  ```
  LANGUAGE translation to install         fr_FR
  INPUT device/directory for software     /dev/cd0
  Installed Application                   X11.Dt.rte
  ```

4. TFTP Method for Downloading Your X Manager File

TFTP method for downloading your X Manager file (Xncdhmx, Xncdxpl...) is not available from AIX 4.3.1 with Xterminal Manager 5.0.129.

A workaround is to:

1. Stop **inetd**: `stopsrc -s inetd`

2. Kill any **tftpd** processes which may be running

3. Update **tftpd** configuration in **/etc/inetd.conf**:

   replace:

   `tftp dgram udp wait nobody /usr/sbin/tftpd tftpd -n`

by:

```
tftp dgram udp6 SRC nobody /usr/sbin/tftpd tftpd -n
```

4. Restart **inetd**: `startsrc -s inetd`

---

5. X Manager File Name on a TX Explora

If the name of the X Manager file is erroneous in the local configuration of a TX Explora, with a PCMCIA board, it is impossible to reboot the terminal.

A workaround is to modify the file name on the PCMCIA board. Proceed as follows:

1. De-install the PCMCIA board and install it on another terminal of the same type.

2. From the console window click on **Terminals**, then **New Terminal**.

3. Select **File** and rename the Xmanager file with the correct name (use the **rename** command).

4. Re-install the PCMCIA board and reboot.

---

6. Installing the X Terminals.

- If the **UTSG006** X terminal manager is already installed, and if you want to add a **NCDWare** X terminal manager, version 4.1.141 or greater, enter this command at the end of the installation:

```
ln -s /usr/bin/X11/ncd_0/Xncd.3.2.1 \
      /home/ncd/<X Terminal Version>/hostside/AIX/Xncd.3.2.1
```

- If the **NCDWare** X terminal manager, version 4.1.141 or greater, is already installed, and if you want to add **UTSG006** X terminal manager, enter the following commands:

```
mv /usr/bin/X11/ncd /usr/bin/X11/ncd_0
ln -s ncd_0/Xncd.3.2.1 \
      /home/ncd/<X Terminal Version>/hostside/AIX/Xncd.3.2.1
ln -s /home/ncd/<X Terminal Version>/hostside/AIX/Xncd.3.2.1 \
      /usr/bin/X11/ncd
```

- If you have the **xr_host** package already installed, you have to enter the following command after the installation of the X terminal manager:

```
ln -s /usr/lpp/X11/bin/ncd_O/bin /usr/lpp/X11/bin/ncd/bin
```

- Set the **TERM** variable correctly:

```
chdev -l tty0 -a term=vt320
```

- If you choose the **DeskTop** session, no more operation is necessary. But if you choose the **XDM** session, perform the following:

  - edit the `/usr/lpp/X11/defaults/xinitrc` file,

  - put every line as comment, from line:

  ```
  Set the X server's keyboard
  ```

  till line:

  ```
  Start the X Clients.
  ```

- In some cases *(for example, loss of font server)*, you will have to reboot the X terminal after exiting from the X session.

7. Paging Space

The amount of **paging space** that a system needs is entirely dependent on the programs that are running on the system, not on the system's physical memory. You can start with the primary page space (hd6) equals to the size of physical memory plus 64MB and increase this amount until processes are no longer killed for lack of paging space.

To increase the size of a paging space, you must execute the command `# smit pgsp.` But if the size of the paging space proposed is greater than 512 Logical partitions, you must modify the `MAXIMUM NUMBER of LOGICAL PARTITIONS` parameter:

- `# smit chlv1`

- Give to LOGICAL VOLUME a name, for example: `hd6`

- In the menu `Change a Logical Volume`, change the `MAXIMUM NUMBER of LOGICAL PARTITIONS` parameter to `[1024]`

- Exit SMIT

- Then increase the size of a paging space by: `# smit pgsp`

To add a new paging space to your system, use the `# smit mkps` command to create the paging space in an existing volume group.

You may need to add more physical volumes to the volume group or add new volume groups to accommodate the new paging space.

8. Filesets Management

AIX 4.3.2 includes a new, optionally installable fileset, **bos.content_list**, that lists all installable files and the filesets/packages that contain them. The fileset includes one file, **/usr/lpp/bos/AIX_file_list**.

The **bos.rte.install** fileset now also ships the **/usr/sbin/which_fileset** command, which allows you to search the **/usr/lpp/bos/AIX_file_list** file after **bos.content_list** is installed.

