Upgrading the SDM

Upgrade strategy

The SuperNode Data Manager (SDM) is the first network component that is upgraded. When upgrading the SDM, ensure that the computing module (CM) contains a load that is no more than three releases back from the SDM load you are upgrading to.

New software is made available through the following methods:

- non-computing load (NCL), a major release of the software scheduled once or twice a year, delivered on tape or electronically

- maintenance non-computing load (MNCL), a maintenance release scheduled approximately every three months for the first year of a released NCL, delivered on tape or electronically

- SDM patching, fix filesets delivered electronically as soon as they are available

Tools and utilities

The information in this document provides procedures using common upgrade tools and utilities for:

- SDM platform software upgrades available from tape or electronic software delivery (ESD): SDM Out of Service (OOS) Upgrade Procedure and enhanced SDM upgrade procedure (ESUP)

- Client application upgrades, including ASCII Terminal Access (ATA), Enhanced Terminal Access (ETA), Secure File Transfer (SFT) and others

- Hardware upgrades to the latest CPU modules

Upgrade process overview

Task flow diagrams and detailed instructions for specific upgrade procedures are provided in this document.
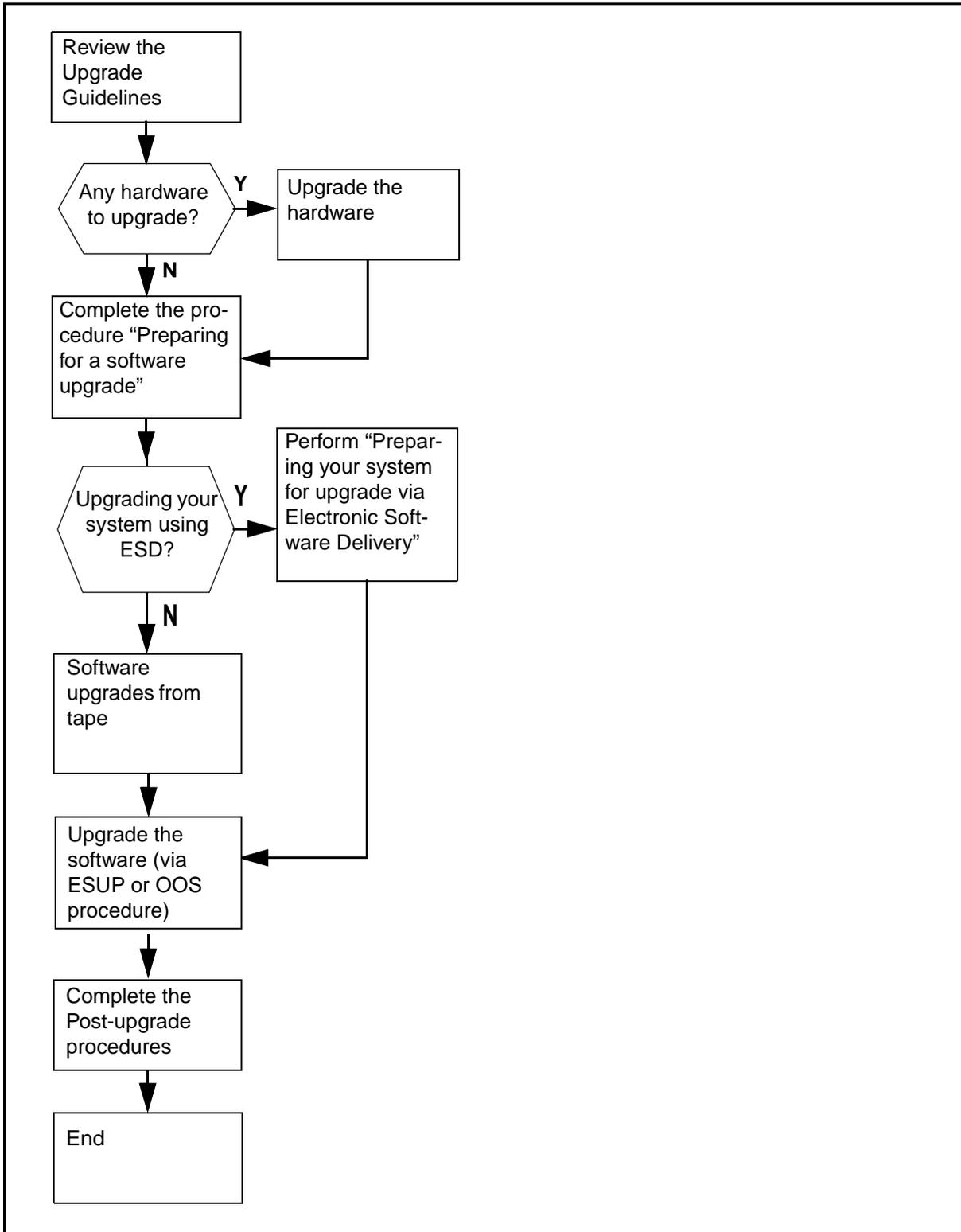

ATTENTION
For an MNCL upgrade, check the release notes.

If you have an MNCL upgrade to install, refer to the MNCL release notes for instructions. This procedure only provides information on NCL upgrade installation.

Upgrade flowchart

The following flowchart provides a summary of the upgrade process. Use the instructions in the specific procedures to complete each task.

Summary of upgrading the SDM

```
        ┌──────────────┐
        │ Review the   │
        │ Upgrade      │
        │ Guidelines   │
        └──────┬───────┘
               │
               ▼
         ╱──────────╲   Y    ┌──────────────┐
        ╱ Any hardware ╲─────▶│ Upgrade the  │
        ╲ to upgrade?  ╱      │ hardware     │
         ╲──────────╱         └──────┬───────┘
               │ N                   │
               ▼                     │
      ┌──────────────────┐           │
      │ Complete the pro-│◀──────────┘
      │ cedure "Preparing│
      │ for a software   │
      │ upgrade"         │
      └────────┬─────────┘
               │
               ▼                ┌──────────────────┐
         ╱──────────╲           │ Perform "Prepar- │
        ╱ Upgrading your ╲  Y    │ ing your system  │
        ╲ system using   ╱──────▶│ for upgrade via  │
         ╲    ESD?    ╱          │ Electronic Soft- │
          ╲────────╱             │ ware Delivery"   │
               │ N               └────────┬─────────┘
               ▼                          │
      ┌──────────────┐                    │
      │ Software     │                    │
      │ upgrades from│                    │
      │ tape         │                    │
      └──────┬───────┘                    │
             │                            │
             ▼                            │
      ┌──────────────┐                    │
      │ Upgrade the  │◀───────────────────┘
      │ software (via│
      │ ESUP or OOS  │
      │ procedure)   │
      └──────┬───────┘
             │
             ▼
      ┌──────────────┐
      │ Complete the │
      │ Post-upgrade │
      │ procedures   │
      └──────┬───────┘
             │
             ▼
      ┌──────────────┐
      │ End          │
      │              │
      │              │
      └──────────────┘
```

Upgrade guidelines

Nortel Networks offers several Network Service Solution packages to assist you with the upgrade of SDM software. The level of design, planning, configuring, and installation that Nortel Networks performs for you depends on the options that your company purchased.

Upgrade methods

There are two methods of upgrading the SDM to the CS2E0070 software release:

- Out of Service (OOS) Upgrade Procedure via Electronic software delivery (ESD) or tape: This procedure busies the SDM and upgrades both domains at the same time.

- Enhanced SDM upgrade procedure (ESUP): This procedure breaks the root volume group (rootvg) mirror, applies new filesets to domain 1 rootvg, busies and reboots the system, then integrates rootvg disks.

  ESUP upgrades can be performed in the following ways:

  — via a telnet connection (only for upgrades to SDM20/CS2E0070 or later)

  — via a remote console connection (modem, terminal server, etc.) (all releases)

  — via a local console connection (vt100 terminal/emulation) (all releases)

When to use each method

The following table indicates when to use the OOS Upgrade Procedure or ESUP method to upgrade your SDM to the CS2E0070 release:

If you are upgrading...	OOS Upgrade Procedure	ESUP
a rootvg-only system	x	
a rootvg/datavg system	x	x
the software and CPU hardware		

Hardware baseline

The following table indicates the supported hardware to upgrade to the CS2E0070 release.

Hardware baseline

PEC	Description
CPU	
NTRX50CG	604e - 200MHz/256MB
	Note: Up to 3+1 XA-Core, SDM supports maximum billing capacity of 70KB/s with an NTXR50CG or CH and NTRX50GX. Higher capacity will required the NTRX50NB.
NTRX50CH	604e - 200MHz/512MB
	Note: Up to 3+1 XA-Core, SDM supports maximum billing capacity of 70KB/s with an NTXR50CG or CH and NTRX50GX. Higher capacity will required the NTRX50NB.
NTRX50NB	Arthur 750 - 400MHz/512MB
	Note: The NTRX50NB requires the NTRX50GX for total traffic in excess of 26KB/s (KB/s = billing records/hr * record size (bytes) / (3600 second * 1024). The NTRX50NB is the minimum hardware for GEM applications.
Disk/DAT and LAN PM	
NTRX50GN	4G DAT/4G DD (rootvg)
	Note: The NTRX50GN is a rootvg-only (single disk) system and does not support electronic software delivery (ESD) in SDM17 onward. It is strongly recommended to upgrade to the rootvg/datavg system with the NTRX50NM (36G rootvg) and NTRX50NL (36G+36G datavg).

Hardware baseline

PEC	Description
NTRX50ND	4G DAT/9G DD (rootvg) *Note:* The NTRX50ND is the minimum hardware for GEM applications. Replacements for the NTRX50ND will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004 the NTRX50NM will be the replacement for the NTRX50ND.
NTRX50NM	12G DAT/36G DD (rootvg)
NTRX50NK	LAN personality module *Note:* The NTRX50NK is used with the NTRX50NM.
NTRX50FS	LAN personality module *Note:* The NTRX50FS is used with the NTRX50GN and NTRX50ND.
Disk expansion	
NTRX50GP	4G DD/4G DD (datavg)
NTRX50NC	9G DD/9G DD (datavg) *Note:* The NTRX50NC is the minimum hardware for GEM applications. Replacements for the NTRX50NC will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004 the NTRX50NL will be the replacement for the NTRX50NC.
NTRX50NL	36G DD/36G DD (datavg)
Core connectivity	

Hardware baseline

PEC	Description
NTRX50GA	DS-512 controller module (BRISC) ***Note:*** The NTRX50CG and CH support BRISC processor and XA 1+1 processor up to 26KB/s with the NTRX50GA and up to 37KB/s with the NTRX50GX. The NTRX50GX is the minimum hardware for GEM applications.
NTRX50GX	DS-512 controller module (XA-Core) ***Note:*** The NTRX50CG and CH support BRISC processor and XA 1+1 processor up to 26KB/s with the NTRX50GA and up to 37KB/s with the NTRX50GX. The NTRX50GX is the minimum hardware for GEM applications.
NTRX50GH	DS-512 personality module
X.25 connectivity (optional)	
NTRX50FY	X.25 controller module
NTRX50FZ	X.25 personality module
NTRX50NN	X.25 personality module for UMFIO

You can have different MFIO/UMFIO datavg and rootvg combinations configured on your system. The following table lists the combinations that are supported for the CS2E0070 release.

Supported MFIO and UMFIO, datavg and rootvg configurations

Configura-tion	Domain 0		Domain 1		Total disk storage
	Rootvg	Datavg	Rootvg	Datavg	
Most basic (not recommended)	NTRX50GN 4-Gbyte	N/A	NTRX50GN 4-Gbyte	N/A	4-Gbyte (rootvg only)
Moderate	NTRX50GN 4-Gbyte	NTRX50GP 8-Gbyte	NTRX50GN 4-Gbyte	NTRX50GP 8-Gbyte	12-Gbyte

Supported MFIO and UMFIO, datavg and rootvg configurations

Configura-tion	Domain 0		Domain 1		Total disk storage
	Rootvg	Datavg	Rootvg	Datavg	
Largest with 4-Gbyte disk	NTRX50GN 4-Gbyte	NTRX50GP (8-Gbyte) + (expansion chassis) NTRX50GP (8-Gbyte) 16-Gbyte	NTRX50GN 4-Gbyte	NRTX50GP (8-Gbyte) + (expansion chassis) NTRX50GP (8-Gbyte) 16-Gbyte	20-Gbyte
Basic with 9-Gbyte disk	NTRX50ND 9-Gbyte[1]	N/A	NTRX50ND 9-Gbyte[1]	N/A	9-GByte (rootvg only)
Moderate	NTRX50ND 9-Gbyte[1]	NTRX50NC 18-Gbyte[2]	NTRX50ND 9-Gbyte[1]	NTRX50NC 18-Gbyte[2]	27-Gbyte
Largest with 9-Gbyte disk	NTRX50ND 9-Gbyte[1]	NTRX50NC (18-Gbyte)[2] + (expansion chassis) NTRX50NC (18-Gbyte) 36-Gbyte	NTRX50ND 9-Gbyte[1]	NTRX50NC (18-Gbyte)[2] + (expansion chassis) NTRX50NC (18-Gbyte) 36-Gbyte	45-Gbyte
4-Gbyte/ 9-Gbyte mix	NTRX50GN 4-Gbyte	NTRX50NC 18-Gbyte[2]	NTRX50GN 4-Gbyte	NTRX50NC 18-Gbyte[2]	22-Gbyte
Basic with 36-Gbyte disk	NTRX50NM 36-Gbyte	N/A	NTRX50NM 36-Gbyte	N/A	36-Gbyte
Largest with only 36-Gbyte disk	NTRX50NM 36-Gbyte	NTRX50NL 72-Gbyte	NTRX50NM 36-Gbyte	NTRX50NL 72-Gbyte	108-Gbyte
4-Gbyte/ 36-Gbyte mix	NTRX50GN 4-Gbyte	NTRX50NL 72-Gbyte	NTRX50GN 4-Gbyte	NTRX50NL 72-Gbyte	76-Gbyte

Supported MFIO and UMFIO, datavg and rootvg configurations

Configura-tion	Domain 0		Domain 1		Total disk storage
	Rootvg	**Datavg**	**Rootvg**	**Datavg**	
9-Gbyte/ 36-Gbyte mix	NTRX50ND 9-Gbyte[1]	NTRX50NL 72-Gbyte	NTRX50ND 9-Gbyte[1]	NTRX50NL 72-Gbyte	81-Gbyte

> *Note 1:* The maximum number of NTRX50GP MFIOs allowed in a system is four. The expansion shelf is required for this configuration.
>
> *Note 2:* NTRX50GN and NTRX50GP will not be supported after November 2004. These disks should be replaced by NTRX50GP and NTRX50NM.
>
> *Note 3:* The maximum number of NTRX50NC MFIOs allowed in a system is four. The expansion shelf is required for this configuration.
>
> *Note 4:* The maximum number of NTRX50NL UMFIOs allowed in a system is two. Disk expansion shelf is not required in this configuration.
>
> *Note 5:* MFIOs and UMFIOs must be deployed in matched pairs. MFIO and UMFIO modules cannot be intermixed; a volume group must have all one or the other. For example, a pair of 4-Gbyte MFIO modules can be mixed with a pair of 9-Gbyte MFIOs in datavg. A pair of 9-Gbyte MFIOs cannot be mixed with a pair of 36-Gbyte UMFIOs in datavg.
>
> *Note 6:* A single 4-Gbyte MFIO module cannot be mixed with a single 9-Gbyte module or a 36-Gbyte module to form a pair.

1. Replacements for the NTRX50ND will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004 the NTRX50NM will be the replacement for the NTRX50ND.
2. Replacements for the NTRX50NC will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004 the NTRX50NL will be the replacement for the NTRX50NC.

Software baseline

You must have the latest maintenance non-CM load (MNCL) release installed on the SDM before you upgrade to the new NCL release.

As of the release of this information, the latest MNCL for each release is as follows:

- CS2E0004.3
- CS2E0005.2
- CS2E0006.0.1

Note: When a new MNCL is released for the SDM, a technical bulletin is issued with a Notification of Availability. Check whether any technical bulletins with a Notification of availability in the title have been issued to determine if a later MNCL exists for your release. If

you need to upgrade to the latest MNCL, refer to the MNCL release notes for instructions.

The DMS core must be at the CSP17 release or higher to upgrade the SDM to the CS2E0070 release.

Filesets to solution mapping

This module provides information on the filesets included in the CS2E0007 load.

The following table lists CS2E0007 filesets and provides the following information

- the solutions that use each fileset
- the DCE requirements for each fileset

Fileset-to-solution mapping (Sheet 1 of 3)

Fileset	Description	IAC	IAW	PT-AAL1	PT-IP	UA-AAL1	UA-IP	DCE?
SDM_VERSION.info	CS2E0007 7.0	Y	Y	Y	Y	Y	Y	N
SDM_AFT.DMS500	SBA Automatic File Transfertime	N	N	N	N	N	N	N
SDM_ASG.accessd	Passwerks Access Daemon Runtime	Y	Y	Y	Y	Y	Y	N
SDM_ATA.client	ASCII Terminal Access Client	Y	Y	Y	Y	Y	Y	Y
SDM_BASE.client	Client Common Resources	Y	Y	Y	Y	Y	Y	Y
SDM_BASE.dfquery	Check disks and disk drives	Y	Y	Y	Y	Y	Y	N
SDM_BASE.fts	File Transfer Service	Y	Y	Y	Y	Y	Y	N
SDM_BASE.gdd	Generic Data Delivery	Y	Y	Y	Y	Y	Y	N
SDM_BASE.logs.client	Log Delivery Service Client	Y	Y	Y	Y	Y	Y	N
SDM_BASE.logs	Log Delivery Service	Y	Y	Y	Y	Y	Y	N
SDM_BASE.mtce	Platform Maintenance	Y	Y	Y	Y	Y	Y	N

Note: Y= required, N=not required, O=optional

Fileset-to-solution mapping (Sheet 2 of 3)

		Succession Solutions						
Fileset	**Description**	**IAC**	**IAW**	**PT-AAL1**	**PT-IP**	**UA-AAL1**	**UA-IP**	**DCE?**
SDM_BASE.omsl	OM Access Service	Y	Y	Y	Y	Y	Y	N
SDM_BASE.tasl	Table Access Service	Y	Y	Y	Y	Y	Y	N
SDM_BMI.bmi	Base Maintenance Interface	Y	Y	N	Y	Y	Y	N
SDM_DDMS.ossaps	OSS and Application Svcs	Y	Y	N	Y	Y	Y	N
SDM_DDMS.osscomms	OSS Comms Svcs	Y	Y	N	Y	Y	Y	N
SDM_DMA.dma	DMS Maintenance Application	Y	Y	N	Y	Y	Y	N
SDM_DNBD.dnbd	DNBD Call Data Delivery	Y	Y	Y	Y	Y	Y	N
SDM_DNBD.osidp	ONE FTAM Software	Y	Y	Y	Y	Y	Y	N
SDM_DTS_PROVIDERS.dts	DCE DTS Time providers for global servers	Y	Y	Y	Y	Y	Y	Y
SDM_ESUP.esup	ESUP Tools	Y	Y	Y	Y	Y	Y	N
SDM_ETA.eta	Enhanced Terminal Access	Y	Y	Y	Y	Y	Y	Y
SDM_ETA.client	Enhanced Terminal Access Client	Y	Y	Y	Y	Y	Y	Y
SDM_GR740PT.gr740pt	GR740 Pass Through	Y	Y	Y	Y	Y	Y	O
SDM_IMAGEDUMP.rte	Image Dump Service	Y	Y	Y	Y	Y	Y	N
SDM_INEO.ssh-sftp	Ineo SSH Secure File Transfer	Y	Y	Y	Y	Y	Y	N
SDM_INSTALL_inst	SDM Tools	Y	Y	Y	Y	Y	Y	N
SDM_LOGS.mdm	Passport Log Streamer	N	N	Y	Y	Y	N	N

Note: Y= required, N=not required, O=optional

Fileset-to-solution mapping (Sheet 3 of 3)

Fileset	Description	IAC	IAW	PT-AAL1	PT-IP	UA-AAL1	UA-IP	DCE?
		Succession Solutions						
SDM_OMDD.omdd	OM Delivery	Y	Y	Y	Y	Y	Y	N
SDM_OpenSSH.base	Open SSH ver. 3.4p1	Y	Y	Y	Y	Y	Y	N
SDM_PRECHECK.sysaudit	System pre-check tools	Y	Y	Y	Y	Y	Y	N
SDM_REACHTHRU.rttl1	Reach Through SPM	Y	Y	Y	Y	Y	Y	N
SDM_SBA.DMS500	SDM Billing Application	Y	Y	Y	Y	Y	Y	N
SDM_SCM.scm	Succession SAM21 Manager *Note:* This fileset is only required for SN05 to SN07 upgrades.	Y	Y	N	Y	Y	Y	N
SDM_SFT.client	Secure File Transfer Client	Y	Y	Y	Y	Y	Y	O
SDM_SFT.sft	Secure File Transfer	Y	Y	Y	Y	Y	Y	O
SDM_SWLD.swld	BOOTP Loading Service	Y	Y	N	Y	Y	Y	N
SDM_UPGRADE.tools	UPGRADE Tools	Y	Y	Y	Y	Y	Y	N

Note: Y= required, N=not required, O=optional

Preparing your system for upgrade via Electronic Software Delivery

Purpose

Electronic Software Delivery (ESD) incorporates standard network connectivity methods into the software distribution process for the SuperNode Data Manager (SDM). ESD can be used for both NCL and MNCL upgrades. For more information about ESD, refer to the Electronic Software Delivery Customer Implementation Guide.

Use this procedure to prepare the SDM for an ESD upgrade, which includes the following tasks:

If the files already exist in a directory on the SDM, proceed with the OOS Upgrade Procedure or ESUP upgrade using the appropriate procedure.

Prerequisites

For the network path between the Nortel Networks software vault and a customer's SDM, the repository server is the last file transfer point prior to the SDM. The server must have enough disk space to hold, uncompress and untar the SDM load. Once all the SDM filesets are extracted, they will be transferred to the SDM from the repository server by FTP.

Before you can begin preparing the repository server for the SDM load, you will need a decompression tool on the repository server to extract the contents of the SDM load. The load transferred is a compressed tar file. If the tar file compression format used is .Z format (as seen by the filename), you will need the *uncompress* tool on the repository server. If the load transferred is in .gz format, you will need either a *gzip* or a *gunzip* tool. These tools and the **tar** command should be in your UNIX PATH environment variable.

ATTENTION

Ensure that you have 3000 MB of free space available on datavg. To check the free space on datavg, enter the command *sdmmtc storage* at the # command prompt.

This procedure assumes that you are using the FTP tool on the SDM to transfer the load from the external repository server to the SDM (a pull

with the FTP get command). Alternate transfer methods using secure SDM applications such as Secure File Transfer (SFT) may be available, depending on your site's configuration. SFT requires that both the SDM and repository server be configured as DCE clients within the same distributed computing environment (DCE) cell and that the required SDM software clients be installed on the repository server.

Procedures

Preparing the repository server for the SDM load

On the client workstation

1   Choose a directory location on the repository server to which the SDM load can be transferred by FTP. Ensure that this location has sufficient space for the load and its subsequent extraction. To determine space availability on the server, use the `df -k.` command:

> *Note:* The uncompressed tar file for a major release of an SDM software load usually ranges from 1 to 1.5 gigabytes. You will need this amount of space for the uncompressed tar file, in addition to at least the same amount for the file's extracted content. It is recommended that you have a total of at least 5 gigabytes available.

2   Change to <directory_path_A>:

```
> cd <directory_path_A>
```

where

> directory_path_A
>   is the directory location on the repository server to which the SDM load will be transferred, uncompressed and untarred before transfer to the SDM

Example command

```
> cd /local
```

3   Create a directory for the SDM product load:

```
> mkdir CS2E0070
```

4   Access the CS2E0070 directory:

```
> cd CS2E0070
```

5   Arrange to have the SDM product load transferred to the repository server at your current location by FTP. After you have completed this step, you should have the SDM load (a compressed tar file) in your current location

6   Display your directory:

> **pwd**

Example response

/local/CS2E0070

7   List the files in the directory:

> **ls -al**

Example response

```
total 2333988
drwxr-xr-x    2 root       other        512 Nov  21 01:25  .
drwxr-xr-x   16 root       root        1024 Nov  18 14:48  ··
-rw-r--r--    1 root       other  1194397577  Nov  16 14:02
CS2E0070.7.V.NCL.NAP.VAULT.2.D.tar.gz
```

8   Check the disk space availability on the server:

> **df -k.**

The system displays the free unallocated disk space.

9   Unzip the file using one of the following commands (depending on the tool you have available):

> **gunzip <order_name>.tar.gz**

or

> **gzip -d <order_name>.tar.gz**

where

   order_name
      is the order name for the current load of this release

Example command

> **gunzip CS2E0070.7.V.NCL.NAP.VAULT.2.D.tar.gz**

or

> **gzip -d CS2E0070.7.V.NCL.NAP.VAULT.2.D.tar.gz**

   Note: Because the size of the load file, the decompression process can take approximately 8 to 10 minutes, depending on the computing capabilities of the repository server.

10 List the files in the directory:

> **`> ls -al`**

Example response

```
total 2462180
drwxr-xr-x    2 root       other       512 Nov 21 01:39  .
drwxr-xr-x   16 root       root       1024 Nov 18 14:48  ··
-rw-r--r--    1 root       other 1260001280  Nov 16 14:02
CS2E0070.7.V.NCL.NAP.VAULT.2.D.tar
```

11 Unarchive (un tar) the filesets:

> **`> tar -xvf <order_name>.tar`**

where

   order_name
     is the order name for the current load of this release

Response

The system creates a subdirectory (for example, CS2E0070.7.V.NCL.NAP.VAULT.2.D) and displays a listing of each file as it is unarchived and placed in this subdirectory.

> *Note:* If errors (such as insufficient disk space) occur during the untarring process, resolve the errors and repeat this step.

12 Use the following table to determine your next step.

If you	Do
want to delete the tar file to conserve disk space	step 13
do not want to delete the tar file	step 14

13

> **CAUTION**
>
> Be sure that untarring the load file was successful (that is, that the disk did not run out of space during the extraction) or that the load is still available on the server from which you obtained the load.

To conserve disk space, remove the tar file:

```
> rm <order_name>.tar
```

where

> *order_name*
> is the order name for the current load of this release

Example command

```
> rm CS2E0070.7.V.NCL.NAP.VAULT.2.D.tar
```

Go to step 15.

14   Move the tar file to a different directory:

```
> mv <file_name> <directory_path>
```

where

> *file name*
> is the name of the tar file
>
> *directory path*
> is the location of the directory to which you are moving the tar file

> *Note:* Note the path to this directory for later use (when using FTP to transfer files to the SDM).

15   You have completed this procedure.

Preparing the SDM for file transfer from the repository server

At the client workstation

1   Log into the SDM using your root user ID and password.

2   If you want to convert an existing logical volume, go to step 3.
Otherwise, go to step 5.

3   Access the logical volume directory that you want to convert:

`# cd <directory_path>`

where

   directory_path
      is the logical volume directory that you want to convert

4

> ⚠️ **CAUTION**
>
> The following (`rm`) command will remove all
> files and subdirectories from the current
> directory. Make sure that you are in the correct
> directory by typing `pwd` . The system will
> display the name of the current working
> directory. If it is the directory that you want to
> convert, proceed with the `rm` command.
> Otherwise, repeat step 3 to access the
> directory that you want to convert.

Remove all files and subdirectories within this logical volume
directory:

`# rm -r *`

5   Access the storage level:

`# sdmmtc storage`

6   Add a logical volume to store the ESD loads:

`> esdadd`

The system prompts you to enter a logical volume to be
converted to the /swd/sdm/esd standard.

   Note 1: When converting a logical volume to the
   /swd/sdm/esd standard, no contents are changed in the old
   logical volume.

   Note 2: The SDM will go in-service trouble (ISTb) and the
   status of the Backup Status alarm will be *Required* once you
   convert a logical volume to the /swd/sdm/esd standard. If the
   backup Required alarm is disabled, the alarm will not be
   raised, but it is still recommended that you perform a backup
   using the procedure "Creating system image backup tapes
   (S-tape) manually" in the Security and Administration

document so that you can restore your system at any time if necessary. If the alarm is enabled, and you choose not to perform a backup, you can force-clear the alarm using the procedure "Clearing a system image backup Required or Failed alarm" in the Fault Management document.

If you	Do
want to convert an existing logical volume	enter the name of the logical volume to be converted (including the leading forward slash (/) symbol), press the Enter key, and go to step 8
do not want to convert an existing logical volume	press the Enter key and go to step 7

7   When prompted, enter the size (in MB) of the logical volume, or press the Enter key to accept the default value of 2000 MB.

Note: It is recommended you select the default size. If you do not enter a large enough size for the logical volume, you will not be able to put the entire load on the system. If necessary, you can increase the size of a logical volume using the procedure "Increasing the size of a logical volume" in the Security and Administration document.

The logical volume */swd/sdm/esd* is created.

8   Exit the maintenance interface:

```
> quit all
```

9   Change to the /swd/sdm/esd upgrade directory:

```
# cd /swd/sdm/esd
```

10   Use FTP to transfer the files from the repository server to the ESD directory.

Example of file transfer commands and responses

```
# ftp 10.102.128.2 (example IP address)
Connected to 10.102.128.2
220 TimeServer FTP server (SunOS 5.7) ready.
Name (10.102.128.2:root): root
331 Password required for root.
Password:
230 User root logged in.
ftp> cd /local/CS2E0070/CS2E0070.7.V.NCL.NAP.VAULT.2.D
250 CWD command successful.
ftp> lcd /swd/sdm/esd
Local directory now /swd/sdm/esd
ftp> bin
200 Type set to I.
ftp> prompt off
Interactive mode off.
ftp> mget *
 (files transfer)
ftp> quit
```

11   You have completed this procedure, and can now proceed to upgrade your system from disk.

Software upgrade

This section contains procedures associated with upgrading an SDM software load.

Preparing the SDM for a software upgrade

Purpose

Nortel Networks recommends that you perform the procedures in this section prior to an SDM software upgrade. The purpose of these procedures is to ensure that the SDM is configured correctly, and that all hardware and software are in good operating condition.

This section also includes the procedure <u>Software upgrades from tape on page 47</u>. The purpose of this procedure is to avoid any potential tape problems during the upgrade.

ATTENTION

Nortel Networks strongly recommends that you **perform this procedure seven days before** the start of any software upgrade, to allow time for corrective action if required.

You must successfully complete each pre-check task. Call the Nortel Networks support center for assistance if you cannot successfully complete a pre-check task.

By completing each of the pre-check tasks and submitting a list of any failed pre-check tasks to Nortel Networks, you will minimize potential disruption to the software upgrade, minimize any risk to the switch, and assist Nortel Networks in providing full support on the upgrade, should assistance be required. Nortel Networks will assist in recovering an SDM if a problem arises during a software upgrade that was not preceded by this pre-check procedure, but will not provide a root cause analysis of the problem.

Perform this procedure using a printed copy. A check box is provided at the beginning of each task to help you track your progress through the entire procedure. Whenever you successfully complete a task, put a check mark in the box.

Once you have completed each pre-check task in this procedure, send an email to prodsdm@nortelnetworks.com with the following information:

• Customer name

• CLLI

- Product

    Note: For Product, specify one of the following values:
    — SDMX for Mobile Telephony Exchange (MTX) applications
    — SDM for SuperNode Data Manager (SDM) base applications
    — GEM (GSM element manager) for UMTS (Universal Mobile Telecommunications System) or GSM (Global System for Mobile-communications) applications
    — CS 2000 Core Manager for Succession applications

- Current load

- Date

- List of any failed pre-check tasks, and a brief description of their solution

Procedures

Capturing the pre-check session file

It is recommended that you capture the execution of the pre-check session and store the file on the SDM for ten days. Nortel Networks support engineers can use the file to investigate any pre-check step that failed.

To capture the upgrade pre-check session, complete the following steps before starting the pre-check procedure.

Capturing the pre-check session file

At the SDM VT100 console

1   Start the capture of the pre-check session:

        #script -a sdmprecheck_YYMMDD

        where

        YYMMDD
            is the current year, month, and day that the pre-check procedure is performed

        The system creates a file named sdmprecheck_YYMMDD and places it in your current directory.

2   When you complete all the pre-check tasks, press Ctrl + D to terminate the capture for the sdmprecheck_YYMMDD session file.

3   You have completed this procedure.

Pre-check list

Each required pre-check task is listed below. Complete each of the pre-check tasks and indicate whether the task passed or failed for reference purposes.

Pre-check tasks	Time (min.)	Passed /Failed
Basic pre-checks	20	
System audit pre-check	5	
Hardware baseline pre-check	5	
CPU Stability pre-check	5	
DS512 fiber link pre-check	5	
Application/fileset status and configuration pre-check	2	
User configuration pre-check	2	
Ethernet configuration pre-check	5	

Basic pre-checks

Before beginning the software upgrade process, ensure that you have completed the following activities.

- Obtain root and cell_admin passwords.

- Obtain the IP address for the SDM, the DMS core, and the operating company gateway and LAN (local area network).

- Ensure you have the latest Maintenance Non-Computing Load (MNCL) release installed on the SDM before you upgrade to the new NCL release. Refer to Upgrade guidelines on page 4 for the software baseline.

  Note: If you need to upgrade to the latest MNCL, refer to the MNCL release notes for instructions.

- Ensure that all released DMS core-side SDM patches have been applied and that the SDM is at patch current status

- Ensure that the modem is configured and operational in the event that Nortel Networks Field Support personnel require remote access to the SDM.

- Obtain a 3-gigabyte blank DAT tape to perform a full system backup following the upgrade.

  Note: Make sure that you have selected one of the brands and lengths approved by Nortel Networks. The approved brands are: Hewlett Packard (HP), Maxell, Verbatim, Imation. The approved

lengths (from any of the listed manufacturers) are: 90-meter (90M), 120-meter (120M), or 125-meter (125M). The 125M tape is approved for UMFIOs only, provided that your system is equipped with DDS3-capable devices to read the content of the tape.

- Test the SDM for CNR (call notification record) Delivery and CIPC Provisioning (applies to GEM-only applications).

- Notify the Network Operation Center before you perform this procedure and before you perform the software upgrade procedure, as both procedures may temporarily raise alarms on the DMS core and SDM.

- Check your VT100 terminals and cables.

- Clean tape drive 0 (slot 2) and tape drive 1 (slot 13) if you will be upgrading using the procedure Software upgrades from tape on page 47 or directly from tape. Refer to the procedure "Cleaning the DAT drive" in the Fault Management document.

   Note: Nortel Networks recommends that you upgrade your system directly from tape only if you are unable to complete the procedure Software upgrades from tape on page 47.

- Execute a 'querysdm config' command on the SDM and record the output for reference purposes.

- Execute a 'sdmmtc hw' command on the SDM to check if you have X.25 device installed. Record the output for reference purposes.

- Ensure that the following hardware spares are on site (check which versions of these cards you have on your system):
  — CPU controller card
  — DS512 controller card
  — spare hard drive module
  — spare DAT/hard drive module

- Ensure that adequate backup space is available on the DMS core, because the upgrade procedure stops the Billing Application for
  — over 1 hour (OOS Upgrade Procedure)
  — approximately 20 minutes (ESUP)

  To determine the amount of backup space required, refer to "Preparing for SBA installation and configuration" in the Accounting document. To reconfigure backup volumes, refer to "Configuring SBA backup volumes" in the Accounting document.

System audit pre-check

The purpose of the system audit pre-check is to execute a sanity check on various components of the SDM. For more information on the system audit functionality, refer to the "System audit overview" in the SDM Basics document.

Note: Once your system is upgraded to the CS2E0070 software load, the system audit will run automatically on a daily basis at 2 am (default value). However, you are still required to run this pre-check manually before upgrading to CS2E0070.

Installing the system audit script

At the VT100 console

1 Determine whether the system audit functionality exists on your SDM:

 # ls -l /sdm/mtce/precheck/sysaudit

If sysaudit script	Do
does not exist on your system	step 2
exists on your system	Performing the system audit pre-check on page 31

2 Use the following table to determine your next step.

If the fileset is	Do
on tape	insert the tape labeled CS2E0070.x (1 of 1) in slot 2, and continue with step 3 *Note:* Wait until the tape drive stabilizes (yellow LED is off) before you proceed.
in a directory	obtain the directory path where the fileset is located, and continue with step 4

3 Install the system audit precheck software from tape:

 # installp -ad /dev/rmt0 SDM_PRECHECK.sysaudit

Response

installp: Please mount volume 1 on /dev/rmt0.1.

Press the Enter to key to continue.

Response

```
+--------------------------------------------+
        Pre-installation Verification...
+--------------------------------------------+
Verifying selections...done

Verifying requisites...done

Results...

SUCCESSES
---------
Filesets listed in this section passed
pre-installation verification and will be installed.


Selected Filesets
-----------------
SDM_PRECHECK.sysaudit 1.0.0.0    # System pre-check
                                   tools


  << End of Success Section >>
FILESET STATISTICS
------------------
    1  Selected to be installed, of which:
       1  Passed pre-installation verification
    1  Total to be installed
+--------------------------------------------+
          Installing Software...
+--------------------------------------------+

installp:    APPLYING software for:
         SDM_PRECHECK.sysaudit 1.0.0.0

Finished processing all filesets.  (Total time:
                                    1 mins 44 secs).


+--------------------------------------------+
              Summaries:
+--------------------------------------------+
Installation Summary
--------------------
Name            Level      Part  Event      Result
--------------------------------------------------
SDM_PRECHECK.   1.0.0.0    USR   APPLY      SUCCESS
sysaudit
```

Once you have completed this step, go to .

4   Install the system audit precheck software from a directory:

 # installp -ad <dir> SDM_PRECHECK.sysaudit

where:

<dir>
is the directory where the fileset is located

Example response

```
+-----------------------------------------+
      Pre-installation Verification...
+-----------------------------------------+
Verifying selections...done

Verifying requisites...done

Results...

SUCCESSES
---------
Filesets listed in this section passed
pre-installation verification and will be installed.

Selected Filesets
-----------------
SDM_PRECHECK.sysaudit 1.0.0.0     # System pre-check
                                    tools

  << End of Success Section >>
FILESET STATISTICS
------------------
    1  Selected to be installed, of which:
    1  Passed pre-installation verification
    1  Total to be installed
+-----------------------------------------+
         Installing Software...

+------------------------------------------+

installp:     APPLYING software for:
         SDM_PRECHECK.sysaudit 1.0.0.0

Finished processing all filesets. (Total time:
                                  1 mins 44 secs).


+-----------------------------------------+
               Summaries:
+-----------------------------------------+
Installation Summary
--------------------
Name            Level    Part    Event    Result
-------------------------------------------------
SDM_PRECHECK.   1.0.0.0  USR     APPLY    SUCCESS
sysaudit
```

5 You have completed this procedure. To perform the pre-check, follow the instructions in [Performing the system audit pre-check](#).

Performing the system audit pre-check

At the VT100 console

1   Access the pre-check directory:

```
# cd /sdm/mtce/precheck
```

2   Execute the system audit check:

```
# ./sysaudit -all
```

Response

```
sysaudit command is in progress, please wait a
few minutes for it to complete...
```

3   Display the system audit report:

```
# ./sysaudit -report
```

Use the procedure "Viewing the system audit report and taking corrective action" in the Fault Management document (start at step 2) to analyze the report and take corrective action, if necessary.

4   Return to the default directory:

```
# cd
```

5   You have completed this procedure.

Hardware baseline pre-check

The purpose of the hardware baseline pre-check is to display the hardware PEC codes and ensure compatibility with the CS2E0070 hardware baseline.

You must upgrade any hardware that does not meet the minimum hardware baseline before you proceed with the software upgrade.

Performing the hardware baseline pre-check

At the VT100 console

1   Display the information for the hardware that is installed on the SDM:

```
# locate
```

2   Refer to and verify that the product engineering codes (PECs) on the output meet the minimum hardware baseline.

3   You have completed this procedure.

CPU stability pre-check

The purpose of the CPU stability pre-check is to ensure that the master and checker CPU is operating as expected. The master CPU will be taken Offline and then returned to service.

WARNING
Because the master CPU will be Offline, the system will be in a NON-Fault tolerant mode for the duration of the pre-check.

Performing the CPU stability pre-check

At the VT100 console

1   Determine which CPU is currently master:

```
# ftctl -status
```

Example response

```
CPU module CPU-0:
    Current istate        = present
                      powered on
                      significant
                      checker
                      using backplane signals
    Current condition     = online
    Online start date     = Sun Mar 17 12:52:53 CST 2002
    Online duration       = 23 days, 06:52:36
CPU module CPU-1:
    Current istate        = not present
    Current condition     = offline
CPU module CPU-2:
    Current istate        = present
                      powered on
                      significant
                      master
                      using backplane signals
    Current condition     = online
    Master start date     = Sun Mar 17 12:44:37 CST 2002
    Master duration       = 23 days, 07:00:52
    Online start date     = Sun Mar 17 12:44:37 CST 2002
    Online duration       = 23 days, 07:00:52
```

2 Access the hardware level to determine if the CPU modules are in service:

```
# sdmmtc hw
```

Example response

```
 SDM    CON   512  NET   APPL  SYS    HW    CLLI: OTWAONXBEC3
   .      .     . .   .      .      .      .    Host: pcary989
   .             . .    .                        Fault Tolerant
Hw
0 Quit
2                I  F  C  D  D  D  E  E  D  5
3                C  A  P  S  S  S  T  T  A  1
4 Logs           M  N  U  K  K  K  H  H  T  2
5                      1  2  3  1  2
6       Domain 0 .  .  .   .  .   .   .   .   .   .
7 Bsy   Domain 1 .  .  .   .  .   .   .   .   .   .
8 RTS
9
10
11            ←↑→
12
13
14 QuerySDM
15 Locate
16
17 Help
18 Refresh
 root
Time  11:15 >
```

3 Busy the master CPU:

```
> bsy  <domain> cpu
```

where

<domain>
is the domain number of the master CPU identified in step 1.

Example
```
# bsy 1 cpu
```

Example response

```
   SDM    CON   512   NET   APPL  SYS    HW     CLLI: OTWAONXBEC3
     .       .    . .    .      .      .       .    Host: pcary989
     .            . .    .                          Fault Tolerant
Hw
 0 Quit
 2                   I   F   C   D   D   D   E   E   D   5
 3                   C   A   P   S   S   S   T   T   A   1
 4 Logs              M   N   U   K   K   K   H   H   T   2
 5                           1   2   3   1   2
 6       Domain 0 .   .    .    .    .    .    .    . .    .
 7 Bsy   Domain 1 .   .  M    .    .    .    .    .    .    .
 8 RTS
 9
10
11
12
13
14 QuerySDM
15 Locate
16
17 Help
18 Refresh
 root
Time  11:17 >
```

4   Return the busy CPU to service:

> **> rts <domain> cpu**

where

    <domain>
      is the domain number of the master CPU you busied in the
      previous step

    Example
    # rts 1 cpu

5   Use the following table to determine your next step.

If the rts command	Do
succeeds	step 7
fails	step 6

6   The CPU reintegration may have failed because the system is too busy. To determine that, examine the eeprom on the failing CPU and look for the following message: `PRI: System too busy, PRI could not complete.`

Example

```
# eeprom -vL CPU-2
.
.

Event     Time - Date          Failure Category & Reason
=====     ===========          =========================
Power on 13:59 Mar 11 2002 EST
```

Failure 13:59 Mar 11 2002 EST Information report

```
 PRI: System too busy, PRI could not complete
```

This message does not indicate a faulty CPU (no matter how many times it fails). This message informs you that the system is presently too busy to reintegrate the CPUs, and the reintegration must be deferred until the system load has lowered. You can attempt the reintegration as many times as necessary, until it succeeds. Once you have successfully reintegrated the CPUs, go to step 7.

> *Note:* To reduce the system load, you may have to busy SBA or the SDM from the core in a maintenance window.

7   Exit the hardware level:

> quit all

8   Monitor the integration status of the CPU:

```
# ftctl -status
```

Example response

```
CPU module CPU-0:
    Current istate        = present
                      powered on
                      significant
                      master
                      using backplane signals
    Current condition     = online
    Master start date     = Fri Apr 26 11:37:54 EDT 2002
    Master duration       = 00:07:50
    Online start date     = Tue Apr 23 17:11:30 EDT 2002
    Online duration       = 2 days, 18:34:14
CPU module CPU-1:
    Current istate        = not present
    Current condition     = offline
CPU module CPU-2:
    Current istate        = present
                      powered on
                      not significant
                      onboard
                      not using backplane signals
    Current condition     = integrating (12% complete)
```

9   Wait until the CPU has been fully integrated, then re-enter the hardware level to ensure that the CPU has returned to service:

     # sdmmtc hw

     Example response

```
  SDM    CON   512   NET   APPL  SYS    HW    CLLI: OTWAONXBEC3
   .      .     . .   .     .      .      .    Host: pcary989
   .            . .   .                        Fault Tolerant
Hw
0 Quit
2                I  F  C  D  D  D  E  E  D  5
3                C  A  P  S  S  S  T  T  A  1
4 Logs           M  N  U  K  K  K  H  H  T  2
5                      1  2  3  1  2
6       Domain 0 .  .  .  .  .  .  .  .  .  .
7 Bsy  Domain 1 .  .  .  .  .  .  .  .  .  .
8 RTS
9
10
11
12
13
14 QuerySDM
15 Locate
16
17 Help
18 Refresh
 root
Time 11:47 >
```

     10   Repeat steps 3 through 9 for the second CPU. For example, if previously you have busied and returned to service CPU 1, repeat steps 3 through 9 for CPU 0.

     11   You have completed this procedure.

DS512 fiber link pre-check

The purpose of the DS512 fiber link pre-check is to identify potential problems with the DS512 fiber links connected from the core to the

DS512 controller modules on the SDM. It may also identify problems with DS512 modules.

> **CAUTION**
> **Possible loss of communication to the core**
> The DS512 fiber link pre-check results in a temporary simplex condition on SDM links to the DMS core. Therefore, you must perform the DS512 fiber link pre-check during a maintenance shift to ensure that the traffic on the DS512 links does not lead to message overload conditions, which could result in a loss of communication with the DMS core.

At the MAP terminal

1 Access the SDM level of the MAPCI:

> `mapci;mtc;appl;sdm`

2 Identify the message switch (MS) chain cards that are configured with the DS512 controller modules and the associated DS512 fiber links that communicate from the core to the SDM:

> `trnsl`

Example response

```
XAC    MS   IOD   Net   PM   CCS   Lns   Trks   Ext   APPL
 .      .    .     .     .    .      .     ...    .     .

SDM           OAMAP ATMFW  SDM  SPMCP SWMTC SDMBIL     TOPSIP
0 Quit          .          .     .     .      .          .
2
3       SDM 0 InSv     Links_OOS:.
4
5 Trnsl
6         Trnsl
7 Bsy     SDM 0 DOMAIN 0 PORT 0 (MS 0:05:0) OK     MsgCnd:Open
8 RTS     SDM 0 DOMAIN 0 PORT 1 (MS 1:05:0) OK     MsgCnd:Open
9 OffL    SDM 0 DOMAIN 1 PORT 0 (MS 0:05:1) OK     MsgCnd:Open
10        SDM 0 DOMAIN 1 PORT 1 (MS 1:05:1) OK     MsgCnd:Open
11
12
13
14 QuerySDM
15 Locate
16
17
18 Platform
 ADMIN
Time 11:28 >
```

3 Post the chain card that corresponds to one of the four associated DS512 fiber links that communicate with the SDM.

`# mapci;mtc; ms;shelf;chain <chain number>`

where:

<chain number>
is the number of the MS chain card

Example
mapci;mtc;ms;shelf;chain 5

Example response

```
XAC    MS    IOD    Net    PM    CCS    Lns    Trks    Ext    APPL
 .      .      .      .      .     .      .       .      .      .

CHAIN          I       Message Switch  Clock  Shelf 0      Inter-MS Link 0 1
0 Quit        MS 0           .          Master        .              . .
2             MS 1           .          Slave         .              . .
3
4             Shelf 0                         1 1  1  1
5             Card  1 2 3 4 5 6 7 8 9 0 1 2 3
6 Tst_        Chain          < >      |
7 Bsy_        MS 0 .  .  .  .  .  .  .  .  .  .  .  .  .
8 RTS_        MS 1 .  .  .  .  .  .  .  .  .  .  .  .  .
9 Offl_
10            Chain   05     Range     Link   0 1
11            MS 0     .     05-06     DS512  .  .
12 Chain_     MS 1     .     05-06     DS512  .  .
13 Card_
14 QueryMS   6
15 Trnsl_
16
17
18
 OPERATOR
Time 11:53 >
```

4   Busy the DS512 fiber links that correspond to the DS512 card to
be busied:

> **bsy 0 link <link_number>**

> **bsy 1 link <link_number>**

where:

     <link_number>
       is the number of the DS512 link (0 to 4)

     Example
     > bsy 0 link 0

and

     Example
     > bsy 1 link 0

The examples above will busy MS 0 link 0 and MS 1 link 0 for the DS512 card on domain 0.

At the VT100 console

5   Access the hardware level:

```
# sdmmtc hw
```

6   Busy the DS512 controller module:

```
> bsy <domain_number> 512
```

where:

     <domain_number>
       is the domain number of the DS512 link

7   Return the DS512 controller module to service:

```
> rts <domain_number> 512
```

where:

     <domain_number>
       is the domain number of the DS512 link

If the DS512 controller module	Do
returns to service	step 8
does not return to service	contact your next level of support

At the MAP terminal

8   Return the DS512 fiber links that correspond to the DS512 card to service:

```
> rts 0 link <link_number>
> rts 1 link <link_number>
```

where

<link_number>
    is the number of the DS512 link (0 to 4)

Example
> rts 0 link 0

and

Example
> rts 1 link 0

The examples above will return MS 0 link 0 and MS 1 link 0 for the DS512 card on domain 0 to service.

If the links	Do
return to service	step 9
do not return to service	contact your next level of support

9   Repeat the previous steps until each of the DS512 Controller Modules has been busied and returned-to-service successfully.

10   You have completed this procedure.

Application/fileset status and configuration pre-check

The purpose of the application/fileset status and configuration pre-check is to verify that the applications on the SDM are in-service and configured.

At the VT100 console

1   Access the application level:

```
# sdmmtc appl
```

Example response

```
 SDM    CON    512   NET   APPL  SYS    HW    CLLI: OTWAONXBEC3
  .            .     . .    .      .      .      .      Host: pcary989
  .                  . .    .                          Fault Tolerant
Appl
0 Quit
2                 # Application                    State
3                 1 SDM Billing Application           .
4 Logs           2 Generic Data Delivery             .
5                 3 Log Delivery Service              .
6                 4 Image Dump Service                .
7 Bsy            5 Secure File Transfer               .
8 RTS            6 Enhanced Terminal Access           .
9 OffL           7 Table Access Service               .
10               8 OM Access Service                  .
11                     Applications showing: 1 to 8 of 8
12 Up
13 Down
14 QuerySDM
15 Locate
16
17 Help
18 Refresh
 root
Time 06:30 >
```

2   Verify that all applications used are in service (represented by a dot [.] under the "State" header). Use the up/down commands to scroll through the list of applications if necessary.

If	Do
all applications are in service	step 3
one or more applications are not in service	understand why, and return to service if required before you proceed

3   Access the configuration level:

 # config

Example response

```
     SDM   CON   512   NET   APPL  SYS   HW    CLLI: OTWAONXBEC3
      .       .      . .      .       .   ISTb    .      Host: pcary989
      .              . .                      M           Fault Tolerant
Config
0 Quit        Filter: OFF
2             # Fileset Description              Status
3             1 Enhanced Terminal Access         Configured
4             2 OM Delivery                      Configured
5             3 Remote Registration System       Configured
6             4 SDM Billing Application          Configured
7 Select      5 Secure File Transfer             Secure and Normal FTP Access
8 Config                Configuration programs: 1 to 5 of 5
9
10
11
12 Up
13 Down
14 Search
15 Filter
16 View
17 Help
18 Refresh
 root
Time 18:55 >
```

    4   Verify that all required in-service applications are configured. Use the up/down commands to scroll through the list of applications if necessary.

    5   You have completed this procedure.

User configuration pre-check

The purpose of the user configuration pre-check is to ensure that the SDM user attributes are configured correctly.

Performing the user configuration pre-check

At the VT100 console

    1   Display the user attributes for the root user:

        # lsuser root

    2   Display the user attributes for the maint user:

        # lsuser maint

Example response

```
3004-687 User "root" does not exist.
```

3   Use the following table to determine your next step.

If the user	Do
does not exist	contact your next level of support
exists	proceed to the next task Ethernet configuration pre-check

4   You have completed this procedure.

Ethernet configuration pre-check

The purpose of the Ethernet configuration pre-check is to display the status and configuration of the Ethernet interfaces.

Performing the Ethernet configuration pre-check

At the VT100 console

1   Identify and record the IP address for an external network element than can be used to test network continuity.

```
# hostent -s
```

Note: Select a known functional external network element. Do not use the loopback or proprietary DS512 CM and SDM IPs.

2   Display the configuration and status of the Ethernet interfaces:

```
# dbgent
```

Example response

```
ent0:
    member0 pent0 active (08:00:3e:26:0f:90)   PM: online
    member1 pent2 backup (08:00:3e:26:0f:94)  PM: online
```

3   Verify that the selected external network element can be reached.

```
# ping -c 3 <ip_address>
```

4   Switch the active and backup Ethernet interfaces.

   `#  dbgent -sl ent0`

5   Verify that the switch occurred.

   `# dbgent`

   Example response

```
ent0:
    member0 pent0 backup (08:00:3e:26:0f:94)  PM: online
    member1 pent2 active (08:00:3e:26:0f:90)  PM: online
```

6   Verify that the selected external network element can still be reached.

   `# ping -c 3 <ip_address>`

7   Switch the active and backup Ethernet interfaces.

   `#  dbgent -sl ent0`

8   Verify that the switch occurred.

   `# dbgent`

9   Verify that the selected external network element can still be reached.

   `# ping -c 3 <ip_address>`

10   You have completed this procedure.

Software upgrades from tape

> **ATTENTION**
> If you are planning to upgrade your system from tape, Nortel Networks strongly recommends that you upload the software from tape to a disk, and then upgrade your system from the directory created during this procedure, in order to avoid any potential tape problems during the upgrade.