9. Hypertext Library for AIX

The **Hypertext Library for AIX** is delivered on a CD-ROM, and comes with a set of tools called *Hypertext Library Utilities.* This set of tools contains a **Search** function allowing to search for information through the entire Library and a **Multi-Print** capability allowing to print several documents with a single click in the Search Results window.

It is not possible to use the AIX **docsearch** tool to search for information in the Hypertext Library for AIX.

11. TPAD/HPAD Documentation Erratum

The paper documentation *TPAD/HPAD Reference manual 86 A2 65 WE Rev 04, Appendix B*, is wrong concerning the TPAD Profile Parameters:

Instead use the softcopy documentation from the Hypertext Documentation CD-ROM, or the TPAD Interactive commands:

```
help parameter
help parameter <param-number>
```

PART 4. The Euro Character €

1. Generalities & Standards

1.1 What is the Euro character?

The Euro character € is a new symbol representing the Euro currency, the new single currency of the European Community.

The Euro currency is in application since 1/1/1999.

The introduction of a new currency symbol has far-reaching consequences. Software applications in all areas of finance and accounting are deeply affected.

The underlying operating systems must enable basic functions like typing, displaying, printing and exchanging, to support the new symbol.

1.2 Is it the only symbol for Euro currency?

No, there is also the acronym **cent** (.01 of Euro).

The **cent** will not be used as a symbol for editing.

1.3 What are the codifications of the Euro Character?

Different codifications exist for the Euro character:

- The "Currency" **ISO 4217** codification, which codes Euro in a chain of 3 characters (**EUR**).

- The **IBM–1252** codification which codes Euro on 8 bits (**hex 80**). (This is the codification implemented in Windows/NT systems).

- The **ISO 8859–15** codification which codes Euro on 8 bits (**hex a4**).

- The **Unicode** codification which codes Euro on 16 bits (**hex 20ac**).

- The **UTF–8** codification which codes Euro on 24 bits (**hex e282ac**). This codification can be mixed up amidst other 8–bit codifications. Estrella 200 and 300 do not support the UTF-8 codification.

- The **PC Code Page 858** codification which codes Euro on 8 bits (**hex d5**).

1.4 What is the ISO 4217 codification?

ISO 4217 Currency Codes:

This is a list of global currencies and their three–character ISO 4217 currency code. The ISO 4217 currency code is usually composed of the country's two–character ISO 3166 country code, plus a one–character currency designator. For example, the code for Belgian Franc is simply Belgian's two–character ISO 3166 code (BE) plus a one–character currency designator (F).

BEF	Belgian Franc
DEM	Deutsche Mark
DKK	Danish Crone
ESP	Spanish Peseta
FRF	French Franc
GBP	British Pound
ITL	Italian Lira
LUF	Luxembourg Franc
NLG	Dutch Guilder

NOK	Norwegian Crone
PTE	Portuguese Escudo
SEK	Swedish Crone
USD	US Dollar
EUR	EURO Currency

The Euro currency is given with 3 characters: EUR.

The currency code "**EUR**" (numeric code 978) is registered in the international standard ISO 4217 for use in international business and the financial world. In addition, the country code "**EU**" has been reserved in ISO 3166.

This codification can be used when neither programs nor peripherals can be updated to support Euro character.

1.5 What are the ISO8859–15, ISO8859–1, and IBM–1252 codes?

The difference between these three 8-bits codifications go further than the simple replacement of the monetary symbol by Euro. Note that ISO 8859–1 Latin–1 does not implement the Euro character.

Code hex	ISO 8859–15 Latin–9	ISO 8859–1 Latin–1	IBM–1252
80	No symbol	No symbol	**Euro**
a6	S caron	|	|
a4	**Euro**	¤	¤
a8	s caron	¨	¨
b4	E caron	Sharp accent	Sharp accent
b8	e caron	Cedilla	Cedilla
bc	Œ	1/4	1/4
bd	œ	1/2	1/2
be	Y diaresis	3/4	3/4

1.6 What are the Unicode and UTF–8 codes?

Euro coding	Unicode	UTF–8
Code hex	20ac	e282ac
Code length (bytes)	2	3

The UTF–8 Euro character is the only 3–bytes codification that can be mixed in other 8–bit codifications. On the contrary, with Unicode, all the characters must be coded on 2-bytes.