The purpose of transferring the upgrade software from tape to a disk is to help ensure a trouble-free upgrade by avoiding tape problems that can occur during the upgrade.

Installing the UPGRADE Tools fileset

At the VT100 console

1   Log on to the SDM using the root user ID and password.

2   Verify that tape drive 0 (slot 2) and tape drive 1 (slot 13) have been cleaned during the <u>Basic pre-checks</u> procedure. If not, clean both tape drives now. Refer to the procedure "Cleaning the DAT drive" in the Fault Management document.

3   Insert the tape labeled "CS2E0070 NCL 7.x (1 of 1)" into the tape drive in slot 2 (DAT0) or slot 13 (DAT1).

4   Install the software that will be used later to copy the content of the tape to a disk, using one of the following commands.

- If the tape is inserted in slot 2:

```
# bffcreate -d /dev/rmt0.1 -t /home/swd -q
SDM_UPGRADE
```

- If the tape is inserted in slot 13:

```
# bffcreate -d /dev/rmt1.1 -t /home/swd -q
SDM_UPGRADE
```

Note: Ignore the warning message that the system displays. Wait until the command is complete and continue with the procedure.

5   Access the maintenance interface:

```
# sdmmtc
```

6   List the filesets in directory /home/swd:

```
> apply /home/swd
```

7   Select the UPGRADE Tools fileset:

```
> select <x>
```

where

     <X>
        is the number next to the UPGRADE Tools fileset

8   Install the UPGRADE Tools fileset:

```
> apply
```

9   If prompted, confirm the command:

```
> y
```

10   Exit the sdmmtc interface:

> **`> quit all`**

Uploading the software from tape to a disk

At the VT100 console

1   Start the process of transferring the software load from tape to a disk:

`# unpacktape`

2   When prompted, select automatic or interactive method for creating the logical volume where the tape content will be transferred. Enter one of the following values:

- **`1`** - if you want the system to create the logical volume

- **`2`** - if you want to create the logical volume or select an existing logical volume

    Note: If there is not enough disk space on your system, the procedure will automatically abort. Contact your next level of support for further instructions.

3   When prompted, enter the location of the tape:

- **`0`** - if the tape is inserted in slot 2

- **`1`** - if the tape is inserted in slot 13

4   Use the following table to determine your next step.

If in step 2 you have selected option	Do
automatic	the system provides the location of the directory where the tape load is being transferred. ***Record the directory path for reference***, then go to step 9.
interactive	continue with step 5

5   When prompted, specify whether you want to transfer the tape load to an existing logical volume. Enter one of the following values:

   • `yes` - if you want to transfer the load to an existing logical volume

      Note: Make sure that you have at least 1400 Mbytes of free space in the existing logical volume.

   • `no` - if you want to create a new logical volume

6   Use the following table to determine your next step.

If you entered	Do
yes	enter the directory path where you want to transfer the load, and press the Enter key. Go to step 9.
no	go to step 7

7   To continue the procedure, enter

`# yes`

8   When prompted, enter the full path to the new directory where the new logical volume will be mounted.

   Note: If there is insufficient free space on datavg and rootvg, the system aborts the procedure. Contact your next level of support for further instructions.

9   Use the following table to determine your next step.

If the system	Do
completes the transfer and displays the following message: `Successfully deposited all filesets to <directory name>` ***Record the directory path for reference.***	go to step 12
displays a failure message *Note:* If this is your second attempt to complete the procedure, contact your next level of support.	go to step 10

10   Clean the DAT drive where the tape is inserted. Refer to the procedure "Cleaning the DAT drive" in the Fault Management document.

11   Once the DAT drive is clean, repeat steps 1 through 9.

12   You have completed this procedure. You are now ready to upgrade the SDM software.

Upgrading SDM software using ESUP

> **ATTENTION**
> Nortel Networks recommends the usage of the system console
> (SP0) for the upgrade. When upgrading the software using ESUP
> via TELNET, ensure that the device used to connect to the
> console port (modem, VDU - Visual Display Unit or VT-100
> terminal, terminal server, dual input VDU, etc.) is configured with
> flow control off. Failure to turn off flow control may cause the SDM
> to hang during the reboot conducted at the end of each upgrade.

Purpose

This procedure provides information about upgrading your SDM
software from the latest SDM17, CS2E0005, or CS2E0006 release to
the CS2E0070 release using an enhanced SDM upgrade procedure
(ESUP).

> *Note:* This procedure does not apply to rootvg-only systems.

This procedure references other procedures in the SDM Upgrades,
Fault Management, Configuration Management, Accounting, and
Security and Administration documents. Ensure that you have access
to those documents while performing this procedure.

You can perform this procedure from a VT100 console. You can also
use this procedure if you are able to telnet to the SDM through the LAN
(local area network).

During the ESUP upgrade, the rootvg mirror is broken, the system is
busied for a short time, then rootvg disks are re-integrated. The
procedure takes approximately 2.5 hours. Datavg does not break mirror
during this procedure; therefore, it does not undergo re-integration.

> *Note:* This procedure provides on-screen information and
> instructions. Please read all displayed messages carefully and use
> them together with this document to successfully complete the
> upgrade.

Pre-upgrade requirements

Before starting this procedure, complete the following activities:

- Ensure the latest MNCL release is installed on your system.

  Refer to for the software baseline.

  Note: If you need to upgrade to the latest MNCL, refer to the MNCL release notes for instructions.

- Verify that the pre-check tasks described in the procedure were successfully completed seven days before starting this upgrade.

- Perform a system image backup.

  ATTENTION

  Nortel Networks recommends that you perform a system image backup before you perform the upgrade. Use procedure "Creating system image backup tapes (S-tapes) manually" in the Security and Administration document. Performing a system image backup does not back up billing data. Ensure that billing is operating properly before starting.

- Obtain the password for the root user.

  Because you must log on to the SDM using the root user ID and password to perform the upgrade, you will need to obtain the password for the root user before you begin. Failure to log on as the root user may cause your upgrade to fail.

- Ensure that no other users are logged on during the upgrade. Only the user at the VT100 console or the upgrade telnet session should be logged on.

- Obtain the IP address for the SDM.

- Execute a 'querysdm config' command and record the output.

- If upgrading from tape, ensure that you have the tape labeled "CS2E0070 NCL 7.x (1 of 1)".

  Note: Nortel Networks recommends that you upgrade your system directly from tape only if you are unable to complete the procedure .

- If upgrading via Electronic Software Delivery (ESD), ensure that the required files are in the directory you will be upgrading from, which may be the "/swd/sdm/esd" directory.

    Note: If necessary, contact your next level of support, or refer to the procedures Preparing your system for upgrade via Electronic Software Delivery on page 14 and "Transferring and retrieving files using SFT" in the Security and Administration document.

- Ensure that the system is equipped with a datavg. The SDM must be equipped with a data volume group (datavg). You can check the presence of a datavg through the maintenance interface under the storage level (sdmmtc storage).

- Check the root logical volume file system - potential disk space error. Make sure the root logical volume "/" file system does not exceed 70% of its total size. If the "/" file system exceeds the 70% mark, you must make more room on the "/" file system for the upgrade to be successful. For more details, contact your next level of support.

- Ensure the SDM is alarm free.
  If any alarms are present, refer to the Fault section of this document for alarm-clearing procedures.

- Ensure that you either

  — Have VT100 terminal emulation.
    Before you perform this procedure, it is recommended that you ensure that your terminal is capable of VT100 terminal emulation and that you can establish a VT100 connection to SP0.

    or

  — Have a PC or UNIX workstation connected to the LAN.
    Ensure that you have access to a PC or UNIX workstation from which you are able to telnet and access the SDM through the LAN. Also, verify that telnet is enabled on the SDM.

- If you have SBA on your system, query the status of RTB for each billing stream for which RTB is configured.
  Record all RTB streams that are InSv for reference purposes.

    Note: If required, refer to the procedure "Querying the status of RTB for a billing stream" in the Accounting document.

- Nortel Networks recommends that you deliver unprocessed billing files to a downstream destination. Ensure that no more than one unprocessed billing file remains on the system. The following table

lists each task and the procedure in the Accounting document to complete the task.

Accounting procedure for each task and file transfer mode

Task	File transfer mode	Accounting procedure
Close billing files	All	"Closing billing files"
Send billing files downstream	Outbound file transfer (OFT)	"Sending billing files from disk"
	Inbound file transfer (IFT)	"Retrieving billing files for a stream set to inbound file transfer"
	Real time billing (RTB)	"Sending billing files from disk"
	Automatic file transfer (AFT)	No manual action is required. Wait for SBA to deliver pending billing files to the downstream destination. There should be no pending files (at least, no more then one) for each AFT session.
		Use the following commands to query AFT sessions: `billmtc, appl, aft, aftconfg, list`.
		To verify which billing files for each session are still pending, enter the following commands: `billmtc, appl, aft, query <session_name>`.
		Note: Press the Enter key after each command.

Note: To display the details about a stream, refer to the procedure "Listing billing streams" in the Accounting document. To list all files currently stored in a stream, refer to the procedure "Listing billing files" in the Accounting document.

If you are unable to send billing files to a downstream destination and you want to proceed with the upgrade, Nortel Networks recommends that you backup the billing files to a DAT tape. If required, refer to the procedure "Copying billing files to tape (backup)" in the Accounting document.

> *Note:* If you need to restore the billing files from tape and you have AFT or IFT configuration, contact your next level of support for instructions. For any other configuration, you can send the billing files from tape following the procedure "Sending billing files from tape" in the Accounting document.

Upgrade notices

CAUTION **Possible upgrade failure** Do not login into any of the /alt_inst file systems at any stage of the upgrade. This may cause the upgrade to fail and start an automatic recovery.

ATTENTION Some obsolete applications in SN07 are automatically removed. If Remote Registration system fileset is present, it is automatically removed when upgrading to CS2E0070.

ATTENTION In case of fallback... You can abort this procedure at every prompt. If you choose to abort before the system reboots, follow the on-screen instructions to recover the system. If you choose to abort after the system reboots, complete the procedure Recovering the system from an ESUP failure on page 96. If the SDM system initiates an automatic fallback during this procedure, contact your next level of support before attempting the recovery procedure.

Flowchart procedure

The following flowchart summarizes the steps in the ESUP upgrade procedure. Use the instructions in the procedures that follow the flowchart to complete the upgrade.

Summary of upgrading SDM software using ESUP

Complete all the necessary pre-upgrade requirements

↓

If upgrading from tape, verify that you have completed procedure <u>Uploading the software from tape to a disk</u>

↓

<u>Prepare the system</u>

↓

<u>Upgrade the software</u>

↓

Complete <u>Post-upgrade procedures</u>

This flowchart summarizes the upgrade process.

To complete the tasks, use the procedures that follow the flowchart.
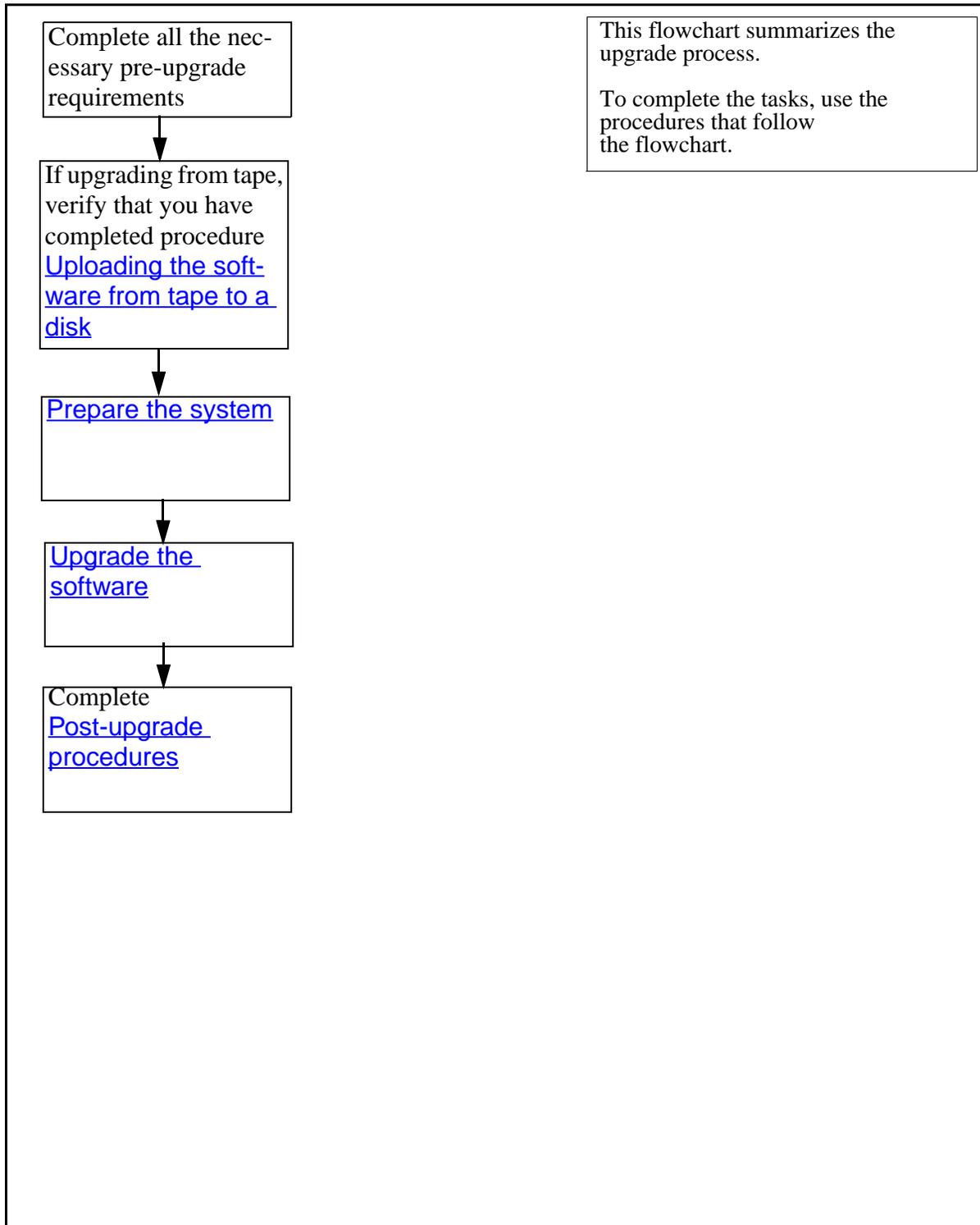
Prepare the system

ATTENTION
Read the Pre-upgrade requirements and Upgrade notices
sections, and complete any necessary activities before you
proceed with the upgrade.

This procedure can be performed from either a VT100 console or a
telnet session.

If you choose	Do
telnet session	step 1
VT100 console	step 2

At the PC or UNIX workstation

1   Establish a telnet connection to the SDM by completing the
following substeps.

    a   Open a terminal window that is VT100 compatible.

    b   Log onto the SDM from the terminal window prompt:

        `telnet <ip_address>`

        where

          <ip_address>
            is the IP address of the SDM

    c   Keep window size at 80x24.

At the VT100 console or telnet session

2   Log on to the SDM using the root user ID and password.

3   If you are upgrading from tape (not from ESD), verify that the
procedure Uploading the software from tape to a disk on
page 49 has been completed. If not, perform the procedure
now.

4 Use the following table to determine your next step.

If you are upgrading from	Do
a directory ***Note:*** A directory created during ESD or during procedure <u>Uploading the software from tape to a disk on page 49</u>	step <u>5</u>
directly from tape (not recommended; use this option only if you are unable to upload the software from tape to a disk)	insert the tape labeled "CS2E0070 NCL 7.x (1 of 1)" into the tape drive in slot 13 (DAT1) as shown in the following figure, and continue with step <u>5</u>. ***Note:*** Wait until the tape drive stabilizes (yellow LED is off) before you proceed.

Main chassis tape drive
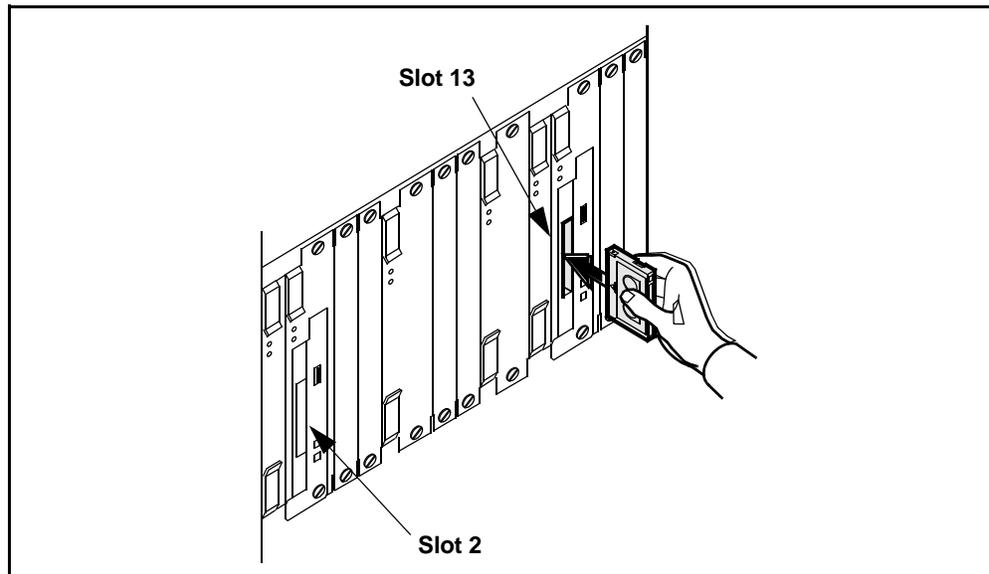
5 Perform the following substeps to remove all archived filesets from the system, which will free up disk space:

a Access the Details level:

```
# sdmmtc details
```

b Show all software:

```
> filter off
```

    c Select all archived filesets:

      > `select all`

      Note: If there are no archived filesets to remove, go to step <u>6</u>.

    d Remove all archived filesets:

      > `remove all`

      Note: System will automatically select appropriate files to remove.

    e Confirm the command:

      > `y`

      Note: Once you remove the archived filesets, the state of the SDM changes to in-service trouble (ISTb), and the status of the Backup Status alarm indicates *Required*. If the backup Required alarm is disabled, the alarm will not be raised. If the alarm is enabled, perform a backup of your new system image using procedure "Creating system image backup tapes (S-tape) manually" in the Security and Administration section. If you choose not to perform a backup, you can force-clear the alarm using procedure "Clearing a system image backup Required or Failed alarm" in the Fault section.

6   Exit the maintenance interface:

    > `quit all`

7   Use the following table to determine your next step.

If you	Do
have pre-loaded the software from tape, as described in procedure <u>Uploading the software from tape to a disk on page 49</u>	go to step <u>10</u>
are upgrading your system from an ESD directory (not after tape pre-loading)	go to step <u>9</u>
are upgrading your system directly from tape inserted in slot 13	go to step <u>8</u>

8   Install the Upgrade Tools fileset:

 # `installp -ad /dev/rmt1 SDM_UPGRADE.tools`

    Note: When prompted, press the Enter key again.

Go to step <u>10</u>.

9　　　Install the Upgrade Tools fileset:

 # installp -ad <directory> SDM_UPGRADE.tools

where

　　<directory>
　　　　is the directory where the software is located

Note: When prompted, press the Enter key again.

10　　Install the ESUP software by completing the following substeps.

　　a　Begin the installation:

　　　# esupinstall

　　b　When prompted, select the location of the software load: one of the following values:

　　　•　**0** - if you are upgrading directly from tape inserted in slot 2

　　　　Note: Nortel Networks recommends that you do not use slot 2. Use slot 13 instead.

　　　•　**1** - if you are upgrading directly from tape inserted in slot 13

　　　•　**D** - if you are upgrading from a directory (ESD or pre-loaded from tape)

　　　•　**ABORT** - if you wish to abort the procedure

If you entered	Do
D	step <u>c</u>
0, 1, or ABORT	step <u>d</u>

　　c　When prompted, enter the directory path where the software load is located.

　　d　Wait until the system completes the installation (up to 10 min). When completed, the following message is displayed:

　　　SUCCESSFULLY INSTALLED SOFTWARE FOR ESUP

11　　Verify the Sysdump devices by completing the following steps.

Start the verification:

```
# sysdumpdev -l
```

If the following message is displayed	Do
primary /dev/sysdump0 secondary /dev/sysdumpnull copy directory /var/adm/ras forced copy flag FALSE always allow dump FALSE dump compression OFF	step 12
primary /dev/sysdump0 secondary /dev/sysdump1 copy directory /var/adm/ras forced copy flag FALSE always allow dump FALSE dump compression OFF	step 13

12   Change the sysdump devices to sysdump1:

```
#sysdumpdev -P -s /dev/sysdump1
```

The following message is displayed.

```
primary/dev/sysdump0
secondary/dev/sysdump1
copy directory/var/adm/ras
forced copy flagFALSE
always allow dumpFALSE
dump compressionOFF
```

13   You have completed this procedure.

Upgrade the software

> **ATTENTION**
> All application filesets are upgraded during this procedure, except
> the SDM Billing Application (SBA), the SBA Automatic File
> Transfer (AFT) application, the DNBD Call Data Delivery (LI)
> application, and the ONE FTAM Software (LI) application filesets.
> If required, upgrade these application filesets after the ESUP
> portion of this procedure.

This procedure can be performed from either a VT100 console or a
telnet session.

If you choose	Do
telnet session	step 1
VT100 console	step 2

At the PC or UNIX workstation

1   Establish a telnet connection to the SDM by completing the
following substeps.

  a   Open a terminal window that is VT100 compatible.

  b   Log onto the SDM from the terminal window prompt:

  `telnet <ip_address>`

  where

    <ip_address>
      is the IP address of the SDM

  c   Keep window size at 80x24.

At the VT100 console or telnet session

2   When prompted, enter the login ID and password for the root
user.

3   Begin the upgrade:

  `# esup`

  The system lists all stages of the upgrade and gives you the
choice to continue the upgrade or to abort (go/abort).

4   To continue, type

  `> go`

5   When prompted to select the media type, use the following table to determine your next step.

If you are upgrading from	Do
a directory (ESD or pre-loaded from tape)	type 2 and press the Enter key, then go to step 9
directly from tape	type 1 and press the Enter key, then go to step 6

> *Note:* If you wish to abort, enter 0.

6   The system displays the following response:

```
The following device has been selected to
perform the upgrade:

Media Type: TAPE /dev/rmt1

Continue (yes or no)>
```

> *Note:* /dev/rmt1 is the device name for the tape drive in slot 13 (DAT1).

Verify that the displayed media type is correct and continue the upgrade:

> yes

The system reports all automatic sub-processes that are taking place during this stage, as well as the start time for each process. Also displayed is an estimated duration for each process.

> *Note:* The estimated time may not be exact. Allow some additional time. However, if the process continues much longer than the estimate, contact your next level of support.

7   When prompted to insert the tape, use the following table to determine your next step.

If at this point the tape	Do
is not inserted	insert the tape labeled "CS2E0070 NCL 7.x (1 of 1)" into the tape drive in slot 13, enter **go** and press the Enter key
is inserted	make sure that the tape is in the correct drive, enter **go** and press the Enter key

8   The system verifies the content of the tape and informs you if the wrong tape is inserted.

If the inserted tape is	Do
correct	step 13
not correct	replace it with the tape labeled "CS2E0070 NCL 7.x (1 of 1)", enter `go` and press the Enter key, then go to step 13

9   The system confirms that you have selected Media Type: DISK. Continue the upgrade:

> **`> yes`**

   Note: If you wish to abort the procedure, enter `no`.

   The system reports all automatic sub-processes that are taking place during this stage, as well as the start time for each process. Also displayed is an estimated duration for each process.

   Note: The estimated time may not be exact. Allow some additional time. However, if the process continues much longer than the estimate, contact your next level of support.

10   When prompted to enter the directory location for the new NCL load, use the following table to determine your next step.

If the CS2E0070 load files	Do
are located in the default ESD directory /swd/sdm/esd	enter `go` and press the Enter key
are not located in the default directory, or are located in the directory created during an upload of the software from tape to a disk	enter the directory path where the files are located, then press the Enter key

11   The system verifies the content of the directory and informs you if you entered the wrong path.

If the directory is	Do
correct	step 12
not correct	re-type the directory path, press the Enter key, then go to step 12

12   When prompted to enter directory location for additional OS filesets, use the following table to determine your next step.

If the additional OS filesets	Do
are located in the default ESD directory /swd/sdm/esd	enter `go` and press the Enter key
are not located in the default ESD directory, or are located in the directory created during the Uploading the software from tape to a disk procedure	enter the directory path where the files are located, then press the Enter key.

The system continues the upgrade procedure until it prompts you to busy the SDM.

13

ATTENTION

Before the system prompts you to busy the SDM it automatically sets AFT and SBA applications into offline state. ESUP will automatically brings them back in service after the SDM reboots and is returned into service.

At the MAP display

14   Busy the SDM level at the MAP display by completing the following substeps.

   a   Access the SDM level of the MAP display:

      `> mapci;mtc;appl;sdm`

   b   Busy the SDM:

      `> bsy`

   c   Confirm the busy request:

      `> y`

15   Verify that each billing stream has entered the active backup mode by posting and querying each of your billing streams.

```
> sdmbil;post<stream>;query
```

At the VT100 console or telnet session

16   Continue the procedure, by typing

```
> go
```

> *Note:* Until the SDM is fully busy, the system displays the following message: `Waiting for SDM BSY`.

The system automatically reboots. This process can take up to ten minutes.

> *Note:* If the upgrade is being done via telnet, the system reboot will close the telnet session.

17   Wait until the system has finished rebooting. Use the following table to determine your next step:

If you are using	Do
VT100 console	go to step 19
Telnet session	go to step 18

The upgrade automatically continues.

At the PC or UNIX workstation

18   The reboot process closed the previous telnet session. Re-establish a new telnet session by completing the following substeps:

     a   Connect to the SDM from the terminal window prompt:

```
telnet <ip_address>
```

        where

           <ip_address>
             is the IP address of the SDM

     b   Keep window size at 80x24

At the VT100 console or telnet session

19   When prompted, enter the login ID and password for the root user.

20   Continue the procedure:

```
# esup
```

The upgrade continues until you are prompted to return the SDM to service.

At the MAP display

21   When prompted, return the SDM to service by completing the following substeps.

    a   Access the SDM level of the MAP display:

```
> mapci;mtc;appl;sdm
```

    b   Return the SDM to service:

```
> rts
```

At the VT100 console or telnet session

22   Continue by typing

```
> go
```

Note: "Waiting for SDM RTS" message will appear until the system is fully in service. It will take 2 to 10 minutes for the SDM to return to service.

At the MAP display

23   Verify that all billing streams are either in-service or in recovery on the SDM side:

```
> sdmbil;post<stream>;query
```

At the VT100 console or telnet session

24   The system displays a message confirming that the SDM has been upgraded successfully. Read the message and follow the on-screen instructions. Use the following table to determine your next step.

If you wish to	Do
continue the upgrade	step 25
abort the upgrade	type **abort** and press the Enter key. Complete the procedure Recovering the system from an ESUP failure on page 96.

25   Use the following table to determine your next step.

If you	Do
have SBA on your system	step 26
do not have SBA on your system	step 29

At the PC or UNIX workstation

26   Establish a telnet connection to the SDM by completing the following substeps.

    a   Open a terminal window that is VT100 compatible.

    b   Log onto the SDM from the terminal window prompt:

      `telnet <ip_address>`

      where

        `<ip_address>`
         is the IP address of the SDM

    c   Keep window size at 80x24.

    d   When prompted, enter the login ID and password for the root user.

27   Query the status of each RTB stream that was InSv before the upgrade (refer to your records from the Pre-upgrade requirements section). If none were recorded, continue with step 29.

     Note: If required, refer to the procedure "Querying the status of RTB for a billing stream" in the Accounting document.

28   If the status of RTB for any stream changed from InSv to ManB, manually return each of these RTB stream instances to service. Refer to the procedure "Returning RTB stream instance to service" in the Accounting document.

At the VT100 console

29

> | ⚠ | **CAUTION**
> **Possible loss of service**
> Once you begin the re-integration process, you cannot use the abort command to return to the previous version of the SDM software. If you decide to return to the previous version of the SDM software after the reintegration process, you must take the SDM off-line and restore the previous version of the SDM software from an S-tape. There is a loss of service for several hours when you restore the previous software.

Begin the integration process:

`> go`

When the system confirms that the upgrade is complete, go to step 30.

30   Complete any post-upgrade commissioning:

`# sdmconfig auto`

31   If you have the SDM Billing Application (with or without the SBA Automatic File Transfer application), proceed to the section Upgrade the SBA and AFT applications on page 72, and then return to step 32.

32   If you have the DNBD Call Monitoring Application on your system, upgrade it by following the appropriate procedure in the International Lawful Intercept ISN06/MMP, NN10194, and then return to step 33.

33   Use the following table to determine your next step.

If you	Do
need to install new CS2E0070 applications and services	step 34
do not need to install new CS2E0070 applications and services	step 35

34   Install new CS2E0070 applications and services using the procedures in the SDM suite of information modules that

correspond to the applications or services you want to install. When complete, return to this procedure and proceed to step 35.

> ***Note:*** Install new applications and services from the VT100 console.

35   You have completed the procedure.

Apply the SDM_Base.dfquery fileset

This fileset must be manually applied after an upgrade.

At the VT100 console or telnet session

1   Access the maintenance interface:

 # sdmmtc

2   Use the following table to determine your next step.

If upgrading from	Do
a directory (ESD or pre-loaded from tape)	step a
directly from tape	step c

a   List the filesets:

> **> apply <directory_path>**

where

> **<directory_path>**
> is the directory where the filesets are located

> ***Note:*** <directory_path> may be the /swd/sdm/esd directory.

b   Go to 3.

c   List the filesets:

> **> apply <domain_number>**

where

> **<domain_number>**
> indicates the domain where you inserted the tape. Type 1.

3   Select the SDM_BASE.dfquery fileset;

> **> select <x>**

where

<X>

is the number next to the SDM_BASE.dfquery fileset

4   Apply the SDM_BASE.dfquery fileset:

```
> apply
```

Example response

```
You have selected to install the following new
filesets or fileset updates.

SDM_BASE.dfquery xx.xx.xx.x

Do you wish to proceed?

Please confirm ("YES", "Y", "NO", or "N")
```

5   When prompted, confirm the apply command:

```
> Y
```

6   You have completed this procedure.

7   Complete the .

Upgrade the SBA and AFT applications

Complete this procedure only if you have the SDM Billing Application (with or without the SBA Automatic File Transfer application) on your system.

Note: If you do not have the SBA Automatic File Transfer (AFT) application, disregard any references to AFT.

ATTENTION
The following steps stop the SBA for approximately 20 minutes. Ensure that adequate backup space is available on the DMS core before continuing with these steps. To determine the amount of backup space required, refer to "Disk space requirements in "Preparing for SBA installation and configuration" in the Accounting document. To set up the backup space, refer to procedure "Configuring the SBA on the DMS core" in the Accounting document.

At the VT100 console or telnet session

1   Access the maintenance interface:

```
# sdmmtc
```

2 Use the following table to determine your next step.

If upgrading from	Do
a directory (ESD or pre-loaded from tape)	step a
directly from tape	step c

a List the filesets:

> **apply <directory path>**

where

<directory_path>
is the directory where the filesets are located

Note: <directory path> may be the /swd/sdm/esd directory.

b Go to 3.

c List the filesets:

> **apply <domain_number)**

where

<domain_number>
indicates the domain where you inserted the tape. Type 1.

3 Select all versions of the SDM Billing Application filesets and, if required, the SBA Automatic File Transfer filesets:

> **select <x> <y>...**

where

<x> <y>...
are the numbers next to the SDM Billing Application filesets and the SBA Automatic File Transfer filesets

Note: If you do not have the SBA Automatic File Transfer application on your system, do not select the AFT filesets.

4 Apply the SDM Billing Application fileset and, if required, the SBA Automatic File Transfer fileset:

> **apply**

Note: The system automatically selects the SDM_ACE fileset, which is required by the SBA and AFT applications. When you confirm the apply command, the system will automatically install the ACE fileset first.

Example response

```
You have selected to install the following new
filesets or fileset updates.

SBA Automatic File Transfer xx.xx.xx.x
SDM Billing Application xx.xx.xx.x

You did not select the following filesets that
are required by some of the selected filesets.
If you proceed, they will be applied
automatically before the selected filesets.

SDM ACE distribution x.x.x.x

Do you wish to proceed?
Please confirm ("YES", "Y", "NO", or "N")
```

5   When prompted, confirm the apply command:

> y

6   Exit the maintenance interface:

> quit all

7   If applicable, restart the AFT application as follows:

a   Access the billing maintenance interface:

 # billmtc

b   Restart the AFT application:

> start <session_name>

where

<session_name>
is the name of the AFT session

c   Exit the billing maintenance interface:

> quit all

8   Go back to step 31.

Upgrading SDM software using Out of Service (OOS) Upgrade Procedure

Purpose

This procedure provides information about upgrading your SDM software from the latest SDM17, CS2E0005, or CS2E0006 release to the CS2E0070 release using the OOS Upgrade Procedure.

> *Note:* This procedure references other procedures in the SDM Upgrades, Fault Management, Configuration Management, Accounting, and Security and Administration NTPs. Ensure that you have access to those documents while performing this procedure.

During the upgrade, the system is busied and both domains are upgraded at the same time.

Pre-upgrade requirements

Before starting this procedure, complete the following activities:

- Ensure that the latest MNCL release is installed on your system.

  Refer to <u>Upgrade guidelines on page 4</u> for the software baseline.

  > *Note:* If you need to upgrade to the latest MNCL, refer to the MNCL release notes for instructions.

- Verify that the pre-check tasks described in the <u>Preparing the SDM for a software upgrade on page 24</u> procedure were successfully completed seven days before starting this upgrade.

- Perform a system image backup.

  +---+
  | **ATTENTION** |
  | |
  | Nortel Networks recommends that you perform a system image |
  | backup before you upgrade the base software. Use procedure |
  | "Creating system image backup tapes (S-tapes) manually" in |
  | the Security and Administration NTP. Performing a system |
  | image backup does not back up billing data. Ensure that |
  | billing is operating properly before starting. |
  +---+

- Obtain the password for the root user.

  You must log on to the SDM using the root user ID and password to perform the upgrade, therefore, obtain the password for the root user before you begin. Failure to log on as the root user may cause your upgrade to fail. Furthermore, ensure that no other users are logged on during the upgrade. Only the user at the VT100 console

should be logged on. For a procedure used to determine who is logged on, refer to the section, "Accessing the CS 2000 Core Manager" in the Basics NTP for your core manager.

- Obtain the right tape if upgrading from tape. Ensure that you have the tape labeled "CS2E0070 NCL 7.x (1 of 1)".

- If upgrading via Electronic Software Delivery (ESD), ensure the required files are in the directories you will be upgrading from, which may be the "/swd/sdm/esd" directory.
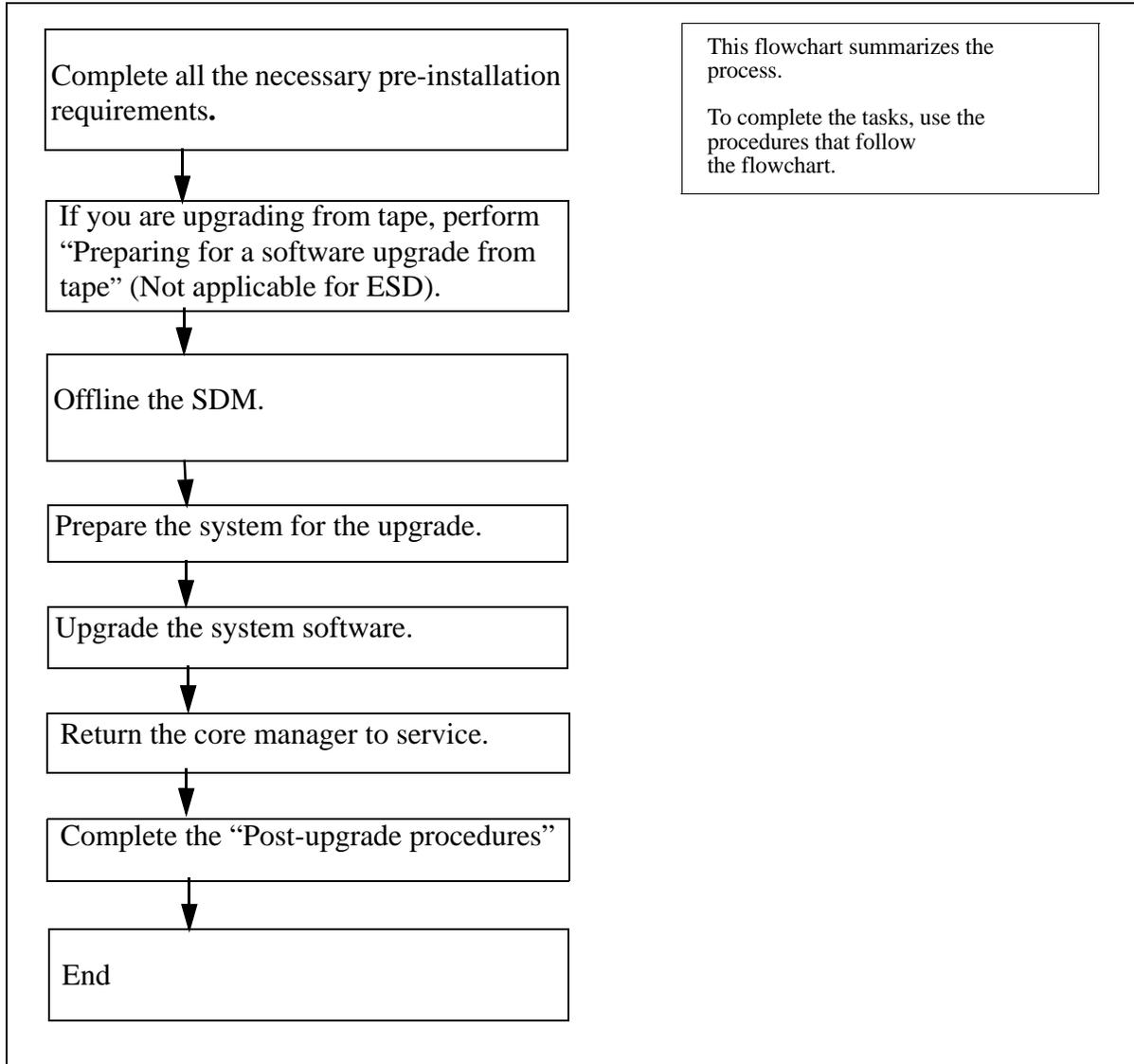
  Note: If necessary, contact your next level of support, or refer to the procedures Preparing your system for upgrade via Electronic Software Delivery on page 14 and "Transferring and retrieving files using SFT" in the Security and Administration NTP.

- Check the root logical volume file - potential disk space error. Make sure the root logical volume "/" file does not exceed 70% of its total size. If the "/" file system exceeds the 70% mark, you must make more room on the "/" file system for the upgrade to be successful. For more details, contact your next level of support.

- Check for the presence of a datavg if required. If upgrading a rootvg-datavg, ensure datavg is present. You can check the presence of a datavg through the maintenance interface under the storage level (sdmmtc storage).

- Make sure the SDM is alarm free. If any alarms are present, refer to the Fault Management NTP for alarm-clearing procedures.

- Have VT100 terminal emulation. Before you perform this procedure, make sure that your terminal is configured for VT100 terminal emulation and that you can establish a connection to SP0 either locally or remotely through modem or terminal server.

Procedures

The following task flow diagram summarizes the software upgrade process. To complete the tasks, use the instructions in the procedures that follow the flowchart.

Task flow for upgrading SDM software using the OOS Upgrade Procedure

Complete all the necessary pre-installation requirements**.**

This flowchart summarizes the process.

To complete the tasks, use the procedures that follow the flowchart.

↓

If you are upgrading from tape, perform "Preparing for a software upgrade from tape" (Not applicable for ESD).

↓

Offline the SDM.

↓

Prepare the system for the upgrade.

↓

Upgrade the system software.

↓

Return the core manager to service.

↓

Complete the "Post-upgrade procedures"

↓

End

ATTENTION
Read the instructions in <u>Pre-upgrade requirements on page 75</u> and complete any necessary activities before you proceed with the upgrade.

> **ATTENTION**
> Nortel Networks recommends that you deliver unprocessed billing files downstream. Ensure that no unprocessed billing file remains on the system.

> **ATTENTION**
> Nortel Networks recommends that you complete the entire upgrade procedure in one session, without interruption, to avoid any unnecessary disruption in billing file processing.

Preparing for a software upgrade from tape

At the VT100 console

1   If you are upgrading from tape, verify that the procedure
has been completed.

2   You have completed this procedure.

Taking the SDM offline

At the console connected to SP0 (local VT100 terminal or remote access)

1   Log on to the SDM using the root user ID and password.

2   If the SuperNode Billing Application (SBA) is installed on your system, determine the operational status of the SBA application and then record this status for future reference; you will be asked to return the SBA application to this operational state later on in this procedure. Use the following table to determine your first step.

If the SBA application	Do
is installed on your system and is not busy or offline	step 3
is installed on your system, but is busy or offline	step 23
is not installed on your system	step 24

At the MAP display

3   Busy all billing streams on the core. Post the required billing stream:

> `> mapci;mtc;appl;sdmbil;post<stream>`

where

     <stream>
       is the name of the billing stream

Note: To display the details about a stream, refer to the procedure "Listing billing streams" in the Accounting NTP. To list all files currently stored in a stream, refer to the procedure "Listing billing files" in the Accounting NTP.

4   Busy the posted stream:

> `> bsy`

5   Confirm the request to **bsy**:

> `> y`

6   Verify that the status of the posted stream changed to ManB (manual busy):

> `> status`

7   Repeat steps 3 through 6 for each billing stream.

8   Examine the SDMB 621 logs to determine the volume names and backup file names for each billing stream:

> **`> logutil;open sdmb 621:back 10`**

In response to the command, the system displays the sdmb 621 logs.

Example sdmb 621 log:

```
BRW_CENTREX  SDMB621  AUG03 14:19:05  4500  INFO SDM BILLING BACKUP
            STREAM= AMA:  Backup started to record to file.

            VOLUME= S00DAMA      FILE= BACK01AMA_01
```

9   For each configured billing stream, verify that at least one backup file exists on at least one of the configured backup volumes.

Display the names of the backup volumes configured for the specified billing stream:

> **`> mapci;mtc;appl;sdmbil;conf view <stream>`**

   where

   `<stream>`
      is the name of the billing stream

10   Verify that SBA backup file exists on at least one of the displayed backup volumes:

If the backup disk type is	Enter command
DDU	> **dskut;liv <volume name> all**
IOP	> **diskut;lf <volume name>**
SLM	> **diskut;lf <volume name>**

   Note: The name of each backup file begins with "BK".

11   Repeat steps 9 and 10 for each billing stream.

At the console connected to SP0 (local VT100 terminal or remote access)

12   Close all unprocessed billing files by performing the procedure "Closing billing files", located in your Accounting NTP.

13   Send downstream all unprocessed billing files. Use the following table to determine the procedure to perform.

File transfer mode	Procedure in the Accounting NTP
Outbound file transfer (OFT)	"Sending billing files from disk"
Inbound file transfer (IFT)	"Retrieving billing files for a stream set to inbound file transfer"
Real-time billing (RTB)	"Sending billing files from disk"
Automatic file transfer (AFT)	No manual action is required. Wait for SBA to deliver pending billing files to the downstream destination. There should be no pending files for each AFT session. Use the following commands to query AFT sessions: `billmtc, appl, aft, aftconfg, list`. To verify which billing files for each session are still pending, enter the following commands: `billmtc, appl, aft, query <session_name>`.

Note 1: To display the details about a stream, refer to the procedure "Listing billing streams" in the Accounting NTP. To list all files currently stored in a stream, refer to the procedure "Listing billing files" in the Accounting NTP.

Note 2: If you are unable to send billing files to a downstream destination and you want to proceed with the upgrade, Nortel Networks recommends that you backup the billing files to a DAT tape. If required, refer to the procedure "Copying billing files to tape (backup)" in the Accounting NTP.

Note 3: If you need to restore the billing files from tape and you have AFT or IFT configuration, contact your next level of support for instructions. For any other configuration, you can send the billing files from tape using the procedure "Sending billing files from tape" in the Accounting NTP.

14   Access the APPL level of the maintenance interface:

> **> sdmmtc appl**

If the AFT application	Do
is installed on your system	step 15
is not installed on your system	step 19

15   Determine the current operational status of the AFT application and then record this status for future reference; you will be asked to return the AFT application to this operational state later on in this procedure. Use the following table to determine your next step.

If the AFT application	Do
is in service	step 16
is busy	step 18
is offline	step 19

16   Busy the AFT application:

> **> bsy <application_number>**

where

> **<application_number>**
> is the number next to the Automatic File Transfer application

17   Confirm the command:

> **> y**

18   Offline the AFT application:

> **> offl <application_number>**

> *where*

>> **<application_number>**
>> is the number next to the Automatic File Transfer application

19   Busy the SuperNode Billing Application (SBA):

> **`> bsy <application_number>`**

>   *where*

>   **<application_number>**
>   is the number next to the SuperNode Billing Application

20   Confirm the command:

> **`> y`**

21   Take the SBA offline:

> **`> offl <application_number>`**

>   *where*

>   **<application_number>**
>   is the number next to the SuperNode Billing Application

22   Exit from SDMMTC:

> **`> quit all`**

> Go to step 24

At the console connected to SP0 (local VT100 terminal or remote access)

23   Use the following table to determine your next step.

If the SBA application	Do
is busy	step 21
is offline	step 24

At the console connected to SP0 (local VT100 terminal or remote access)

At the MAP display

24   Access the SDM level of the MAP display:

> **`> mapci;mtc;appl;sdm`**

25   Check that the SDM is in a fault-free state. If the SDM is not in a fault-free state, correct all faults and alarms before continuing this procedure. Refer to the Fault Management NTP for alarm-clearing procedures. If you have alarms or faults that you cannot clear, stop and contact your next level of support.

26   Busy the SDM:

> **bsy**

27   Confirm the busy request:

> **y**

28   Take the SDM offline:

> **offl**

29   You have completed this procedure.

Preparing the system

At the local VT100 console

1   Use the following table to determine your next step.

If you are upgrading	Do
from a directory created during ESD or during the procedure Software upgrades from tape on page 47	step 3
directly from tape (not recommended; use this option only if you are unable to upload the software from tape to a disk)	insert the tape labeled "CS2E0070 NCL 7.x (1 of 1)" into the tape drive in slot 2 as shown in the following figure, and continue with step 2. *Note:* Wait until the tape drive stabilizes (yellow LED is off) before you proceed.

Inserting a tape into the tape drive

Slot 2
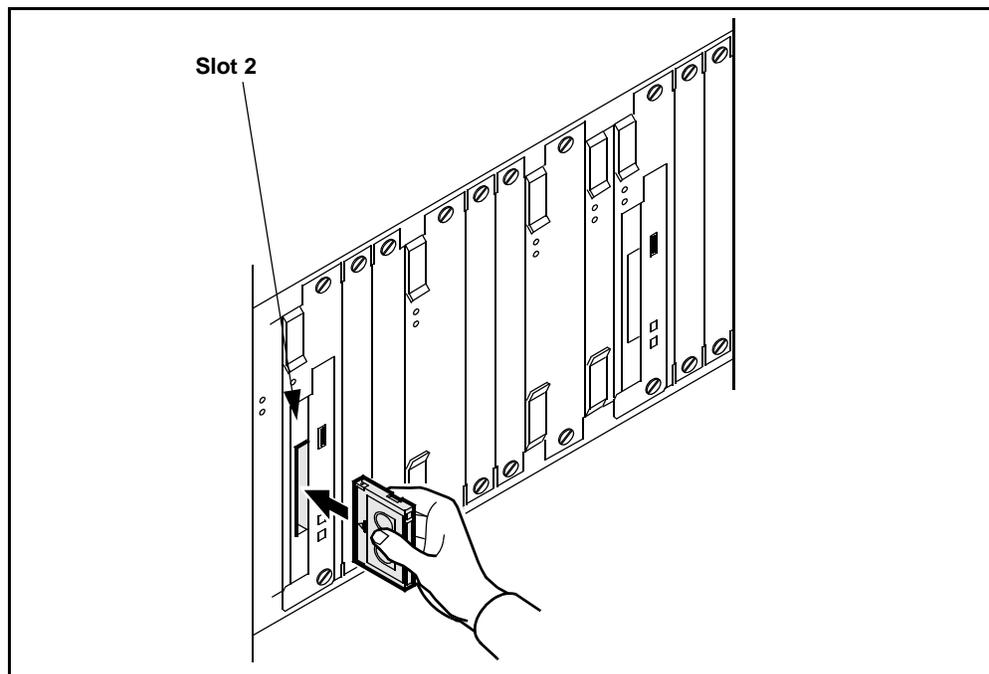
2   If you are upgrading from the CS2E0006 release, verify the version of the tape. Otherwise, continue with step 3.

Verify the version of the tape:

 # querytape dat0

Example response

SDM_VERSION.info: CS2E0070.0 : 20.87.7.0

The displayed product name (in this example, CS2E0070.0) must match the label on the tape that you inserted in step 1.

3   Remove all archived filesets from the system, to free up disk space. Access the Details level:

 # sdmmtc details

4   Show all software:

> filter off

5   Select all archived filesets:

> select all

6   Remove all archived filesets:

> remove all

> *Note:* The system will automatically select appropriate files to remove.

7   Confirm the command:

> y

8   You have completed this procedure.

Upgrading the software

At the console connected to SP0 (local VT100 terminal or remote access)

1   Use the following table to determine your next step.

If you are upgrading	Do
from a directory created during ESD or during the procedure Software upgrades from tape on page 47	list the filesets: `> apply <directory path>` *Note:* <directory path> is the directory where your filesets are located. The directory depends on whether you are upgrading after ESD or after tape pre-loading.
directly from tape (not recommended; use this option only if you are unable to upload the software from tape to a disk)	list the filesets: > apply 0

2   Select all the new application filesets:.

`> select new`

3   Apply all the new software:

`> apply`

4   Confirm the apply command:

`> y`

> *Note:* The upgrade can take up to 2.5 hours, depending on which release you are upgrading from, and how many filesets require upgrading. Wait until the upgrade is complete before you proceed.

If the command response	Do
indicates any errors	contact your next level of support before you proceed with this procedure
does not indicate any errors	step 5

5   Use the following table to determine your next step.

If the system	Do
prompts you to reboot	step 6
does not prompt you to reboot	press Enter, and continue with step 11

6   When prompted, confirm the system reboot:

```
> y
```

7   Once the system has finished rebooting, log into the SDM using the root user ID and password.

8   Wait until all cards at the hardware level are in service before you proceed. Monitor the status of the cards as described in steps 9 and 10.

9   Access the hardware level of the maintenance interface:

```
# sdmmtc hw
```

10   Check that no faults exist on the SDM:

```
> querysdm flt
```

Note: An SDM300 report, which indicates "Connection has been lost to core via DS512 CM link down. Heartbeat stopped on SDM", will be present since the SDM is out of service. When you bring the SDM back in to service, the link and heartbeat are re-established.

If	Do
faults are present (with the exception of the SDM300 report)	correct the faults using the procedures in the Fault Management NTP, and return to this procedure
no faults are present	step 11

11   Use the following table to determine your next step.

> *Note:* To verify if you have X.25, refer to your notes from the "Basic pre-checks" list in <u>Preparing the SDM for a software upgrade on page 24</u>.

If you	Do
have X.25	step <u>12</u>
do not have X.25	proceed to the procedure <u>Returning the system to service on page 92</u>

12   Use the following table to determine your next step.

If you are upgrading	Do
from a directory created during ESD or during the procedure <u>Software upgrades from tape on page 47</u>	list the filesets: **> apply <directory path>** *Note:* <directory path> may be the /swd/sdm/esd directory.
directly from tape (not recommended; use this option only if you are unable to upload the software from tape to a disk)	list the filesets: > apply 0

13   Install the X.25 software:

```
> apply bundle x25
```

If you are upgrading directly from tape, the system prompts you to confirm the apply command.

If you are	Do
prompted to confirm the apply command	step <u>14</u>
not prompted to confirm the apply command	step <u>20</u>

14   Confirm the apply command:

> y

Response

```
Command completed with no errors
```

If you are	Do
prompted to reboot the system	step 15
not prompted to reboot the system	press Enter and continue with step 20

15   Confirm the system reboot:

> y

16   Once the system has finished rebooting, log into the SDM using the root user ID and password.

17   Wait until all cards at the hardware level are in service before you proceed. Monitor the status of the cards as described in steps 18 and 19.

18   Access the hardware level of the maintenance interface:

 # sdmmtc hw

19   Check that no faults exist on the SDM:

> querysdm flt

> *Note:* An SDM300 report, which indicates "Connection has been lost to core via DS512 CM link down. Heartbeat stopped on SDM", will be present since the SDM is out of service. When you bring the SDM back in to service, the link and heartbeat are re-established.

If	Do
faults are present (with the exception of the SDM300 report)	correct the faults using the procedures in the Fault Management NTP, and return to this procedure
no faults are present	step 20

20   You have completed this procedure.

Returning the system to service

21 After returning your SDM to service, consult the notes you recorded about the pre-upgrade operational status of the SBA application in step 2 and about the pre-upgrade operational status of the AFT application in step 15 of the procedure, Taking the SDM offline.

At the MAP display

22 Access the SDM level of the MAP display:

> **mapci;mtc;appl;sdm**

23 Change the state of the SDM from offline to busy:

> **bsy**

24 Return the SDM to service:

> **rts**

> *Note:* It will take at least 5 minutes for the SDM to return to service on the DMS core side.

At the console connected to SP0 (local VT100 terminal or remote access)

25 Use the following table to determine your next step.

If the SBA application	Do
was not offline prior to the upgrade	step 26
was offline prior to the upgrade	step 39
is not installed on your system	step 39

26 Access the APPL level of the maintenance interface:

sdmmtc appl

27 Wait until the Table Access Service application is in service (InSv), then continue with the procedure. If the application does not return to service after 15 minutes, contact your next level of support.

28 Busy the SBA:

> **bsy <application_number>**

where

<application_number>
is the number next to the SuperNode Billing Application

29 Confirm the command:

> **> y**

If the SBA application	Do
was in service prior to the upgrade	step 30
was busy prior to the upgrade	step 39

30 Return the SBA to service:

> **> rts <application_number>**

where

<application_number>
is the number next to the SuperNode Billing Application

If the AFT application	Do
is installed on your system	step 31
is not installed on your system	step 35

31 Use the following table to determine your next step.

If the AFT application	Do
was not offline prior to the upgrade	step 32
was offline prior to the upgrade	step 35

32 Busy the AFT application:

> **> bsy <application_number>**

where

<application_number>
is the number next to the Automatic File Transfer application

33 Confirm the command:

> **> y**

If the AFT application	Do
was in service prior to the upgrade	step 34
was not in service prior to the upgrade	step 35

34 Return the AFT application to service:

> **> rts <application_number>**

> *where*

>> **<application_number>**
>> is the number next to the Automatic File Transfer application

At the MAP display

35 Return all billing streams to service. For each stream, post the required billing stream:

> **> mapci;mtc;appl;sdmbil;post<stream>**

> *where*

> **<stream>**
> is the name of the billing stream

36 Return the posted stream to service:

> **> rts**

37 Repeat steps 35 and 36 for each billing stream.

> *Note:* Check to ensure that all billing streams are either in-service or in recovery on the core side before continuing.

At the console connected to SP0 (local VT100 terminal or remote access)

38   Verify that billing is collecting records:

```
# query <stream_name>
```

where

   <stream_name>
      is the name of the billing stream, for example, ama.

Note the number of records, wait approximately 10 seconds, and repeat the query command <u>for each billing stream</u>.

If the number of records	Do
increased from the first query command (meaning billing is working)	step 39
did not increase from the first query command (meaning billing is not working)	contact your next level of support

39   Use the following table to determine your next step.

If you	Do
need to install new CS2E0070 applications and services	step 40
do not need to install new CS2E0070 applications and services	step 41

40   Install new CS2E0070 applications and services using the procedures in the SDM information modules that correspond to the applications or services you want to install. When complete, return to this procedure and proceed to step 41.

   Note: Install new applications and services from the console connected to SP0 (local VT100 terminal or remote access).

41   Complete the <u>Post-upgrade procedures on page 101</u>.

42   You have completed this procedure.

Recovering the system from an ESUP failure

Purpose

If an upgrade fails, you must recover the SDM from the failure. Follow this procedure to recover the SDM from a software failure during an enhanced SDM upgrade procedure (ESUP).

During ESUP, you can choose to abort the procedure at different stages of the upgrade, or the system can initiate an automatic fallback.

Use this procedure only under the following conditions:

- You have chosen to abort the upgrade after the system rebooted.
- After an automatic fallback occurred, your next level of support instructed you to complete this procedure.

Task flow diagram

The following task flow diagram summarizes the recovery process. To recover the SDM, use the instructions in the procedure that follows the flowchart.

Task flow for Recovering the system from an ESUP failure

```
┌─────────────────────┐        ┌──────────────────────────────┐
│ Busy the system     │        │ This flowchart summarizes the│
│                     │        │ recovery process.            │
│                     │        │                              │
│                     │        │ To complete the tasks, use   │
└──────────┬──────────┘        │ the procedure that follows   │
           │                   │ the flowchart.               │
           ▼                   └──────────────────────────────┘
┌─────────────────────┐
│ Return the system to│
│ service             │
│                     │
└─────────────────────┘
```
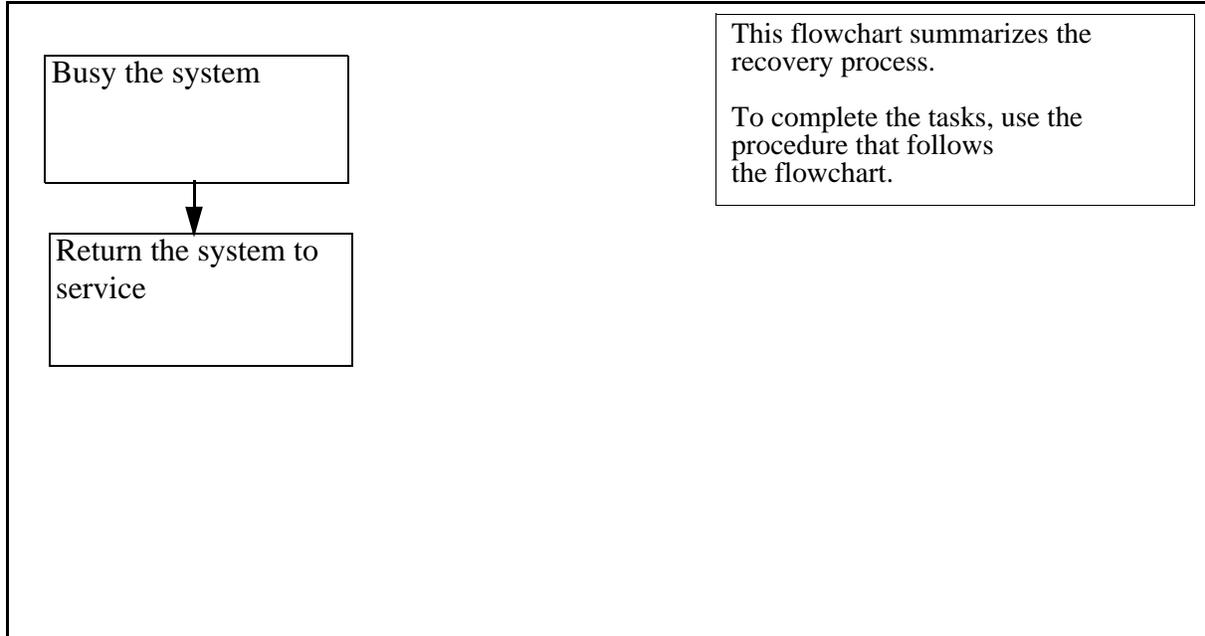
Procedure

> **ATTENTION**
> This recovery procedure applies only to ESUP upgrades. This procedure is only applicable if you aborted the upgrade after the upgrade system reboot, or if you were instructed to complete this procedure by your next level of support.

This procedure can be performed from either a VT100 console or a telnet session.

If you choose	Do
telnet session	step 1
VT100 console	step 3

Recovering the system from an ESUP failure

At the PC or UNIX workstation

1 If you don't already have a telnet session open and ESUP activated, re-establish a telnet connection by completing the following substeps:

   a Log onto the SDM from the terminal window prompt:

   `telnet <ip_address>`

   where

   `<ip_address>`
   is the IP address of the SDM

   b Keep window size at 80x24

At the VT100 console or telnet session

2 If you are not already logged in and have ESUP activated, login, start ESUP and continue as in the following substeps.

   a When prompted, enter the login ID and password for the root user.

   b Enter the following command at the shell prompt:

   `# ESUP`

   The system displays the following message:

   `Please BUSY the SDM now!`

```
Enter 'go' once the SDM BSY command has been
executed (go):
```

3

ATTENTION

Before the system prompts you to busy the SDM it automatically sets AFT and SBA applications into offline state. ESUP will automatically brings them back in service after the SDM reboots and is returned into service.

At the MAP display

4   Busy the SDM. Access the SDM level of the MAP display:

    > **mapci;mtc;appl;sdm**

5   Busy the SDM:

    > **bsy**

6   Confirm the busy request:

    > **y**

7   Verify that each billing stream has entered the active backup mode by posting and querying each of your billing streams:

    > **sdmbil;post<stream>;query**

At the VT100 console or telnet session

8   When the SDM is fully busy, continue the procedure:

    > **go**

    Note: Until the SDM is fully busy, the system displays the following message: `Waiting for SDM BSY`.

    The system automatically reboots. This process can take up to 10 minutes.

    Note: If the abort is being done via telnet, the system reboot will close the telnet session.

9   Wait until the system has finished rebooting. Use the following table to determine your next step:

If using a	Do
telnet session	step 10
VT100 console	step 11

At the PC or UNIX workstation

10   The reboot process closed the previous telnet session. Re-establish a new telnet connection by completing the following substeps.

   a   Log onto the SDM from the terminal window prompt:

   `telnet <ip_address>`

   where

   `<ip_address>`
      is the IP address of the SDM

   b   Keep the window size at 80x24.

At the VT100 console or telnet session

11   When prompted, enter the login ID and password for the root user.

12   Enter the following command at the shell prompt:

   `# esup`

13   The system displays the following message:

   `Please RTS the SDM now!`

   `Enter 'go' once the SDM RTS command has been executed (go):`

At the MAP display

14   Access the SDM level of the MAP display:

   `> mapci;mtc;appl;sdm`

15   Return the SDM to service:

   `> rts`

At the VT100 console or telnet session

16   When the system is back in service, type **`go`** and press the Enter key.

   `> go`

   Note: "Waiting for SDM RTS" message will appear until the system is fully in service. It will take 2 to 10 minutes for the SDM to return to service on the DMS core side.

At the MAP display

17   Verify that all billing streams are either in-service or in recovery on the SDM side:

```
> sdmbil;post<stream>;query
```

At the PC or UNIX workstation

18   Establish a telnet connection by logging onto the SDM from the terminal window prompt:

```
telnet <ip_address>
```

where

    <ip_address>
      is the IP address of the SDM

19   When prompted, enter the login ID and password for the root user.

20   If SBA is configured on your system, query the status of any real time billing (RTB) stream that exists on your system. If the status changed from InSv to ManB after busying the SDM, manually return each affected RTB stream to service.

    Note: To verify the initial status of each RTB stream, refer to your records from the Pre-upgrade requirements tasks described in Upgrading SDM software using ESUP on page 52.

    If required, refer to the following procedures in the Accounting document:

    •   "Querying the status of RTB for a billing stream"

    •   "Returning RTB stream instance to service"

At the VT100 console or telnet session

21   The recovery procedure continues until the Abort complete prompt is displayed. This process will take approximately 30 minutes.

22   You have completed this procedure.

Post-upgrade procedures

Purpose

After completing specific software upgrade tasks, you must perform the following post-upgrade procedures:

- verify the application state, to ensure that all applications are in-service. Use the procedure Verifying the application state on page 102.

- verify the current software load, to confirm that the upgrade was successful. Use the procedure Verifying the current software load on page 103.

- perform a backup of your new system image. Use the procedure "Creating system image backup tapes (S-tapes)" in the Security and Administration document (NN10170-611 SN07 Standard 05.01 August 2004 CS 2000, *Core Manager Administration and Security*).

If the upgrade software was delivered using Electronic Software Delivery (ESD), you will have an ESD logical volume on your system, which must be removed to free up disk space. Follow the instructions in the procedure Removing an ESD logical volume on page 103.

If you upgraded from tape, eject the CS2E0070 NCL 7.x (1 of 1) from the tape drive and store it in a safe place.

Depending on the configuration of your network, you may also be required to:

- remove any DDMS filesets and logical volumes which you no longer require. See the procedure Removing DDMS filesets on page 134.

- upgrade and configure client-side application software on the required workstations in your network. See the procedure Upgrading and configuring client-side application software on page 103.

- apply additional software patches. Contact your Operations management office to determine if and when any patches need to be applied to your system. If you need to apply a patch, use the procedure Upgrading the SDM with software patches on page 105. For more information, contact your next level of support.

Procedures

Verifying the application state

At the VT100 console

1   Access the application level of the SDM maintenance interface:

 # sdmmtc appl

2   Determine whether all applications are in-service (indicated by a dot under the "state" heading next to each application that is in-service).

If	Do
all applications are in-service	step 7
not all applications are in service	step 3

3   Manually busy (ManB) each application that is not in service:

> bsy <x>

where

   <X>
      is the number next to one of the applications that is not in service

Response

```
Application Busied - Command complete.
```

4   Repeat step 3 for each application that is not in service.

5   Return each application to service (RTS):

> rts <x>

where

   <X>
      is the number next to each application you busied in the previous step.

Response

```
Application RTS - Command complete.
```

6   Repeat step 5 to return each application to service.

7   You have completed this procedure. To confirm that the upgrade was successful, perform the procedure Verifying the current software load on page 103.

Verifying the current software load

At the SDM console

1   Exit the maintenance interface:

> **quit all**

2   Verify that the product code, located at the top left-hand corner of the screen, is CS2E0070:

querysdm loads

If the product code	Do
is CS2E0070	step 3
is *not* CS2E0070	contact your next level of support

Note: Dashes (----) displayed next to the platform maintenance are part of a normal output.

3   You have completed this procedure.

Optional post-upgrade tasks

Upgrading and configuring client-side application software

1   Upgrade and configure client-side application software on the required workstations in your network. Refer to the specific application procedures in the SDM information suite.

     Note: You may need to contact your system administrator, as client-side upgrades require root access to the workstations.

2   You have completed this procedure.

Removing an ESD logical volume

> **ATTENTION**
> If you choose to remove the ESD logical volume from the SDM, the removal is permanent.

At the SDM

1   Access the storage level:

    # sdmmtc storage

2   Remove the ESD logical volume and its contents:

    > esddel

3   When prompted, confirm the Delete command:

    > y

4   Exit the maintenance interface:

    > quit all

5   You have completed this procedure.

Performing a system image backup

1   Perform a backup of your new system image using the
procedure "Creating system image backup tapes (S-tape)
manually" in the Security and Administration document
(NN10170-611 SN07 Standard 05.01 August 2004 CS 2000,
Core Manager Administration and Security).

    Note: If you choose not to perform a backup of your new
system image, the SDM will be in-service trouble (ISTb) and
the status of the Backup Status alarm will be *Required* (if the
alarm is enabled). You can force-clear the alarm using the
procedure "Clearing a system image backup Required or
Failed alarm" in the Fault Management document. If the
backup Required alarm is disabled, the alarm will not be
raised.

Upgrading the SDM with software patches

Purpose

The information that follows indicates how to upgrade your SDM with software patches, and includes the following procedures:

- Setting the schedule to apply fixes automatically

- Applying fix filesets manually

- Changing the default fixes directory

Attention
Before applying the fixes fileset you should capture the session file. See Capturing the pre-check session file.

Upgrading your SDM with software fixes involves replacing entire filesets. Fix filesets are delivered to you electronically from the Regional Patch Selector (RPS).

Note: Patches for the SDM are referred to in this document as fix filesets.

The Regional Patch Selector (RPS) is an automated patch management and delivery system. RPS maintains information about patches and offices, calculates which patches are required in each office, and uploads the patches to the required sites.

Once your office information is entered in RPS, you will receive any fix filesets that apply to the SDM configuration for that office. The fix filesets you receive replace installed versions of the same filesets on your SDM.

Note: If you have multiple SDM locations, you can choose to have each location set up in RPS, or have only one location set up in RPS. When you choose to have a single location set up in RPS, you are responsible for propagating any fix filesets to the other SDM locations if and when required.

Fix filesets are sent to the location specified in RPS, which can be the SDM itself or an intermediate server that has a connection to the SDM. When the fix filesets are sent directly to the SDM, they are placed in a configured directory (refer to Location of fix filesets on page 108 for more details on the configured directory). When the fix filesets are sent to an intermediate server, they are placed in a dropbox.

A release notes file is sent with each fix fileset. This file is in ASCII format and contains information about the fix.

RPS collects the "<clli>.informfile" from the SDM itself or from the dropbox on the server at configurable intervals, and delivers any fix filesets to your office as soon as they are available in RPS.

If your office is set up with an intermediate server connected to the SDM, you need to move or copy the fix filesets from the dropbox on the server to the configured directory on the SDM. You also need to ensure that your latest "<clli>.informfile", located in "/swd/sdm", is available in the dropbox on the server when RPS is scheduled to collect it.

> *Note:* You can transfer the fix filesets from the dropbox to the SDM, and the "<clli>.informfile" (ASCII file) from the SDM to the dropbox using file transfer protocol (FTP), Secure file transfer (SFT), or SFT2. To use SFT, refer to the procedure "Transferring and retrieving files using SFT" in the Security and Administration document.

You are notified through e-mail when fix filesets have been successfully delivered to your site.

Once the fix filesets are accessible in the configured directory on the SDM, they need to be applied. Fix filesets that do not require user intervention can be applied automatically according to a set schedule. Refer to <u>Automatic installation of fix filesets on page 107</u>. Fix filesets that require user intervention need to be applied manually. Refer to <u>Manual installation of fix filesets on page 108</u>.

Once the fix filesets have been successfully applied, either automatically or manually, they are deleted from the configured directory. The associated release notes, if present, are also deleted.

At any time, you can remove a fix fileset and restore a previous version of the fileset using the remove command at the Details level of the maintenance interface.

Automatic installation of fix filesets

You can set the scheduled time for when you want fix filesets to be automatically applied from the Fixes level. The fix filesets that can be auto-applied have "Y" under header "AA" (auto apply), and the fix filesets that are scheduled to be auto-applied have a status of "SCHED" under header "Status", as shown in the following figure.

Fixes level screen

```
     SDM      CON     512     NET     APPL    SYS      HW      CLLI: MSH10
      .        .      . .      .       .       .       .       Host: msh10sdm
                      . .                                            Fault Tolerant
Fixes
 0 Quit         Source: the directory /swd/sdm/fixes.
 2 Source       Filter: OFF
 3 Reload          # Fileset Description            Version      Status   AA
 4 Sched           1 Generic Data Delivery          18.17.1.1    SCHED    Y
 5                 2 Platform Maintenance           18.17.1.1    SCHED    Y
 6                 3 Passport Log Streamer          18.14.0.0    SCHED    Y
 7 Select          4 umfioFX Run Time Environment   1.3.0.6      SCHED    Y
 8 Apply                         Available Fixes:1 to 4 of 4
 9
10
11
12 Up
13 Down
14 Search
15 Filter
16 View
17 Help
18 Refresh
  root
Time  16:54  >
```

Note: If any fix filesets have a status of "INCOMP" (incomplete), meaning that the fix fileset has dependencies that have not been installed and are not available, contact your Nortel Networks representative.

Fix filesets that are scheduled to be applied automatically can only be applied from the configured directory on the SDM. Refer to Location of fix filesets on page 108 for more details on the configured directory.

You can apply fix filesets manually outside of the specified schedule. Refer to Manual installation of fix filesets on page 108.

Note: The system generates log SDM610 when a fix fileset, scheduled to be applied automatically, is applied successfully or fails to apply. If you receive this log because a fix fileset failed to apply, contact your Nortel Networks representative.

Manual installation of fix filesets

You need to manually apply fix filesets that require a reboot or have prerequisite filesets that need to be installed and require a reboot. The fix filesets that you need to apply manually have "N" under header "AA" (auto apply), and "AVAIL" under header "Status".

Location of fix filesets

The directory path to the fixes default directory on your SDM, is "/swd/sdm/fixes". You can change the default fixes directory using the procedure that follows.

> *Note:* The directory must have a minimum of 200 MB of available space. The recommended amount of available space is 400 MB, which is the default.

Procedures

Applying fix filesets manually

At the SDM

1   Log into the SDM as the root user.

2   Access the SWIM level:

   # sdmmtc swim

3   Access the Fixes level:

   > fixes

> *Note:* Ensure the fix filesets are accessible in the configured directory on the SDM (refer to <u>Location of fix filesets</u> for more details on the configured directory).

4   Select the fix fileset you want to apply:

   > select <n>

   where

   <n>
        is the number next to the fix fileset you want to apply

5   Apply the fix fileset:

   > apply

6   You have completed this procedure.

Setting the schedule to apply fixes automatically

At the SDM

1 Log into the SDM as the root user.

2 Access the SWIM level:

 # sdmmtc swim

3 Access the Fixes level:

> fixes

Note: If you are accessing the Fixes level for the first time, you are prompted to enter the size of the fixes source directory, and the path of a new logical volume to be created for fixes. The minimum size is 200 MB and the maximum size is 1000 MB. The recommended size is 400 MB, which is the default.

Response
```
The /swd/sdm/fixes directory has been
successfully created.
Press ENTER to continue.
```

4 Press the Enter key to continue.

Note: If the system responds with the message:
`The directory /swd/sdm/fixes does not exist or cannot be read`, stop the procedure and contact your next level of support. Otherwise, continue with the following step.

5 To set the time interval, enter the schedule level:

> sched

Example response
```
Choose the interval desired:

1. Monthly
2. Weekly
3. Daily
4. None

Enter a number from 1 to 4 to make your choice
or type abort:
```

6 Enter the number that is next to the interval you want, press the Enter key, and complete the prompts for the specified interval.

7   When prompted, confirm your entry:

> **> y**

Response

```
Auto fix schedule has been updated.

Press Enter...
```

8   Press Enter to return to the Fixes level.

9   You have completed this procedure.

Changing the default fixes directory

At the SDM

1   Log into the SDM as the root user.

2   Access the swim level:

> **# sdmmtc swim**

3   Access the Options level:

> **> options**

4   Change the value of the default fixes directory:

> **> change 2**

5   Enter the new value for the default fixes directory, and press the Enter key.

> *Note:* Enter the full directory path when specifying a directory.

Response

```
Change 2 - Command complete
```

6   Access the Fixes level:

> **> fixes**

7   Press Enter to confirm the changed default fixes directory.

8   You have completed this procedure.

Performing a full restore of the software from S-tape

Purpose

> **ATTENTION**
> You must be a trained AIX system administrator who has root user privileges to the SDM to perform this procedure.

> **ATTENTION**
> You must mirror all volume groups on the SDM before you perform this procedure. If you perform this procedure when disk mirroring is not at the Mirrored state, the system displays an error message.

> **ATTENTION**
> If your system includes the SuperNode Billing Application (SBA), Nortel Networks recommends that you use tape drive DAT0 to perform this procedure.

Use this procedure to perform a full restore of the SDM software load from the system image backup tape (S-tape). You can also perform this procedure when the SDM is out-of-service because the software load has become corrupted.

You must be a root user at a local VT100 console to perform this procedure.

Procedures

Follow the procedures outlined in "Performing a full restore of the software from S-tape" in NN10081-911 *SDM Fault Management*.

Applications upgrades

This section contains procedures associated with installing or upgrading specific applications.

Upgrading DCE

Purpose

> **ATTENTION**
> This procedure will upgrade the DCE system files and provide the cell_admin user with sdm_admin sub administrator account access permissions. These permissions allow the cell_admin to default to the sdm_admin user id when prompted elsewhere in SDM upgrade and administration actions. If the cell_admin declines to enter the user id and password in this procedure, the cell_admin user id and password will need to be specified when performing subsequent SDM DCE administration and upgrade tasks.

Use this procedure to upgrade your Distributed Computing Environment (DCE). For more information about DCE, refer to the following procedures:

- "Creating a DCE user" in the Security and Administration document
- "Configuring an SDM in a DCE cell" in the Configuration Management document
- "Removing an SDM from a DCE cell" in the Configuration Management document
- "Deleting a DCE user" in the Security and Administration document
- "Updating DCE principal names" in the Security and Administration document

Procedure

Upgrading DCE

At the SDM

1   Begin the DCE upgrade:

 # dceupgrade

> *Note:* The system displays the status of each step during the DCE upgrade.

Response

```
Update mkdce file now...
Stop dce daemons now...
Update rc.dce file and restart the dce daemons
now...
It may take about 3 minutes, please wait...
You are required to login as cell_admin for the
following operations

DCE administrator user ID [cell_admin]:
```

2   At the prompt, enter the DCE cell_admin user ID.

> *Note:* If you do not have a DCE cell_admin user ID, press the Enter key to accept the default user ID (cell_admin).

Response

```
DCE administrator password:
```

3   At the prompt, enter the password for the DCE cell_admin user ID.

Response

```
Update access permission for sdm_admin now...
Dceupgrade command complete
The DCE upgrade is complete.
```

> *Note:* If you did not have a DCE cell_admin user ID and you pressed Enter in the previous step to accept the default DCE user ID, press Enter at the password prompt. The response will indicate that the DCE login failed; however, the DCE upgrade completed correctly and you can continue.

4   You have completed this procedure.

Installing and configuring the OM Data Delivery application

Purpose

The OM Data Delivery application collects and stores operational measurement (OM) data from the switch. The application stores the data in comma separated value (CSV) files that are sent to the client operations support system (OSS).

The Tuple Number option allows you to activate or disable a tuple number so that it can be included in a CSV file with other OM information. You can activate or disable the Tuple Number option at the Config menu level on the SDM.

ATTENTION

You must busy (BSY) and return to service (RTS) the OM Data Delivery application for the Tuple Number option to be either activated or disabled.

Prerequisites

If you are installing the OM Data Delivery application for the first time, ensure that the OM Access Service and Table Access Service application filesets are installed and in service on your SDM before executing this procedure.

For the wireless market, the Nortel support group needs to increase the buffer size within the OM Access Service to 2.5 MB. This is done to accommodate the amount of data being transferred by the front end for a transfer period of every 30 minutes.

Procedures

Installing the OM Data Delivery application

At the SDM

1   Insert tape CS2E00007 NCL 7.x (1 of 1) into one of the tape drives (slot 2 or slot 13) of the main chassis, as shown in the following figure.

> *Note:* Wait until the tape drive stabilizes (yellow LED is off) before you proceed.

Tape drive in main chassis
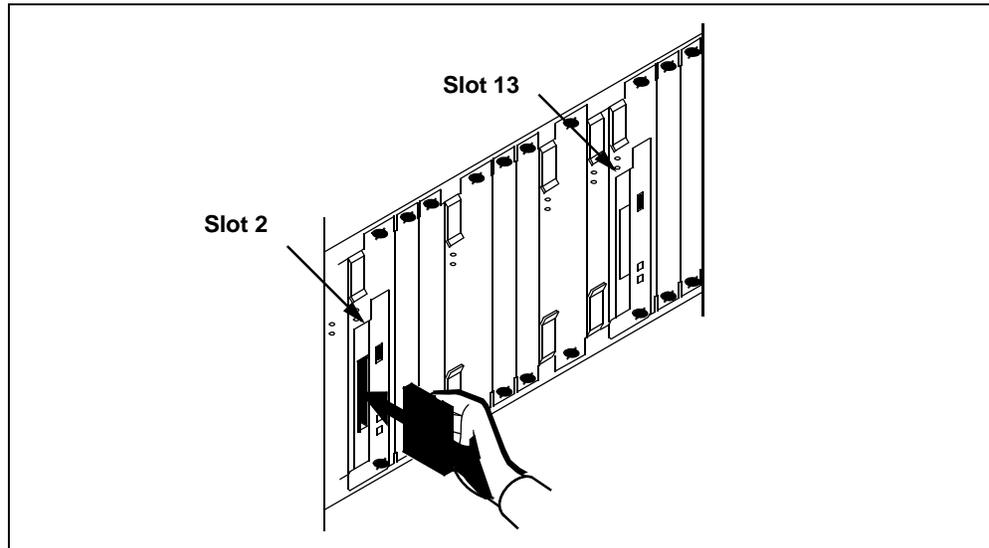
At the maintenance interface

2 Use the following table to determine your next step.

If you choose to install OM Data Delivery by	Do
logging onto a local VT100 terminal connected to the SDM	log on to the SDM as root user at the VT-100 terminal, and go to step 6
using telnet from a remote UNIX workstation to the SDM	step 3

3 Open a terminal window that is VT-100 compatible at the remote UNIX workstation.

> *Note:* To install the OM Data Delivery application using a remote UNIX workstation, verify that telnet is enabled on the SDM.

4 Log onto the SDM from the terminal window prompt:

`telnet <ip_address>`

where

<ip_address> is the IP address of the SDM you want to install the OM Data Delivery application on.

5 When prompted, enter the login ID and password for the root user.

6   Access the maintenance interface level:

 # sdmmtc

7   Access the software inventory manager (SWIM) level:

> swim

The SDM lists the software applications currently installed.

8   List the contents of the tape you previously inserted:

> apply <n>

where

> **<n>**
> is either 0 (slot 2) or 1 (slot 13).

9   Locate the OM Data Delivery application fileset.

> *Note 1:* If necessary, use the up (type 12, u, or up) and down (type 13, d, or down) commands to locate the OM Data Delivery application fileset.

> *Note 2:* If you have a previous release of the OM Data Delivery application installed, its release number appears in the *Current* column, while the new version you are installing appears in the *Available* column.

10   Select and install the new OM Data Delivery application fileset:

> apply <n>

where

> **<n>**
> is the number next to the OM Data Delivery application fileset.

Response:

```
You have selected to install the following new
filesets or fileset updates.OM Delivery
Application 19.0.xx.0. Do you wish to proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

11   Confirm the apply command:

> y

Response:

```
Command in progress.

APPLYING fileset: 9
SDM_OMDD.OMD 19.0.XX.0
```

Configuring the OM Data Delivery application

At the SDMconsole

1   Access the Config menu:

```
# sdmmtc config
```

2   Configure OM Data Delivery:

```
> config <n>
```

where

> **<n>**
> is the number next to OM Data Delivery under fileset description

Use the following table to determine your next step.

If OM Data Delivery	Do
is being initially installed or upgraded to CS2E0070	step 3
has already been installed and is currently active	step 4
has already been installed and is currently disabled	step 5

3   The system indicates that the Tuple Number option is undefined.

Example response:

```
The Tuple number inclusion option is currently
  undefined.
Do you want the Tuple number to be provided with the
  OM Group information (Y/N) [N]?
```

> **Note:** For fresh installations or upgrades from releases prior to CS2E0070, the default value is *disabled (N)*.

If you	Do
activate the Tuple Number option	type **y**, press the Enter key, and go to step 6
do not want to activate the Tuple Number option	press the Enter key, and go to step 6

4   The system indicates that the Tuple Number option is active.

Example response:

```
The Tuple number inclusion option is currently
  active.
Do you want the Tuple number to be provided with the
  OM Group information (Y/N) [Y]?
```

If you	Do
want to disable the Tuple Number option	type **n**, press the Enter key, and go to step 6
do not want to disable the Tuple Number option	press the Enter key, and go to step 6

5   The system indicates that the Tuple Number option is disabled.

Example response:

```
The Tuple number inclusion option is currently
  disabled.
Do you want the Tuple number to be provided with the
  OM Group information (Y/N) [N]?
```

If you	Do
want to activate the Tuple Number option	type **y**, press the Enter key, and go to step 6
do not want to activate the Tuple Number option	press the Enter key, and go to step 6

6   The system prompts you to confirm whether the MDM and SDM are integrated.

Example response:

```
Are the MDM and SDM integrated [Y|N]?
```

7   When prompted, indicate that the MDM and SDM are not integrated:

> **n**

8   Refer to the following table to determine your next step.

If the OM Data Delivery application	Do
is ManB or Offl	step 9

If the OM Data Delivery application	Do
is in any state *other* than ManB or Offl	step 10

9   The system indicates that the configuration is complete.

Response:

```
Configuration complete. Please press Enter . . .
```

Press the Enter key, and go to step 11.

10   The system indicates that the changes will take place after the OM Data Delivery application is restarted.

Response:

```
Changes will take effect after OM Delivery is restarted.
Configuration complete. Please press Enter . . .
```

Press the Enter key, and go to step 11.

11   Exit the SDM maintenance interface:

> quit all

12   You have completed this procedure.

Installing or upgrading OpenSSH

Purpose

The following procedure provides instructions on how to install the OpenSSH fileset. For more information on OpenSSH, refer to "OpenSSH overview" in the Basics document.

Procedure

At the SDM

1 Log on to the SDM using the root user ID and password.

2 Use the following table to determine your next step.

If the software is	Do
on tape	insert the tape labeled CS2E0070 7.x (1 of 1) into the tape drive in slot 2, and continue with step 3 ***Note:*** Wait until the tape drive stabilizes (yellow LED is off) before you proceed.
in a directory	step 3

3 Access the maintenance interface:

 # sdmmtc

4 Use the following table to determine your next step.

If the software is	Do
on tape	list the filesets: **apply 0**
in a directory	list the filesets: **apply <directory path>**

5 Select the latest version of the OpenSSH fileset:

> select <x>

where

<x> is the number next to the OpenSSH fileset.

6 Apply the selected fileset:

> apply

7 Confirm the apply command:

`> y`

8 You have completed this procedure.

Installing or upgrading Reach Through SPM

Purpose

This procedure provides instructions on how to install or upgrade the Reach Through SPM application on the SDM.

Procedure

Installing Reach Through SPM

At the SDM

1   Log on to the SDM as the root user.

2   Use the following table to determine your next step.

If the software is	Do
on tape	insert the CS2E0070 7.x (1 of 1) tape into slot 2 of the tape drive, and go to step 3
	Note: Wait until the tape drive stabilizes (yellow LED is off) before you proceed.
in a directory	step 3

3   Access the maintenance interface:

`# sdmmtc`

4   Use the following table to determine your next step.

If the software is	Do
on tape	list the filesets: `apply 0`
in a directory	list the filesets: `apply <directory path>`

5   Select the Reach Through SPM fileset:

`> select <n>`

where

<n> is the number next to the Remote Registration System fileset.

6   Apply the selected fileset:

`> apply`

7 Confirm the apply command:

> `y`

8 You have completed this procedure.

Installing or upgrading the GR740 TCP/IP Pass Through application

Purpose

Use this procedure to install or upgrade the GR740 TCP/IP Pass Through application on the SDM.

Prerequisites

To ensure a successful GR740 TCP/IP Pass Through operation:

- Ensure that the Distributed Computing Environment (DCE) is installed and configured, if you want to use the GR740 TCP/IP Pass Through application in secure mode.

- Ensure that the settings for office parameters "eadas_dc_interface" and "eadas_nm_interface" in table OFCVAR, and the settings for the EADAS SOCs (OAM00005 and OAM00006) are correct for your configuration.

- Ensure that OAM00004 for EADAS/DC is ON and that office parameters "eadas_mpc_and_link" and "netminder_mpc_and_link" are appropriately datafilled in table OFCVAR when BX25 connectivity is required.

The following table lists the supported configurations for EADAS GR740 TCP/IP.

CM EADAS TCP/IP configurations

Supported configurations	Setting for eadas_dc_interface	Setting for eadas_nm_interface	SOC OAM00005	SOC OAM00006
DC and NM over BX25	X25	N/A	ON	IDLE
DC and NM over TCP/IP	TCP_IP	N/A	ON	IDLE
DC and Netminder over BX25	X25	X25	IDLE	ON
DC over BX25 and Netminder over TCP/IP	X25	TCP_IP	IDLE	ON
DC over TCP/IP and Netminder over BX25	TCP_IP	X25	IDLE	ON
DC and Netminder over TCP/IP	TCP_IP	TCP_IP	IDLE	ON

The following table lists the channel assignments for EADAS. Note that DC EADAS channels 1, 2 and 3 support TR-740/746 compliant header and message. NM EADAS channels 1, 2 and 3 support SR3942 and TR746 to Netminder.

EADAS channel assignments

Description	Service name	TCP port	MTS offset
DC EADAS lc 1	DC_EADAS_LOG_CHAN1	9550	234
DC EADAS lc 2	DC_EADAS_LOG_CHAN2	9551	235
DC EADAS lc 3	DC_EADAS_LOG_CHAN3	9552	236
NM EADAS lc 1	NM_EADAS_LOG_CHAN1	9553	237
NM EADAS lc 2	NM_EADAS_LOG_CHAN2	9554	238
NM EADAS lc 3	NM_EADAS_LOG_CHAN3	9555	239

Procedure

Installing the GR740 TCP/IP Pass Through application

At the SDM

1   Log in to the SDM as the root user.

2   Use the following table to determine your next step.

If the NCL filesets are	Do
on tape	insert the CS2E0070 7.x (1 of 1) tape in slot 2 of the tape drive, and continue with step 3 *Note:* Wait until the tape drive stabilizes (yellow LED is off) before you proceed.
in a directory	step 3

3   Access the maintenance interface:

 # sdmmtc

The SDM maintenance menu appears, with menu selections highlighted in the left column.

4   Use the following table to determine your next step.

If the NCL filesets are	Do
on tape	list the filesets: `> apply 0`
in a directory	list the filesets: `> apply <directory path>`

5   Select the GR740 fileset:

`> select <x>`

where

   x is the number next to the GR740 TCP/IP Pass Through fileset

6   Apply the GR740 fileset:

`> apply`

7   Confirm the **apply** command:

`> y`

Response

```
GR740 Pass Through Installation

Command in Progress, x filesets to process.
Processing fileset x.

APPLYING GR740 Pass Through xx.xx.xx.xx

Since the following filesets were applied to the system
for the first time, their configuration programs will
now be executed.
```

8   Press Enter to begin configuration.

If	Do
you are not configuring GR740 TCP/IP Pass Through in secure mode	enter **n**
you are configuring GR740 TCP/IP Pass Through in secure mode	enter **y**

The system displays a response indicating successful installation.

9   You have completed this procedure.

Commissioning X.25 connectivity

Purpose

Use this procedure to commission or recommission X.25 connectivity on the SDM from the configuration level (sdmconfig).

Note: You can also commission or recommission X.25 from the X25 level of the maintenance interface (sdmmtc x25). The same commands are used at both levels to set the X.25 base and controller licenses, and the Data Terminal Equipment (DTE) addresses for both X.25 ports.

Task flow diagram

The following task flow diagram provides an overview of the process. Use the instructions in the procedures that follow the flowchart to complete the tasks.

Task flow for commissioning X25 connectivity

Log in to the SDM.

↓

Access the
sdmconfig level.

↓

Access the
X25 step level.

↓

Set the base and
controller licenses.

↓

Set the DTE
addresses for both
ports on domain 0.

↓

Set the DTE
addresses for both
ports on domain 1
if required.

↓

End

This flowchart summarizes the process.

Use the instructions in the procedures that follow this flowchart to perform the tasks.
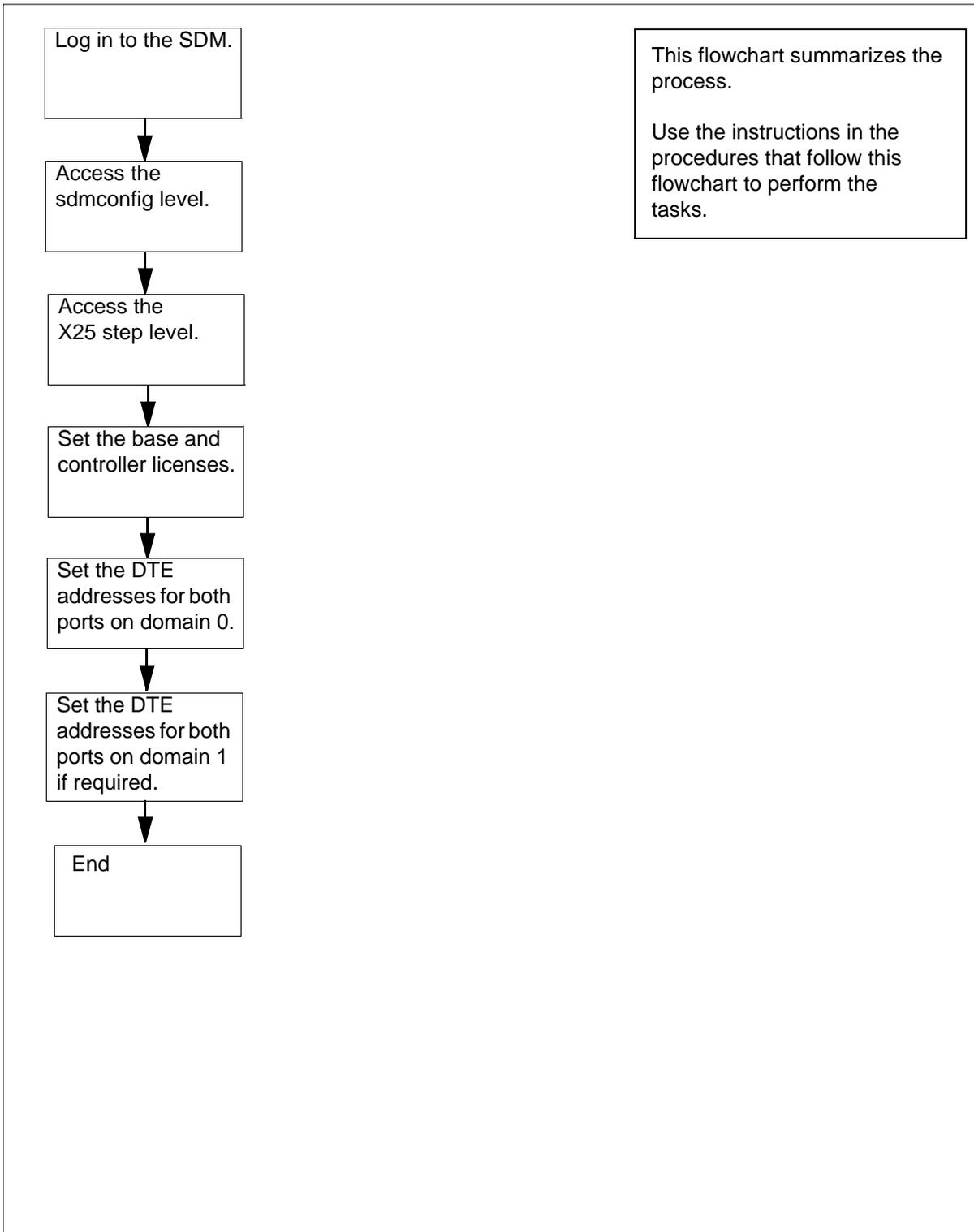
Procedure

If you are commissioning X.25 connectivity for the first time, follow the instructions in the procedure <u>Configuring X.25 licences</u> below. If you are recommissioning X.25 on domain 0 or domain 1, follow the instructions in <u>Configuring DTE addresses on page 132</u>.

Configuring X.25 licences

At the SDM

1   Log in to the SDM as the root user.

2   Access the configuration level:

     # sdmconfig

3   Access the X.25 commissioning step level:

     > step <#>

     where

         #

         is the number next to the X.25 commissioning step.

4   Initiate the configuration process:

     > change

5   When prompted, enter the new Base license key. The Base license key is the 28 alphanumeric character string for the X.25 hardware that you are commissioning.

6   When prompted, enter the new Controller license key. The Controller license key is the 28 alphanumeric character string for the X.25 hardware that you are commissioning.

     Example response

```
X25 Connectivity values to be changed:

Base license key: 3xcmwj6p4wmnxhyknmnbwvqzr2aa
Controller license key:
5me5q7itsuba5hyknmnbwvqzr2aa

Proceed with these values?
Enter Y to confirm, N to reject, or E to edit:
```

7   When prompted, confirm the values:

     > y

     Response

```
Change - Command submitted.
```

8   You have completed this procedure. To continue commissioning X.25 connectivity, follow the instructions in the procedure Configuring DTE addresses.

Configuring DTE addresses

At the X.25 commissioning step level

1   Configure the DTE addresses of the X25 ports on domain 0:

```
> change 0 <port>
```

where

   port
      is 0 or 1

2   Enter the DTE address (5 to 15 digits) that corresponds to the port.

Example response

```
X25 Connectivity values to be changed:

DTE address for domain 0 port 0: 123456

This action will affect service on the specified
port.

Proceed with these values?
Enter Y to confirm, N to reject, or E to edit:
```

3   Confirm the values:

```
> y
```

Example response

```
Change 00 - Command submitted.
```

4   Repeat steps 1 through 3 for the other port.

5   Use the following table to determine your next step

If the system	Do
has an X25 card in domain 1	step 6
does not have an X25 card in domain 1	you have completed this procedure

6   Configure the DTE addresses of the X25 ports on domain 1:

```
> change 1 <port>
```

where

port
    is 0 or 1

7   Enter the DTE address (5 to 15 digits) that corresponds to the port, and press the Enter key.

Example response

```
X25 Connectivity values to be changes:

DTE address for domain 1 port 0: 123456

This action will affect service on the specified
port.

Proceed with these values?
Enter Y to confirm, N to reject, or E to edit:
```

8   Confirm the values:

> y

Example response:

```
Change 10 - Command submitted.
```

9   Repeat steps 6 through 8 for the other port.

10   You have completed this procedure.

Removing DDMS filesets

Purpose

Use this procedure to remove the DDMS filesets, as well as the DDMS logical volumes, only if DDMS is no longer required.

Procedure

Removing DDMS filesets

At the local VT100 console

1   Log into the SDM using the root user ID and password.

2   Access the SWIM level of the maintenance interface:

`# sdmmtc swim`

3   Access the Details level:

`> details`

4   Remove the DDMS filesets:

`> remove   <n>`

where

   `<n>`
       is the number next to each of the following DDMS filesets

- OSS and Application Svcs
- OSS Comms Svcs
- DMS Data Mgmt Sys Phase1 (SDM14 only)
- ObjectStore Database Svc (SDM14 only)

5   When prompted, confirm the remove command:

`> y`

6   Delete the file log device for DDMS. Start the log delivery
commissioning tool if it does not automatically appear:

> **# logroute**

The Logroute Main Menu screen appears.

```
                Logroute Main Menu


        1 - Device List
        2 - Global Parameters
        3 - CM Configuration File
        4 - Gdd Configuration
        5 - Help
        6 - Quit Logroute




   Enter Option ==>
```

7   Access the Device List Menu:

> **> 1**

The Device List Menu screen appears.

```
                Device List Menu


        1 - View Device
        2 - Add Device
        3 - Delete Device
        4 - Modify Device
        5 - Help
        6 - Return to Main Menu




   Enter Option ==>
```

8   Access the Delete Device menu screen:

> **3**

The system displays the list of configured devices and prompts you to enter the number of the device that you want to delete.

Example response

```
            Delete Device Menu
Enter ABORT to return to Device List Menu
       Devices:                          Type:
       1 - HOST: any          PORT: 8551     TCPIN
       2 - HOST: 10.102.4.4   PORT: 14450    TCP
       3 - /data/logs/faults                 FILE




 Enter device number to delete ==>
```

9   Delete the file log device for DDMS:

> **<x>**

   where

      <x>
      is the number next to the file log device for DDMS
      (/data/logs/ossaps/ossapslog)

   Response

   ```
   Device will be deleted permanently.
   Continue... (Y/N)[N]:
   ```

10   Confirm that you want to delete the selected device:

> **y**

Response

```
Save data completed -- press return to continue
```

11   Return to the Device List menu screen:

> **abort**

12   Return to the Logroute Main menu screen:

> **6**

13   Quit the logroute tool:

```
> 6
```

14   List the DDMS logical volumes:

```
# df -k
```

The logical volumes you need to remove are

- /osscomms
- /ossapslog
- /ossaps

15   Proceed with the removal:

```
# cd /
# unmount /ossaps
# unmount /ossapslog
# unmount /osscomms
# rmfs /ossaps
# rmfs /ossapslog
# rmfs /osscomms
# rmdir /ossaps
# rmdir /ossapslog
# rmdir /osscomms
# rm /data/logs/ossaps
# rm /data/ossaps
# rm /data/ossapslog
# rm /data/osscomms
# cd /sdm
# rm -rf osscomms
# rm -rf ossaps
```

16   You have completed this procedure.

Removing SDM application filesets

Purpose

This procedure provides instructions on how to remove application filesets that reside on the SDM.

You can display the list of application filesets available on the SDM at the Details level, which includes the version and status of each application fileset. An application fileset can be in one of the following states:

- APPLIED—the SDM is using the software. If a previous version of the fileset exists in the archived state, the applied fileset may be removed. In that case, the previous version is restored.

- ARCHIVED -— a backup version of the fileset is available and can be restored.

- FAILED— the fileset failed and must be reinstalled before use.

- OBSOLETED—the fileset is no longer active

Task flow diagram

The following task flow diagram summarizes the process. To complete the tasks, use the instructions in the procedure that follows the flowchart.

Task flow for Removing application filesets

Log in to the
SDM.

Access the
DETAILS
level.

Select and
remove
filesets.

Exit the main-
tenance inter-

End

To complete the tasks, use
the procedure that
follows the flowchart.
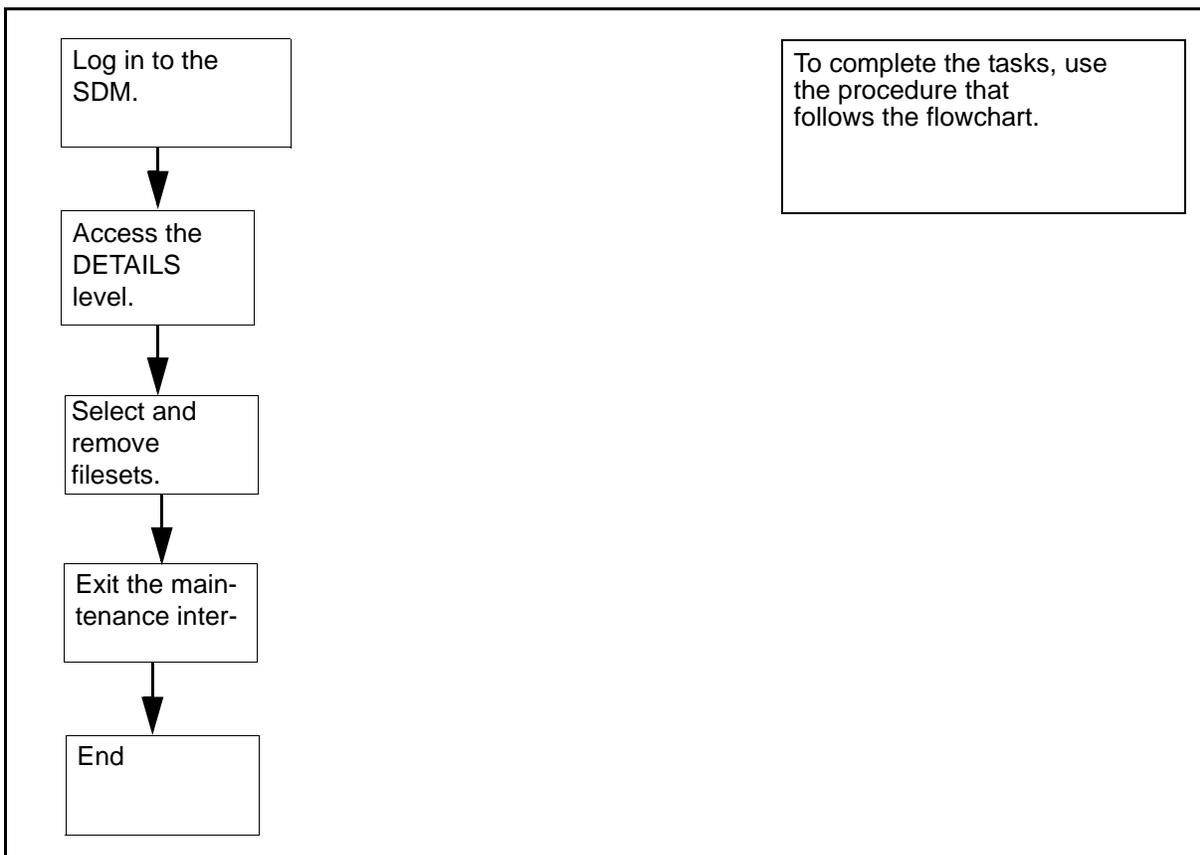
Procedure

Removing application filesets

At the local or remote VT100 console:

1 Log in to the SDM as the root user.

2 Access the DETAILS level of the maintenance interface:

 # sdmmtc details

3 Remove one or more filesets:

> remove <#>

where

<#>
is the number next to the fileset you want to remove

Note: You can specify as many numbers as you want, to
remove multiple filesets at one time.

4   When prompted, confirm the remove command:

> `y`

5   Exit the maintenance interface:

> `quit all`

6   You have completed this procedure.

Hardware upgrades

This section contains procedures associated with upgrading hardware components on your system.

Upgrading the CPU controller modules

ATTENTION
Nortel Networks recommends the usage of the system console (SP0) for the upgrade. When upgrading the CPU controller modules via TELNET, ensure that the device used to connect to the console port (modem, VDU - Visual Display Unit or VT-100 terminal, terminal server, dual input VDU, etc.) is configured with flow control off. Failure to turn off flow control may cause the SDM to hang during the reboot conducted at the end of each upgrade.

Purpose

Use this procedure when you want to upgrade the CPU controller modules independently from the SDM software.

ATTENTION
This procedure requires the complete shutdown of the SDM and all its applications. Upgrading a pair of CPUs can require two to four hours of a maintenance window to complete.

Refer to for a list of the CPU modules that are supported.

Prerequisites

> **CAUTION**
>
> **Risk of service disruption**
>
> This upgrade stops the SDM billing Application. Ensure that adequate backup space is available on the core before continuing with this procedure. To determine the amount of backup space required, refer to "Disk space requirements in "Preparing for SBA installation and configuration" in the Accounting document. To set up the backup space, refer to "Configuring the SBA on the DMS core" in the Accounting document.

> **ATTENTION**
> Nortel Networks recommends that you perform a system image backup before you upgrade the CPUs. Refer to the procedure "Creating system image backup tapes (S-tapes) manually" in the Security and Administration document.

Task flow diagram

The following task flow diagram provides an overview of the upgrade process. Use the instructions in the procedures that follow the flowchart to complete the tasks.

Task flow for Upgrading the CPU controller modules

```
┌─────────────────┐
│ Ensure the SDM is│
│ fault free.      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Busy billing     │
│ streams          │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Verify the SBA   │
│ went into        │
│ backup mode      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Close and send   │
│ downstream each  │
│ active billing   │
│ file             │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Busy the SDM     │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Delete the       │
│ CPU database     │
│ information      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Reboot the SDM   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Determine the    │
│ GMT for CPUs     │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Replace CPU      │
│ controller       │
│ modules          │
└─────────────────┘
         │
         ▼
        ▽ 1
```

```
        ▽ 1
         │
         ▼
┌─────────────────┐
│ Restore power to │
│ the SDM.         │
└─────────────────┘
         │
         ▼
      ⬡ GMT          N
      correct? ─────────►
         │
         │ Y
         ▼
┌─────────────────┐
│ Boot the SDM     │
│ from disk        │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Restore the      │
│ bootlist         │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Allow the CPUs   │
│ to complete      │
│ integration      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Force CPUs to    │
│ synchronize      │
│ clocks           │
└─────────────────┘
         │
         ▼
      ⬡ Upgrading      N
      CPU?  ──────────► ▷ 3
         │
         │ Y
         ▼
┌─────────────────┐
│ Extend paging    │
│ space (upgrades  │
│ only)            │
└─────────────────┘
         │
         ▼
        ▽ 2
```

```
Correct the        ▷ 1      ▽ 2
time setting                 │
   │                         ▼
   └──────►              ⬡ Upgrading      N
                         firmware? ──────────┐
                             │               │
                             │ Y             │
                             ▼               │
                   ┌─────────────────┐       │
                   │ Go to procedure │       │
                   │ "Upgrading      │       │
                   │ CPU firmware"   │       │
                   └─────────────────┘       │
                             │               │
                             ▽ 3             │
                   ┌─────────────────┐       │
                   │ RTS the SDM.    │◄──────┘
                   └─────────────────┘
                             │
                             ▼
                   ┌─────────────────┐
                   │ Ensure the h/w  │
                   │ and s/w have    │
                   │ been restored to│
                   │ previous state  │
                   └─────────────────┘
                             │
                             ▼
                   ┌─────────────────┐
                   │ Return all      │
                   │ billing streams │
                   │ to service      │
                   └─────────────────┘
                             │
                             ▼
                   ┌─────────────────┐
                   │ Verify SBA      │
                   │ billing stream  │
                   │ is actively     │
                   │ recording       │
                   └─────────────────┘
                             │
                             ▼
                   ┌─────────────────┐
                   │ End             │
                   └─────────────────┘
```

This flowchart summarizes the process.

Procedure

Upgrading the CPU controller modules

At the MAP display

1   Ensure that you have configured adequate backup space and performed a system image backup.

2   Ensure that the SDM hardware and software applications are fault-free, or that faults are understood and acceptable.

   Note: Any alarms that recur after a CPU upgrade should be understood, and any new alarms should be recognized and resolved without delay. If this does not occur, contact your next level of support.

3   Busy all billing streams on the core. Post the required billing stream:

   > `mapci;mtc;appl;sdmbil;post<stream>`

   where

   <stream>
      is the name of the billing stream

4   Busy the posted stream:

   > `bsy`

5   Repeat steps 3 and 4 for each billing stream.

6   For each configured billing stream, verify that at least one backup file exists on at least one of the configured backup volumes.

   Display the names of the backup volumes configured for the specified billing stream:

   > `mapci;mtc;appl;sdmbil;conf view <stream>`

   where

   <stream>
      is the name of the billing stream

7   Verify that an SBA backup file exists on at least one of the displayed backup volumes:

   > `diskut;lf <backup_volume>`

   where

   <backup_volume>
      is the name of the selected backup volume

Note: The name of each backup file begins with "BACK".

8   Repeat steps 6 and 7 for each billing stream.

At the local or remote VT100 console

9   Log on to the SDM using the root user ID and password.

10   Close and send downstream all unprocessed billing files. Use
the following table to determine your specific method.

Task	File transfer mode	Procedure in the Accounting document
Close billing files	All	"Closing billing files"
Send billing files downstream	Outbound file transfer (OFT)	"Sending billing files from disk"
	Inbound file transfer (IFT)	"Retrieving billing files for a stream set to inbound file transfer"
	Real-time billing (RTB)	"Sending billing files from disk"
	Automatic file transfer (AFT)	No manual action is required. Wait for SBA to deliver pending billing files to the downstream destination. There should be no pending files (at least, no more then one) for each AFT session. Use the following commands to query AFT sessions: `billmtc, appl, aft, aftconfg, list`. To verify which billing files for each session are still pending, enter the following commands: `billmtc, appl, aft, query <session_name>`.

Note: To display the details about a stream, refer to the
procedure "Listing billing streams" in the Accounting

document. To list all files currently stored in a stream, refer to procedure "Listing billing files" in the Accounting document.

If you are unable to send billing files to a downstream destination and you want to proceed with the upgrade, Nortel Networks recommends that you back up the billing files to a DAT tape. If required, refer to procedure "Copying billing files to tape (backup)" in the Accounting document.

Note: If you need to restore the billing files from tape and you have AFT or IFT configuration, contact your next level of support for instructions. For any other configuration, you can send the billing files from tape using the procedure "Sending billing files from tape" in the Accounting document.

At the MAP display

11   Access the SDM level of the MAP display:

> **mapci;mtc;appl;sdm**

Example response:

```
SDM InSv
```

12   Busy the SDM:

> **bsy**

Response:

```
SDM is in service
This command will cause a service interruption.
Do you wish to proceed?
Please confirm ('YES', 'Y', 'N', or 'NO')
```

13   Confirm the busy command:

> **y**

Response:

```
SDM Bsy initiated.
SD Bsy completed.
```

At the local or remote VT100 console

14   Log in to the SDM as the root user.

15 Display information for the root volume group (rootvg):

```
# lsvg -p rootvg
```

Example response

```
root vg:
PV NAME   PV STATE   TOTAL PPs   FREE PPs   FREE
DISTRIBUTION
hdisk0    active     1013        499
     175..31..00..125
                                              ..168
hdisk7    active     1013        499
     170..137..00..00
                                              ..192
```

16 Record which hard disks (physical volumes) provide rootvg storage on the SDM. (In the example shown in step 15, the hard disks are hdisk0 and hdisk7.)

17 Delete the SDM configuration database information for the CPU controller modules currently installed on the system:

```
# ftcpuclean
```

18

+--+
| **ATTENTION** |
| Before continuing, verify what keystrokes are required to |
| perform a "Break" on your VT100 console. |
+--+

Shut down the SDM and initiate a reboot:

```
# shutdown -Fr
```

19 Interrupt the boot process when the "COLD start" message appears by pressing the Break key.

Example response

```
FX-Bug>
```

Note: The "COLD start" message appears within approximately 2 min.

20 Determine the current Greenwich Mean Time (GMT) setting on the existing CPU controller modules:

```
FX-Bug> time
```

Example response

```
FRI NOV 16 18:41:49:00
```

Note: The time setting is the correct GMT setting. It does not necessarily reflect the local date and time.

21   Record the date and time response.

Note: If you are using a clock set to your local time to set the GMT on the new CPU controller modules, use the response in step 20 to calculate the number of hours that your local time differs from GMT.

At the modular supervisory panel (MSP)

22   Interrupt power to the SDM by turning off the MSP breakers. The MSP breakers, located at the front of the MSP, supply power to the SDM. Proceed according to the chassis structure of your system.

If your system contains	Do
a main chassis only	turn top two breakers off
a main chassis and I/O expansion chassis	turn all four breakers off

At the front of the SDM

23   Replace the CPU controller modules using the procedure "Replacing a CPU controller module during an upgrade" . When complete, return here, and continue with step 24.

At the MSP

24   Restore power to the SDM by turning on the MSP breakers. Proceed according to the chassis structure of your system.

If your system contains	Do
a main chassis only	turn top two breakers on
a main chassis and I/O expansion chassis	turn all four breakers on

Note: When you restore power, both LEDs on the CPU controller modules turn on briefly, then off. This action indicates that the module is seated correctly, is receiving power, and has passed its self tests.

At the local or remote VT100 console

25

> **ATTENTION**
>
> Before continuing, verify what keystrokes are required to perform a "Break" on your VT100 console.

Interrupt the boot process when the "COLD start" message appears by pressing the Break key.

> *Note:* The "COLD start" message appears within approximately 5 min.

If the following message appears after you press the Break key, press the Break key again after the prompt to stop the self/boots process.