1.7 What is the Code Page 858?

Code page 858 has been registered as identical to code page 850 except for the replacement of LI61 (dotless i) at code point D5 by SC20 (euro symbol). In other words, applications will have to recognize that "code page 850" may mean CP 00850, or may mean CP 00858. If necessary, it will be up to the application to determine which code page, 850 or 858, is really being used. By checking the mapping between the Microsoft code page 1252 and 850, it is possible to determine if the euro changes have been installed:

```
if (WinCpTranslateChar((HAB)0, 1252, 0x80, 850) == 0xd5) euro supported
```

1.8 Conversion Tables

New conversion tables are required to support the new code pages:

```
IBM-850 (= ISO8859-1)
IBM-858
IBM-1252
ISO8859-15
UTF-8
```

Example:

The following command will translate the file ISO8859–15 `fic1` into the file IBM–858 `fic2`.

```
iconv -f ISO8859-15 -t IBM-858 fic1 > fic2
```

1.9 Where is the Euro Character on the keyboard?

The CEN standard defines the key where the Euro character is engraved on:

Key	Country
altGr–E	Denmark, Finland, Norway, Portugal, Sweden, Italy, Spain, Belgium, NetherLands, France, Switzerland, Germany
altGr–4	United Kingdom, Ireland
altGr–5	United States
altGr–U	Poland

1.10 What Difficulties Are Encountered With the Euro Character?

The Euro character must be seized, displayed, printed, and transmitted. However:

- It is not engraved on all keyboards.
- It is not defined in the ISO8859–1, and IBM–1252 codifications that are today applied on the customer systems.
- It may be used for applications.
- It is not defined for all locale program definitions.

2. What are the Consequences for the User?

- If the hardware is partially upgraded to support the Euro character, it may not be able to seize, to display, to print, or to transmit the Euro character.
- If the hardware supports different Euro codifications, the administrator must make sure that the configuration correctly manages this case.
- In the case of old, non-upgradable systems, a work around is to use the character "**E**" for the Euro symbol (this solution is recommended by the French Ministry of Finances). But "E" can be confounded with the character "F", for example when it is printed on old printers.
- On non-upgradable terminals the hex code **a4** sent to the AIX system is still displayed as the ancient code of the ISO table (¤).
- All customer applications that treat the Euro character need to be modified.
- Data transmitted via network (TCP,...) should clearly indicate the norm of codification of the Euro character since several codifications can be used (except for the UTF–8 codification).

3. Recommendations

- Choose a unique code for the representation of the Euro character in AIX. The recommended code is the one of ISO8859–15: **hex a4**.
- Create filters for peripheral devices (setmaps, maps,) to convert this code automatically from and to.

  Example: you use RPC DCE between an AIX system and a GCOS7 system. The codification of the Euro character is hex a4 on AIX and EBCDIC hex 9F on GCOS7.

  The software under GCOS7 makes the conversions:
  9F –> a4 to send to AIX
  a4 –> 9F to receive from AIX.

Remarks:

- It is not necessary for AIX to manage the Euro character when the firmware of terminals or printers do it at their level: AIX will simply stock the binary value hex a4 as any binary value.

- On the contrary, AIX has to provide the fonts of the Euro character for graphic consoles.

- Names of files can include the Euro symbol.

4. Compilers and Euro

Compilers do support the Euro character.

4.1 Cobol

Cobol MicroFocus follows the X/OPEN standard, and thus allows localization and in particular the management of the monetary symbol in editions.

To compile the Euro character, use one of the following methods:

- Use the internationalization function (locale).

- Or use the binary value of the Euro character: hex 282ac, 80, or a4.

Remarks:

- You can compile with the NLS environment division.

- For examples of conversions of currencies inside a program, refer to the "Work-arounds" section.

4.2 C Compiler

To compile the Euro character, use one of the following methods:

- Use the internationalization function (locale). The locale can be modified inside a program, thus allowing conversions of currencies.

- Or use the binary value of the Euro character: hex 282ac, 80, or a4.

4.3 FORTRAN

To compile the Euro character use its binary value: hex 282ac, 80, or a4.

5. Terminals and Euro

Refer to the *Terminals and Printers Configuration Guide* (ref. 86 A1 22WE).

5.1 ASCII Terminals

Model	Euro Support
BQ306 (*)	Yes
BQ3102	No
BQ303	No
BQ315x	No
BQ210	No

(*) BQ306 with VR320 and WY55 emulations only.