```
Break detected; Self test/boots about to begin;
press <Break> anytime to abort all
```

Example response

```
FX-Bug>
```

26   Determine the current Greenwich Mean Time (GMT) setting on the new CPU controller modules:

FX-Bug> time

Example response

```
FRI NOV 16 18:41:49:00
```

27   Determine if the GMT setting for the new CPU controller modules is correct.

If the GMT setting is	Do
incorrect	step 28
correct	step 29

28

> ⚠️ **CAUTION**
>
> Potential loss of service
>
> Ensure that the GMT setting on the new CPU controller modules is later than the setting on the previous modules (recorded in step 21). Do not reboot the system if the GMT setting is earlier than the time of the shutdown. This action can corrupt the system configuration and status information.

Correct the time setting to the current GMT:

FX-bug> set <mmddyyhhmm>

> **where**
>> mm is the numeric month of the year (01 to 12)
>>
>> dd is the numeric day of the month (01 to 31)
>>
>> yy is the last two digits of the current year (00 to 99)
>>
>> hh is the current hour
>>
>> mm is the current minute (00 to 59)

29   Ensure that the environment parameters are set to the default values:

FX-bug> env;d

Response

```
Update with Auto-Configuration Defaults

Update Non-Volatile RAM (Y/N)?
```

30   Enter **y** to confirm the NVRAM update.

Response

```
Reset Local System (CPU) (Y/N)?
```

31   Enter **y** to reset the system.

32   Interrupt the reboot process by pressing the Break key.

Response

```
FX-bug>
```

33   Boot the SDM from disk:

FX-bug> pboot 1 0

Note: During this time, the CPU firmware is automatically upgraded.

If you	Do
return to the FX-bug prompt again	step 34
do not return to the FX-bug prompt again	step 35

34 Boot the SDM again:

`FX-bug> pboot 1 0`

35 At the login prompt, log in to the SDM as the root user.

36 Restore the bootlist:

`# bootlist -m normal <hdiskx> <hdisky>`

   where
   hdiskx and hdisky are the two physical disks that provide rootvg storage, as recorded in step 16.

37 Check the CPU firmware for the CPU in domain 0:

`# ftbugver -l CPU-0`

Note: The "-l" is a lower-case L.

38 Check the CPU firmware for the CPU in domain 1:

`# ftbugver -l CPU-2`

Note: The "-l" is a lower-case L.

The next three steps allow the CPU controller modules to complete integration.

39 Access the maintenance interface:

`# sdmmtc`

40 Access the hardware level:

`> hw`

41 Check the CPU integration status:

`> querysdm flt`

42 Once the CPU controller modules have been integrated, exit the maintenance level:

`> quit all`

43   Force each CPU controller module to assume mastership to synchronize their clocks:

```
# ftctl -switch
```

Repeat the command for the other CPU controller module.

44   Proceed according to whether you have upgraded or downgraded a module.

If you have	Do
upgraded a module	step 45
downgraded a module	step 48

45   View the current paging space to ensure that it is twice the memory size of the CPU:

```
# lsps -a
```

Example response:

Page Space	Physical Volume	Volume Group	Size	%Used	Active	Auto	Type
hd6	hdisk0	rootvg	512MB	1	yes	yes	lv

This response is an example of the paging space for a 256-MByte CPU controller module. In the example, the Size column, which represents the memory size, indicates 512MB. This is twice the size of the CPU, which is what it must be.

If the paging space is	Do
twice the size of the CPU	step 48
not twice the size of the CPU	step 46

46   Increase the paging space:

```
# sdmconfig cpu
```

The paging space is now reset at twice the memory size of the CPU.

47   Verify the paging space has been increased:

```
# lsps -a
```

Example response

Page Space	Physical Volume	Volume Group	Size	%Used	Active	Auto	Type
hd6	hdisk0	rootvg	1024MB	1	yes	yes	lv

This response is an example of the paging space for a 512-MByte CPU controller module. In the example, the Size column, which represents the memory size, indicates 1024MB. This is twice the size of the CPU, which is what it must be.

> *Note:* If the paging space did not increase, repeat steps 46 and 47. If after repeating these steps the paging space still does not increase, contact your next level of support.

At the MAP display

48   Access the SDM level of the MAP display:

> **> mapci;mtc;appl;sdm**

Example response

```
SDM ManB
```

49   Return the SDM to service:

> **> rts**

Response

```
SDM RTS initiated.
SDM RTS completed.
```

The system automatically returns all modules to service.

50   Ensure the SDM hardware and software applications have been restored to the previous inservice state (before the upgrade).

51   Investigate any SDM or CM alarms not recorded in pre-checks. For any alarms that cannot be resolved, contact your next level of support.

52   Return all billing streams to service. For each billing stream, complete steps 53 through 54.

53   Post the required billing stream:

> **> mapci;mtc;appl;sdmbil;post<stream>**

where

> **<stream>**
>   is the name of the billing stream

54   Return the posted stream to service:

> **> rts**

55 Post each billing stream again (see step <u>53</u>) and make sure that each stream is in-service (InSv).

56 Verify that billing is collecting records:

```
# query <stream_name>
```

where

<stream_name>
    is the name of the billing stream, for example, ama.

Note the number of records, wait approximately 10 seconds, and repeat the query command.

If the number of records	Do
increased from the first query command (meaning billing is working)	step <u>57</u>
did not increase from the first query command (meaning billing is not working)	contact your next level of support

57 You have completed this procedure.

Upgrading the CPU firmware

Purpose

This procedure provides instructions for upgrading the CPU firmware. Once you have upgraded the CPU controller module, you must check the version of the firmware. If the CPUs do not have the current firmware version, you must perform a firmware upgrade. You can also perform this procedure at any time in order to check the status of the CPU firmware.

Task flow diagram

The task flow diagram that follows provides a summary of this process. Use the instructions in the procedure that follows the flowchart to perform the tasks.

Task flow for upgrading the CPU firmware

Log in to the SDM.

Check the f/w version on the SDM.

Is the version correct? — **Y** → (1)

N

Busy and offline the SDM.

Is firmware version 17RM01 or 17IR06? — **N** → (3)

Y

Halt the SDM after 1st CPU upgrade.

(2)

(2)

Interrupt power to the SDM.

Unseat the CPU module

Restore power to the SDM.

Reinsert the CPU module

Log in to the SDM.

Check the f/w version on the SDM.

Busy and RTS the SDM.

(1)   End

This flowchart summarizes the process.

(3)

Reboot the system

Log in to the SDM.

Wait for CPUs to integrate

Busy and RTS the SDM.

(1)
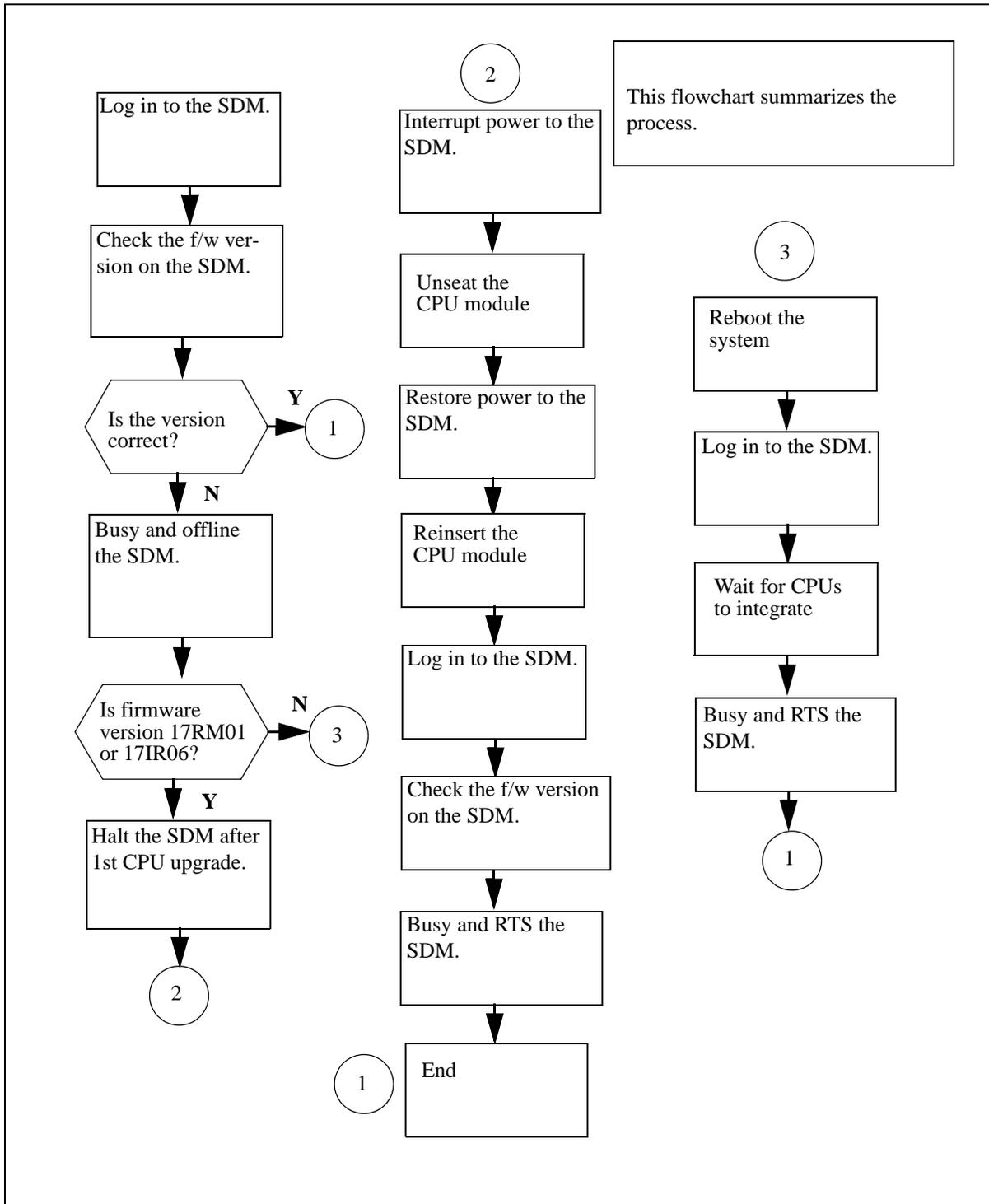
Procedure

Upgrading the CPU firmware

At the SDM local VT100 console

1   Log into the SDM as the root user.

2   Run the firmware process:

 # sdmfirmware

The system runs through the process and indicates whether a firmware upgrade is required. Note the current firmware version.

3   Use the following table to determine your next step.

If the firmware	Do
needs to be upgraded	step 4
does not need to be upgraded	step 29

At the MAP

4   Access the SDM level:

> mapci;mtc;appl;sdm

5   Busy the SDM:

> bsy

6   Confirm the busy command:

> y

7   Take the SDM offline:

> offl

At the SDM local VT100 console

8   Proceed with the firmware upgrade by pressing the Enter key.

9   Use the following table to determine your next step.

If the firmware version noted in step 2	Do
is 17RM01	step 18
is not 17RM01	step 10

10 Print the instructions displayed on the system, so that you can execute them after the system has rebooted.

11 Press the Enter key to reboot the system, and wait for the FX-Bug prompt.

12 At the FX-Bug prompt, enter:

```
FX-Bug> switch <cpu> ;h
```

where

> <cpu>
> is the CPU number (0 or 2) from step 10

13 Boot the system:

```
FX-Bug> gevboot
```

14 Log into the SDM as the root user.

At the SDM VT100 console

15 Run the firmware process:

```
# sdmfirmware
```

16 Wait for the CPU modules to integrate.

17 Press the Enter key to continue, and go to step 31.

At the SDM VT100 console

18 The system prompts you to halt the SDM after the firmware upgrade on one CPU is complete. The system also indicates that you must pull the CPU after the halt is complete. Before you halt the SDM, note which CPU the system has directed you to pull.

To halt the SDM, press the Enter key. Wait for the halt to complete before continuing the procedure.

> *Note:* Under some circumstances, the SDM reboots and does not halt. If this happens, wait for the reboot to complete, and then log into the SDM. Halt the SDM again. Interrupt the reboot process to access the FX-Bug prompt by pressing the Break or Esc key several times. When the SDM is at the FX-Bug prompt, you can interrupt the power to the SDM safely.

At the MSP

19 Interrupt power to the SDM by turning off both of the MSP breakers. The MSP breakers, located at the front of the MSP, supply power to the SDM.

20 Use the following table to determine your next step.

If your system contains	Do
a main chassis only	turn the top two breakers off
a main chassis and I/O expansion chassis	turn all four breakers off

At the front of the SDM

21 Unscrew the thumbscrews located on the top and bottom of the CPU module noted in step <u>18</u>. The thumbscrews are the captive type, and you cannot remove them from the module.

22 Depress the tips of the locking levers on the face of the CPU module.

Micro switch
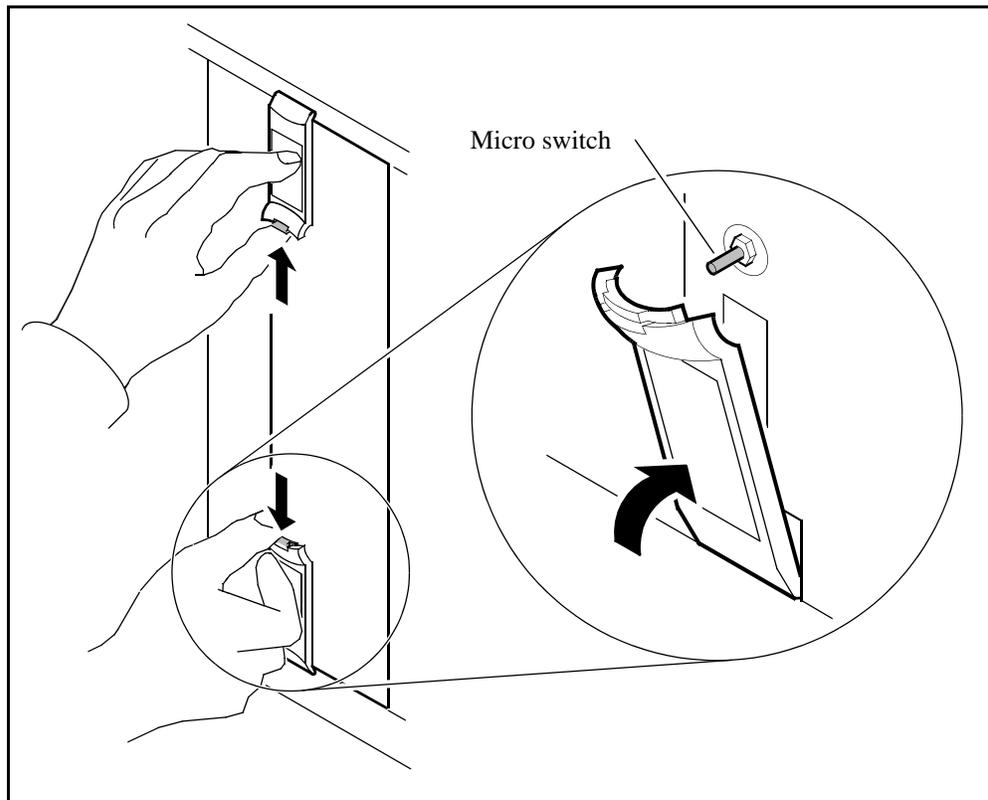
23   Open the locking levers on the face of the module by moving the levers outwards.
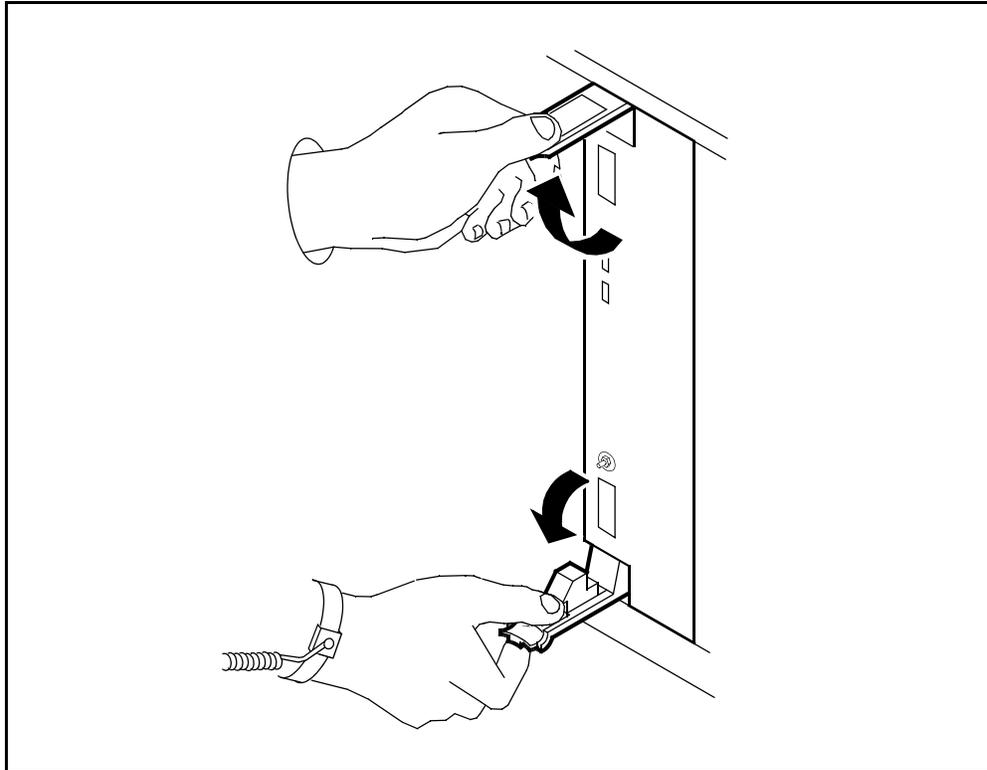
24 While grasping the locking levers, gently pull the module towards you until it protrudes about 2 in. (5 cm) from the SDM shelf.
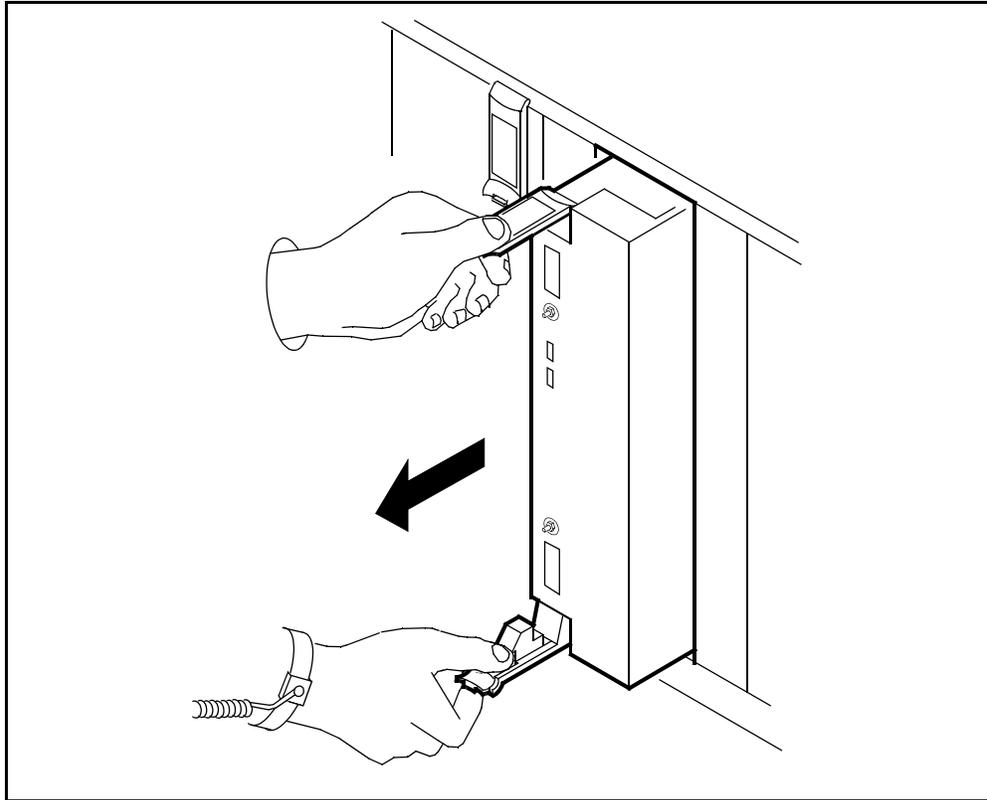
At the MSP

25 Restore the power to the SDM by turning on the MSP breakers, according to the chassis structure of your system.

If your system contains	Do
a main chassis only	turn the top two breakers on
a main chassis and I/O expansion chassis	turn all four breakers on

Note: Wait at least 15 seconds before re-inserting the pulled CPU.

At the front of the SDM

26 Gently push the CPU module that you pulled out in step back into the slot.
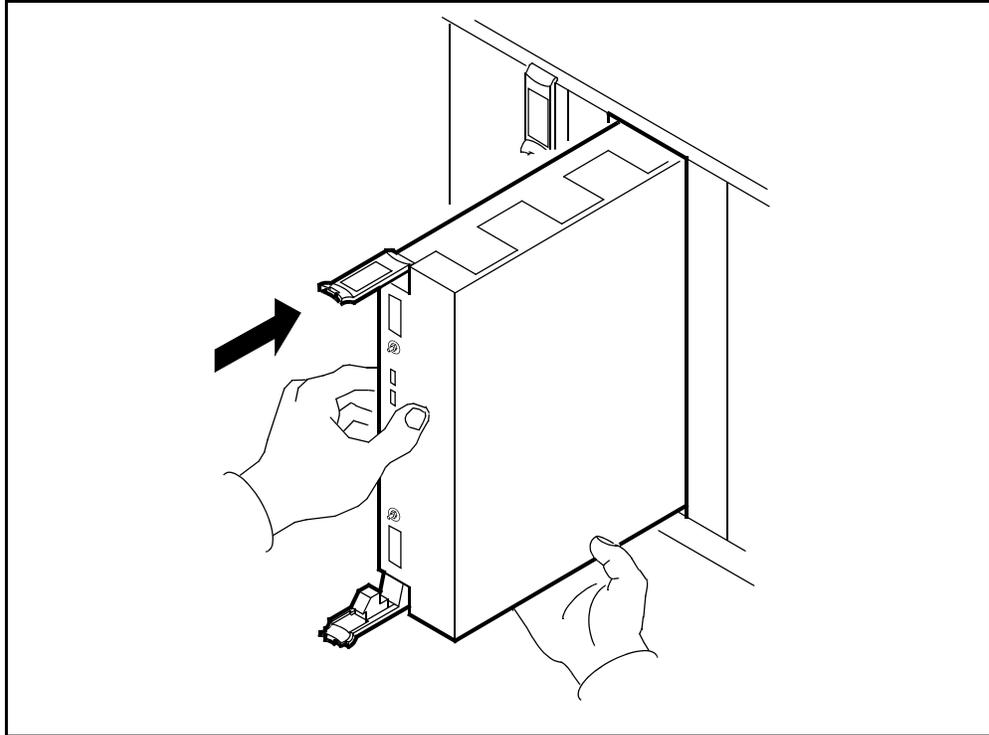
27 Close the locking lever to secure the module. Ensure that both the top and bottom micro switches are lined up with the locking levers to seat the module properly.
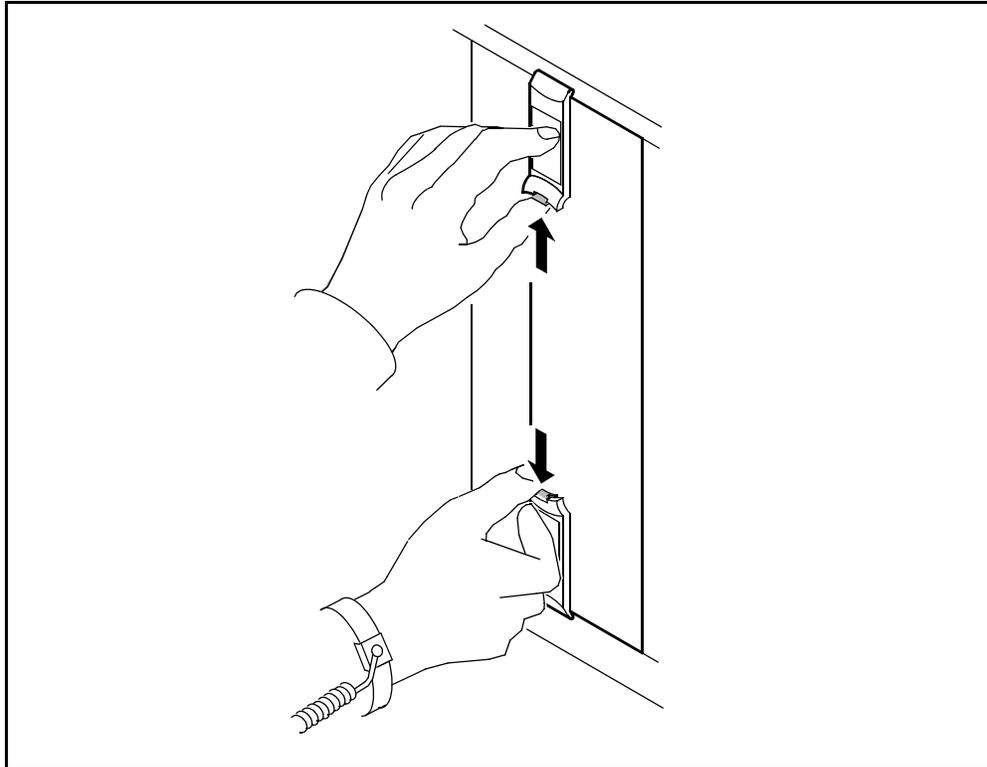
28 Tighten the thumbscrews on the module.

When you put the CPU controller module back into the slot, both LEDs on the module turn on briefly and then off. This action indicates that

- you have seated the module correctly
- the module is receiving power
- the module has passed all self-tests

At the local VT100 console

29 Log into the SDM as the root user.

> *Note:* The firmware on the other CPU is upgraded automatically when you log into the SDM. The automatic upgrade of the firmware on the other CPU is dependent on the successful completion of step 8, followed by steps 18 through 28.

30   The system indicates that the CPU modules have fully integrated with the SDM, and that they have the correct firmware. Press the Enter key to continue the procedure.

31   Return the SDM to service:

```
> rts
```

32   You have completed this procedure.

Installing an X.25 controller module and personality module

Purpose

Use this procedure if you have an MFIO hardware module and want to upgrade the SDM to incorporate an X.25 controller module (NTRX50FY) and an X.25 personality module (NTRX50FZ).

Task flow diagram

The task flow diagram that follows provides a summary of this process. Use the instructions in the procedures that follow the flowchart to perform the tasks.

Task flow for Installing an X.25 controller module and personality module

```
┌─────────────────────┐
│ Log into the SDM.   │
│                     │
│                     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Install the X.25    │
│ personality         │
│ module.             │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Install the X.25    │
│ controller module.  │
│                     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Ensure the cor-     │
│ rect version of the │
│ X.25 software.      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Provision the       │
│ X.25 hardware.      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ End                 │
│                     │
│                     │
└─────────────────────┘
```
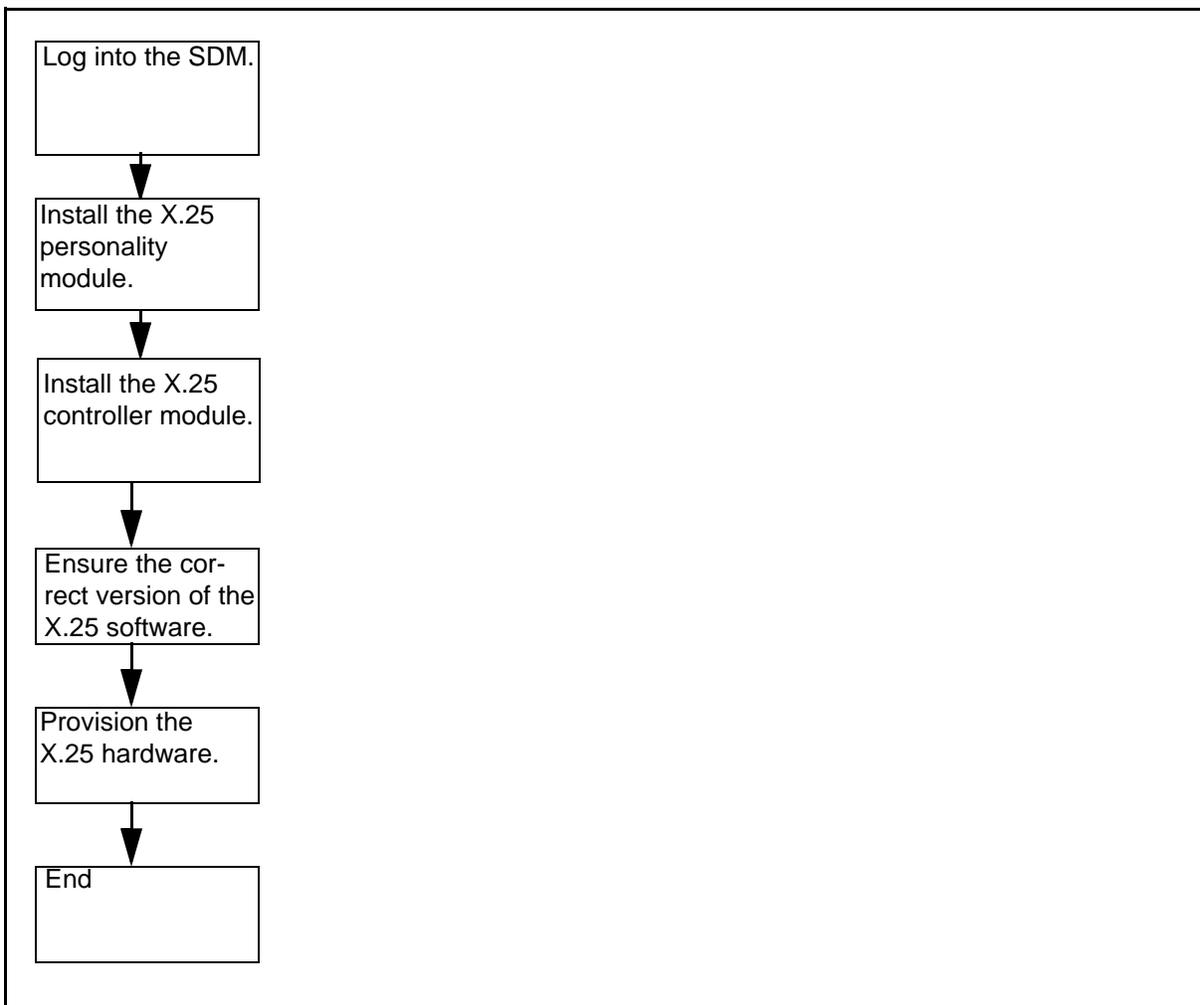
Procedures

Installing an X.25 controller module and personality module

At the back of the SDM

1   Insert the new X.25 personality module into the SDM shelf.

2   Gently slide the X.25 personality module into the shelf until it is fully inserted.
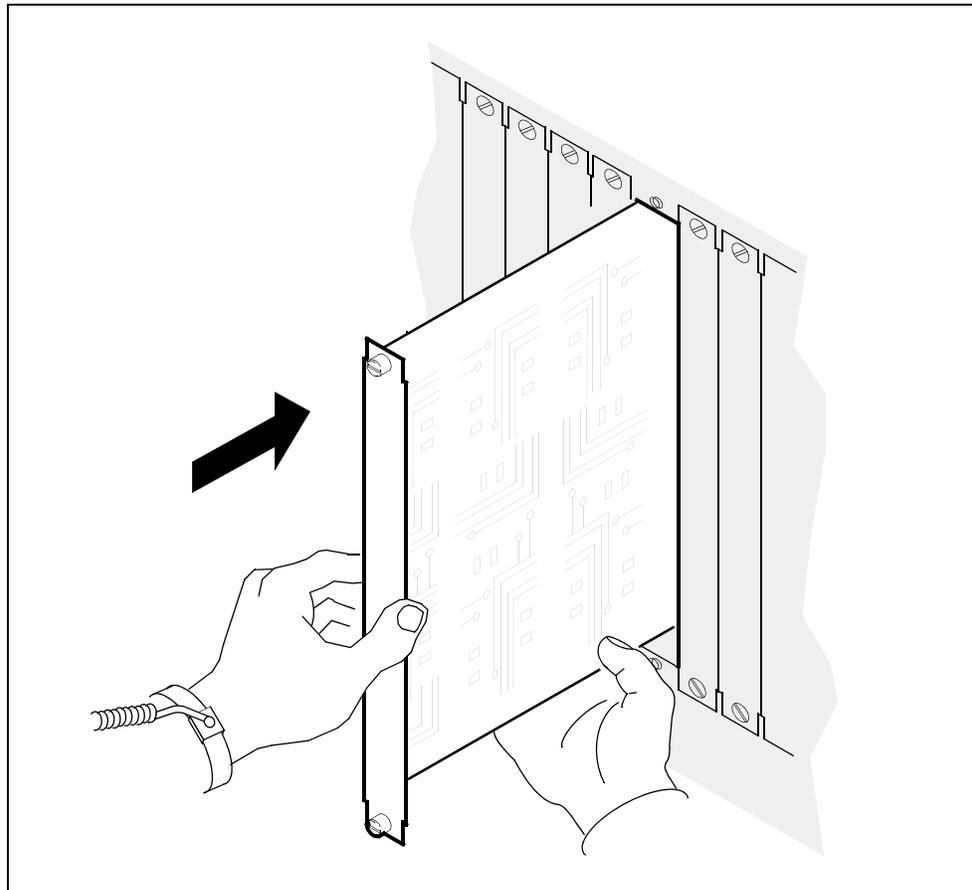
3   Tighten the thumbscrews at the top and bottom of the X.25 personality module.

At the front of the SDM

4

> **WARNING**
> **Static electricity damage**
> Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge grounding wrist strap.

5 Remove the filler plates covering the slots where you will install the new modules.

6 Insert the X.25 controller module into the SDM shelf.

> *Note 1:* If you are installing a single X.25 module, you must install it on domain 0.

> *Note 2:* You can install two X.25 controller modules as a logical pair in either the main or expansion chassis. The two slots used for this must be exactly 8 slot positions apart (for example, slots 1 and 9, or 2 and 10). Both modules in a logical pair must have the same PEC.

7 Gently slide the module into the shelf until it is fully inserted.
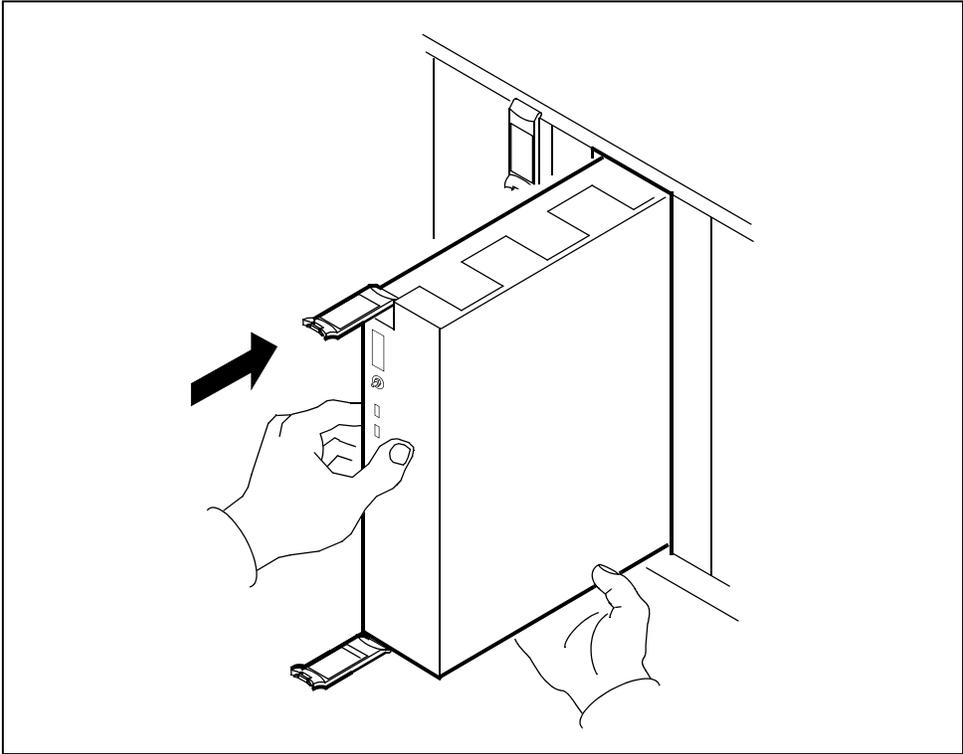
8   Close the locking lever to secure the module. Ensure that the top micro switch is lined up with the locking lever to seat the module properly.

Micro switch
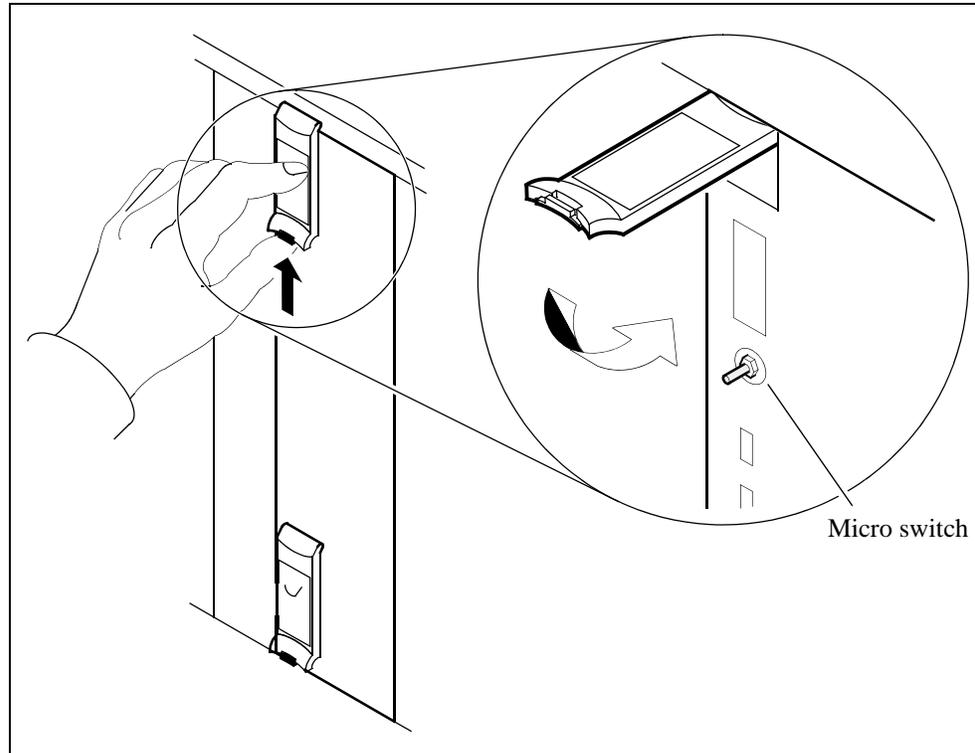
9   You have completed this procedure.

Provisioning the X.25 hardware

At the local or remote VT100 console

1   Log in to the SDM as root.

2   Ensure that the latest version of the X.25 software is available on the system. Insert the tape labeled *CS2E0007 7.x (1 of 1)* into slot 2.

> *Note:* Wait until the tape drive stabilizes (yellow LED is off) before you proceed.

3   Access the maintenance interface:

    # sdmmtc

4   Display the contents of the tape:

    > apply 0

5   Install the X.25 software:

> **`apply bundle x25`**

6   Confirm the command:

> **`y`**

Response:

`Command completed with no errors`

7   Access the Hw level of the Maintenance Interface:

> **`hw`**

8   Add the X.25 hardware:

> **`add <chassis> <slot> <pec> [SIMPLEX]`**

where

> **chassis**
> is *sdmm* for the main chassis, and *sdme* for the expansion chassis

> **slot**
> is the slot number of the X.25 card in domain 0

> **pec**
> is the PEC code of the X.25 controller module (NTRX50FY)

> **SIMPLEX**
> is an optional parameter. Enter this parameter if you are installing only one X.25 module on the system.

Response

`Add sdme 5 ntrx50fy - Command complete.`

9   You have completed this procedure.

Removing a standalone X.25 interface

Purpose

Use this procedure to delete the following hardware modules from the SDM:

- NTRX50FY - X.25 controller module
- NTRX50FZ - X.25 personality module

> ⚠️ **CAUTION**
> **Deleting an X.25 controller module**
> If you delete only one X.25 controller module, it must be the X.25 controller module in domain 1.

Prerequisites

To perform this procedure, you must obtain the following information:

- the chassis (SDMM for main chassis; SDME for expansion chassis)
- the slot number of the X.25 controller module

Task flow diagram

The following task flow diagram provides an overview of the process. Use the instructions in the procedure that follows the flowchart to perform the tasks.

Task flow for Removing the standalone X.25 interface

Log into system
as the root user.

↓

Access the
hardware level
of the RMI

↓

Manually busy the
X.25 controller
module(s)

↓

Delete the X.25
controller
module(s)

↓

Remove the
X.25 controller
module(s)

↓

Remove the
X.25 personality
module

↓

Reinstall the
filler face
plates

↓

End

This flowchart summarizes the process.

Use the instructions in the procedure that follows this flowchart to perform the tasks.
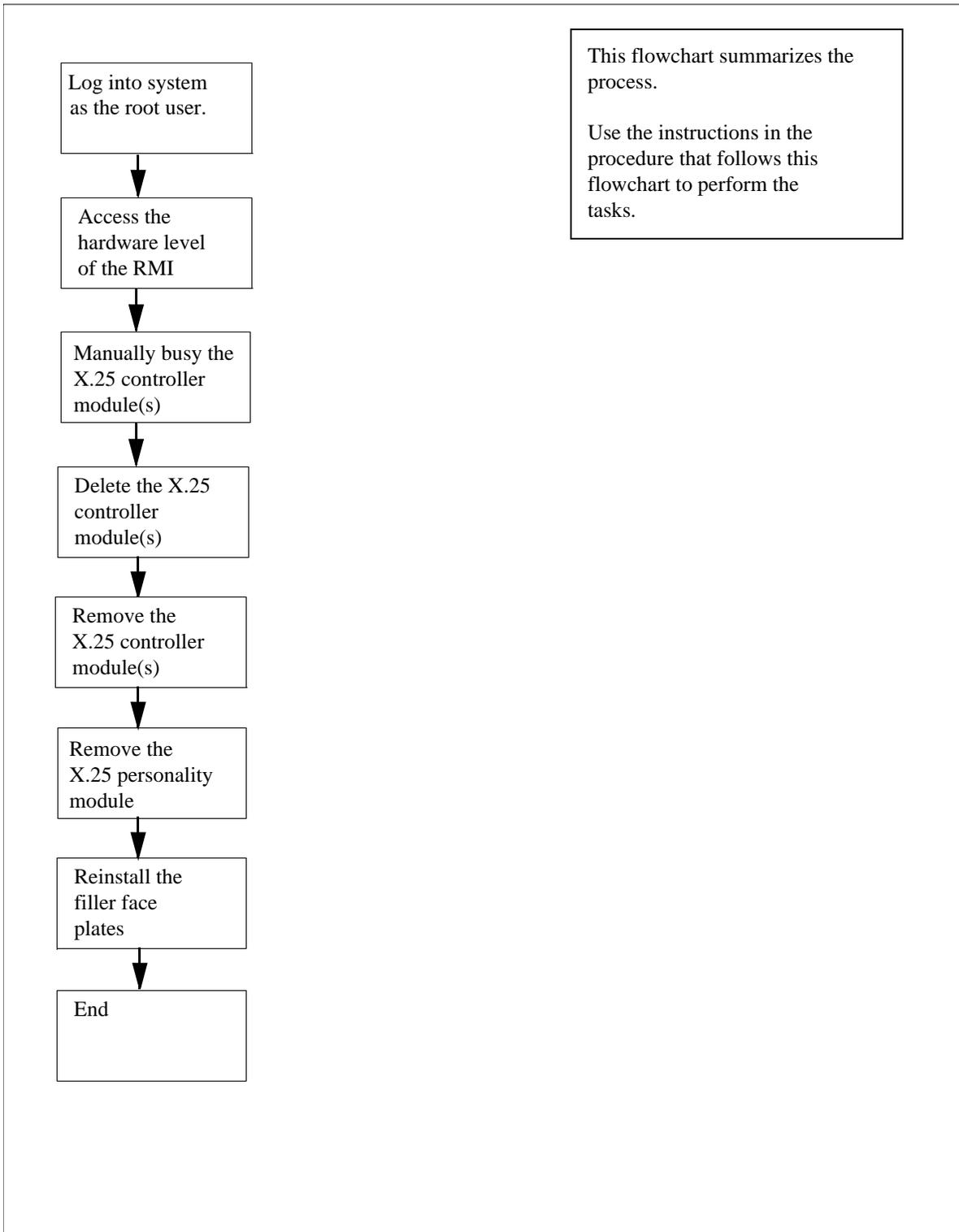
Procedure

Removing a standalone X.25 interface

At the local or remote VT100 console

1   Log in to the SDM as the root user.

2   Access the top menu level of the remote maintenance interface (RMI):

   # sdmmtc

3   Access the hardware (Hw) menu level:

   > hw

4

> CAUTION
> **Deleting an X.25 controller module**
> Deleting an X.25 controller module requires you to put the module in ManB state. These modules will not be in service. If you are deleting only one X.25 module, you do not need to put both modules in ManB state. Only put the module in domain 1 in the ManB state.

Manually busy the module in each domain:

> bsy <domain> X25

where

   domain
      is the domain (0 or 1) of the X.25 controller module that you are removing

Example

> bsy 1 X25

Example response:

```
Hardware Bsy - Domain 1 Device X25
This action will bring service down for all X.25
Ports in I/O domain 1.
```

```
Do you wish to proceed?
Please confirm ("YES", "Y", "NO", "N"):
```

5 Confirm the Bsy command:

```
> y
```

Example response

```
Hardware Bsy : Command submitted. Hardware Bsy
: Domain 1 Device X25.
```

6 When the Bsy command is finished, the "Please wait..."
message and the command confirmation disappear. The word
"initiated" also changes to "submitted", then changes to
"complete".

Example response

```
Hardware Bsy : Domain 1 Device X25 - Command
complete.
```

If you have not yet manually busied the module(s) you wish to
delete, go to step 4. Otherwise, continue this procedure.

> **Note:** After you see the response to the Bsy command, the
> X.25 controller module's state changes to "M" at the hardware
> menu level of the RMI.

7 Use the Locate command to determine the chassis and slot
number of the module you wish to delete:

```
> locate
```

Example response:

```
Site Flr RPos Bay_id Shf   Description Slot Eq
PEC
HOST 00  00   CSDM            SDME X25(0)  05
NTRX50FY FRNT HOST 00  00   CSDM            SDME
X25    05 NTRX50FZ BACK HOST 00  00   CSDM
   SDME X25(1) 13 NTRX50FY FRNT HOST 00  00
CSDM           SDME X25    13 NTRX50FZ BACK
```

> **Note:** The example shown only displays part of the
> information generated from the Locate command. Press the
> Enter key to scroll through the display.

8 Delete the module:

```
> delete chassis slot [SIMPLEX]
```

where

> *chassis*
>> is the chassis where the module is located (SDMM for the main chassis or SDME for the I/O expansion chassis)

> *slot*
>> is the slot number (from 1 to 16) where the module is located

> *SIMPLEX*
>> is an optional parameter. Enter this parameter if you are deleting only one X.25 module from the system.

> *Note:* If you do not specify SIMPLEX, the module in the corresponding slot of the other domain will also be deleted.

Example 1: Deleting only one module

> delete sdme 13 SIMPLEX

Example 1 response:

```
Module in slot 13 of SDME will be deleted.
X.25(1) will be deleted.
Do you wish to proceed?
Please confirm ("YES", "Y", "NO", "N"):
```

Example 2: Deleting both modules

> delete sdme 5

Example 2 response:

```
Module in slot 5 of SDME will be deleted.
X.25(0) will be deleted. Module in slot 13 of
SDME will also be deleted. X.25(1) will be
deleted.
Do you wish to proceed?
Please confirm ("YES", "Y", "NO", "N"):
```

9   Confirm that this is the module you wish to delete:

> **y**

10   The DEL command may take several minutes to complete. When the command is finished, the following message is displayed:

Example 1 response

Delete sdme 13 SIMPLEX - `Command complete.`

Example 2 response

`Delete sdme 5 - Command complete.`

11   If you are deleting both modules, after a few seconds the module disappears from the listing shown at the hardware menu level of

the RMI. If you are deleting one module, domain 1 will show a 'dash' at the hardware menu level of the RMI.

At the front of the SDM

12

> ⚠ **WARNING**
> **Static electricity damage**
> Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge grounding wrist strap.

13   Depress the tips of the locking levers on the face of the X.25 controller module.
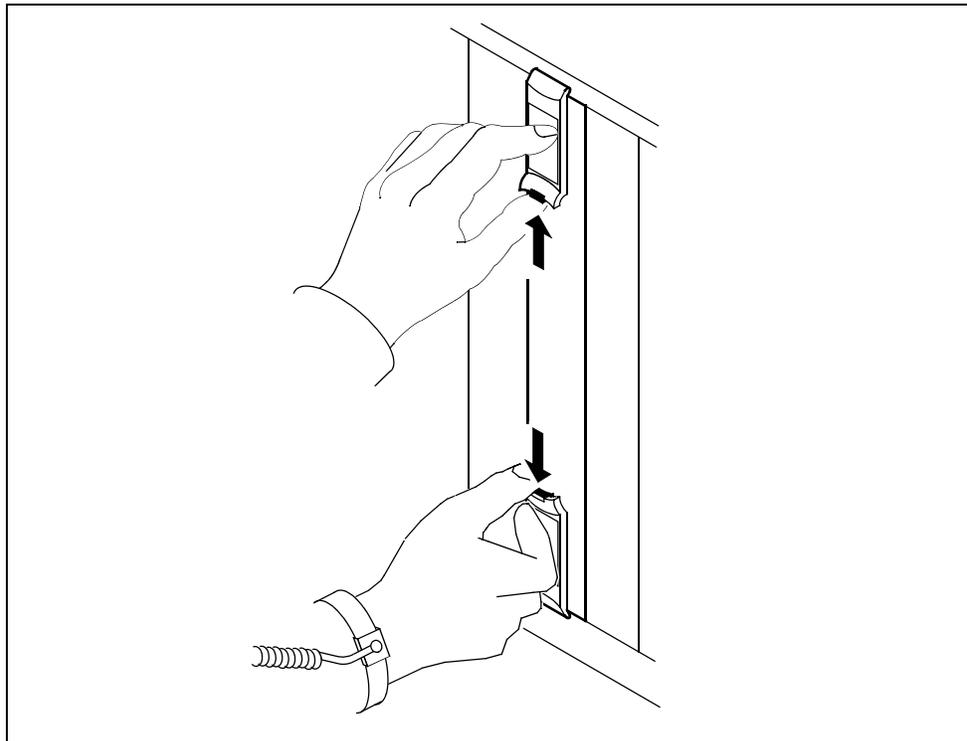
14 Open the locking levers on the face of the module by moving the levels outwards.
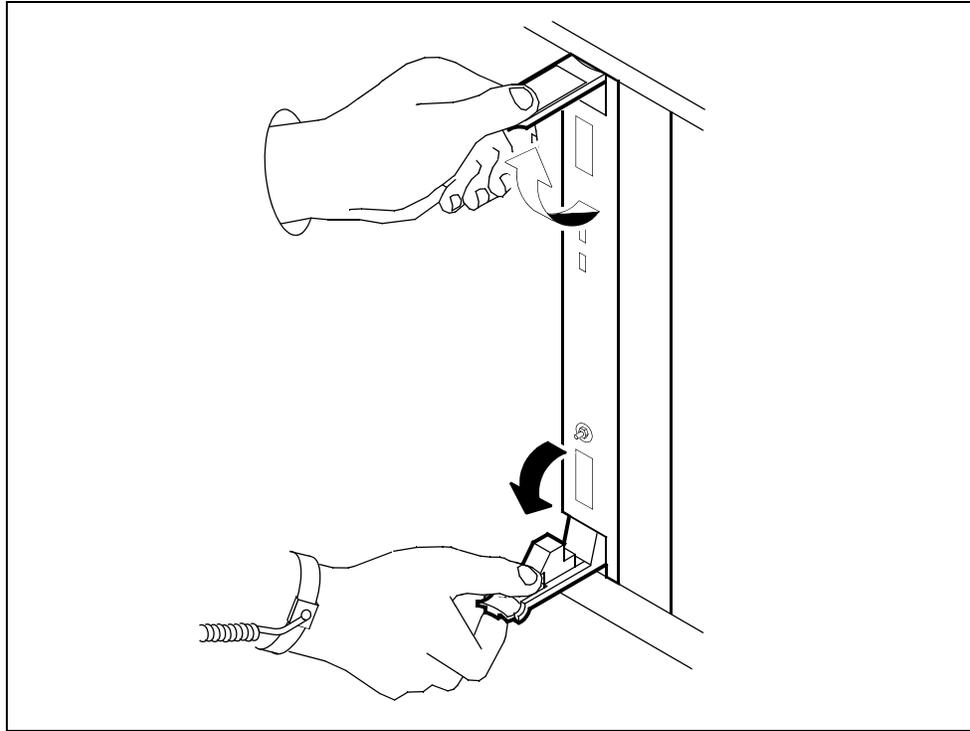
15 While grasping the locking levers, gently pull the module towards you until it protrudes about 2 in. (5 cm) from the shelf.
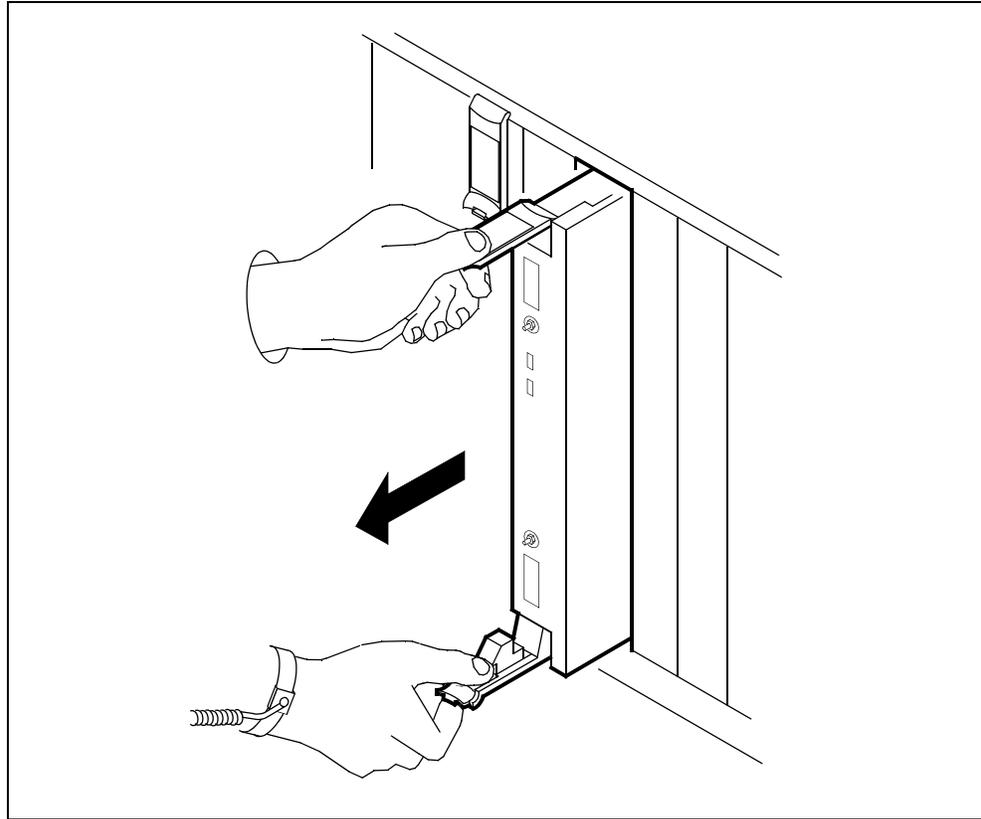
16   Hold the module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
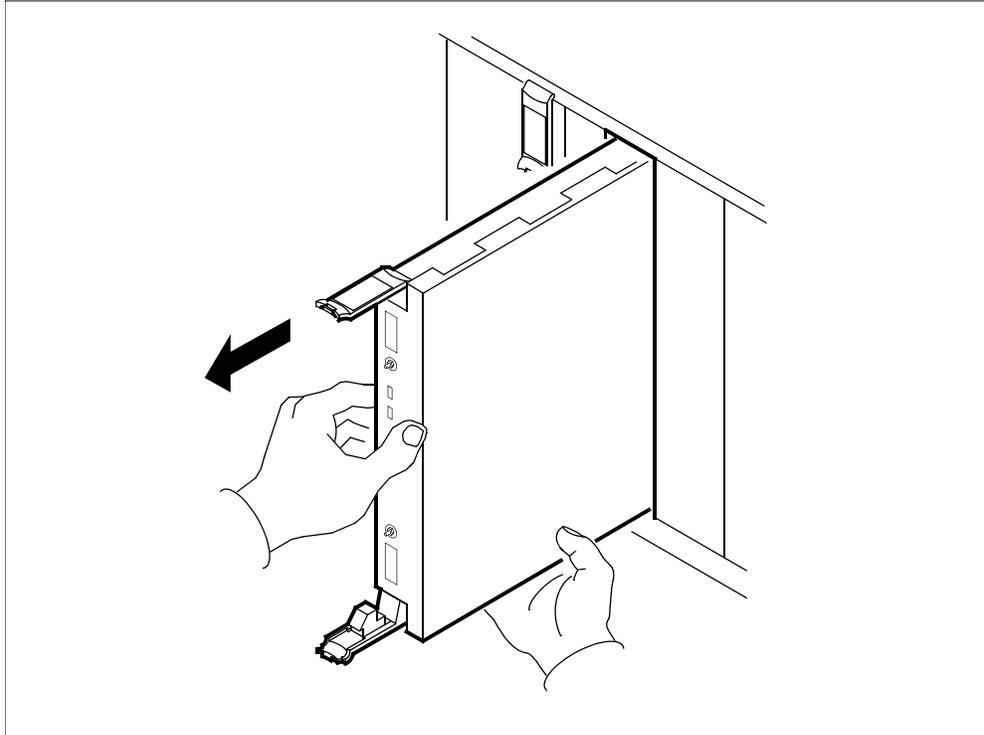
17   Place the module you have removed in an ESD protective container.

At the back of the SDM

18   Disconnect the X.25 modem connection cables from the X.25 personality module.

> *Note:* You need to disconnect either one or two modem cables, depending on whether the X.25 module is commissioned to use one or both of its X.25 ports.

19   Loosen the two thumbscrews located at the top and the bottom of the X.25 personality module.

   Note: The thumbscrews are the captive type, and cannot be removed from the module.

20   While grasping the thumbscrews, gently pull the X.25 personality module towards you until it protrudes about 2 in (5 cm) from the shelf.
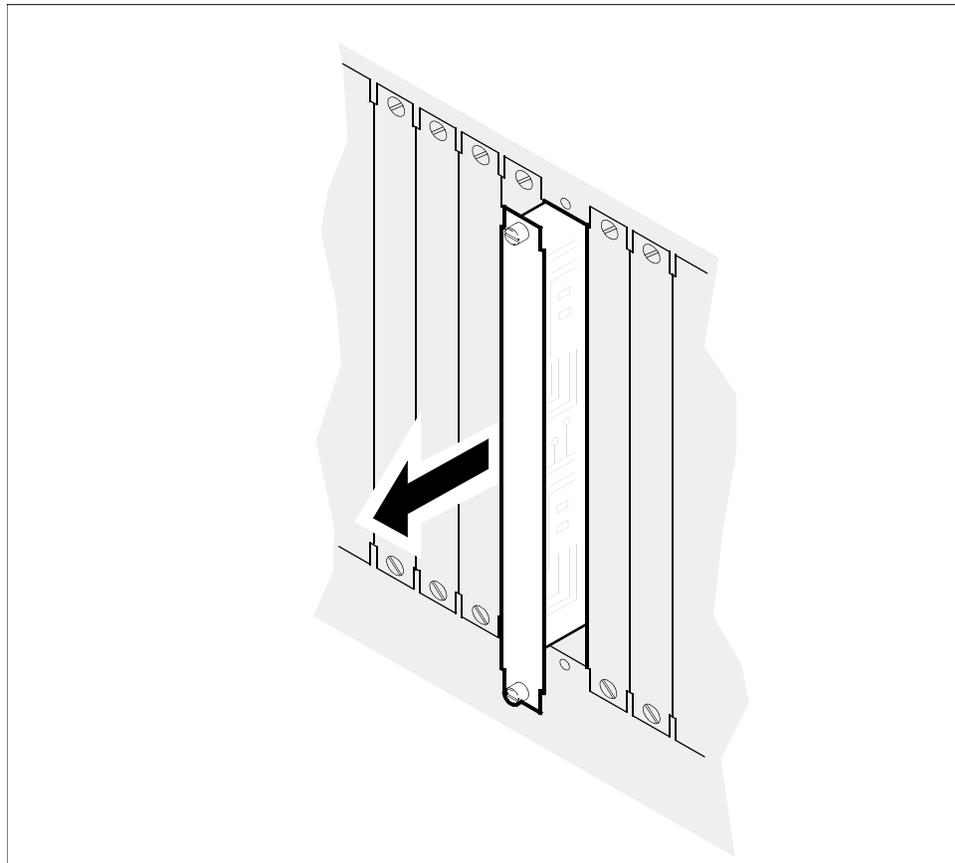
21 Hold the X.25 personality module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
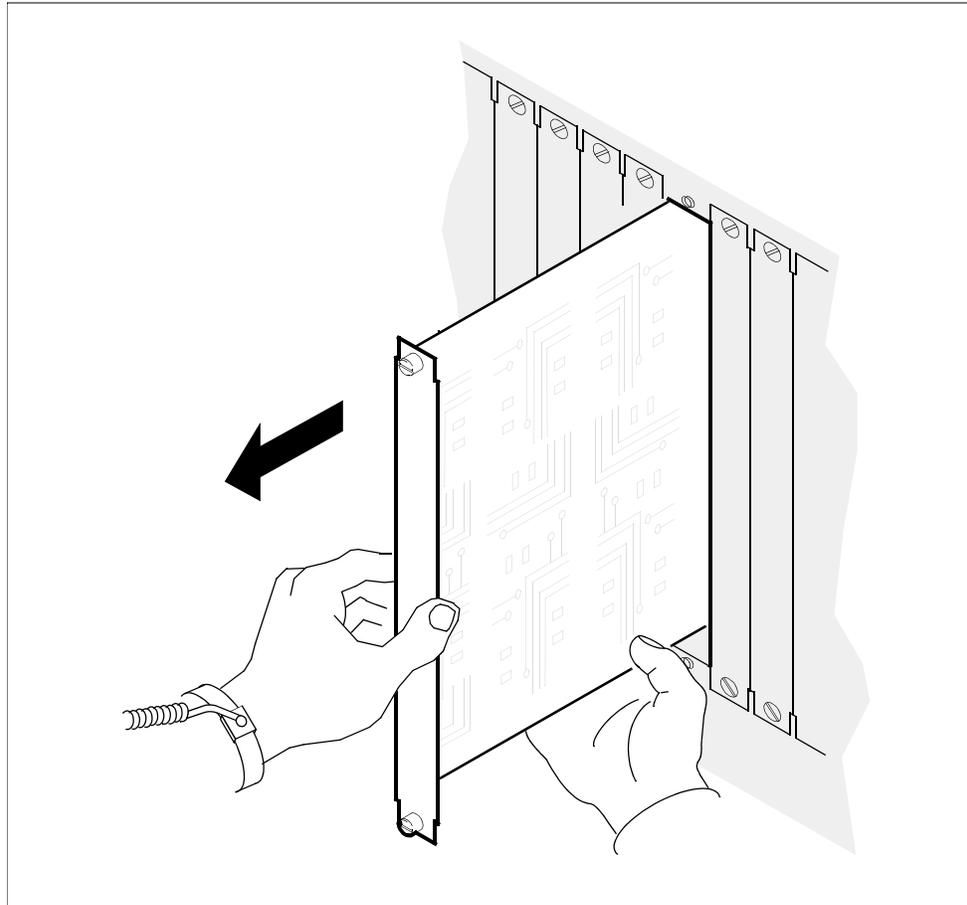
22 Place the X.25 personality module you have removed in an ESD protective container.

23 Reinstall the filler plates covering the slots from which you removed the modules.

24 You have completed this procedure.

Removing X.25 from your system

Purpose

This procedure only applies to SYNC X25 modules (standalone), and does not apply to X25 as part of the UMFIOs. The process of removing X.25 from the system has three phases:

- Deleting the X.25 hardware modules from the system

- Deleting the X.25 software

- Removing the X.25 hardware modules from the SDM(refer to the procedure)

Procedures

Removing X.25 from your system

At the SDM

1   Log in to the SDM as the root user.

2   Stop the X.25 daemon:

    # /etc/rc.psx25 stop

3   Take the X.25 controller module offline:

    # modchange -ol SYNC-<domain_num> -y

where

   <domain_num>
      is the domain number (0 or 1) of the X.25 controller module that you are taking offline

Use the following list to determine the domain number. The domain number is

- 0 if the module is located in one of the slots from 1 to 6 on the main chassis, or in one of the slots from 1 to 8 on the expansion chassis

- 1 if the module is located in one of the slots from 10 to 16 on the main chassis, or in one of the slots from 9 to 16 on the expansion chassis

Example of command

modchange -ol SYNC-0 -y

The system responds with warnings about the items that are about to go offline:

Warning: This request will not allow SYNC-0 to stay online.

Warning: This request will not allow pgen-0 to stay online.

Warning: This request will not allow SYNC-PM to stay online.

4   Take the X.25 personality module offline:

`# modchange -ol SYNCPM-<domain_num>`

where

<domain_num>
   is the domain number (0 or 1) of the X.25 personality
   module that you are taking offline.

Use the following list to determine the domain number. The
domain number is

- 0 if the module is located in one of the slots from 1 to 6 on the
  main chassis, or in one of the slots from 1 to 8 on the
  expansion chassis

- 1 if the module is located in one of the slots from 10 to 16 on
  the main chassis, or in one of the slots from 9 to 16 on the
  expansion chassis

Example of command

#modchange -ol SYNCPM-0

5   Take the logical device offline:

`# modchange -ol pgen<domain_num>`

where

<domain_num>
   is the domain number (0 or 1) of the logical device that you
   are taking offline

Use the following list to determine the domain number. The
domain number is

- 0 if the device is located in one of the slots from 1 to 6 on the
  main chassis, or in one of the slots from 1 to 8 on the
  expansion chassis

- 1 if the device is located in one of the slots from 10 to 16 on
  the main chassis, or in one of the slots from 9 to 16 on the
  expansion chassis

Example of command

modchange -ol pgen0

6   Delete the logical device:

 # rmdev -dRl pgen<domain_num>

where

<domain_num>
    is the domain number (0 or 1) of the logical device that you
    are deleting

Use the following list to determine the domain number. The
domain number is

- 0 if the device is located in one of the slots from 1 to 6 on the
  main chassis, or in one of the slots from 1 to 8 on the
  expansion chassis

- 1 if the device is located in one of the slots from 10 to 16 on
  the main chassis, or in one of the slots from 9 to 16 on the
  expansion chassis

Example of command

rmdev -dRl pgen0

Examples of system response:

pgen0 deleted

7   Delete the X.25 controller module:

 # rmdev -dRl SYNC-<domain_num>

where

<domain_num>
    is the domain number (0 or 1) of the controller module that
    you are deleting

Use the following list to determine the domain number. The
domain number is

- 0 if the module is located in one of the slots from 1 to 6 on the
  main chassis, or in one of the slots from 1 to 8 on the
  expansion chassis

- 1 if the module is located in one of the slots from 10 to 16 on
  the main chassis, or in one of the slots from 9 to 16 on the
  expansion chassis

Example of command

rmdev -dRl SYNC-0

Examples of a system response

SYNCPM-0 deleted

SYNC-0 deleted

8   Repeat steps <u>3</u> through <u>7</u> for each X.25 module installed in the system.

9

> ⚠ **CAUTION**
> **Loss of service**
> Do not continue to delete the X.25 software until you remove all X.25 modules. You must perform steps <u>3</u> to <u>7</u> in this procedure.

Delete the X.25 software:

 # /usr/lpp/psx25/tmp/psx25_remove

Note: The system may take several minutes to remove X.25 software. During this time the screen may display messages indicating that filesets are being removed from the system. The command prompt appears when all X.25 software is removed.

10   Remove all X.25 hardware installed on the system. Refer to the procedure <u>Removing a standalone X.25 interface on page 173</u>.

11   You have completed this procedure.

Adding I/O controller modules

Purpose

Use this procedure to add one of the following hardware modules to the SDM:

- NTRX50FU - I/O controller module with two 2-Gbyte disk drives and Ethernet

- NTRX50GP - I/O controller module with two 4-Gbyte disk drives and Ethernet

- NTRX50NL - I/O controller module with two 36-Gbyte disk drives and Ethernet

- NTRX50NY - X.25 controller module

I/O controller modules do not require LAN personality modules (NTRX50FS) installed at the back of the SDM except for the mandatory NTRX50GN I/O controller modules located in slots 2 and 3, and slots 13 and 14.

I/O controller modules can be added to slots 4 and 5, and 15 and 16, of the SDM main chassis, and to unoccupied slots in the I/O expansion chassis. All available slots can be used in the I/O expansion chassis to install two I/O controller modules as a logical pair; however, the left slot position of the left I/O controller module must be 8 slot positions apart from the left slot position of the right I/O controller module of the pair. For example, if the left I/O controller module of the pair occupies slots 1 and 2, the right I/O controller module must occupy slots 9 and 10. Both modules in a logical pair must have the same PEC.

The rear LAN personality module I/O controller module must occupy the lower number of the two rear slots that are associated with the front module. For example, if the new I/O controller module occupies front slots 4 and 5, its associated LAN personality module must be installed in rear slot 4. The unused rear slots remain covered by filler plates.

Prerequisites

To perform this procedure, you must have the following information:

- the chassis type (SDMM for a main chassis; SDME for an I/O expansion chassis)

- the I/O controller module's slot number (from 1 to 16)

- the I/O controller module's product engineering code (PEC)

Task flow diagram

The following flowchart provides an overview of the process. Use the instructions in the procedure that follows the flowchart to perform the task.

Task flow for Adding I/O controller modules

```
┌─────────────────┐      ┌─────────────────────────────────┐
│  Remove the     │      │  This flowchart summarizes the  │
│  filler face    │      │  process.                       │
│  plates         │      │                                 │
└────────┬────────┘      │  Use the instructions in the    │
         │               │  procedure that follows this    │
         ▼               │  flowchart to perform the       │
┌─────────────────┐      │  tasks.                         │
│  Insert the new │      └─────────────────────────────────┘
│  I/O controller │
│  modules        │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│  Insert the LAN │
│  personality    │
│  modules        │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Log in to the SDM. │
│                 │
│                 │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│  Access the     │
│  hardware level.│
│                 │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│  Add the I/O    │
│  controller     │
│  module         │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│  Monitor the    │
│  status of the  │
│  new modules    │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│  End            │
│                 │
│                 │
└─────────────────┘
```
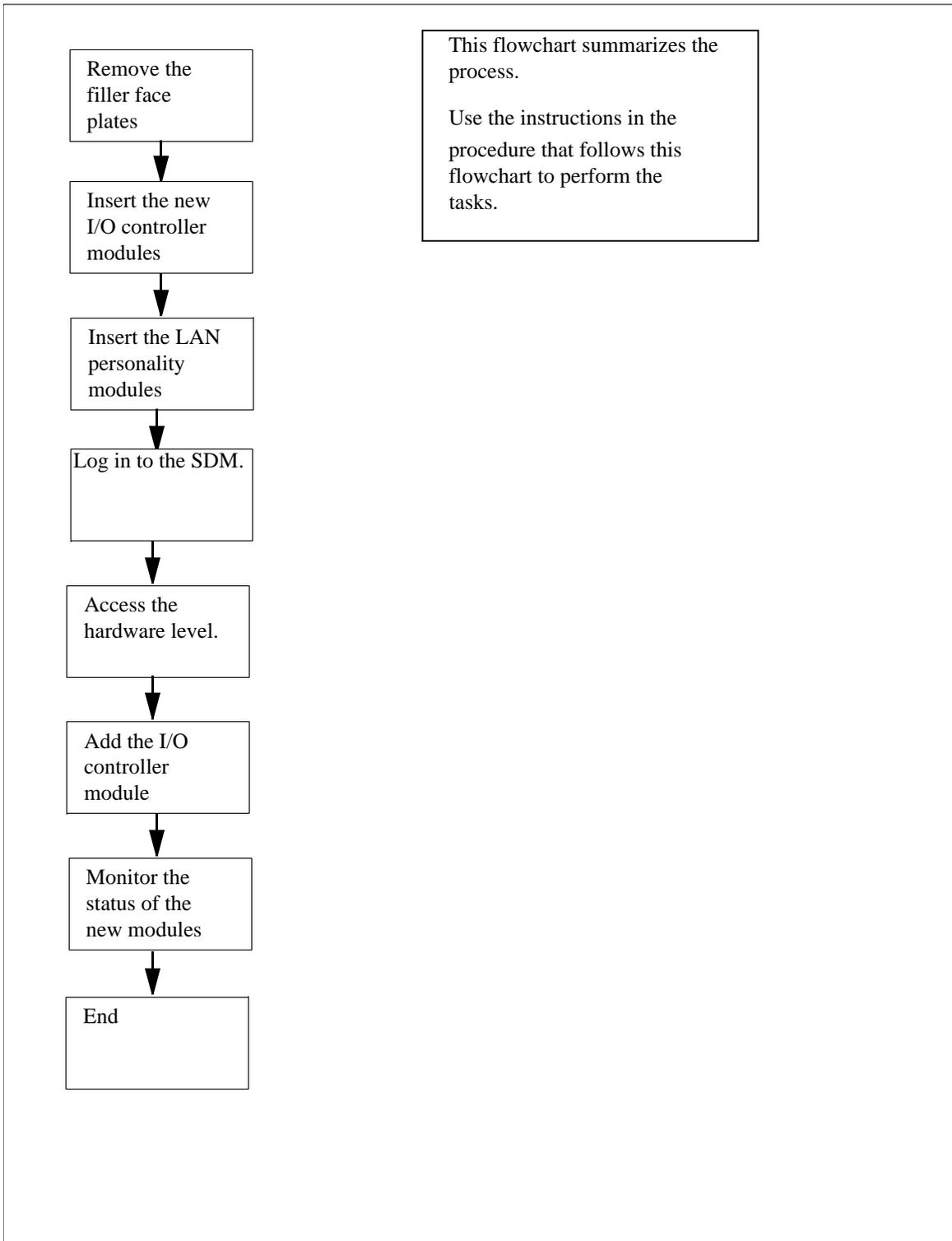
Procedure

Adding I/O controller modules

At the front of the SDM

1

⚠	**WARNING** **Static electricity damage** Wear an ESD grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on the ESD grounding wrist strap.

2   Remove the filler plates covering the slots in which you will install the new modules.

3   Insert the replacement module into the SDM shelf.

4   Gently slide the module into the shelf until it is fully inserted.
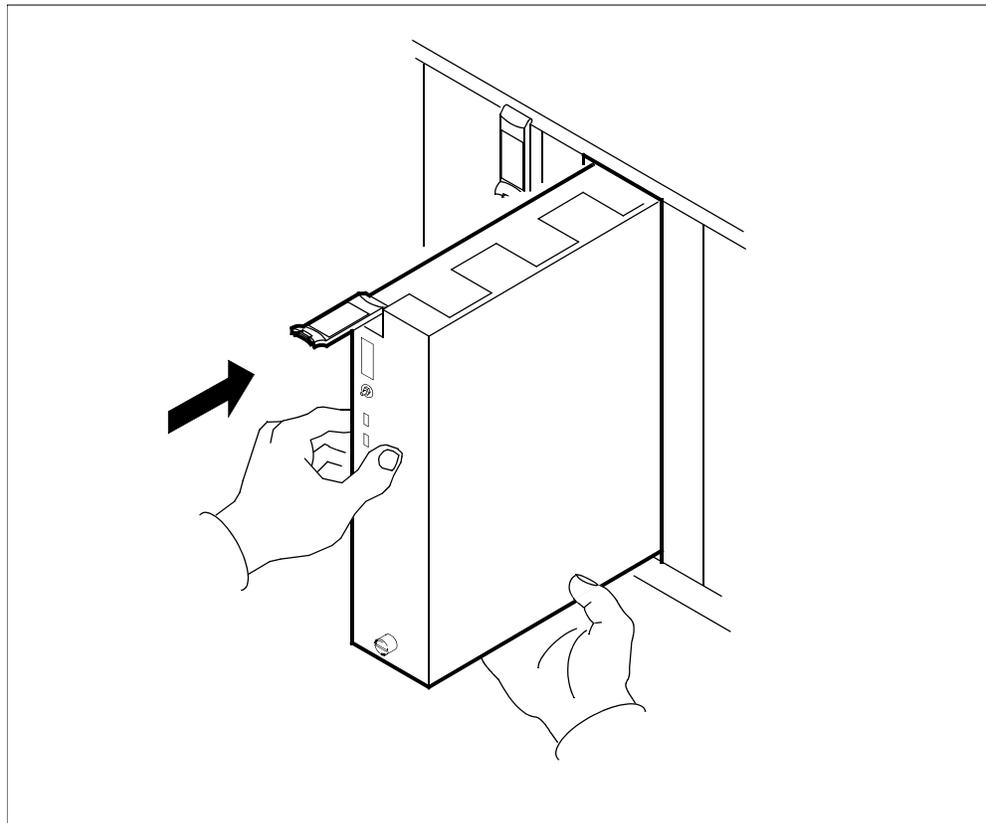
5 Close the locking lever to secure the module. Ensure that the top micro switch is lined up with the locking lever to properly seat the module.

Micro switch
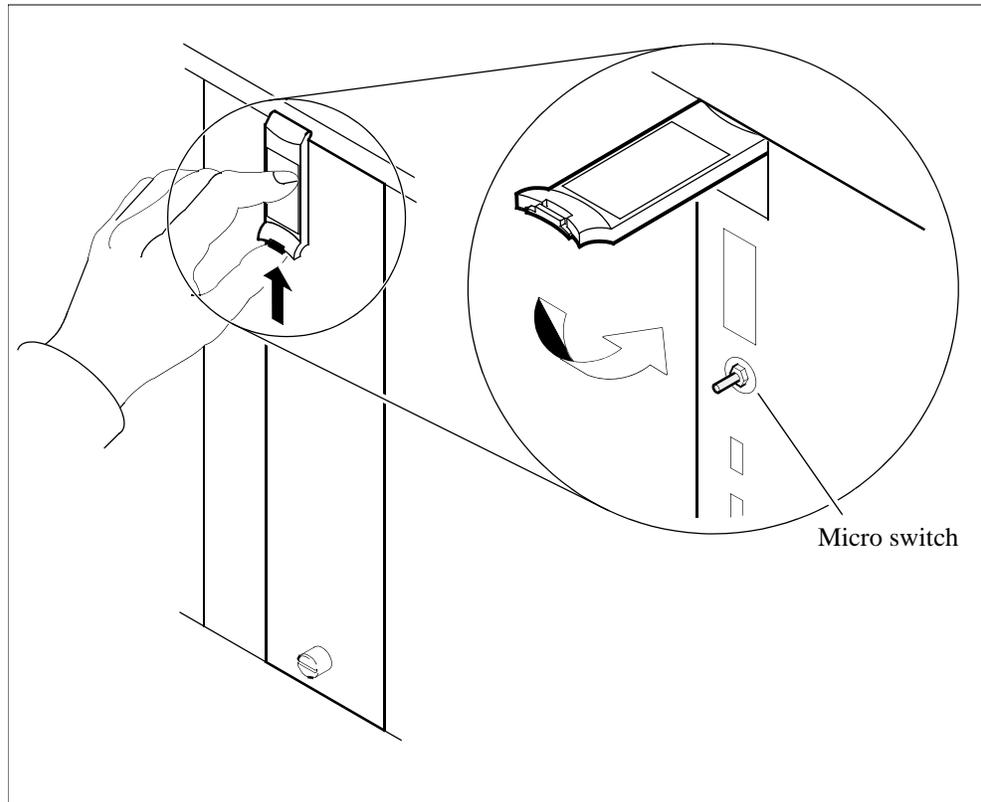
6 Tighten the thumbscrews on the module.

7 Use the following table to determine your next step.

If you	Do
need to install a LAN personality module	step 8
do not need to install a LAN personality module	step 11

At the back of the SDM

8 Insert the new LAN personality module into the SDM shelf.

9 Gently slide the LAN personality module into the shelf until it is fully inserted.
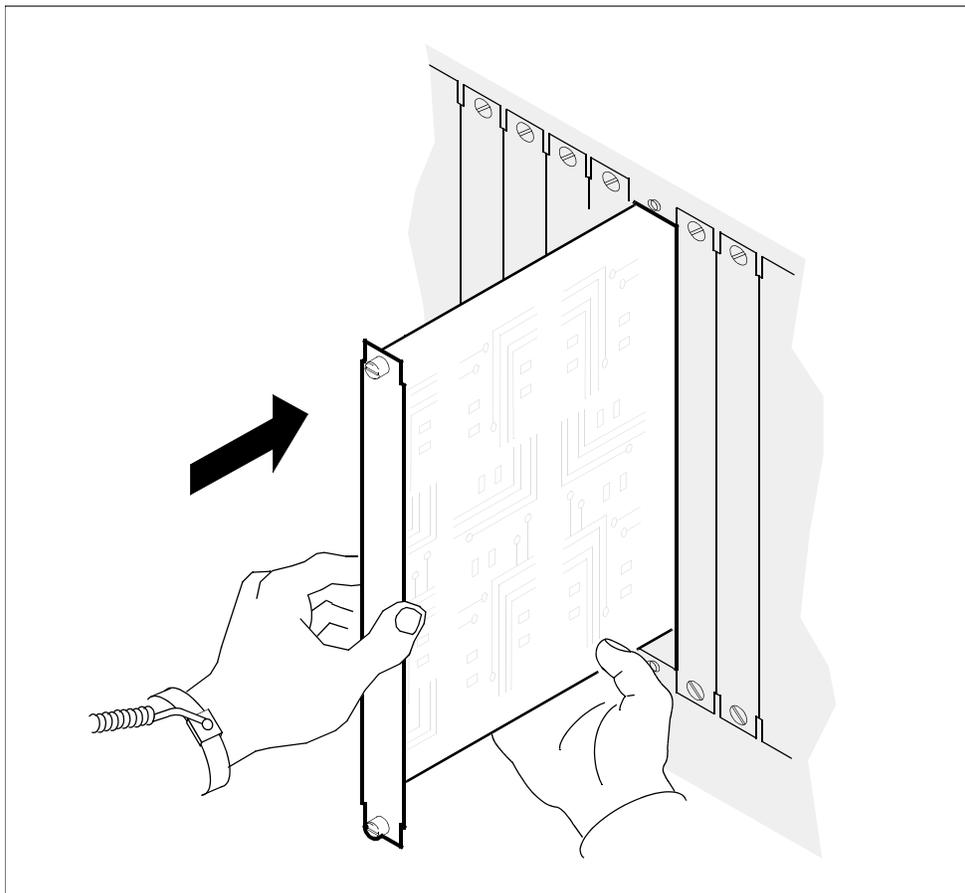
10 Tighten the thumbscrews at the top and the bottom of the LAN personality module.

At the local or remote VT100 console

11 Log in to the SDM as the root user.

12 Access the maintenance interface:

 # sdmmtc

13 Access the hardware (Hw) level:

> hw

14 Add the logical pair of I/O controller modules:

> add *<chassis> <slot> <pec>*

where

> **chassis**
>> is the chassis where the module will be located ("SDMM" for a main chassis or "SDME" for an I/O expansion chassis)
>
> **slot**
>> is the lower of the two physical slot numbers the module occupies
>
> **pec**
>> is the product engineering code (PEC) of the I/O controller module you want to add
>
> **Note:** This command adds both modules in the logical pair simultaneously. The command '>add <chassis> simplex <slot> <pec>' adds one I/O controller module to domain 0.

15 The ADD command may take several minutes to complete. When the command is finished, the following message is displayed:

Response:

```
Hardware Add Module - Command complete.
```

16 Monitor the status of the new hardware at the hardware (Hw) level. The screen does not initially show the new hardware that has been added.

Example response:

```
         I  F  C  E  D  5  D  X
         C  A  P  T  S  1  A  2
         M  N  U  H  K  2  T  5

Domain 0  .  .  .  .  .  .  .  .
Domain 1  .  .  .  .  .  .  .  .
```

The system takes a few seconds to display the appropriate new hardware elements (DSKn for hard disks). Previously installed disks on the system are automatically renumbered, as required, to reflect the new hardware configuration. The status of the new hardware elements may initially appear as "F" (failed).

Example response:

```
         I  F  C  E  D  D  D  5
         C  A  P  T  S  S  S  A  1
         M  N  U  H  K  K  K  T  2
                     1  2  3
Domain 0 .  .  .  .  .  F  F  .  .
Domain 1 .  .  .  .  .  F  F  .  .
```

After a few seconds, the modules are automatically put in service, at which time their status changes to in-service (indicated by a dot).

Example response:

```
      I F C E D D D D 5
      C A P T S S S A 1
      M N U H K K K T 2
              1 2 3
Domain 0 . . . . . . . . .
Domain 1 . . . . . . . . .
```

> *Note:* Devices have been renumbered. Use the Locate command to verify slot numbers.

17   You have completed this procedure.

Removing I/O controller modules

Purpose

Use this procedure to delete the following hardware modules from the SDM:

- NTRX50FU - I/O controller module with two 2-GByte disk drives and Ethernet
- NTRX50GP - I/O controller module with two 4-GByte disk drives and Ethernet

Note: This procedure can also be followed by the procedure to change or correct the physical location. The I/O controller modules (NTRX50GN) in slots 2 and 3, and 13 and 14, of the main chassis are mandatory for system operation and cannot be removed.

> ⚠ **CAUTION**
> **Removing a module**
> Do not delete modules that are part of a volume group. If the module is not part of a volume group, you can continue with this procedure.

> ⚠ **CAUTION**
> **Re-using an I/O controller module**
> An I/O controller module must be manually busied and deleted before it can be re-used in a different slot.

Prerequisites

To perform this procedure, you must know the following information:

- the chassis (SDMM for main chassis; SDME for I/O expansion chassis)
- the I/O controller module's slot number (from 1 to 16)

Note: Nortel Networks recommends that you contact Nortel Networks personnel before you remove any I/O controller modules. You cannot remove I/O controller modules until Nortel Networks deletes the data volume group (datavg) to which the module belongs. Nortel Networks also recommends that you remove I/O controller modules in pairs.

Task flow diagram

The following task flow diagram provides an overview of the process. Use the instructions in the procedure that follows the flowchart to perform the task.

Task flow for Removing I/O controller modules

Log in to the
SDM.

Access the
hardware level
of the RMI

Manually busy
the I/O controller
modules

Delete the I/O
controller
modules

Remove the
I/O controller
modules

Remove the
LAN personality
module

Reinstall the
filler face
plates

End

This flowchart summarizes the
process.

Use the instructions in the
procedure that follows this
flowchart to perform the
tasks.
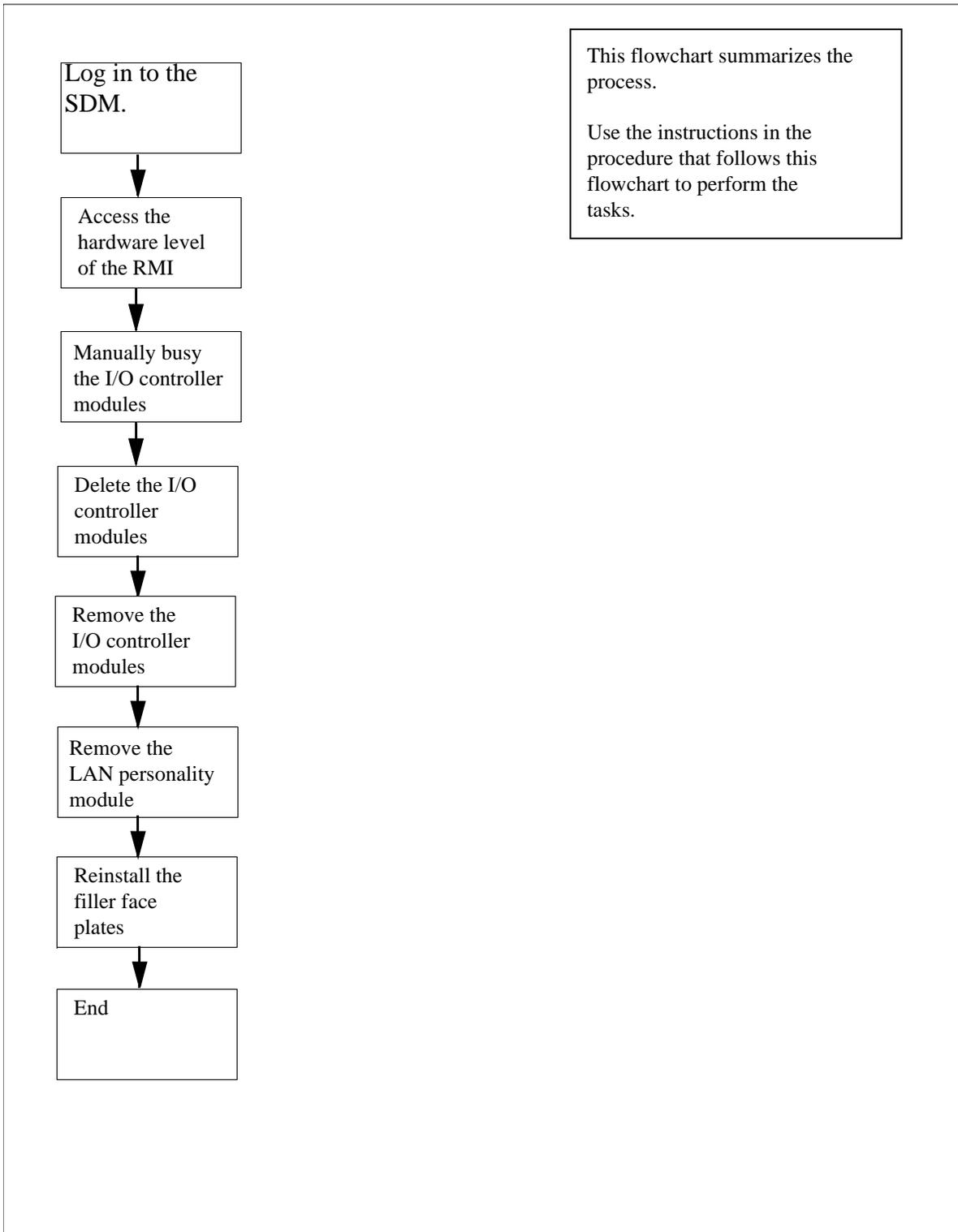
Procedure

Removing I/O controller modules

At the local or remote VT100 console

1   Log in to the SDM as the root user.

2   Access the top menu level of the remote maintenance interface (RMI):

   `# sdmmtc`

3   Access the hardware (Hw) menu level:

   `> hw`

4   Determine the devices on the I/O controller module:

   `> locate`

5

> ⚠ **CAUTION**
> **Deleting an I/O controller module**
> Deleting an I/O controller module requires you to put the module in both domains in ManB state. These modules will not be in service.

Manually busy the module in each domain:
`> bsy <domain> dsk <n>`

where

   <domain>>
   is the domain (0 or 1) of the I/O controller module that you are replacing

   <n>>
   is the disk number that you are replacing (Use the Locate command to determine the disk number of the module.)

Use the following list to determine the domain number. The domain number is

- 0 if the module is located in slots 4 and 5 of the main chassis

- 1 if the module is located in slots 15 and 16 of the main chassis

- 0 if the module is located in any two slots from 1 to 8 in the I/O expansion chassis

- 1 if the module is located in any two slots from 9 to 16 of the I/O expansion chassis

Example response

```
Hardware Bsy - Domain 1 Device DSK2
Busying DSK2(1) will also busy DSK3(1).

Do you wish to proceed?
Please confirm ("YES", "Y", "NO", "N"):
```

6   Confirm the Bsy command:

> y

7   After you confirm the Bsy command, the following is displayed:

Example response

```
Hardware Bsy: Domain 1 Device DSK2 - Command
initiated.
Please wait...
```

When the Bsy command is finished, the "Please wait..." message and the command confirmation disappear. The word "initiated" also changes to "submitted", then changes to "complete".

Example response

```
Hardware Bsy: Domain 1 Device DSK2 - Command
complete.
```

8   Repeat steps 5 through 7 for the other domain. Once you have manually busied the module in both domains, go to step 9.

> *Note:* After you see the response to the Bsy command, the I/O controller module's state changes to "M" at the hardware level.

9   Use the Locate command to determine the chassis and slot number of the module you wish to delete:

> locate

Example response

```
Site Flr RPos Bay_id Shf   Description     Slot
EQPEC
HOST 00  00   CSDM   SDME   DSK2(0),DSK3(0) 02
 NTRX50FU    FRNT
```

Note: The example shown only displays part of the information generated from the Locate command. Press the Enter key to scroll through the display.

10 Delete the module:

`> delete <chassis> <slot>`

where

> ***<chassis>***
> is the chassis where the module is located (SDMM for the main chassis or SDME for the I/O expansion chassis)

> ***<slot>***
> is the slot number (from 1 to 16) where the module is located

Note: The module in the corresponding slot of the other domain will also be deleted.

Example response

```
Module in slot 4 of SDMM will be deleted.
DSK2(0), DSK3(0) will be deleted.
Module in slot 15 of SDMM will also be deleted.