5.2 Graphical Terminals (X11 manager) and X Terminals (X11 manager, or NCD based)

- Even when the Euro character is engraved on the keyboard, the "AIX 4.3.2 Updates" CD-ROM must be installed to support the Euro character.

- A substitution of key (xmodmap) is necessary to key in the Euro character.

6. Printers and Euro

Refer to the *Terminals and Printers Configuration Guide* (ref. 86 A1 22WE).

7. My Peripheral Is Not Upgradable. What to Do?

Use a work–around, as described in the "Work-arounds" section.

8. Restrictions

8.1 Codification

- Estrella 200 and 300 do not support the UTF-8 codification.

- The ISO8859–15 Euro codification is not supported for X terminals.

- The Alt–Gr E (4, 5, u) combination key is not allowed on Graphical or X terminals. (use work-arounds)

8.2 Products that do not support Euro character

- Bull printers

- HTML

- SNA20 with X Terminals

- Affinity 16 bits

- FR_FR language does not operate with aixterm

- Cobol does not provide NLS UTF–8 codification.

8.3 C Libraries

- **isalpha** and **isprint** give FALSE result with any of the Euro character codification.

9. Work-arounds

9.1 ASCII Terminals

9.1.1 Send "hex a4" to the system

Use function keys F6 to F10 as the Euro character. The character displayed on the screen will be the "International Currency ¤"

Example:

To use the F6 key for Euro character proceed as follows:

Create the file **/usr/lib/nls/termmap/f.in** with the line:

```
\x1b\x5b\x31\x37\x7e:\xa4
```

Then enter the command:

```
# setmaps −v −i f
```

To use other Function keys, refer to the following table:

F key	/usr/lib/nls/termmap/f.in
F6	\x1b\x5b\x31\x37\x7e:\xa4
F7	\x1b\x5b\x31\x38\x7e:\xa4
F8	\x1b\x5b\x31\x39\x7e:\xa4
F9	\x1b\x5b\x32\x30\x7e:\xa4
F10	\x1b\x5b\x32\x31\x7e:\xa4

9.1.2 Send "hex 80" to the system

Use function keys F6 to F10 as the Euro character. Since the hex 80 cannot be displayed on the terminal, the "International Currency ¤" will be chosen to be echoed on the display.

Example:

To use the F6 key for Euro character proceed as follows:

Create the file **/usr/lib/nls/termmap/f.in** with the line:

```
\x1b\x5b\x31\x37\x7e:\x80
```

Then enter the command:

```
# setmaps −v −i f
```

Create the file **/usr/lib/nls/termmap/f.out** with the line:

```
\x80:\xa4
```

Then enter the command:

```
# setmaps −v −o f
```

To use other Function keys, refer to the following table:

F key	/usr/lib/nls/termmap/f.in
F6	\x1b\x5b\x31\x37\x7e:\x80
F7	\x1b\x5b\x31\x38\x7e:\x80
F8	\x1b\x5b\x31\x39\x7e:\x80
F9	\x1b\x5b\x32\x30\x7e:\x80
F10	\x1b\x5b\x32\x31\x7e:\x80

9.1.3 Send "hex e282ac" to the system

Use function keys F6 to F10 as the Euro character. Since the hex e282ac cannot be displayed on the terminal, the "International Currency ¤" will be chosen to be echoed on the display.

Example:

To use the F6 key for Euro character proceed as follows:

Create the file **/usr/lib/nls/termmap/f.in** with the line:

```
\x1b\x5b\x31\x37\x7e:\xe2\x82\xac
```

Then enter the command:

```
# setmaps −v −i f
```

Create the file **/usr/lib/nls/termmap/f.out** with the line:

```
\xe2\x82\xac:\xa4
```

Then enter the command:

```
# setmaps −v −o f
```

To use other Function keys, refer to the following table:

F key	/usr/lib/nls/termmap/f.in
F6	\x1b\x5b\x31\x37\x7e:\xe2\x82\xac

```
F7          \x1b\x5b\x31\x38\x7e:\xe2\x82\xac
F8          \x1b\x5b\x31\x39\x7e:\xe2\x82\xac
F9          \x1b\x5b\x32\x30\x7e:\xe2\x82\xac
F10         \x1b\x5b\x32\x31\x7e:\xe2\x82\xac
```

9.2 Graphical or X Terminal

9.2.1 Send "hex a4" to the system

This is not possible.