Do you wish to proceed?
Please confirm ("YES", "Y", "NO", "N"):
```

11 Confirm that you want to delete the module:

`> y`

The DEL command may take several minutes to complete. When the command is finished, the following message is displayed:

```
Hardware Del Module - Command complete.
```

Within a few seconds, the module disappears from the listing shown at the hardware level, and the device numbers change on the screen display.

At the front of the SDM

12

⚠	**WARNING** **Static electricity damage** Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge grounding wrist strap.

13   Undo the thumbscrews located on the top and the bottom of the I/O controller module. The thumbscrews are the captive type, and cannot be removed from the module.

14   Depress the tip of the locking lever on the face of the I/O controller module.
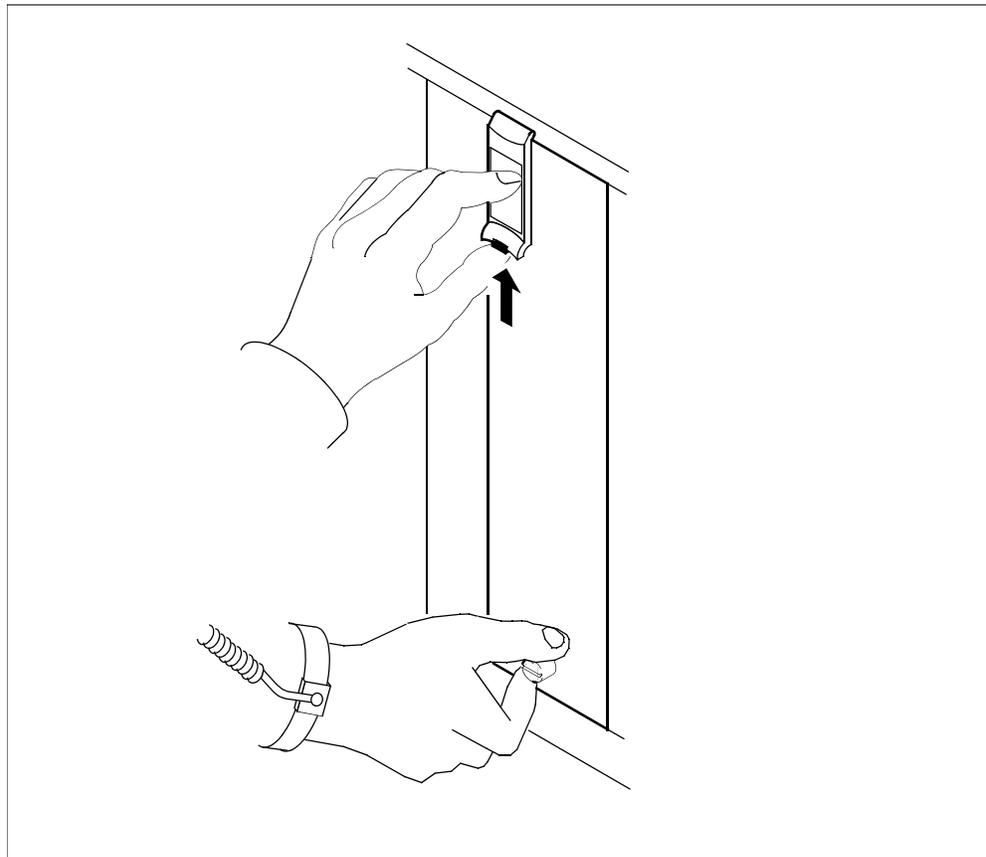
15   Open the locking lever on the face of the module by moving the lever outwards.
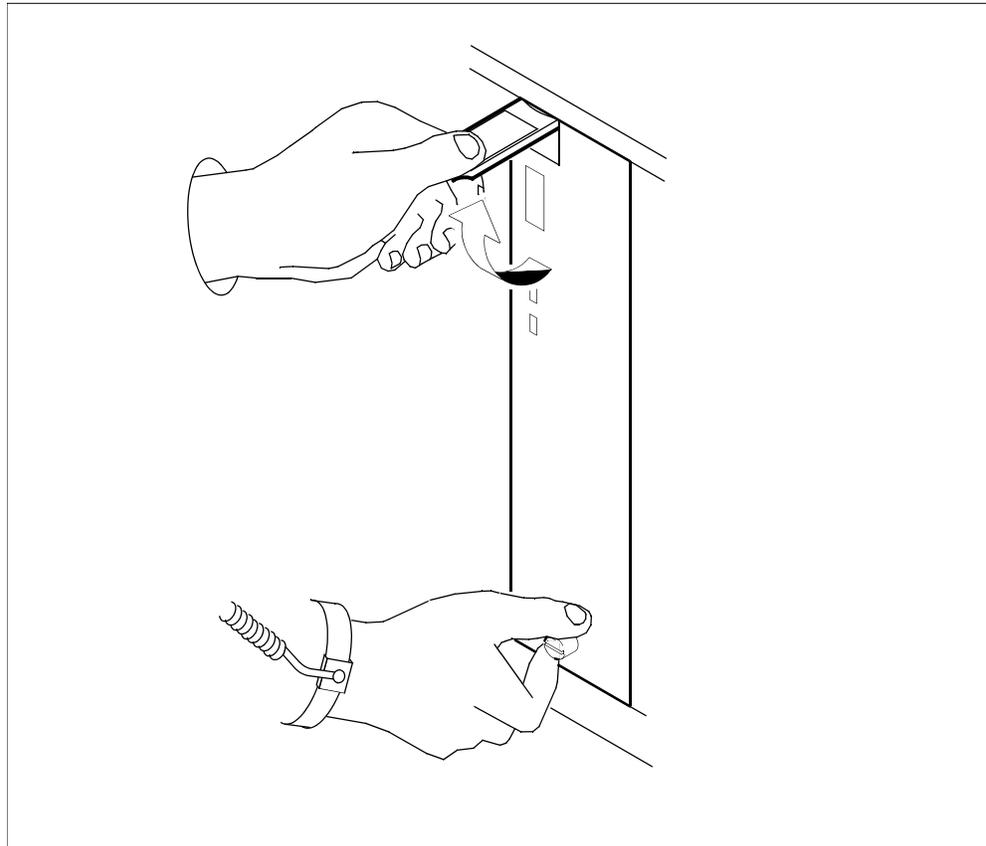
16   While grasping the locking lever, gently pull the module towards you until it protrudes about 2 in. (5 cm) from the SDM shelf.
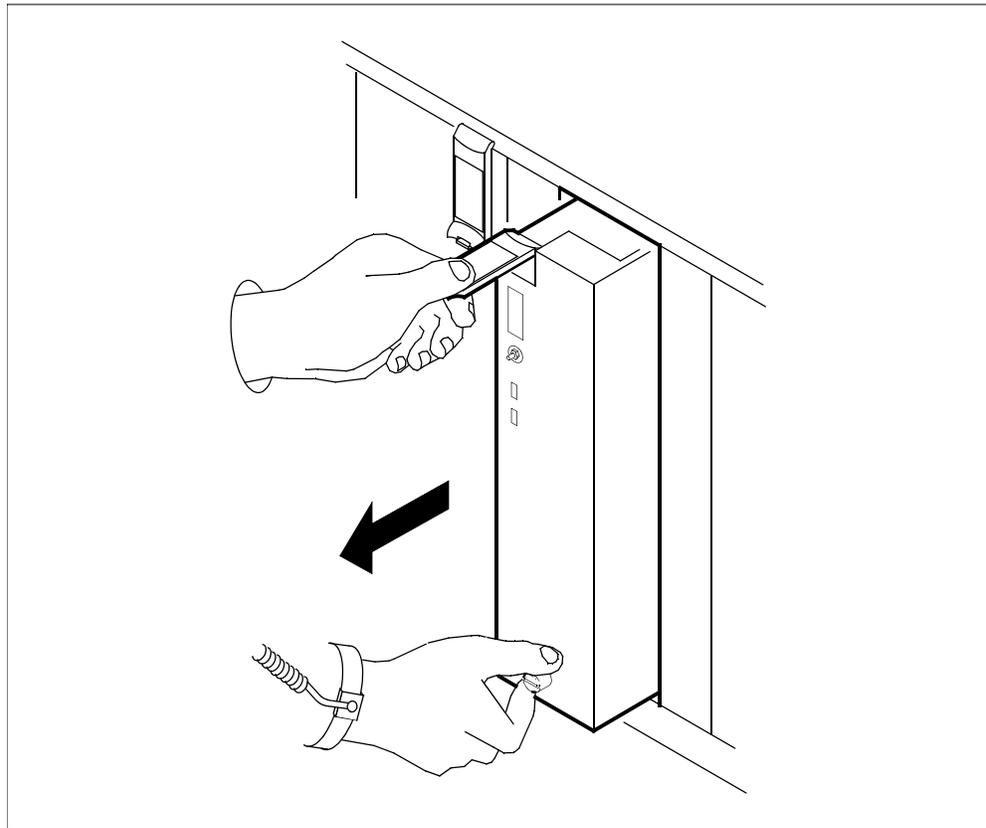
17   Hold the module by the face plate with one hand while
supporting the bottom edge with the other hand. Gently pull the
module toward you until it clears the shelf.
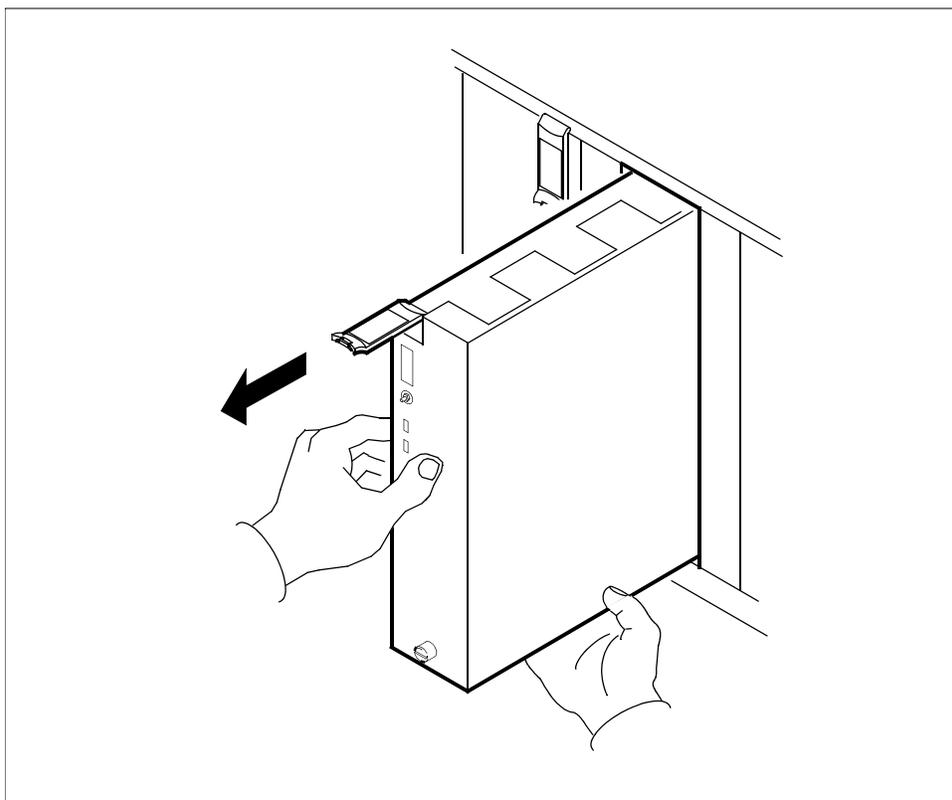
18 Place the module you have removed in an ESD protective container.

At the back of the SDM

19 Determine what kind of hardware module your SDM has.

If you have	Do
NTRX50GN	step 20
NTRX50FU and NTRX50GP	step 21

20 Disconnect the 10BASE-T cable from the corresponding LAN personality module, as shown in the following diagram.
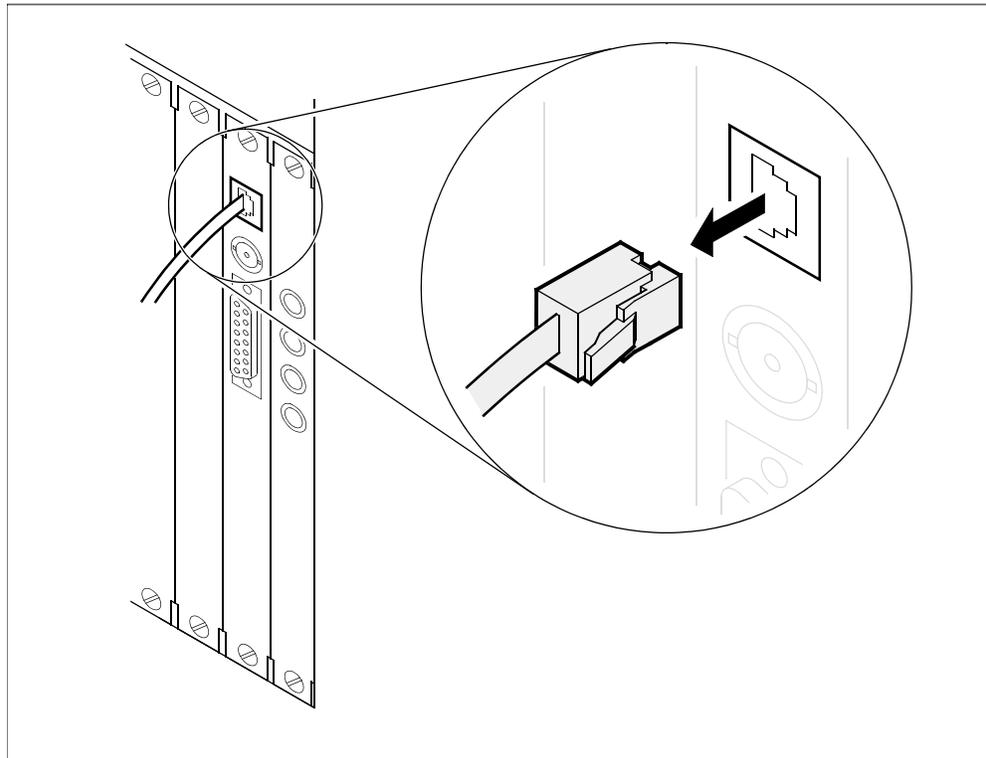
21 Loosen the two thumbscrews located at the top and the bottom of the LAN personality module. The thumbscrews are the captive type, and cannot be removed from the module.

22 While grasping the thumbscrews, gently pull the LAN personality module towards you until it protrudes about 2 in. (5 cm) from the SDM shelf.
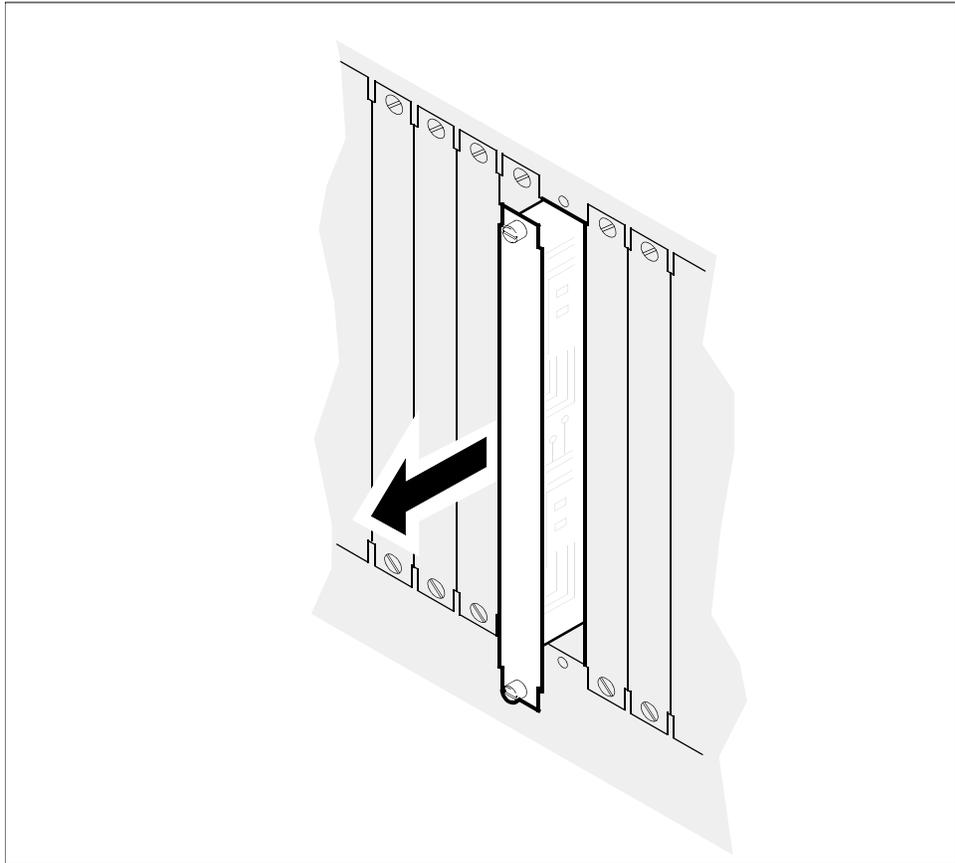
23   Hold the LAN personality module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
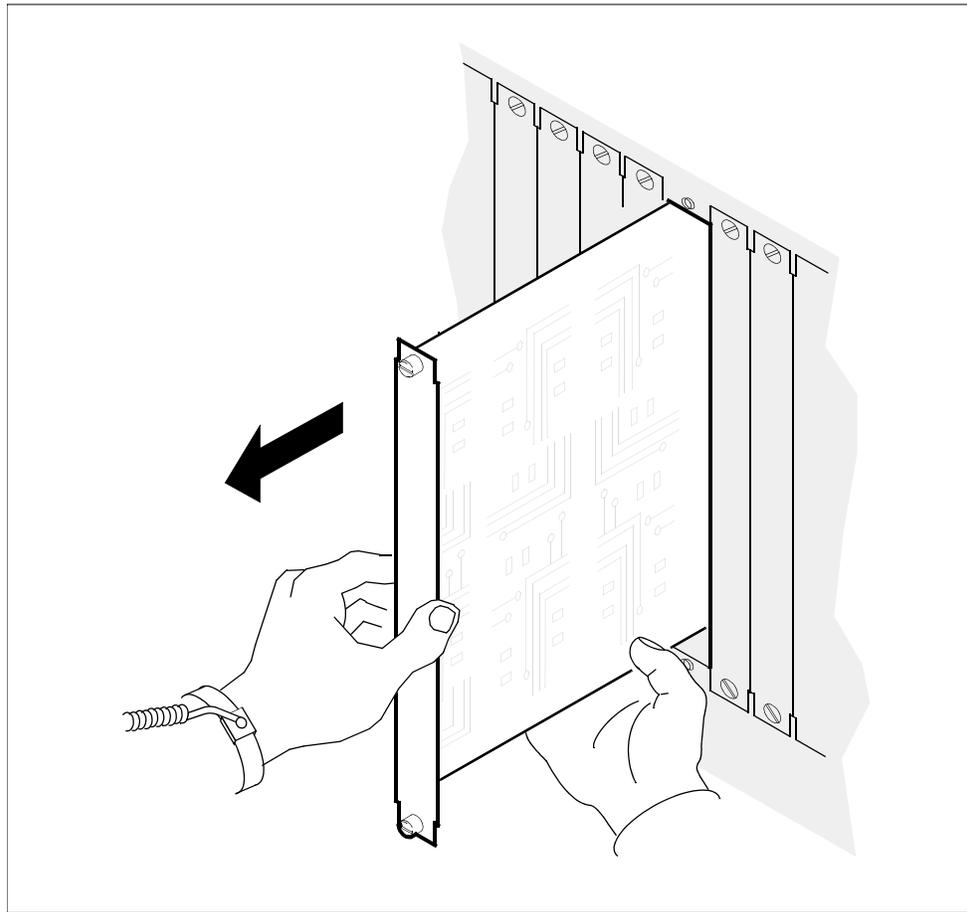
24   Place the LAN personality module you have removed in an ESD protective container.

25   Reinstall the filler plates covering the slots from which you removed the modules.

26   You have completed this procedure.

Removing an I/O expansion chassis (NTRX50EC)

Purpose

> **ATTENTION**
> Do not perform this procedure if there are any hardware faults on the SDM.

Use this procedure to remove an I/O expansion chassis (NTRX50EC) from an existing system.

Prerequisites

Make sure that your main chassis has been upgraded to the 36-Gbyte + 36-Gbyte Ultra-Multifunction Input/Output (UMFIO), before you start this procedure. Use the procedure Upgrading a datavg MFIO to MFIO or UMFIO on page 251, if required.

Task flow diagram

The following flowchart provides an overview of the process. Use the instructions in the procedure that follows the flowchart to perform the task.

Task flow for removing an I/O expansion chassis (NTR50EC)

```
┌─────────────────┐              ▽                ┌─────────────────────────┐
│ Perform a system│              1                │ This flowchart summarizes│
│ image backup    │        ┌─────────────┐        │ the process.            │
│ procedure       │        │ Remove the  │        │                         │
└────────┬────────┘        │ modules     │        │ Use the instructions in │
         │                 │ and filler  │        │ the procedure that      │
         ▼                 │ plates      │        │ follows this flowchart  │
┌─────────────────┐        └──────┬──────┘        │ to perform the tasks.   │
│ Start the datavg│               │               └─────────────────────────┘
│ migration process│              ▼
└────────┬────────┘        ┌─────────────┐
         │                 │ Disconnect  │
         ▼                 │ the flex    │
┌─────────────────┐        │ cables      │
│ Remove the datavg│       └──────┬──────┘
│ controller modules│             │
│ from the expansion│             ▼
│ chassis         │        ┌─────────────┐
└────────┬────────┘        │ Reinstall   │
         │                 │ the modules,│
         ▼                 │ cables and  │
┌─────────────────┐        │ filler plates│
│ Perform a system│        └──────┬──────┘
│ image backup    │               │
│ procedure       │               ▼
└────────┬────────┘        ┌─────────────┐
         │                 │ Turn on the │
         ▼                 │ power at    │
┌─────────────────┐        │ the MSP     │
│ Busy the SDM    │        └──────┬──────┘
│                 │               │
└────────┬────────┘               ▼
         │                 ┌─────────────┐
         ▼                 │ Perform a   │
┌─────────────────┐        │ full restore│
│ Shut down       │        │ of the      │
│ the system      │        │ software    │
│                 │        │ from S-tape │
└────────┬────────┘        └──────┬──────┘
         │                        │
         ▼                        ▼
┌─────────────────┐        ┌─────────────┐
│ Turn off the    │        │ Return the  │
│ power at the    │        │ system to   │
│ MSP             │        │ service     │
└────────┬────────┘        └──────┬──────┘
         │                        │
         ▼                        ▼
┌─────────────────┐        ┌─────────────┐
│ Disconnect the  │        │ Perform a   │
│ cables          │        │ system image│
│                 │        │ backup      │
└────────┬────────┘        │ procedure   │
         │                 └──────┬──────┘
         ▼                        │
         ▽                        ▼
         1                 ┌─────────────┐
                           │ End         │
                           │             │
                           └─────────────┘
```

Procedure

Removing an I/O expansion chassis (NTRX50EC)

At the local or remote VT100 console

1　Perform a system image backup. Use the procedure "Creating system image backup tapes (S-tapes)" in the Security and Administration document.

2　Exit the maintenance interface and return to the AIX command line:

> **quit all**

3　Check that no faults exist on the SDM:

 # querysdm flt

If	Do
faults are present	correct the faults using the procedures in the Fault Management document, and return to this procedure
no faults are present	step 4

4　Start the process of migrating datavg from the expansion chassis to the main chassis:

ftmigratepv

The system performs several checks, listing them on the screen. If the system displays an error message, use the following table to determine your next step. If no error is displayed, continue with step 5.

If the error message is:	Do
You don't have physical volumes for datavg in expansion chassis	go to step 18
There is insufficient free disk space on main chassis for migration	contact your next level of support

5　When prompted, confirm that you want to continue the data migration:

Y

6   Confirm again that you want to continue the data migration:

`y`

7   The system continues the data migration process, listing all completed sub-processes, and then it prompts you to remove the datavg modules on the expansion chassis. The migration process takes approximately 30 minutes.

Example response

```
Please take out the datavg module in slot 1 on
the expansion chassis from the SDM. Please take
out the datavg module in slot 9 on the expansion
chassis from the SDM.
```

At the front of the SDM

8   Remove the datavg controller modules from the expansion chassis slots indicated by the system.

9

WARNING
Static electricity damage
Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.


Put on an electrostatic discharge grounding wrist strap.

10   Undo the thumbscrews located on the top and the bottom of the datavg controller module in domain 0.

Note: The thumbscrews are the captive type, and cannot be removed from the module.

11 Depress the tip of the locking lever on the face of the I/O controller module.
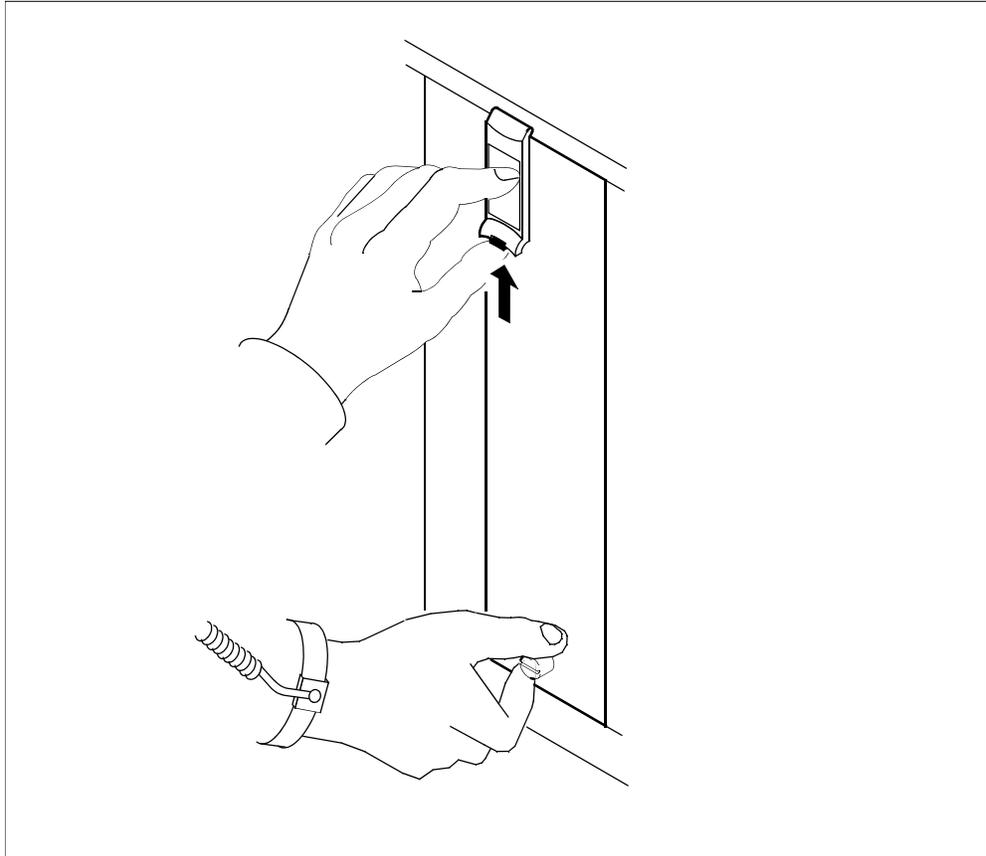
12 Open the locking lever on the face of the module by moving the lever outwards.
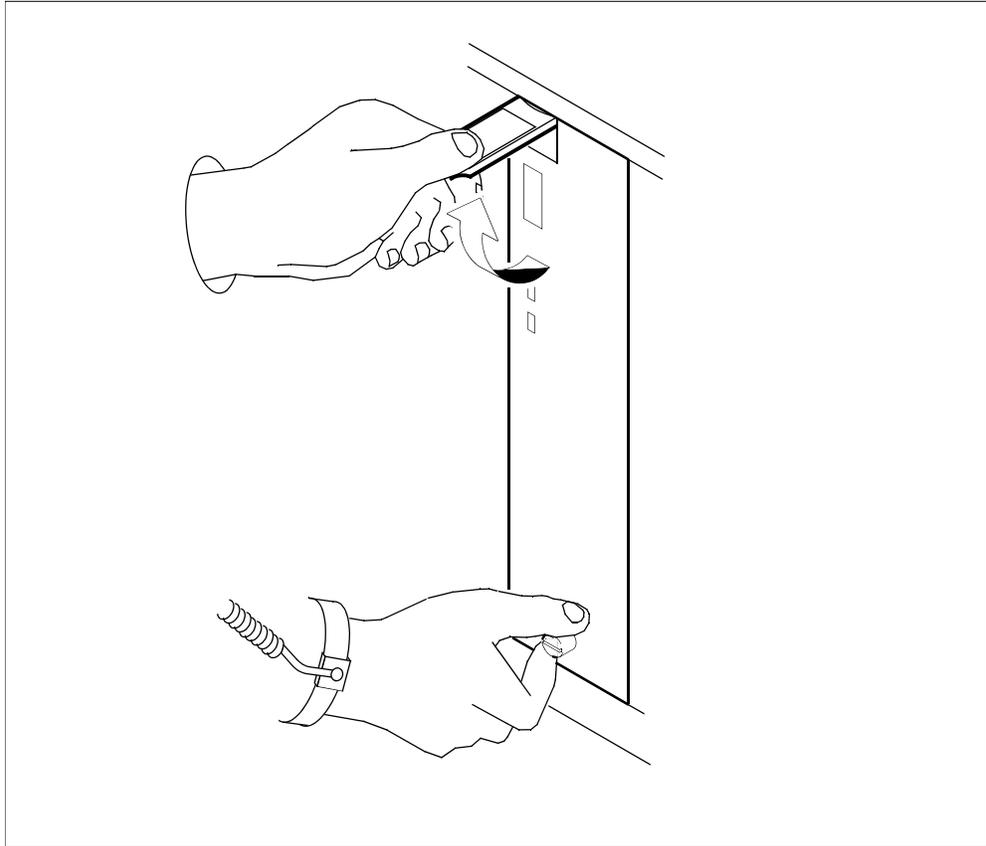
13 While grasping the locking lever, gently pull the module towards you until it protrudes about 2 in (5 cm) from the SDM shelf.
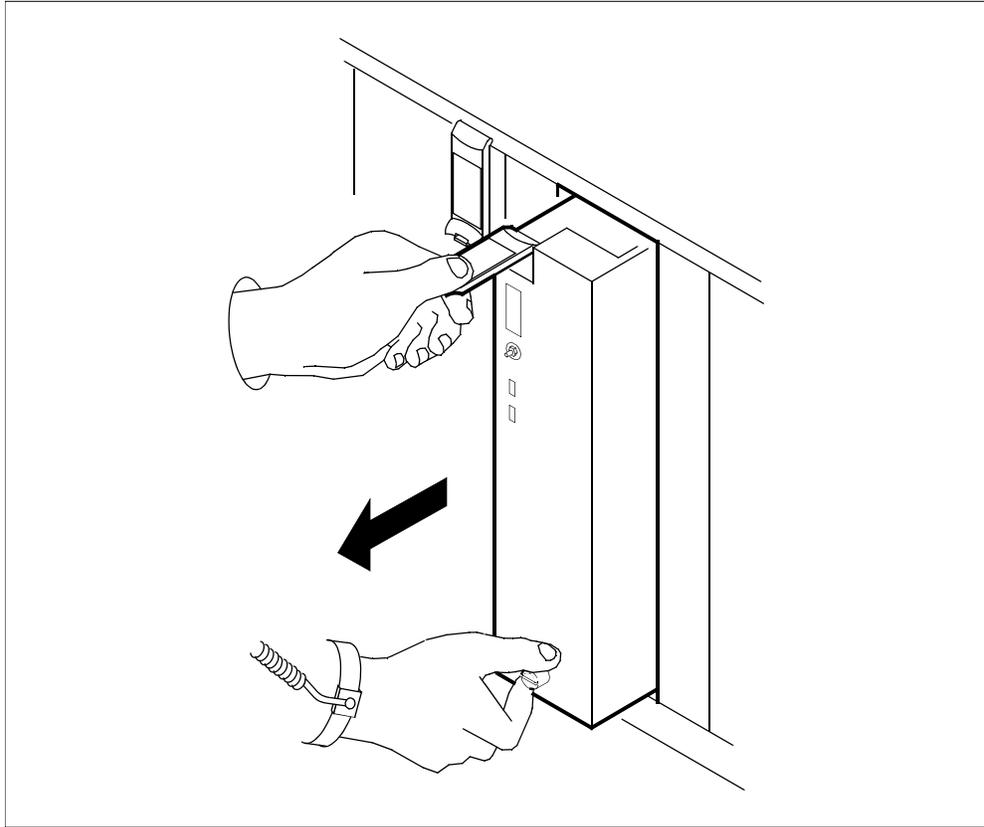
14 Hold the module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
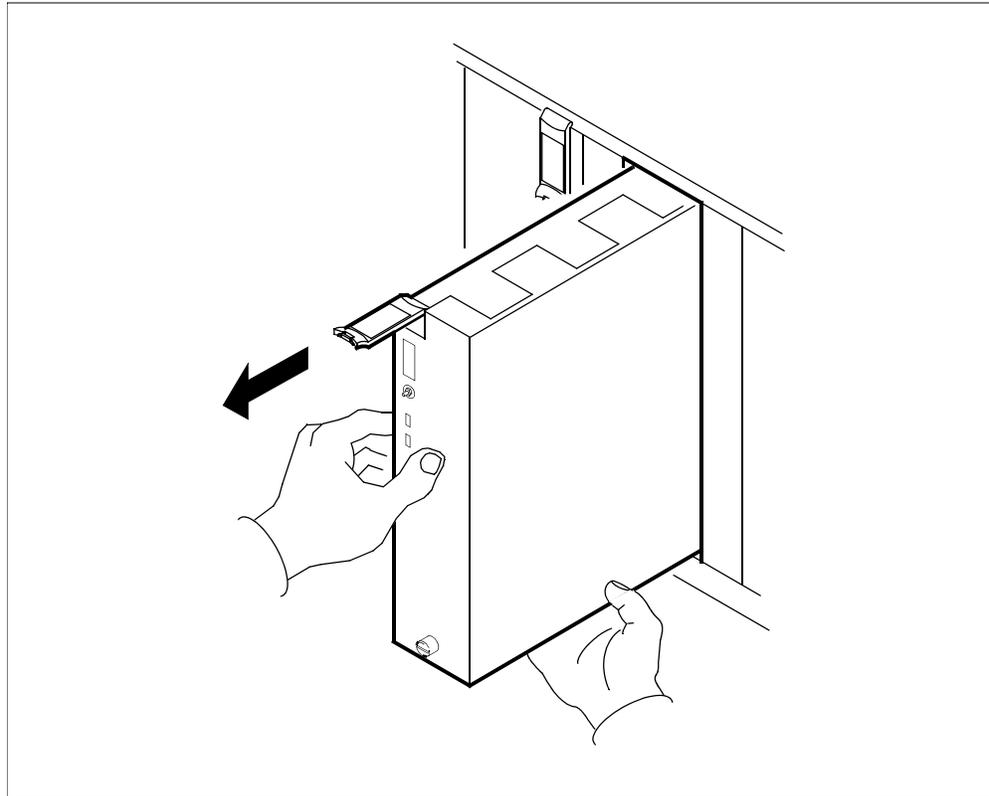
15 Place the module you have removed in an ESD protective container.

16 Repeat steps 10 through 15 for the datavg controller module in domain 1.

At the VT100 console

17 When the data migration is completed, the system displays the following message:

```
Data on expansion chassis has been migrated to
main chassis with no error.
```

18 Perform a system image backup. Use the procedure "Creating system image backup tapes (S-tapes)" in the Security and Administration document.

> *Note:* During the backup procedure, you will be asked if you want to eject the S-tape from the drive. Enter **n** (no). Then, go back to the previous menu by typing **y**, and return to the admin

level by typing **0** (zero). Exit the maintenance interface by typing **quit all** and pressing the Enter key.

At the MAP terminal

19 Access the SDM level of the MAP display:

> **mapci;mtc;appl;sdm**

20 Busy the SDM:

> **bsy**

21 Confirm the busy request:

> **y**

22 Verify that each billing stream has entered the active backup mode by posting and querying each of your billing streams.

> **sdmbil;post<stream>;query**

At the VT100 console

23 Disable the autoboot attribute for CPU 0 and CPU 1:

autoboot -c 0 -o vb=n

autoboot -c 2 -o vb=n

24 Shut down the SDM:

shutdown now

At the modular supervisory panel (MSP)

25 Interrupt power to the SDM by turning off all four MSP breakers. The MSP breakers, located at the front of the MSP, supply power to the SDM.

At the back of the SDM

26

> **WARNING**
> **Static electricity damage**
> Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge grounding wrist strap.

27   Disconnect the power cables from the interconnect module (ICM) 0 and ICM 1 on both chassis.

> *Note:* Remove and store the power cables from the expansion chassis.
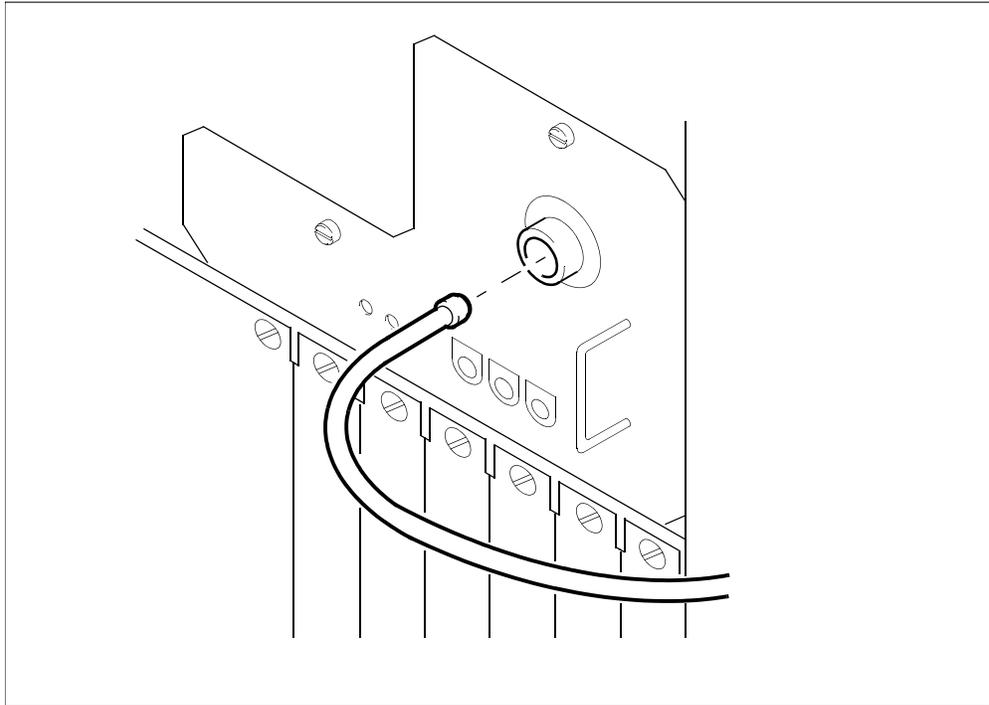
28 If there are any alarm cables connected to the I/O expansion chassis, disconnect them.
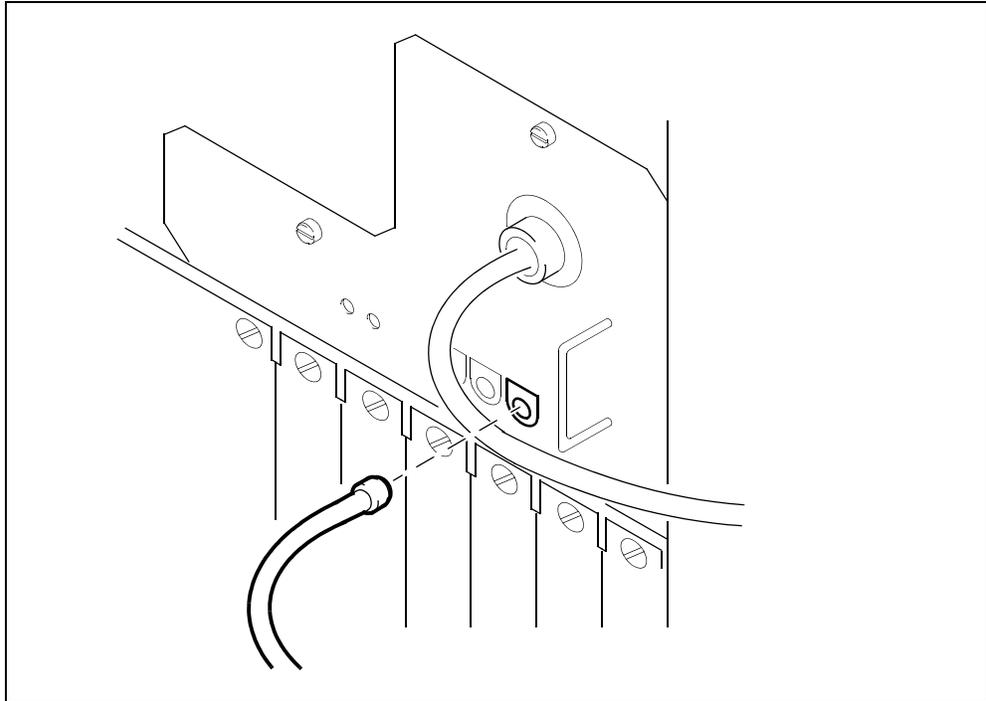
29

	CAUTION
	Disconnecting transmit and receive cables Do not mix the transmit and receive cables for each domain. If you have not already done so, label these cables to ensure that you reconnect the cables to the correct slots. Link 0 transmit and link 0 receive connect to MS0. Link 1 transmit and link 1 receive connect to MS1.

Disconnect the four DS512 fiber cables from both DS512 personality modules (on the main shelf) by pressing the fiber cable in, and turning it a quarter-turn to the left.

30 Disconnect the 10BASE-T cables from both LAN personality modules on the main shelf.
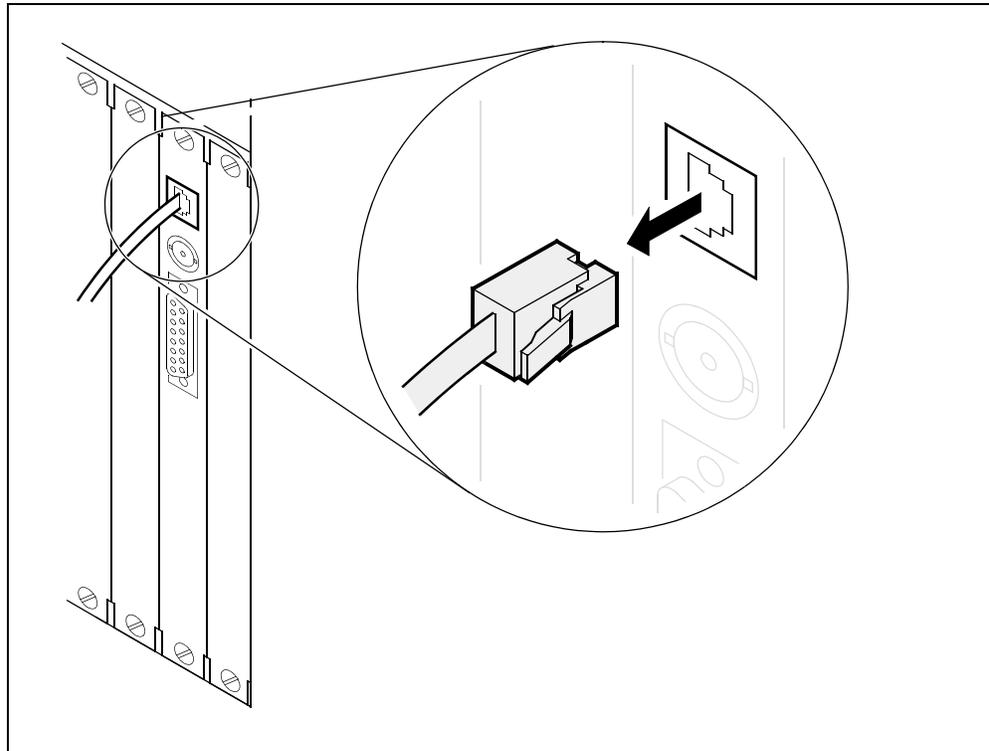
31 To gain access to the flex cable, remove all personality modules and filler plates located in slots 1, 2, 3, 14, 15, and 16 on both chassis. Complete steps 32 through 34 for each personality module that you need to remove.

> *Note:* Record the slot number of each personality module and each filler plate that you are removing from the main shelf.

32 Loosen the two thumbscrews located at the top and bottom of the personality module.

> *Note:* The thumbscrews are the captive type, and cannot be removed from the module.

33 While grasping the thumbscrews, carefully pull the personality module out of the SDM shelf.
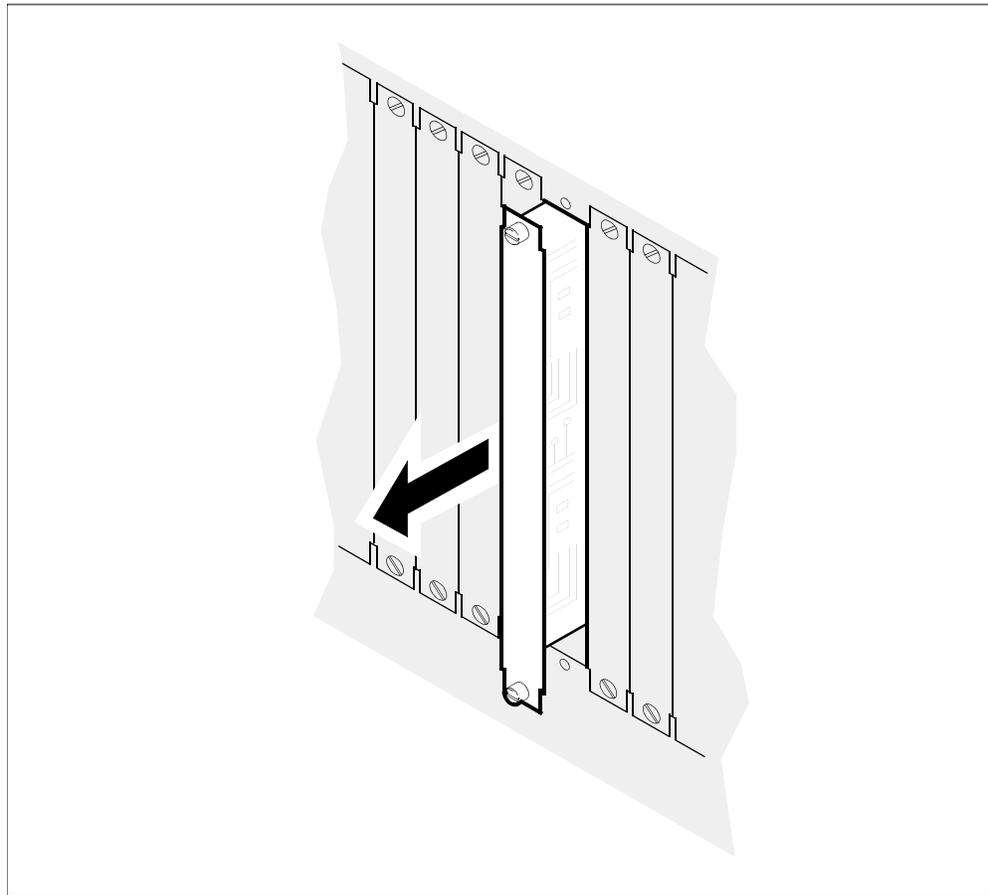
34 Place the personality module you have removed in an ESD protective container.

35 Remove the domain 0 and domain 1 flex covers that run from the outside of the main and I/O expansion chassis.

36 Disconnect and remove the domain 0 flex cable (NTRX5088) from the I/O expansion chassis backplane side 0 and from the main chassis backplane side 0. Through the empty slots, reach the ends of the flex cable and pull them towards you. Once

disconnected from both chassis, remove the cable through the side opening.

Repeat the same operation on domain 1.

Domain 0 of I/O expansion chassis backplane

Domain 0 flex cable

Domain 0 of main chassis backplane
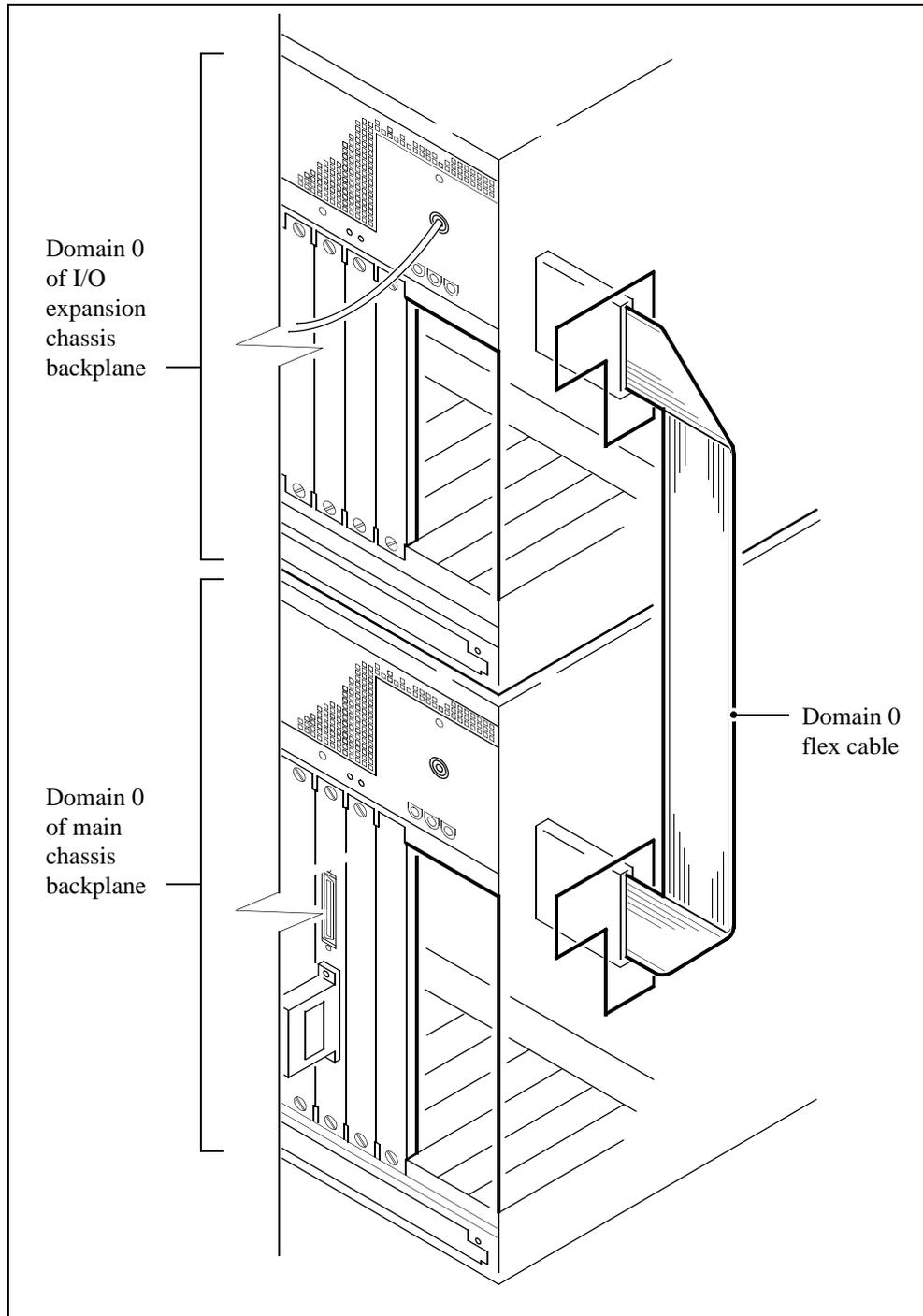
37 Reinstall all personality modules and filler plates (on the main chassis only) that you removed in step 31.

> *Note 1:* Use your records from step 31 to make sure that you are placing each module in the same slot from which it was removed.

> *Note 2:* Reinstall all modules and filler plates in domain 0 first. Start from slot 2, and continue to the right. Repeat the same process on domain 1, starting from slot 16, and continuing to the left.

Complete steps 38 and 39 for each personality module that you need to reinstall.

38 Carefully slide the personality module into the appropriate slot until it is fully inserted.
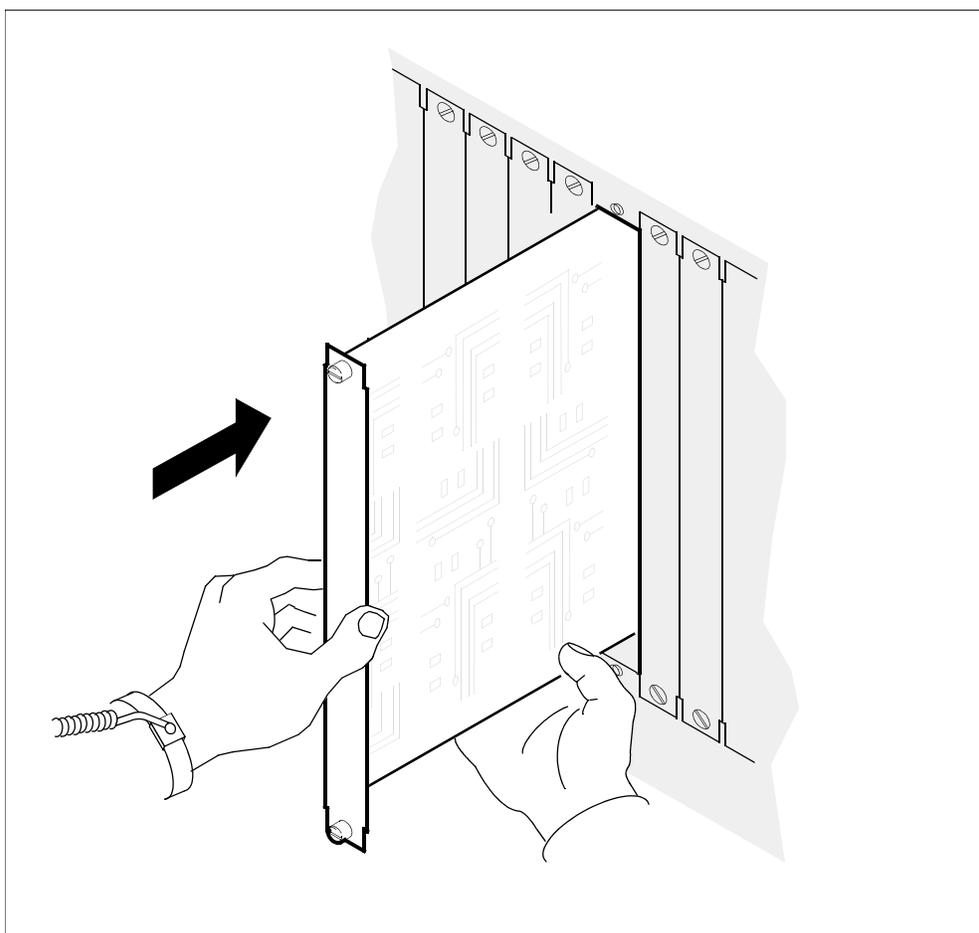
39 Tighten the thumbscrews at the top and bottom of the personality module.

40

> ⚠ **CAUTION**
> **Reconnecting transmit and receive cables**
> Do not mix the transmit and receive cables for each domain. Ensure that you reconnect the cables to the correct slots. Link 0 transmit and link 0 receive connect to MS0. Link 1 transmit and link 1 receive connect to MS1.

Reconnect the four DS512 fiber cables on the DS512 personality module (on both domains) by pressing the fiber cable in, and turning it a quarter-turn to the right.

41   Reconnect the 10BASE-T cable to the LAN personality module (on both domains).
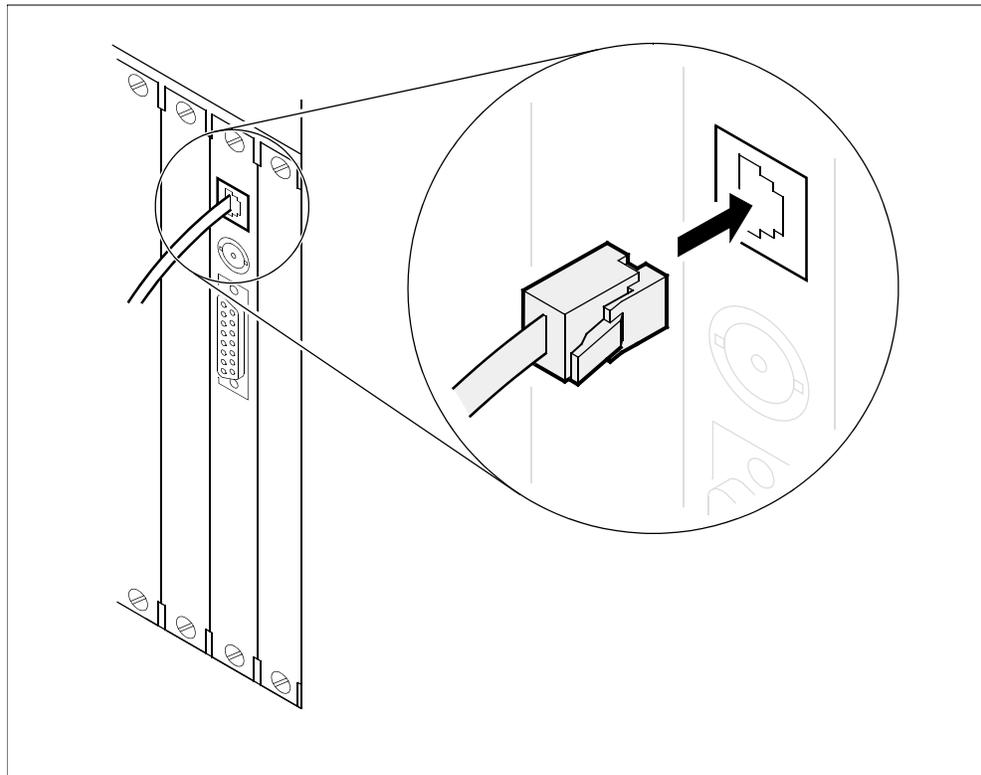
42   Reconnect the power cables to ICM 0 and ICM 1 in the main chassis.

At the modular supervisory panel (MSP)

43   Restore power to the SDM by turning on the top two MSP breakers.

At the VT100 console

44   Perform a full restore of the SDM software load from the system image backup tape (S-tape) that you created in step 18. Use the procedure "Performing a full restore of the software from S-tape" in the Fault Management document (starting with step 13).

At the MAP terminal

45   Access the SDM level of the MAP display:

> **`> mapci;mtc;appl;sdm`**

46   Return the SDM to service:

> **`> rts`**

> *Note:* It will take at least 5 minutes for the SDM to return to service on the DMS core side.

47   Verify that the SDM status is InSv (in-service) or ISTb (in-service trouble).

48   Verify that all billing stream are either in-service or in recovery by posting and querying each of your billing streams:

> **`> sdmbil;post<stream>;query`**

At the VT100 terminal

49   Enable the autoboot attribute for CPU 0 and CPU 1:

> **`# autoboot -c 0 -o vb=y`**

> **`# autoboot -c 2 -o vb=y`**

50   Perform a system image backup. Use the procedure "Creating system image backup tapes (S-tapes)" in the Security and Administration document.

51   You have completed this procedure.

Migrating from a rootvg system to a rootvg/datavg system

Purpose

> **ATTENTION**
> This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

> **ATTENTION**
> Perform this procedure after you have installed the required I/O controller modules (in pairs) in the appropriate slots in the main or I/O expansion chassis. If you have not installed the required modules, refer to the procedure "Adding I/O controller modules" in the Upgrades section.

> **ATTENTION**
> This procedure requires that your system is MANB. Nortel Networks recommends that you add a datavg when you upgrade the SDM.

> **ATTENTION**
> A maximum of 16-Gbyte storage capacity is supported for datavg.

Use this procedure to move from a rootvg system to a system with both rootvg and datavg. This procedure creates datavg, and moves logical volumes from rootvg to datavg.

Logical volume data can be stored in the root volume group (rootvg) or the data volume group (datavg). Nortel recommends that you create datavg for logical volumes with large amounts of data. If you do not create datavg, the system stores logical volume data in rootvg.

Task flow diagram

The following task flow diagram provides an overview of the process. Use the instructions in the procedure that follows the flowchart to perform the task.

Task flow for migrating from a rootvg system to a rootvg/datavg system

Busy the SDM.
.

Disable telnet from the maintenance interface

Exit the maintenance interface

Access the root dir of the SDM.

Move the file system to rootvg

RTS the SDM.

1

1

Enable telnet from the maintenance interface

End
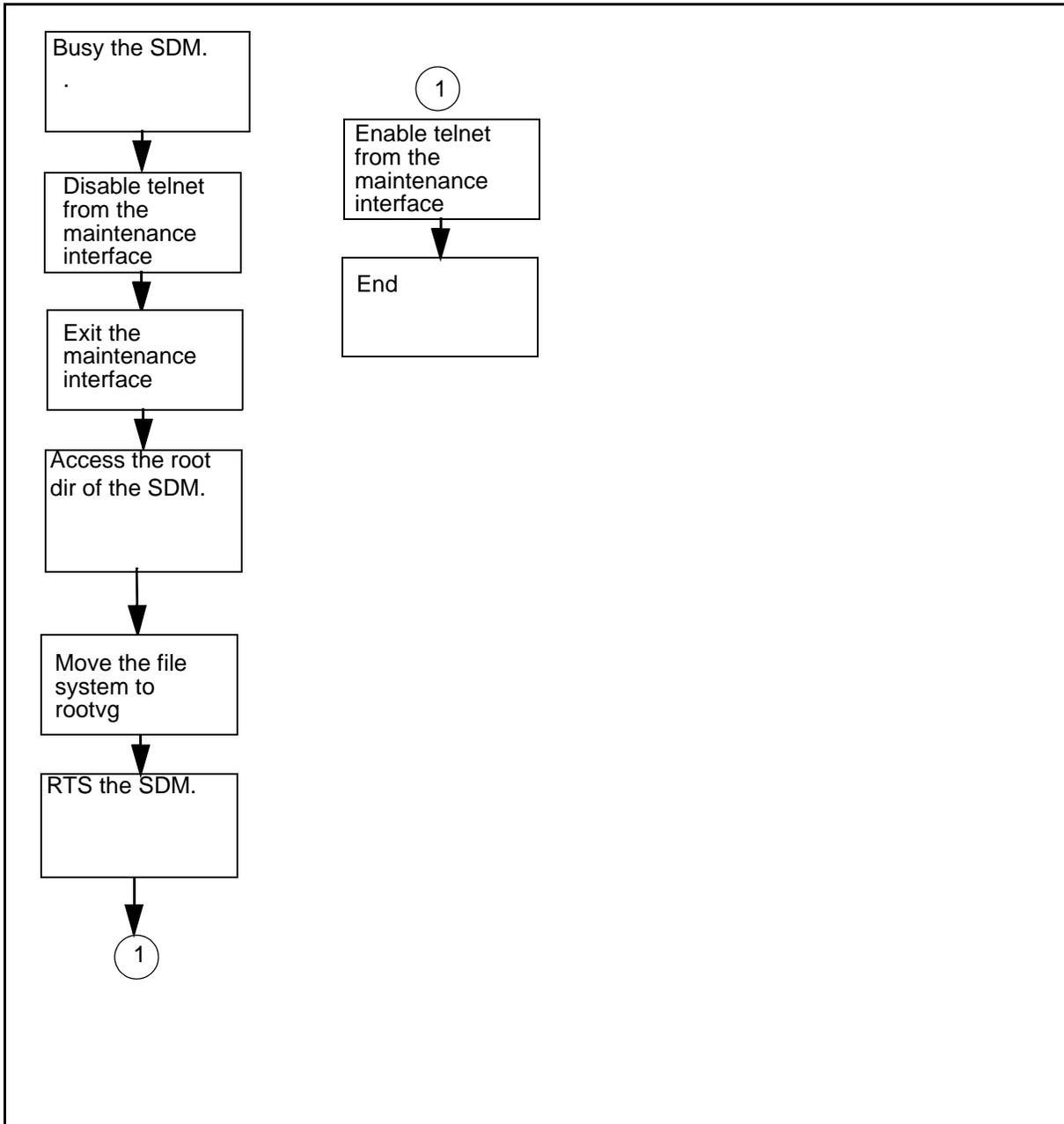
Procedure

Creating a data volume group

At the SDM level of the MAP display

1   Busy the SDM:

> **bsy**

At the local or remote VT100 console

2   Log into the SDM as the root user.

3   Access the administration (Admin) level:

> **admin**

4   Access the Access level:

> **access**

The SDM displays the state of the telnet service. If telnet is already disabled, proceed to
step 17.

5   Disable telnet to ensure that no other user has access to SDM during the volume group migration:

> **change**

6   Confirm the command:

> **y**

7   Exit the maintenance interface:

> **quit all**

8   Access the root directory:

cd /

9   Move the file system from rootvg to datavg:

movevg

Note 1: The movevg process takes some time to complete. When the process is complete, the system returns to the # prompt.

Note 2: It may be several minutes after the movevg command is completed before datavg is displayed as "Mirrored" under the storage level.

At the SDM level of the MAP display

10 Return the SDM to service:

> **rts**

At the local or remote VT100 console

11 Log into the SDM as the root user.

12 Access the administration (Admin) level:

> **admin**

13 Access the Access level:

> **access**

14 Enable telnet:

> **change**

15 Confirm the command:

> **y**

16 Exit the maintenance interface:

> **quit all**

17 You have completed this procedure.

Refer to the procedure "Adding disks and creating a logical volume in datavg" in the Security and Administration document.

Upgrading from an X.25 SYNC card to a UMFIO X.25 card

Purpose

Use this procedure to move a system from a rootvg-only system with SYNC X25 into a rootvg/datavg system with UMFIO/X25PM.

Task flow diagram

The following task flow diagram provides a summary of the process. To move from a rootvg-only system to a rootvg/datavg with X25, use the instructions in the procedure that follows the flowchart.

Task flow for upgrading from an X.25 SYNC card to a UMFIO X.25 card

Obtain the UMFIO
and X25PM modules
for rootvg & datavg

↓

Upgrade the
MFIO rootvgs
into UMFIO/X25PM

↓

Add the datavg
UMFIO and X25PM
modules.

↓

Move from rootvg-
only system to
rootvg/datavg.

↓

End

This flowchart summarizes the process.

Use the instructions in the procedure that follows this flowchart to perform the tasks.
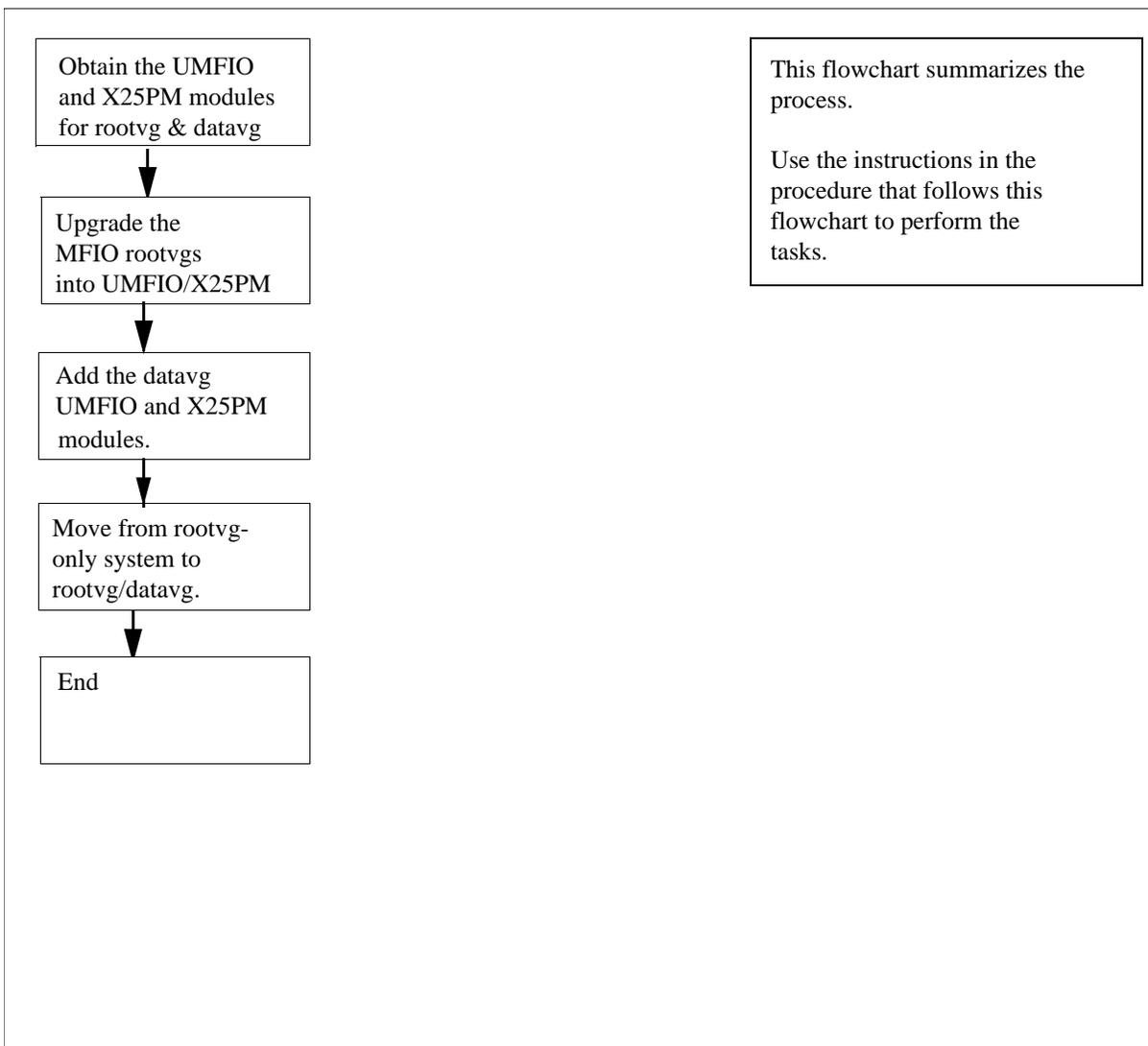
Upgrading from an X.25 SYNC card to a UMFIO X.25 card

At the SDM

1 Upgrade from rootvg MFIO with SYNC X.25 to UMFIO/X25PM. Obtain the UMFIO controller modules for rootvg and the X25PM modules. Ensure that the upgraded modules have the correct product engineering code (NTRX50NM for rootvg UMFIO and NTRX50NN for X25PM). The PEC is written on the module's top locking lever.

2 Perform the procedure Upgrading the rootvg MFIO to MFIO or UMFIO on page 232, to upgrade from rootvg MFIO with SYNC X25 into rootvg UMFIO/X25PM for both domains.

3 Add the datavg UMFIO and X.25 PM to the system. Obtain the UMFIO controller modules for datavg and the X25PM modules. Ensure that the upgraded modules have the correct product engineering code (NTRX50NL for datavg UMFIO and NTRX50NN for X25PM). The PEC is written on the module's top locking lever.

4 Perform the procedure Adding I/O controller modules on page 188, to add the datavg UMFIO and X25PM modules for both domains to the system.

5 Perform the procedure Migrating from a rootvg system to a rootvg/datavg system on page 226, to move from a rootvg-only system to a rootvg datavg system.

6 You have completed this procedure.

Upgrading the rootvg MFIO to MFIO or UMFIO

Purpose

Use this procedure to upgrade from a 4GB + DAT Multifunction Input/Output (MFIO) module to a 9GB + DAT MFIO module.

You can also use this procedure to perform the following tasks:

*   upgrade from a 4GB + DAT MFIO module or a 9GB + DAT MFIO module to a 36GB + DAT Ultra-Multifunction Input/Output (UMFIO) module

*   upgrade to any other supported combinations. For the list of supported combinations, refer to the table Supported MFIO and UMFIO, datavg and rootvg configurations on page 7

*   revert a rootvg I/O module to the original hardware configuration, but only if the rootvg I/O module in a single domain was upgraded. Before reverting back, confirm that the storage system has regained full mirroring

---

ATTENTION
Do not use this procedure to revert to the original rootvg I/O module if you have successfully upgraded the rootvg I/O module in both domains, or if you have upgraded from an MFIO with SYNC X.25 to a UMFIO with X.25 PMs

---

Note: As of the 15.2 release, the system allows you to gracefully back out of an MFIO upgrade.

Pre-upgrade requirements

If you are upgrading to UMFIO, you must check your system for UMFIO readiness prior to the upgrade. To check for UMFIO readiness, type the following:

 # umfiocheck

The following example shows the output for a system that is UMFIO ready.

Example
```
1+0 records in.
```