9.2.2 Send "hex 80" or "hex e282ac" to the system

Check the keycode of the Control–right key.

Enter:

```
/usr/lpp/X11/Xamples/bin/xev | grep keycode
```

Depress the Control–right key.

Move the mouse inside the opened window.

Close the window.

Note the keycode value: it should be 72.

Check the keycode of the Euro key:

Enter:

```
/usr/lpp/X11/Xamples/bin/xev | grep keycode
```

Depress the Euro key.

Move the mouse inside the opened window.

Close the window.

Note the keycode value: it should be 27 for Euro Sign on E key.

Create the **euro** file, with the following lines:

```
keycode 27 = e E EuroSign
keycode 72 = Mode_switch
clear Mod2
add Mod2 = Mode_switch
```

Enter:

```
xmodmap euro
```

9.2.3 To get the Euro Sign coded hex 80 in a window

The X terminal server and the font server must be updated with the "AIX 4.3.2 Update" CD-ROM.

Enter:

```
LANG=fr_FR.IBM–1252; dtterm
```

or:

```
LANG=fr_FR.IBM–1252; aixterm
```

9.2.4 To get the Euro Sign coded hex e282ac in a window

The X terminal server and the font server must be updated with the "AIX 4.3.2 Update" CD-ROM.

Install the extension UTF–8 language, and enter:

```
LANG=FR_FR; dtterm
```

9.3 Usage of "locale" in C programs

9.3.1 IBM–1252: Example of a conversion program

This example prints the Euro character (coded hex 80) on an X terminal.

```
#include <monetary.h>
#include <locale.h>
#include <stdio.h>
main(int argc, char **argv)
{
        char bfr[256];
        ssize_t size;
        float value, cours = 6.55957;

        (void) setlocale (LC_ALL, "fr_FR.IBM-1252");
        value = 10000.00;
        size = strfmon(bfr, 256, "%+15#5.2n", value);
        printf ("valeur en Francs: %s ", bfr);

        value = 10000.00 / cours;
        (void) setlocale (LC_MONETARY, "fr_FR.IBM-1252@euro");
        size = strfmon(bfr, 256, "%+15#5.2n", value);

        if (size > 0)
                printf ("soit en EUROS: %s\n", bfr);
}
```

9.3.2 ISO8859–15: Example of a conversion program

This example prints the Euro character (coded hex a4) on an ASCII BQ306 terminal.

```
#include <monetary.h>
#include <locale.h>
#include <stdio.h>
main(int argc, char **argv)
{
        char bfr[256];
        ssize_t size;
        float value, cours = 6.55957;
        char euro = 0xa4;

        (void) setlocale (LC_ALL, "fr_FR.IBM-1252");
        value = 10000.00;
        size = strfmon(bfr, 256, "%+15#5.2n", value);
        printf ("valeur en Francs: %s ", bfr);

        value = 10000.00 / cours;
        printf ("%s soit en EUROS: %5.2f %c\n", bfr, value,
euro);
}
```

9.3.3 UTF–8: Example of a conversion program

In the following example the Euro character is coded hex e282ac.

```
#include <monetary.h>
#include <locale.h>
#include <stdio.h>
main(int argc, char **argv)
{
        char bfr[256];
        ssize_t size;
        float value, cours = 6.55957;

        (void) setlocale (LC_ALL, "fr_FR.IBM-1252");
        value = 10000.00;
        size = strfmon(bfr, 256, "%+15#5.2n", value);
        printf ("valeur en Francs: %s ", bfr);

        value = 10000.00 / cours;
        (void) setlocale (LC_MONETARY, "FR_FR@euro");
        size = strfmon(bfr, 256, "%+15#5.2n", value);

        if (size > 0)
                printf ("soit en EUROS: %s\n", bfr);
}
```

9.4 Usage of NLS in Cobol programs

9.4.1 IBM–1252: Example of program

This example prints the Euro character (coded hex 80) on an X terminal. It will give the Euro character before the Euro value:

```
export LANG=fr_FR.IBM-1252
export LC_MONETARY=fr_FR.IBM-1252@euro

$set NLS
$set XOPEN
environment division.
special-names.
        environment-name is envname
        environment-value is envvalue.
data division.
01 valeur pic $$$$$9.99.
01 lang pic x(5).
procedure division.
display "LANG" upon envname.
accept lang from envvalue.
move 456.23 to valeur.
display "When LANG=" lang ", value is =" valeur ".".
stop run.
```

This procedure is only possible with float insertion or fix insertion.