```
1+0 records out.

1+0 records in.

1+0 records out.

This system is UMFIO ready.
```

If the UFMIO is not ready, you must perform a backup and restore. Perform the backup using the procedure "Creating system image backup tapes (S-tapes) manually" in the Security and Administration document. Perform the restore using the procedure "Performing a full restore of the software from S-tape" in the Fault Management document.

Once you have completed the backup and restore, rerun the ufmiocheck command. If your system is still not UMFIO ready, contact your next level of support.

ATTENTION

Have the correct UMFIO LAN PM.

In order to upgrade to the UMFIO, you must have either the UMFIO LAN personality module (NTRX50NK) or the X25 personality module (NTRX50NN) available.

CAUTION

Back up the system before you begin this procedure. If SBA is installed, make sure you back up the billing data. Also, make sure there is no tape in the MFIO DAT drive.

The following table lists the product engineering codes (PEC).

Nortel PEC	Name
NTRX50FS	LAN personality module for MFIO
NTRX50GN	4GB + DAT rootvg MFI

Nortel PEC	Name
NTRX50ND	9GB + DAT rootvg MFIO
Note: Replacements for the NTRX50ND will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004, the NTRX50NM will be the replacement for the NTRX50ND	
NTRX50NK	LAN personality module for UMFIO
NTRX50NN	X25 personality module for UMFIO
NTRX50NM	36GB + DAT rootvg UMFIO

Task flow diagram

The following task flow diagram provides a summary of this process. Use the instructions in the procedure that follows the flowchart to perform the tasks.

Task flow for Upgrading the rootvg MFIO to MFIO or UMFIO

Log into the SDM.

This flowchart summarizes the process.

Use the instructions in the procedure that follows this flowchart to perform the tasks.

Upgrading to UMFIO? — **N** → Check the PEC on the replacement module

Y

Run UMFIO check (See page 232)

Verify if disks are mirrored? — **N** → Contact next level of support

UMFIO ready? — **Y**

Y

N

Begin upgrade of MFIO to MFIO or UMFIO

Perform backup and restore.

Replace the LAN personality module if up-grading to UMFIO

Re-run UMFIO check

Replace MFIO module with MFIO or UMFIO module

UMFIO ready? — **Y**

Verify data is mirrored in both domains

N

Contact your next level of support.

Verify that the correct module was used as a replacement → End

Procedure

Upgrading the rootvg MFIO to MFIO or UMFIO

At the VT100 console

1   Log into the SDM as the root user.

2   Check the label on the module that you want to use as a replacement. Make sure that label shows the product engineering code (PEC) that you want to use for your upgrade.

3   Access the storage level:

   # sdmmtc storage

4   Use the following table to determine your next step.

If the State of both volumes is	Do
Mirrored	step 5
not Mirrored	contact your next level of support

5   Access the hardware level under RMI:

   > hw

6   Upgrade the MFIO:

   > **upgrade <chassis> <slot> <pec>**

   where

   <chassis>
   is sdmm since both rootvg MFIOs are located in the main chassis

   <slot>
   is slot 2 if you are upgrading domain 0 or slot 13 if you are upgrading domain 1

   <pec>
   is the product engineering code of the MFIO or UMFIO controller module you want to add

Example
```
upgrade sdmm 2 NTRX50NM
```

This example indicates an upgrade to the 36GB + DAT UMFIO in slot 2 of the main chassis.

7   Use the following table to determine your next step.

If you are	Do
prompted to delete the x25 sync module configuration	step 8
not prompted to delete the x25 sync module configuration	step 9

8   Confirm the deletion of the X25 SYNC module configuration:

> y

9   You can replace the MFIO, or exit the upgrade when you see the following system response:

Note 1: DO NOT enter 1 until you have first replaced the MFIO.

Note 2: Enter 99 to exit the procedure. The system gracefully backs you out of the upgrade procedure if you choose to exit the upgrade at this point without replacing the hardware.

Example response

```
Transitioning forward from START to INFO_RETRIEVED

Volume group = rootvg on hdisk0
Physical partition size 16 with max partitions 3048

Transitioning forward from INFO_RETRIEVED to OFFLINED
Transitioning forward from OFFLINED to DEPENDENCIES_REMOVED
Transitioning forward from DEPENDENCIES_REMOVED to REPLACED

Replace ORIGINAL MFIO I/O-2 (c1-f2) with UPGRADED MFIO

Enter 1 to continue, 99 to exit:
```

The following response may be displayed as the MFIO upgrade progresses.

```
0516-1193 chvg: WARNING, once this operation is
completed, volume group rootvg cannot be
```

```
imported into AIX 430 or lower versions.
Continue (y/n)?
```

If this response is	Do
displayed	step 10
not displayed	step 11

10   Confirm the operation:

> y

Response

```
0516-1164 chvg: Volume group rootvg changed.
With given characteristics rootvg can include up
to 10 physical volumes with 3048 physical
partitions each.
```

At the front of the SDM

11

<table>
<tr>
<td>⚠</td>
<td>

WARNING
Static electricity damage
Wear an electrostatic discharge (ESD)
grounding wrist strap connected to the C28B
cabinet when handling a module. This
protects the module against damage caused
by static electricity.

</td>
</tr>
</table>

Put on an electrostatic discharge grounding wrist strap.

12   Undo the thumbscrews located on the top and the bottom of the
MFIO controller module to be upgraded. The thumbscrews are
the captive type, and cannot be removed from the module.

> *Note:* Make sure the LED of the module you want to upgrade
> is either red or off before you remove it.

13 Depress the tip of the locking lever on the face of the MFIO controller module.
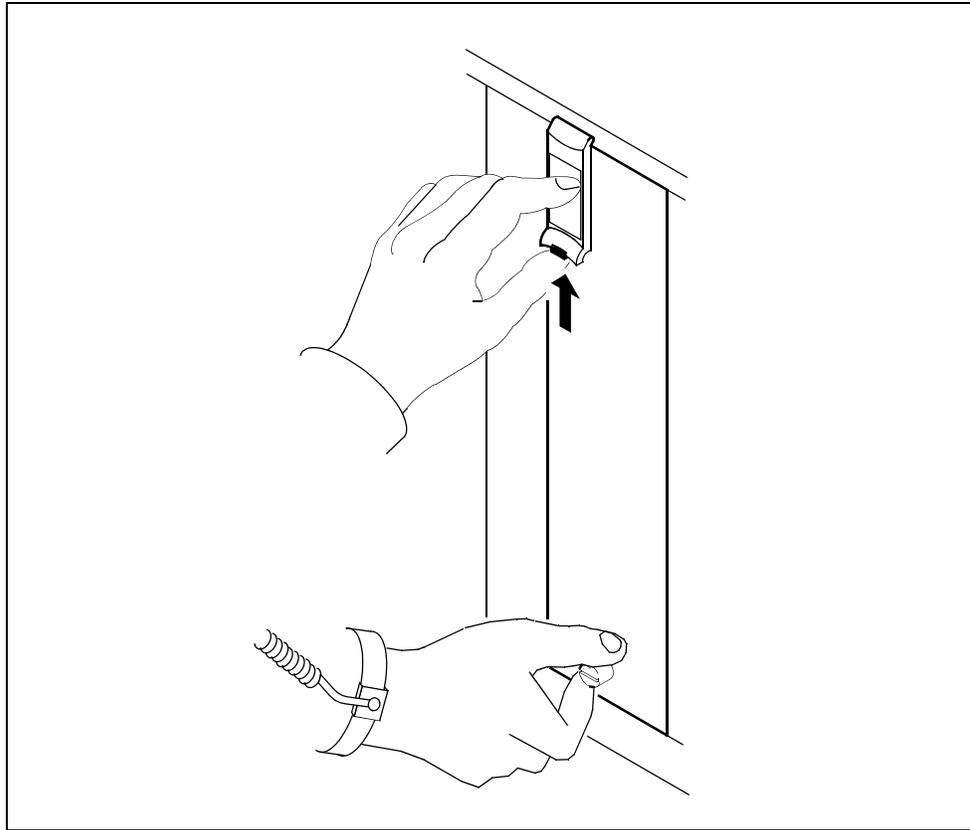
14 Open the locking lever on the face of the module by moving the lever outwards.
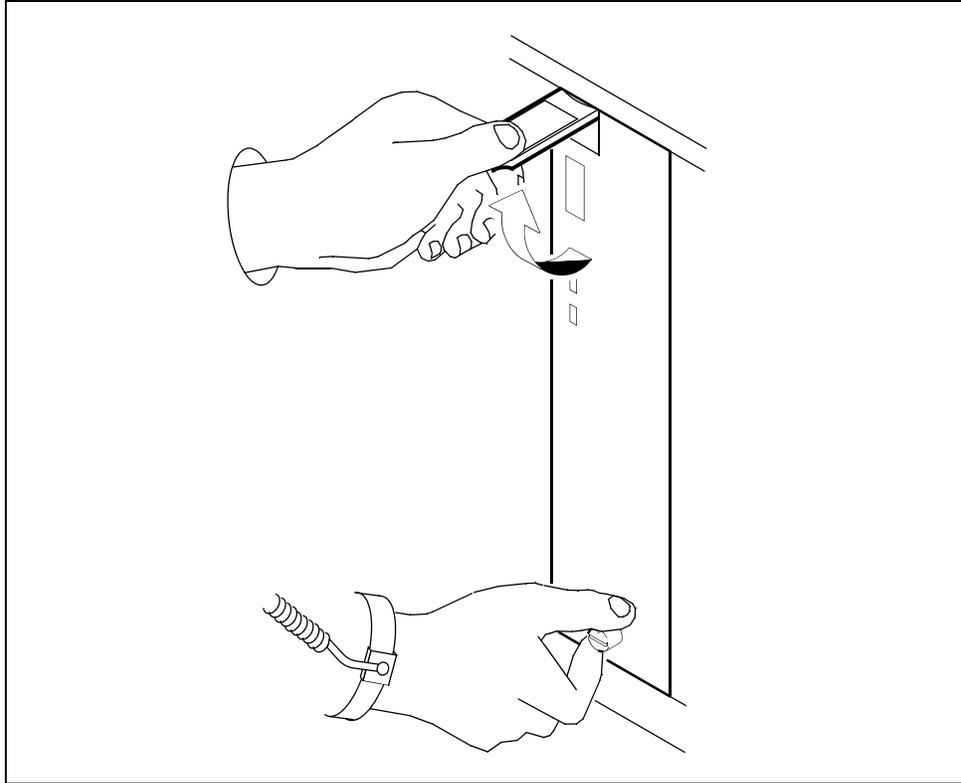
**15**   While grasping the locking lever, gently pull the module towards you until it protrudes about 2 in. (5 cm) from the SDM shelf.
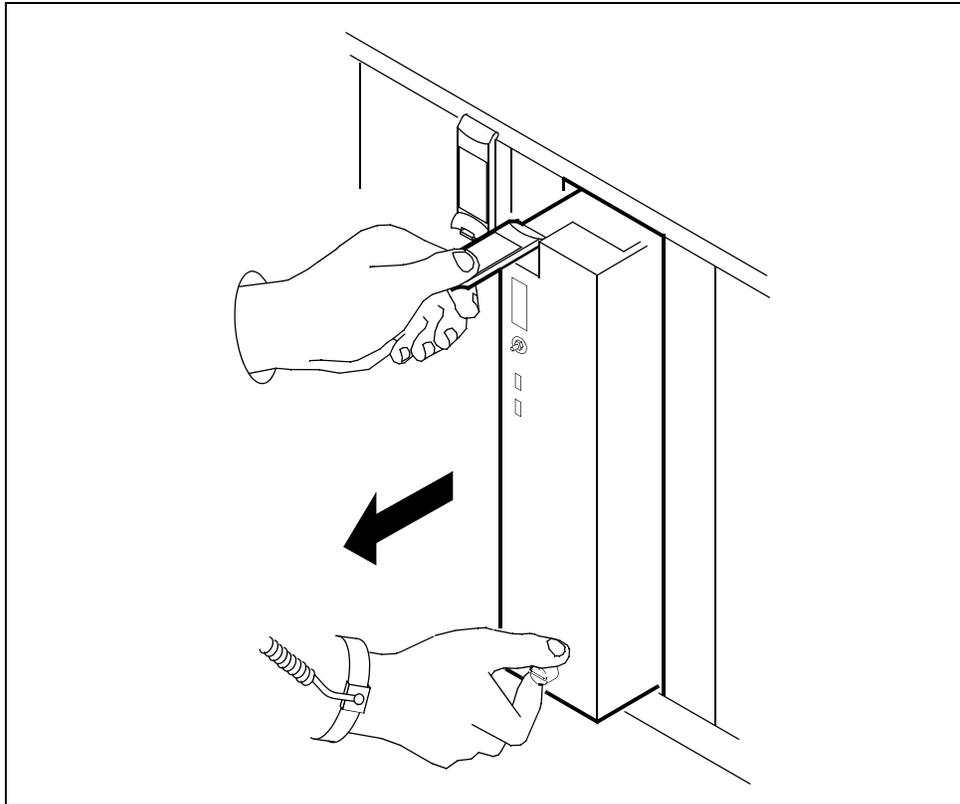
16   Hold the card by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
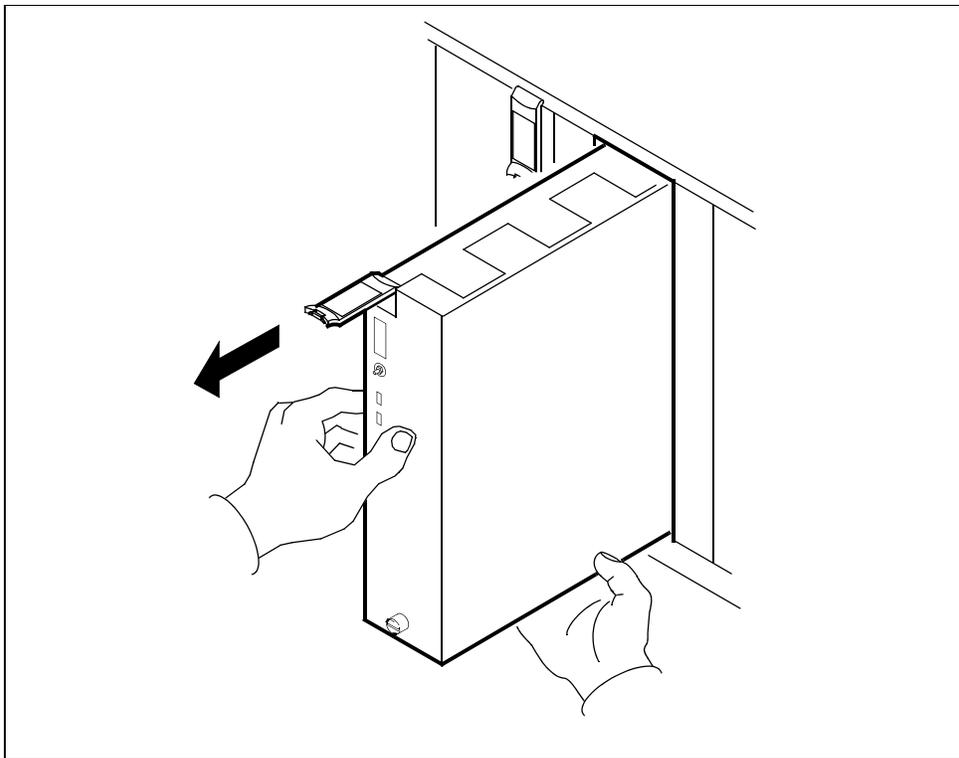

17   Place the module you have removed in an ESD protective container.

At the back of the SDM

18   Use the following table to determine your next step.

If you are	Do
upgrading to the UMFIO	step 19
not upgrading to the UMFIO	step 30

19   You will now be removing the existing LAN personality module and replacing it with the new personality module (NTRX50NK or NTRX50NN) that came with the new UMFIO module. This must be done before inserting the new UMFIO module. It is located at the rear of the I/O controller module to be upgraded.

20   Label the Ethernet cable connected to the LAN personality module you wish to replace.

21   Disconnect the Ethernet cable, as shown in the following diagram.
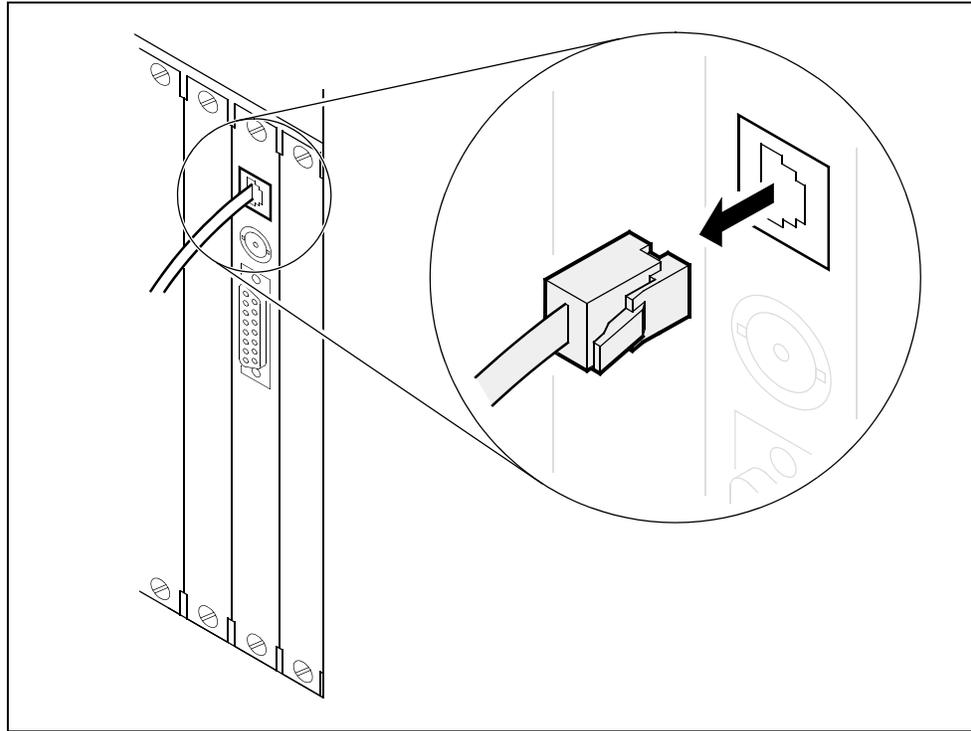
22   Loosen the two thumbscrews located at the top and the bottom of the LAN personality module. The thumbscrews are the captive type, and cannot be removed from the module.

23 While grasping the thumbscrews, gently pull the LAN personality
module towards you until it protrudes about 2 in. (5 cm) from the
SDM shelf.
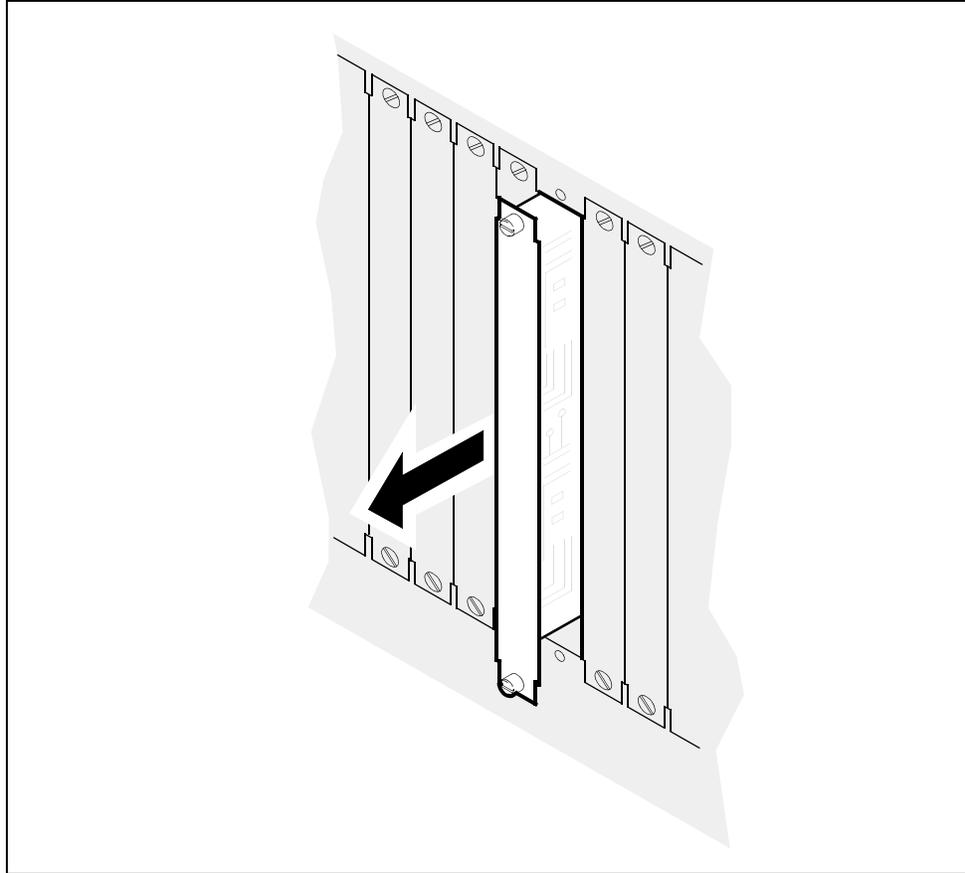
24 Hold the LAN personality module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
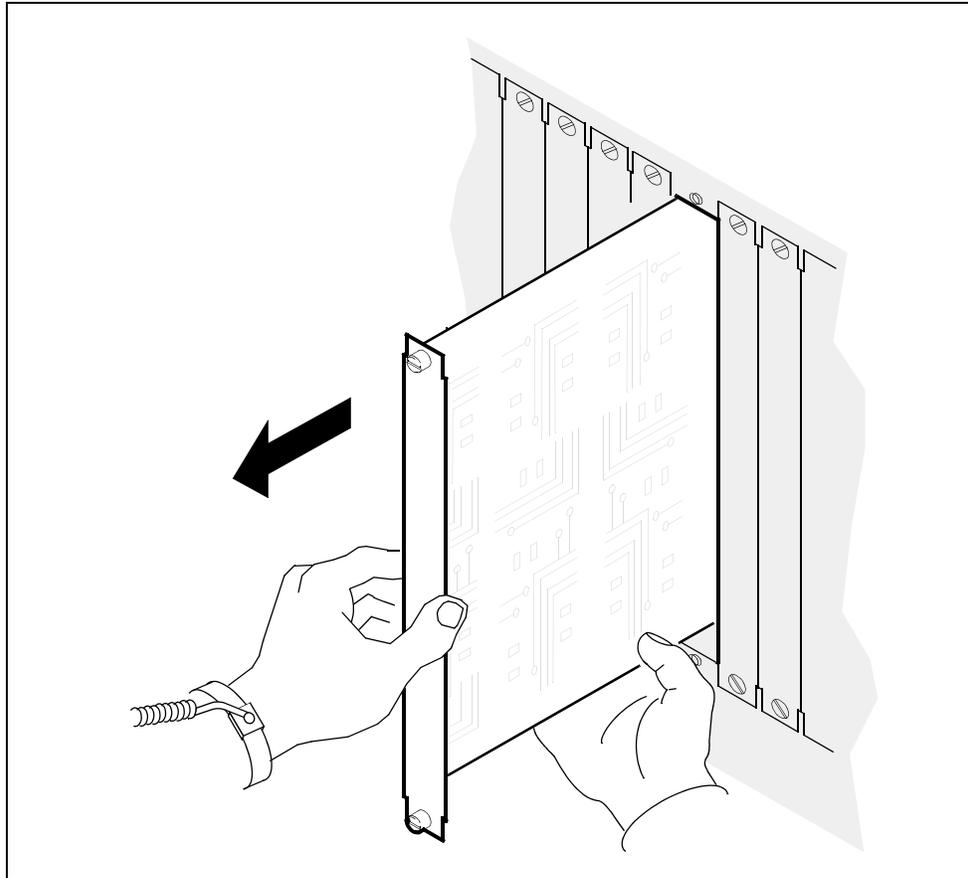
25 Place the LAN personality module you have removed in an ESD protective container.

26 Insert the new personality module (NTRX50NK or NTRX50NN) into the SDM shelf.

27 Gently slide the LAN personality module into the shelf until it is fully inserted.
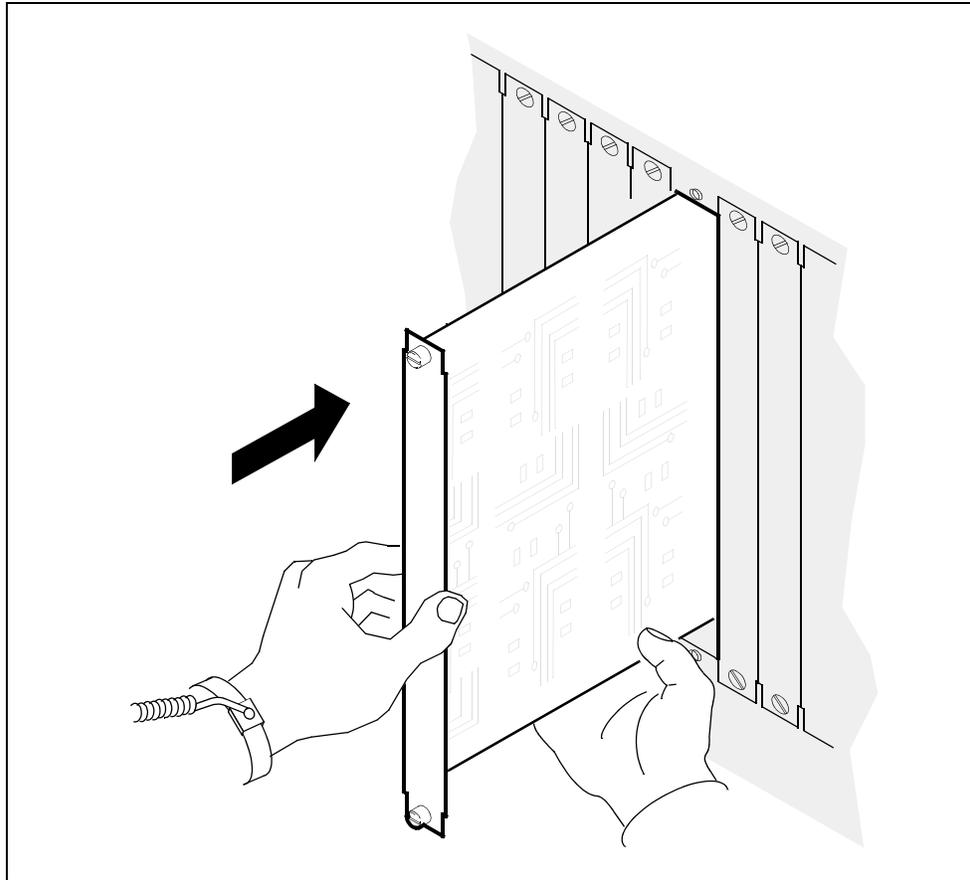
28 Tighten the thumbscrews at the top and the bottom of the LAN personality module.

29 Reconnect the Ethernet cable to the LAN personality module. You may remove the label that you put on the cable in step 20.
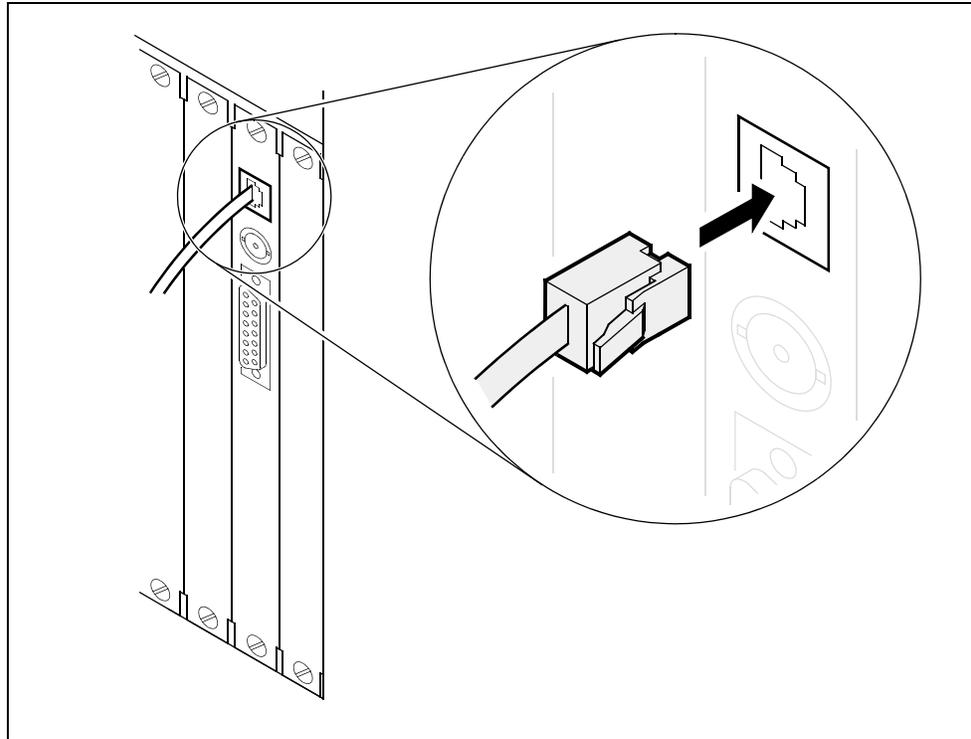
At the front of the SDM

30 Insert the PEC MFIO or PEC UMFIO module into the SDM shelf.

31 Gently slide the module into the shelf until it is fully inserted.
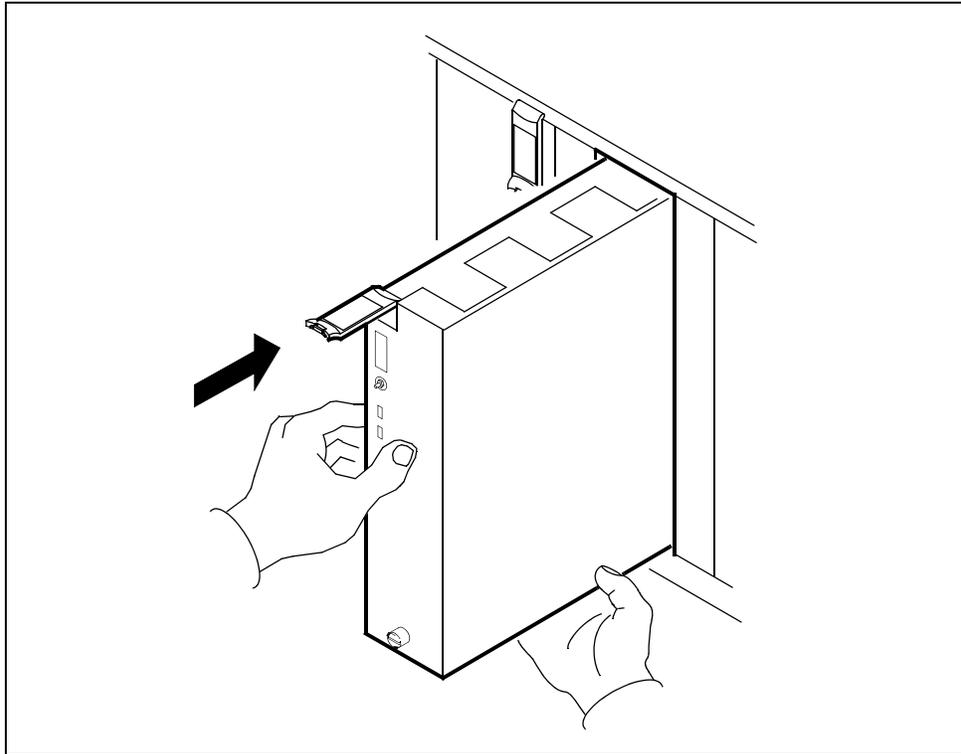
32 Close the locking lever to secure the module. Ensure that the top micro switch is lined up with the locking lever to properly seat the module.

Micro switch
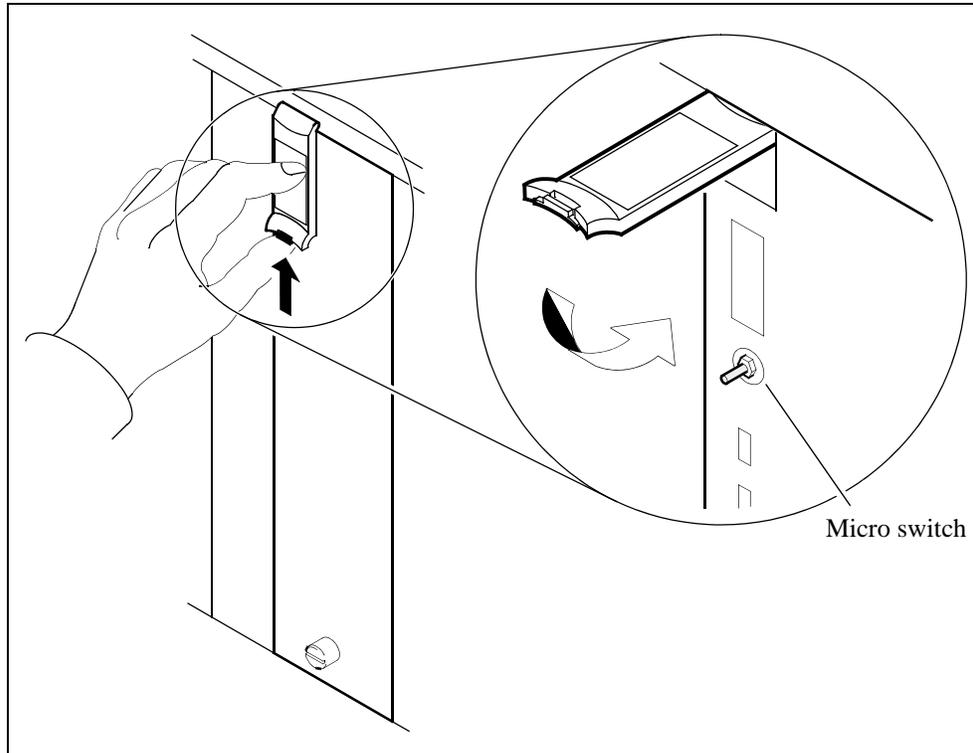
33 Tighten the thumbscrews on the module.

34 Continue the upgrade:

> **1**

Response

```
Transitioning forward from REPLACED to ONLINED
Transitioning forward from ONLINED to DEPENDENCIES_ADDED
Transitioning forward from DEPENDENCIES_ADDED to OFFLINED_AFTER_UPGRADE
Transitioning forward from OFFLINED_AFTER_UPGRADE to ONLINED2
Transitioning forward from ONLINED2 to COMPLETE
>
```

35 Use the following table to determine your next step.

If the system	Do
prompts you to remove the X25 SYNC module from slot <n>	step 36

If the system	Do
does not prompt you to remove the X25 SYNC module from slot <n>	step 38

36 Remove the X25 SYNC module from the slot indicated in the display.

Example response

```
Please wait while the configuration for SYNC-0 is deleted...

Please remove the X.25 SYNC module from the main chassis
slot 4.