To have the Euro character after its value, see the examples hereafter.

9.4.2 IBM–1252: Example of a conversion program

This example prints the Euro character (coded hex 80) on an X terminal.

```
export LANG=fr_FR.IBM-1252
        keeps the F character for the value to convert.
        The Euro character is given by the filler value hex 80.
$set NLS
$set XOPEN
environment division.
special-names.
        environment-name is envname
        environment-value is envvalue.
data division.
working-storage section.
01 francs-value pic 9(10)v99.
01 euro-value pic 9(10)v99.
01 edited-francs-value pic $(9)9.99.
01 edited-euro-value.
   02 edited-euro-value-1 pic z(9)9.99.
   02 filler pic x value x"80".
01 change-rate pic 9V9(5) value 6.55957.
procedure division.
move 10000.00 to francs-value.
divide change-rate into francs-value
        giving euro-value rounded.

move francs-value to edited-francs-value.

move euro-value to edited-euro-value-1.
display edited-francs-value " = "
        edited-euro-value.
stop run.
```

9.4.3 ISO8859–15: Example of a conversion program

This example prints the Euro character (coded hex a4) on an ASCII BQ306 terminal.

```
export LANG=fr_FR.IBM-1252
        keeps the F character for the value to convert.
        The Euro character is given by the filler value hex a4.
$set NLS
$set XOPEN
environment division.
special-names.
        environment-name is envname
        environment-value is envvalue.
data division.
working-storage section.
01 francs-value pic 9(10)v99.
01 euro-value pic 9(10)v99.
01 edited-francs-value pic $(9)9.99.
01 edited-euro-value.
   02 edited-euro-value-1 pic z(9)9.99.
   02 filler pic x value x"a4".
01 change-rate pic 9V9(5) value 6.55957.
procedure division.
move 10000.00 to francs-value.
divide change-rate into francs-value
        giving euro-value rounded.

move francs-value to edited-francs-value.

move euro-value to edited-euro-value-1.
display edited-francs-value " = "
        edited-euro-value.
stop run.
```

9.4.4 UTF–8: Example of a conversion program

In the following example the Euro character is coded hex e282ac.

```
export LANG=fr_FR.IBM–1252
keeps the F character for the value to convert.
The Euro character is given by the filler value hex e282ac.

$set NLS
$set XOPEN
environment division.
special–names.
        environment–name is envname
        environment–value is envvalue.
data division.
working–storage section.
01 francs–value pic 9(10)v99.
01 euro–value pic 9(10)v99.
01 edited–francs–value pic $(9)9.99.
01 edited–euro–value.
02 edited–euro–value–1 pic z(9)9.99.
02 filler pic x(3) value x"e282ac".
01 change–rate pic 9V9(5) value 6.55957.
procedure division.
move 10000.00 to francs–value.
divide change–rate into francs–value
        giving euro–value rounded.

move francs–value to edited–francs–value.

move euro–value to edited–euro–value–1.
display edited–francs–value " = "
        edited–euro–value.
stop run.
```

10. Summary

Hardware or applications products support for Euro codes				
Product	**ISO 8859–15 (hex code a4)**	**IBM–1252 (hex code 80)**	**UTF–8 (hex code e282ac)**	**Comment**
BQ306	Yes: standard	Yes: use filters	Yes: use filters	use setmaps to set filters
X terminals	No: not ready	Yes: standard	Yes: standard	use xmodmap to configure keyboard
Printers	Yes: standard	Yes: standard	No: not ready	
Applications locale	No: not ready	Yes. ca_ES.IBM–1252 de_DE.IBM–1252 en_GB.IBM–1252 es_ES.IBM–1252 fi_FI.IBM–1252 fr_BE.IBM–1252 fr_FR.IBM–1252 it_IT.IBM–1252 nl_BE.IBM–1252 nl_NL.IBM–1252 pt_PT.IBM–1252	Yes. CA_ES DE_DE ES_ES FI_FI FR_BE FR_FR IT_IT NL_BE NL_NL PT_PT	 Catalan German English Spanish Finish Belgian French French Italian Belgian Dutch Netherlands Dutch Portugese