Enter 1 to continue when ready:("1"):
```

37 Once you have removed the X25 SYNC module, continue the upgrade:

> **1**

38 You are automatically returned to the sdmmtc Hw level. Wait until the system completes the reintegration.

> *Note:* X25 users who are upgrading to UMFIO with X25PM need to re-configure the X25 ports as part of the UMFIO. This can be done during system integration. To configure the X25 ports, refer to the procedure Commissioning X.25 connectivity on page 129.

Once the system completes the reintegration, the status of the volume group changes to `Mirrored`.

39 Verify that the correct module was used as a replacement:

> **locate**

The system displays a list of hardware. Confirm that the correct PEC is listed for the newly upgraded module.

40 Upgrade the MFIO /UMFIO module in the other domain by repeating steps 4 through 39.

41 You have completed this procedure.

Upgrading a datavg MFIO to MFIO or UMFIO

Purpose

> ⚠ **CAUTION**
> **Possible loss of intercept service**
> If the MFIO to be upgraded supports lawful intercept through an X.25 interface, this procedure removes lawful intercept from service for a short period of time. After you complete the upgrade procedure, you must restart the lawful intercept application.

Use this procedure to perform the following Multifunction Input/Output (MFIO) to MFIO or Ultra-Multifunction Input/Output (UMFIO) upgrades:

- 4GB + 4GB MFIO to 9GB + 9GB MFIO
- 4GB + 4GB MFIO to 36GB + 36GB UMFIO
- 9GB + 9GB MFIO to 36GB + 36GB UMFIO

Note 1: You can also use this procedure to upgrade to any other supported combinations. For the list of supported combinations, refer to the table .

Note 2: You can use this procedure to revert to the original MFIO in a single domain, but only once the procedure is complete and you have confirmed that the storage system has regained full mirroring. Do not use this procedure to revert to the original MFIO if you have successfully upgraded the MFIO in both domains.

Note 3: As of the 15.2 release, the system allows you to gracefully back out of an MFIO upgrade.

Refer to the following table for the product engineering codes.

Nortel PEC	Name
NTRX50FS (back)	LAN personality module for MFIO
NTRX50GP (front)	4GB + 4GB datavg MFIO

Nortel PEC	Name
NTRX50NC (front) ***Note:*** Replacements for the NTRX50NC will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004 the NTRX50NL will be the replacement for the NTRX50NC.	9GB + 9GB datavg MFIO
NTRX50NK (back)	LAN personality module for UMFIO ***Note:*** The NTRX50NK is required if you want to use the datavg UMFIO (NTRX50NL) for LAN access. If you intend to use the datavg UMFIO for storage only, or if you do not currently have LAN cards, you do not need to install the NTRX50NK.
NTRX50NN (back)	X25 personality module for UMFIO
NTRX50NL (front)	36GB + 36GB datavg UMFIO

Prerequisites and guidelines

> **ATTENTION**
> Perform a backup of your billing files before starting this procedure. Also, ensure that an S-tape (System Image Tape) of your SDM is made prior to starting the upgrade procedures.

> **ATTENTION**
> Upgrading a mirrored pair of MFIOs can require a full maintenance window to complete. If an expansion chassis is provisioned, the upgrade of additional mirrored pairs of MFIOs may require multiple maintenance windows.

> **ATTENTION**
> You must have root user access to the SDM to perform this procedure.

> **ATTENTION**
> A UMFIO upgrade requires the UMFIO LAN personality module (NTRX50NK) or the X25 personality module (NTRX50NN).

No SDM should be populated with more than 2 MFIOs per I/O domain (for any combination) as part of datavg.

If an SDM is equipped with more than 2 MFIOs per side (prior to upgrading to SDM17), it is not possible to upgrade regular MFIOs to UMFIOs, or to upgrade to SDM17 without first contacting a Nortel-qualified craftsperson. Operating an SDM with more than 2 MFIOs (called large volume support) is possible but not supported in SDM17. Additionally, Nortel Networks does not support an upgrade path to UMFIOs with such a configuration.

If your system is already configured with more than 2 MFIOs per I/O domain, and you wish to upgrade to SDM17, you must contact Nortel Networks before attempting to upgrade to SDM17.
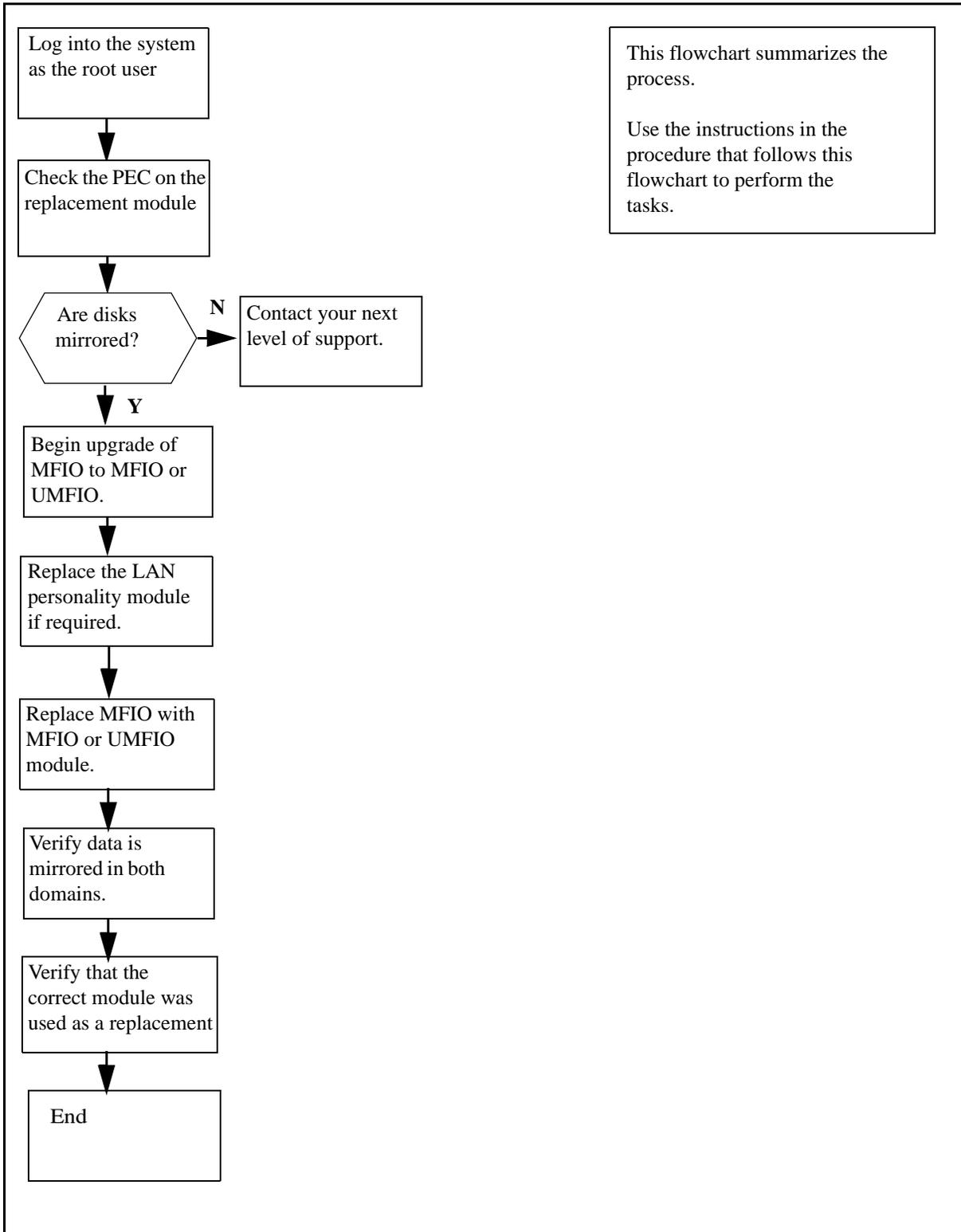
Nortel Networks recommends that the MFIOs in the main chassis be upgraded first, starting with domain 1 and ending with domain 0. After upgrading the main chassis, proceed to upgrade the expansion chassis, if there is one. Datavg modules must be upgraded in pairs. For

example, if you upgrade the MFIO in slot 4 of the main chassis, you must also upgrade the MFIO module in slot 15 of the main chassis.

Upgrade Sequence	Domain 0	Domain 1	MFIO davavg pairing location
1	slot 4	slot 15	main chassis
2	slot 1	slot 9	expansion chassis
3	slot 3	slot 11	expansion chassis
4	slot 5	slot 13	expansion chassis
5	slot 7	slot 15	expansion chassis

Task flow diagram

The task flow diagram that follows provides a summary of this process. Use the instructions in the procedure that follows the flowchart to perform the tasks.

Task flow for Upgrading a datavg MFIO to MFIO or UMFIO (datavg)

Log into the system
as the root user

↓

Check the PEC on the
replacement module

↓

Are disks
mirrored? — **N** → Contact your next
level of support.

↓ **Y**

Begin upgrade of
MFIO to MFIO or
UMFIO.

↓

Replace the LAN
personality module
if required.

↓

Replace MFIO with
MFIO or UMFIO
module.

↓

Verify data is
mirrored in both
domains.

↓

Verify that the
correct module was
used as a replacement

↓

End

This flowchart summarizes the
process.

Use the instructions in the
procedure that follows this
flowchart to perform the
tasks.

Procedure

Upgrading a datavg MFIO to MFIO or UMFIO

At the VT100 console

1   Log into the SDM as the root user.

2   Check the label on the module that you want to use as a replacement. Make sure that label shows the product engineering code (PEC) that you want to use for your upgrade.

3   Determine the physical location of the hard disk drives:

   # locate

   Example response

Site	Flr	RPos	Bay_id	Shf	Description	Slot EqPEC
HOST	01	A02	CSDM	SDMM	512(0)	01 NTRX50GA FRNT
HOST	01	A02	CSDM	SDMM		01 NTRX50FS BACK
HOST	01	A02	CSDM	SDMM	ETH(0),DSK1(0),DAT(0)	02 NTRX50GN FRNT
HOST	01	A02	CSDM	SDMM		02 NTRX50FS BACK
HOST	01	A02	CSDM	SDMM	DSK2(0),DSK3(0)	04 NTRX50GP FRNT
HOST	01	A02	CSDM	SDMM	CPU(0)	06 NTRX50FK FRNT
HOST	01	A02	CSDM	SDMM		06 NTRX50FD BACK
HOST	01	A02	CSDM	SDMM	CPU(1)	10 NTRX50FK FRNT
HOST	01	A02	CSDM	SDMM	512(1)	12 NTRX50GA FRNT
HOST	01	A02	CSDM	SDMM		12 NTRX50GH BACK
HOST	01	A02	CSDM	SDMM	ETH(1),DSK1(1),DAT(1)	13 NTRX50GN FRNT
HOST	01	A02	CSDM	SDMM		13 NTRX50FS BACK
HOST	01	A02	CSDM	SDMM	DSK2(1),DSK3(1)	15 NTRX50GP FRNT
HOST	01	A02	CSDM	SDMM	FAN1(0)	-- NTRX50FE FRNT
HOST	00	A02	CSDM	SDMM	FAN1(1)	-- NTRX50FF FRNT
HOST	01	A02	CSDM	SDME	ICM1(0)	-- NTRX50FG BACK
HOST	01	A02	CSDM	SDME	ICM1(1)	-- NTRX50FH BACK
HOST	01	A02	CSDM	SDME	DSK4(0), DSK5(0)	01 NTRX50FU FRNT

4   Record the physical location of all hard disk drives in order to avoid removing the wrong drive, and record the chassis, slot, and PEC of the IO module you want to upgrade

   where

   chassis
   is the chassis where the IO module you want to upgrade is located. The main chassis is identified as 'sdmm'. The expansion chassis is identified as 'sdme'. The chassis identifier is displayed under the "Shf" heading in the output from the *locate* command.

   slot
   is the slot number (1-16) in the chassis where the IO module to be upgraded is located. The slot number is

displayed under the "slot" heading in the output from the *locate* command.

pec
is the product engineering code for the IO controller module you want to add (either NTRX50NC or NTRX50NL).

Note: Replacements for the NTRX50NC will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004, the NTRX50NL will be the replacement for the NTRX50NC.

5 Ensure that the datavg logical volumes are in sync:

```
# lsvg -l datavg
```

From the output, confirm that all logical volumes have a status of "open/syncd" under column "LV State", and that each logical volume has "2" physical volumes under column "PVs".

If	Do
all logical volumes show LV State as "open/syncd" and PVs as "2"	step 6
not all logical volumes show LV State as "open/syncd" or PVs as "2"	contact your next level of support

6 Access the storage level:

```
# sdmmtc storage
```

7 Use the following table to determine your next step.

If the status of the datavg disks is	Do
mirrored	step 8
not mirrored	contact your next level of support

8 Access the hardware level:

> hw

9   Upgrade the MFIO:

> upgrade <chassis> <slot> <pec>

where

chassis
is the chassis where the MFIO module to be upgraded is located. The main chassis is identified as 'sdmm'. The expansion chassis is identified as 'sdme'.

slot
is the slot number (1-16) in the chassis where the MFIO module to be upgraded is located

Note: For slots 1-9 you are not required to enter a 0 (zero) before the slot number. For instance, to enter slot 5, type "5" rather than "05".

pec
is the product engineering code for the MFIO or the UMFIO controller module you want to add (either NTRX50NC or NTRX50NL)

Note: Replacements for the NTRX50NC will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004, the NTRX50NL will be the replacement for the NTRX50NC.

Example
> upgrade sdmm 4 NTRX50NL

This example indicates an upgrade to the 36GB + 36GB UMFIO in slot 4 of the main chassis.

If you are	Do
prompted to delete an X.25 interface	step 10
not prompted to deleted an X.25 interface	step 15

10   Confirm the deletion of the X.25 interface:

> y

11

> **ATTENTION**
>
> If you wish to continue the upgrade, do not enter 1 at this step of the procedure. Follow the procedure and enter 1 after you have replaced the MFIO.

Wait for the system to generate the following response:

Example of response

```
Transitioning forward from START to INFO_RETRIEVED

Volume group = datavg on hdisk4
Physical partition size 16 with max partitions 3048

Volume group = datavg on hdisk5
Physical partition size 16 with max partitions 3048

Transitioning forward from INFO_RETRIEVED to OFFLINED
Transitioning forward from OFFLINED to DEPENDENCIES_REMOVED
Transitioning forward from DEPENDENCIES_REMOVED to REPLACED

Replace ORIGINAL MFIO I/O-1 (c1-f15) with UPGRADED MFIO

Enter 1 to continue, 99 to exit:
```

If you want to	Do
exit the upgrade	step 12
continue the upgrade	step 13

12 Exit the upgrade:

> **> 99**

Response

The system gracefully backs you out of the upgrade procedure.

13 Begin the replacement of the MFIO. During the upgrade process you may receive the following response:

```
0516-1193 chvg: WARNING, once this operation is
completed, volume group datavg cannot be
imported into AIX 430 or lower versions.
Continue (y/n)?
```

If you	Do
receive the response	step 14
do not receive the response	step 15

14   Confirm the operation:

> y

Example of response

```
0516-1164 chvg: Volume group datavg changed.
With given characteristics datavg can include up
to 10 physical volumes with 3048 physical
partitions each.
```

At the front of the SDM

15

⚠️ **WARNING**
Static electricity damage
Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge grounding wrist strap.

16   Undo the thumbscrews located on the top and the bottom of the MFIO controller module to be upgraded. The thumbscrews are the captive type, and cannot be removed from the module.

> *Note:* Make sure the LED of the module you want to upgrade is either red or off before you remove it.
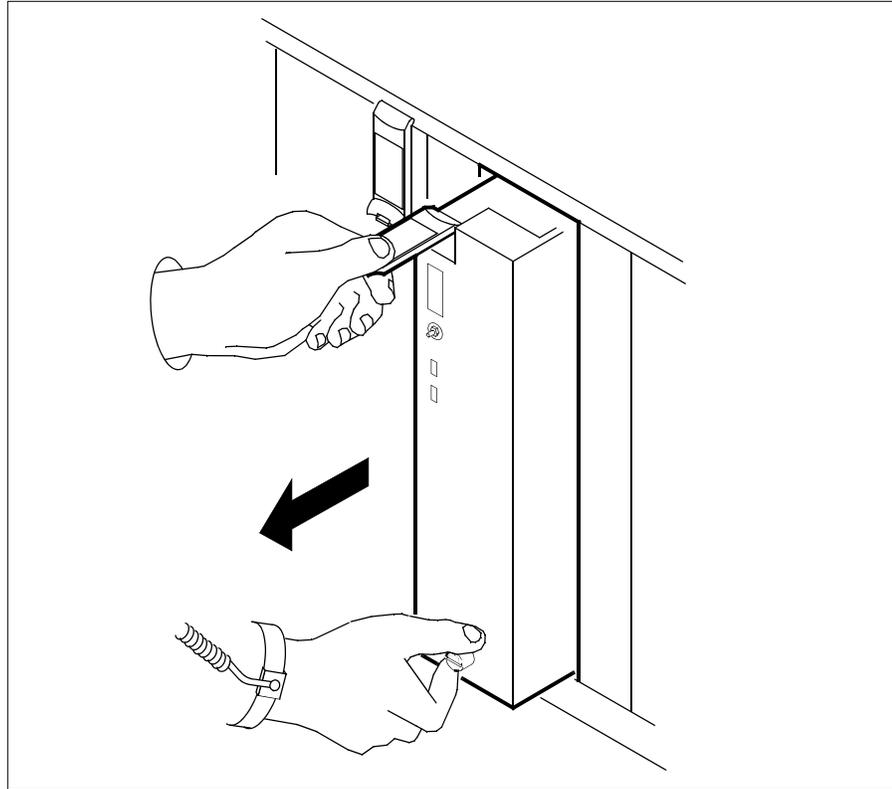
**17** Depress the tip of the locking lever on the face of the MFIO controller module.
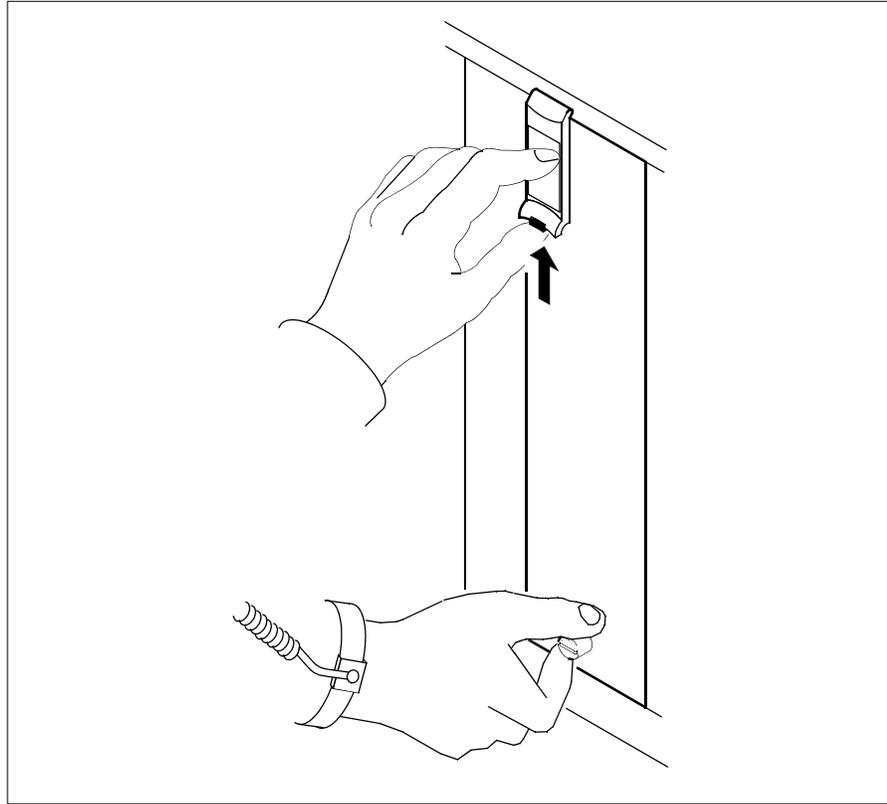
18 Open the locking lever on the face of the module by moving the lever outwards.
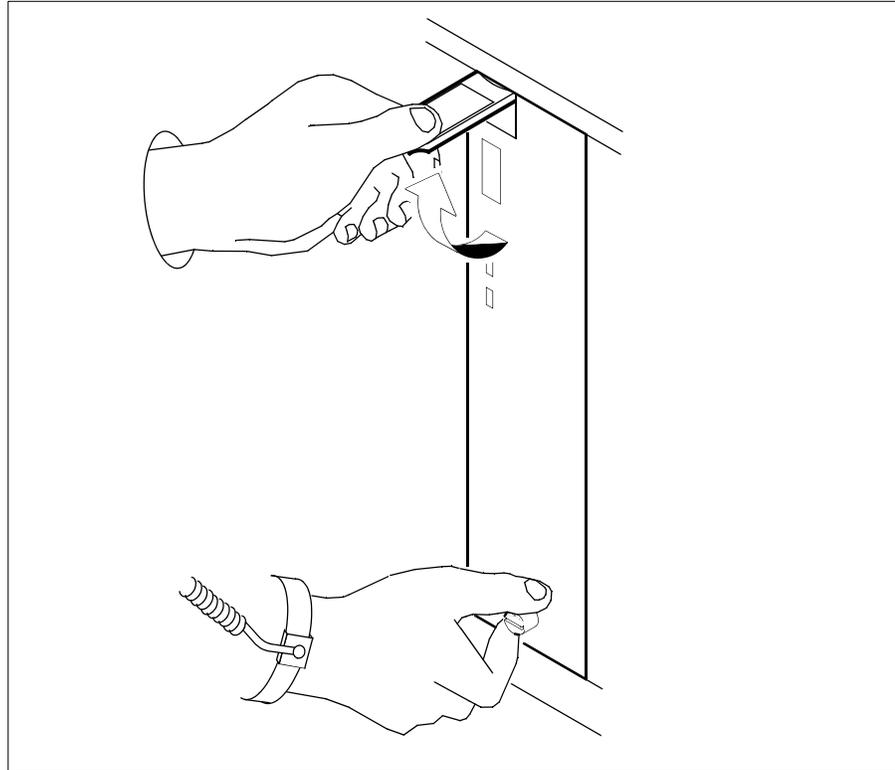
19 While grasping the locking lever, gently pull the module towards you until it protrudes about 2 in. (5 cm) from the shelf.

20Hold the card by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
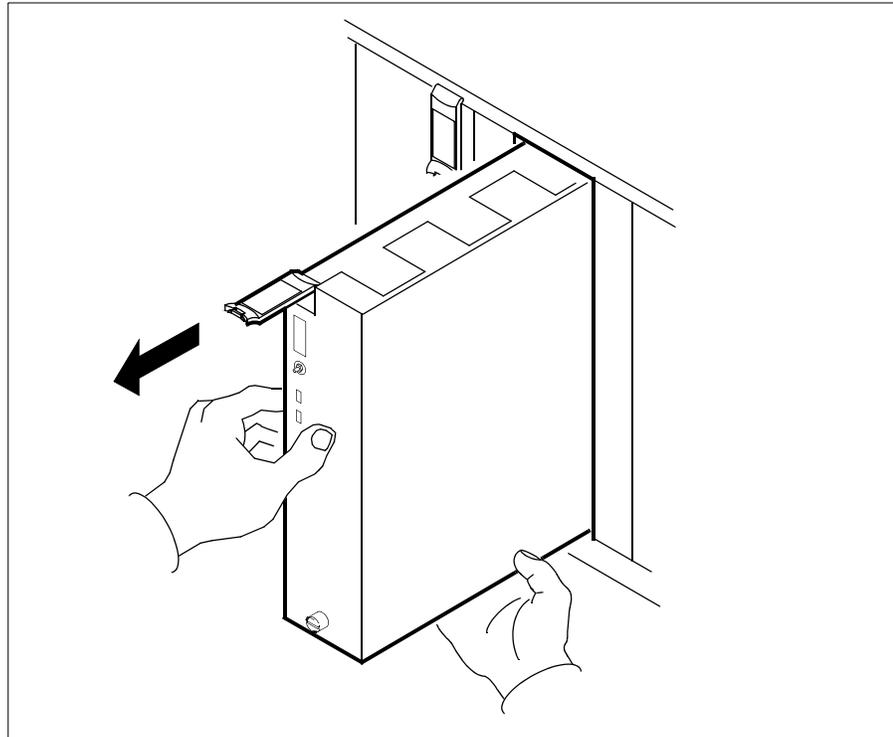
21Place the module you have removed in an ESD protective container.

At the back of the SDM

22Use the table below to determine your next step.

If you are	Do
upgrading to UMFIO	step 23
not upgrading to UMFIO	step 34

23You will now be removing the existing LAN personality module and replacing it with the new personality module (NTRX50NK or NTRX50NN) that came with the new UMFIO module. This must be done before inserting the new UMFIO module. It is located at the rear of the I/O controller module to be upgraded.

24   Label the Ethernet cable connected to the LAN personality module you want to replace.

25   Identify the correct LAN module (slot and PEC code) you wish to remove and disconnect the Ethernet cable, as shown in the following diagram.
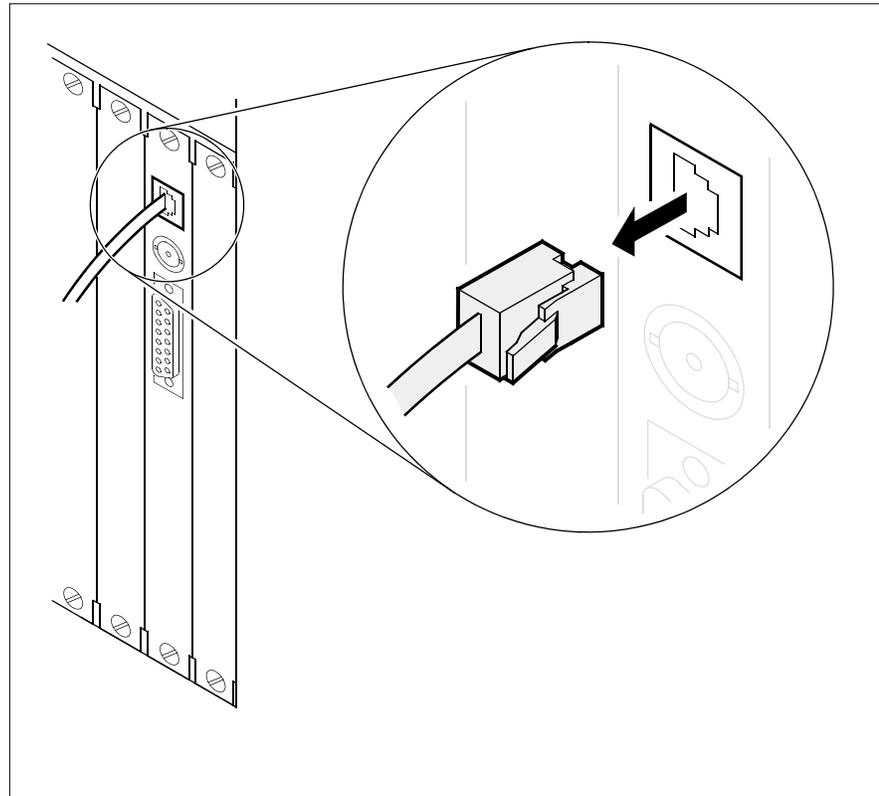

26   Loosen the two thumbscrews located at the top and the bottom of the LAN personality module. The thumbscrews are the captive type, and cannot be removed from the module.

27 While grasping the thumbscrews, gently pull the LAN personality module towards you until it protrudes about 2 in. (5 cm) from the shelf.
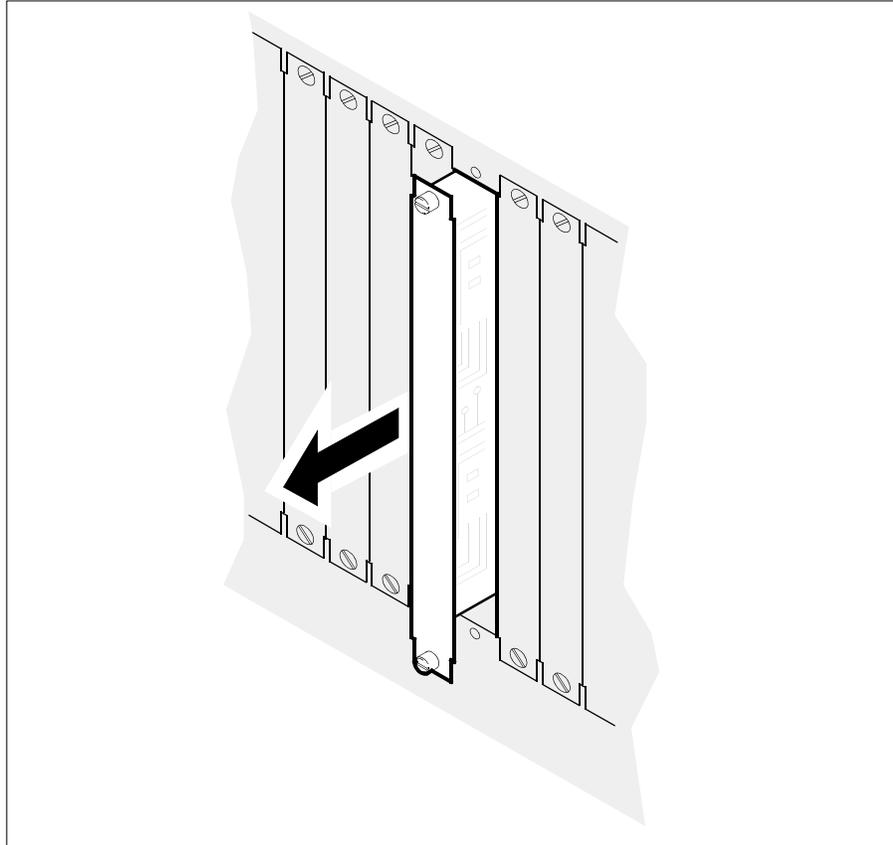
28 Hold the LAN personality module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
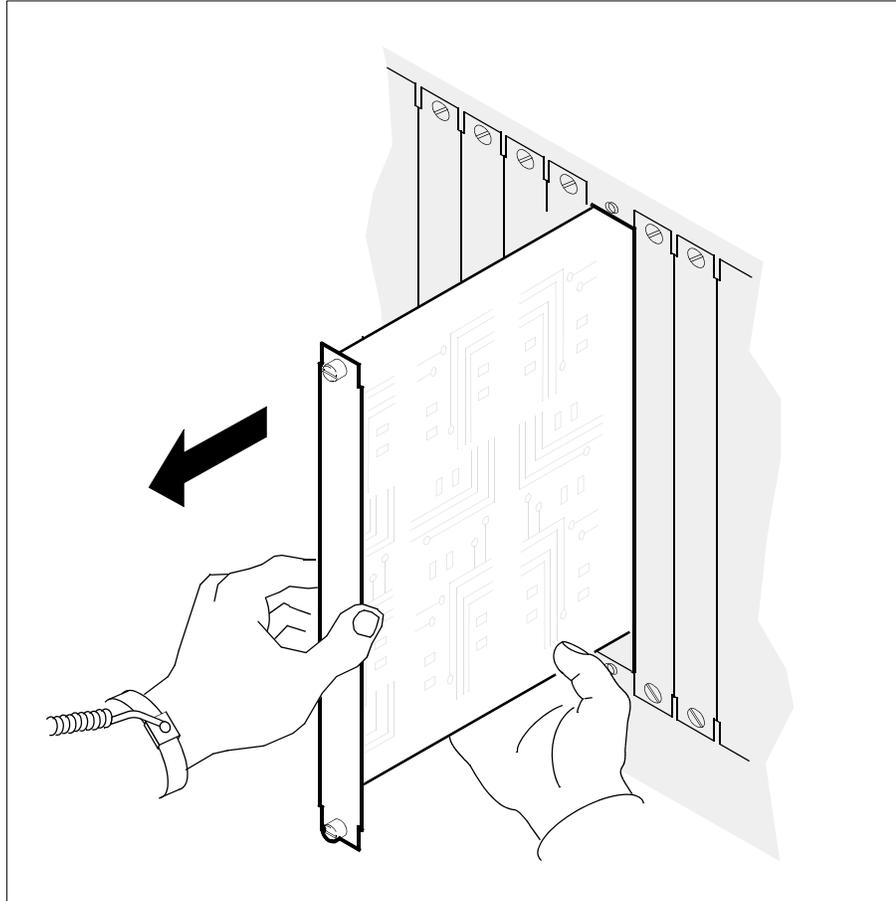

29 Place the LAN personality module you have removed in an ESD protective container.

30 Insert the new LAN personality module (NTRX50NK or NTRX50NN) into the shelf.

31 Gently slide the LAN personality module into the shelf until it is fully inserted.
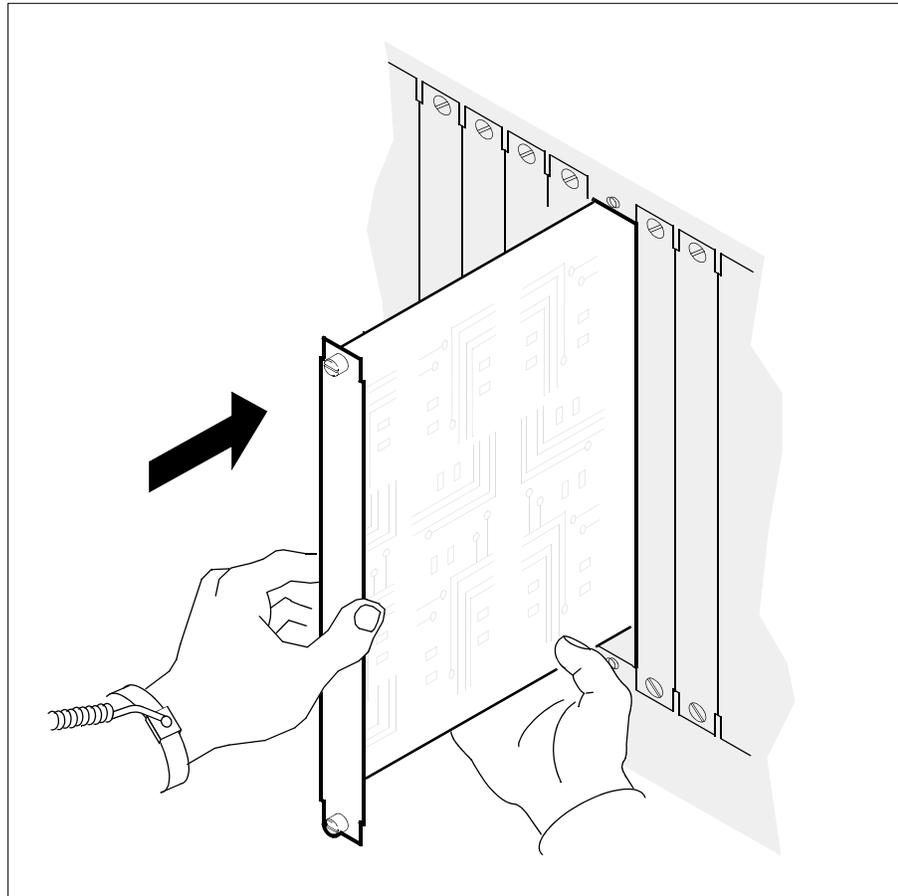
32 Tighten the thumbscrews at the top and the bottom of the LAN personality module.

33 Reconnect the Ethernet cable to the LAN personality module. You may remove the label you put on the cable in step 24.
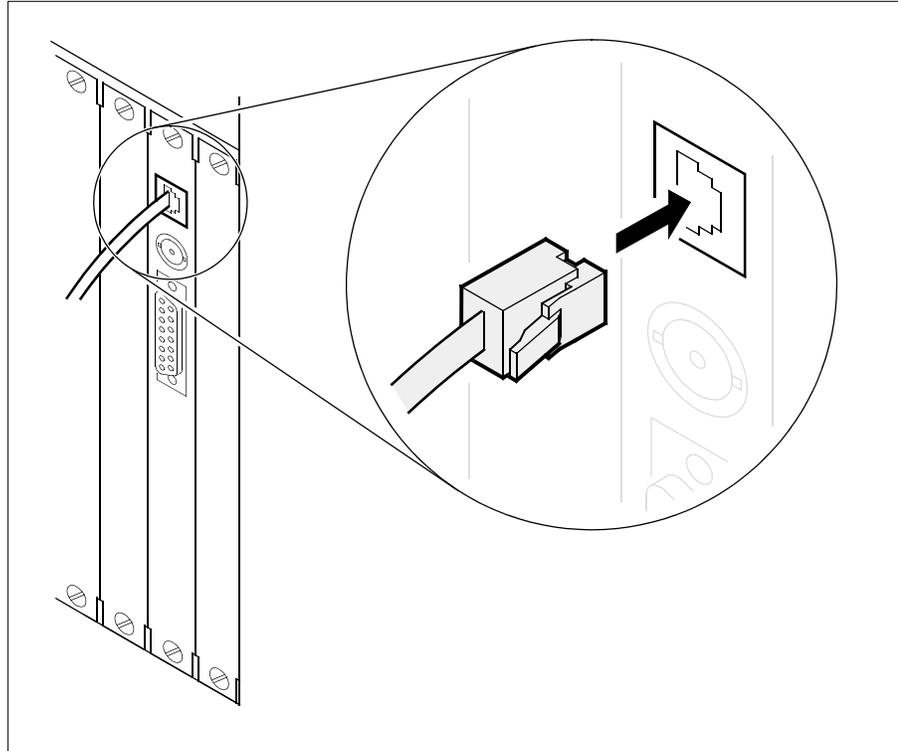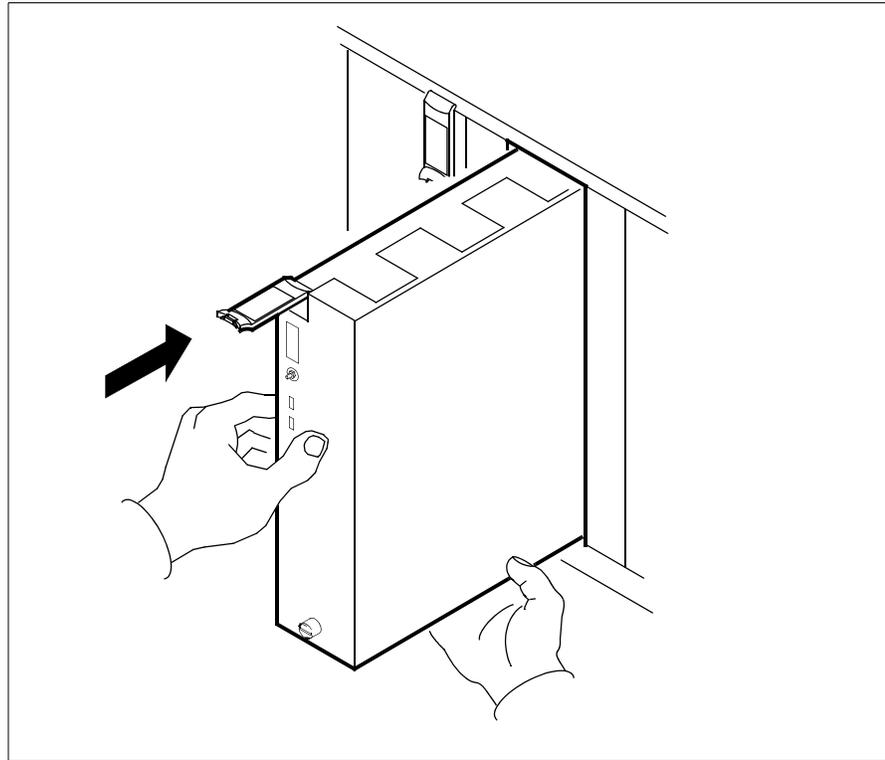

At the front of the SDM

34 Insert the NTRX50NC MFIO / NTRX50NL UMFIO module into the shelf.

> *Note:* Replacements for the NTRX50NC will be filled on a best-effort basis before and after the MD date of 31 December 2004. After 31 December 2004, the NTRX50NL will be the replacement for the NTRX50NC.

35 Gently slide the module into the shelf until it is fully inserted.

36   Close the locking lever to secure the module. Ensure that the top micro switch is lined up with the locking lever to properly seat the module.

Micro switch
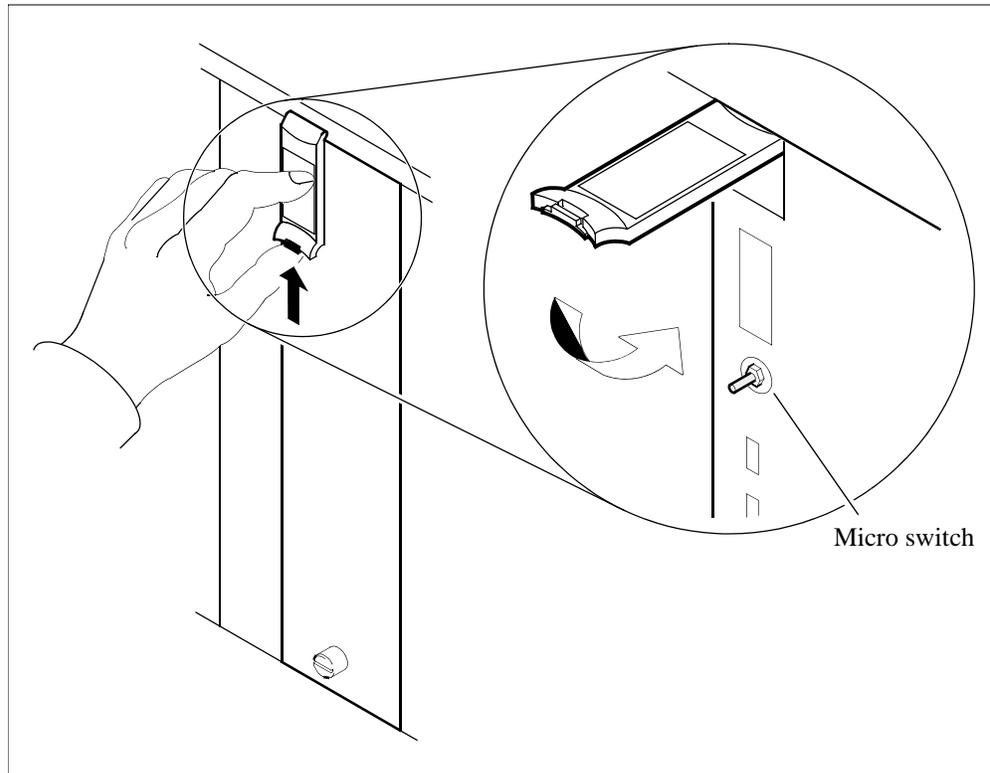
37   Tighten the thumbscrews on the module.

38   Continue the upgrade:

> **1**

Response

```
Transitioning forward from REPLACED to ONLINED
Transitioning forward from ONLINED to DEPENDENCIES_ADDED
Transitioning forward from DEPENDENCIES_ADDED to OFFLINED_AFTER_UPGRADE
Transitioning forward from OFFLINED_AFTER_UPGRADE to ONLINED2
Transitioning forward from ONLINED2 to COMPLETE
>
```

39 You are automatically returned to the sdmmtc Hw level. Wait until the system completes the reintegration.

While the system integrates, you will see the following responses at the hardware menu level and the storage menu levels:

Hardware menu level

```
        SDM   CON  LAN   APPL  SYS   HW      CLLI : FCC1
        ISTb    .     .      .    ISTb  ISTb    Host : SDM1
                                            Fault Tolerant
Hw
 0 Quit
 2                       I  I  F FCEE DDDDDD 5
 3                       CC AA PTT S S SSS A 1
 4 Logs                  M MNNUHHKKKKK T 2
 5                       1  2  1 2   1 21 2 3 4 5
 6              Domain 0 .  .  . . . . I . I I . . . .
 7 Bsy          Domain 1 .  .  . . . . I . I I . . . .
 8 RTS
 9
10
11
12
13
14 QuerySDM
15 Locate
16
17 Help
18 Refresh

 root
Time  19:48  >
```

Storage menu level

```
        SDM   CON  LAN   APPL  SYS   HW      CLLI : FCC1
        ISTb    .    .     .    ISTb  ISTb    Host : SDM1
                                              Fault Tolerant
Storage
 0 Quit
 2            Volume Group        Status            Free (MB)
 3              rootvg          Mirrored            31856
 4              datavg          Integrating (28%)   43360   !
 5
 6           Logical Volume      Location      Size(MB) % full/ threshold
 7              1 /               rootvg          88         11/ 80
 8              2 /usr            rootvg          600        29/ 90
 9              3 /var            rootvg          200         5/ 70
10              4 /tmp            rootvg          24          5/ 90
11              5 /home           rootvg          304         4/ 70
12 Up           6 /sdm            rootvg          504        24/ 90
13 Down         7 /data           datavg          208         5/ 80
14                              Logical volumes showing: 1 to 7 of 7
15
16
17 Help
18 Refresh


 root
Time  19:48  >
```

40 Once the system completes the reintegration, the status of the volume group changes to `Mirrored.`

Storage menu level

```
        SDM   CON   LAN   APPL   SYS   HW        CLLI : FCC1
         .     .     .     .      .     .        Host : SDM1
                                                 Fault Tolerant
Storage
 0 Quit
 2              Volume Group      Status       Free (MB)
 3                 rootvg         Mirrored       31856
 4                 datavg         Mirrored       43360
 5
 6              Logical Volume    Location     Size(MB) % full/ threshold
 7                 1 /             rootvg        88         11/ 80
 8                 2 /usr          rootvg        600        29/ 90
 9                 3 /var          rootvg        200         5/ 70
10                 4 /tmp          rootvg        24          5/ 90
11                 5 /home         rootvg        304         4/ 70
12 Up              6 /sdm          rootvg        504        24/ 90
13 Down            7 /data         datavg        208         5/ 80
14                             Logical volumes showing: 1 to 7 of 7
15
16
17 Help
18 Refresh


 root
Time  19:48  >
```

41 Verify that the correct module was used as a replacement:

> **`> locate`**

The system displays a list of hardware. Confirm that the correct PEC is listed for the newly upgraded module.

42 Upgrade the MFIO / UMFIO module in the other domain by repeating steps 1, 2, and 4 through 43 inclusive.

43 You have completed this procedure.

Upgrading the DS512 controller module from NTRX50GA to GX

Purpose

Use this procedure to perform the DS512 controller module upgrade from an NTRX50GA to an NTRX50GX module.

The NTRX50GA and NTRX50GX DS512 controller modules function identically. The NTRX50GX DS512 controller module has increased buffer memory with 16 kilobytes per link.

This procedure allows the SDM applications to continue without interruption. During this procedure, one of the two DS512 controller modules remains in service while the other is being replaced. The state of applications running on the SDM is not a factor in this procedure. However, Nortel Networks recommends that you perform this procedure during a roughage period.

Prerequisites

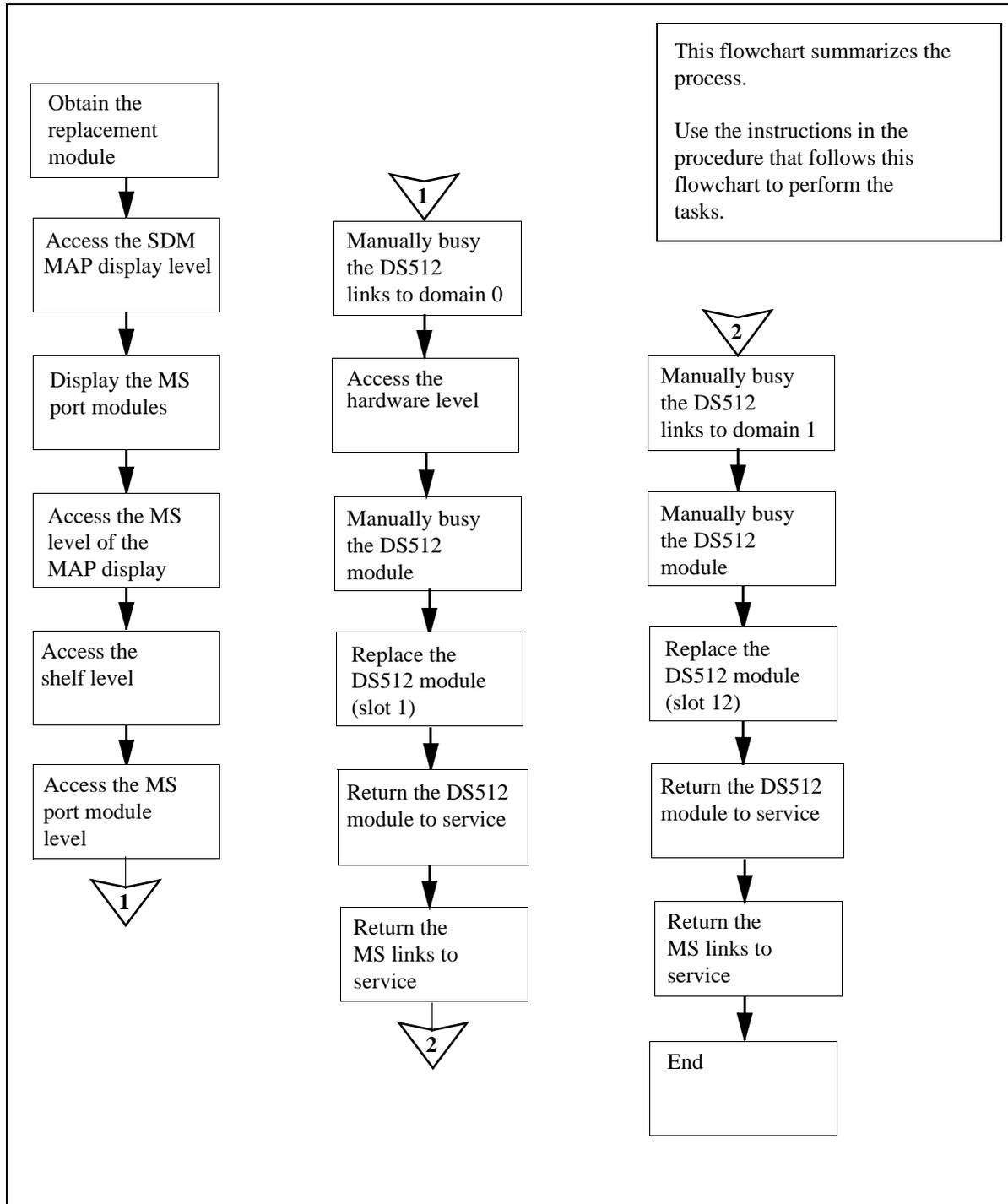The NTRX50GX DS512 controller module requires software version SDMN0010 (or higher).

Before you begin this procedure, you must have:

- two NTRX50GX controller modules
- packaging material in which to return the two NTRX50GA controller modules
- login capability for both the DMS MAP and SDM

Task flow diagram

The following task flow diagram provides a summary of the process. To upgrade the DS512 controller module, use the instructions in the procedure that follows the flowchart.

Task flow for Upgrading the DS512 controller module from NTRX50GA to NTRX50GX

Obtain the replacement module

↓

Access the SDM MAP display level

↓

Display the MS port modules

↓

Access the MS level of the MAP display

↓

Access the shelf level

↓

Access the MS port module level

▽ 1

▽ 1

Manually busy the DS512 links to domain 0

↓

Access the hardware level

↓

Manually busy the DS512 module

↓

Replace the DS512 module (slot 1)

↓

Return the DS512 module to service

↓

Return the MS links to service

▽ 2

This flowchart summarizes the process.

Use the instructions in the procedure that follows this flowchart to perform the tasks.

▽ 2

Manually busy the DS512 links to domain 1

↓

Manually busy the DS512 module

↓

Replace the DS512 module (slot 12)

↓

Return the DS512 module to service

↓

Return the MS links to service

↓

End

Upgrading the DS512 controller module

1   Obtain an NTRX50GX DS512 controller module. Make sure that the upgrade module has the correct product engineering code (PEC). The PEC is written on the top locking lever of the module.

At the MAP display

2   Access the SDM level:

> **mapci;mtc;appl;sdm**

3   Display the card numbers that provide the DS512 links to the SDM:

> **trnsl**

Example response

```
SDM 0 DOMAIN 0 PORT 0 (MS 0:15:0) OK  MsgCnd:Open
SDM 0 DOMAIN 0 PORT 1 (MS 1:15:0) OK  MsgCnd:Open
SDM 0 DOMAIN 1 PORT 0 (MS 0:15:1) OK  MsgCnd:Open
SDM 0 DOMAIN 1 PORT 1 (MS 1:15:1) OK  MsgCnd:Open
```

4   Record the card number associated with the SDM DS512 links. The card number is the middle number shown in the parentheses.

   Note: In the example response shown in step 3, the card number is 15.

5   Access the MS level of the MAP display:

> **ms**

6   Access the shelf level:

> **shelf**

7   Access the card number level that is associated with the SDM DS512 links:

> **chain <card_number>**

where

   <card_number>
      is the card number you recorded in step 4.

8   Manually busy the DS512 link between MS plane 0 and the SDM DS512 controller module or domain 0:

> **bsy 0 link 0**

Example response:

```
Request to MAN BUSY MS:0 shelf:0 chain:15 link:0
submitted.
Request to MAN BUSY MS:0 shelf:0 chain:15 link:0
passed.
```

> *Note:* The state for the DS512 link changes to "M" for MS plane 0.

9   Manually busy the DS512 link between MS plane 1 and the SDM DS512 controller module on domain 0:

> **> bsy 1 link *0***

Example response

```
Request to MAN BUSY MS: 1 shelf: 0 chain:15
link:  0 submitted.
Request to MAN BUSY MS: 1 shelf: 0 chain:15
link: 0 passed.
```

> *Note:* The state for the DS512 link changes to "M" for MS plane 1.

At the local or remote VT100 console

10   Log in to the SDM as the root or maint user.

11   Access the maintenance interface:

> **# sdmmtc**

12   Access the hardware (Hw) level:

> **> hw**

13   Busy the DS512 controller module:

> **> bsy 0 512**

If you are	Do
prompted to confirm the busy command	step 14
not prompted to confirm the busy command	step 16

14   Confirm the busy command:

> **> y**

At the front of the SDM

15

⚠	**WARNING** **Static electricity damage** Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge (ESD) grounding wrist strap.

16   Locate the NTGX50GA card in slot 1.

17

⚠	**CAUTION** **Potential service interruption** Unseat only the DS512 controller module that you busied, and not the corresponding DS512 controller module in the other I/O domain. The in-service LED on the busied module is off, and the out-of-service LED is on (red). If you remove the remaining in-service DS512 controller module, you will isolate the SDM from the computing module (CM).

Undo the thumbscrews located on the top and bottom of the DS512 controller module. The thumbscrews are the captive type, and cannot be removed from the module.
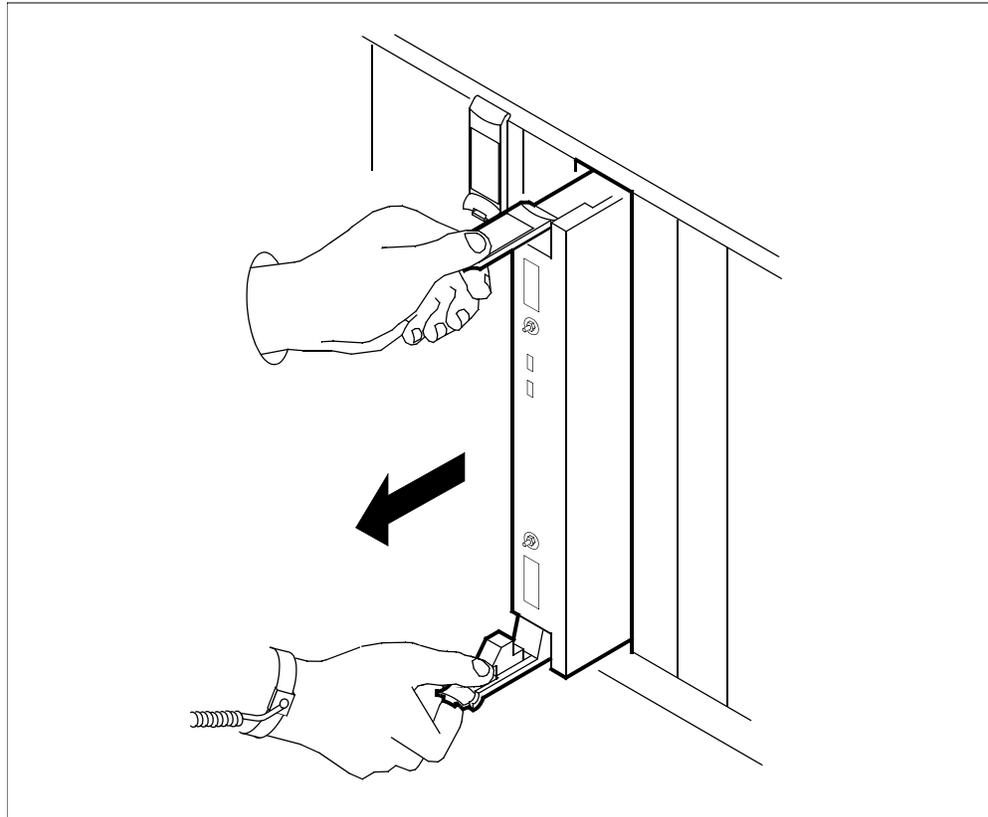
**18**   Depress the tips of the locking levers on the face of the DS512 controller module.
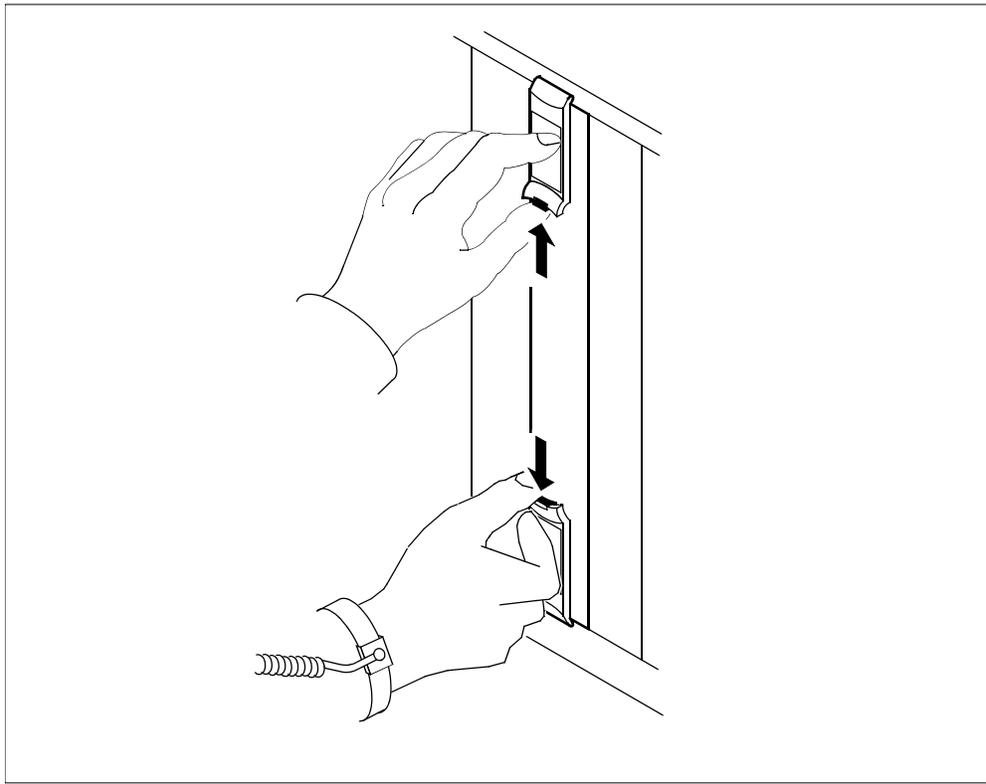
19   Open the locking levers on the face of the module by moving the levers outwards.
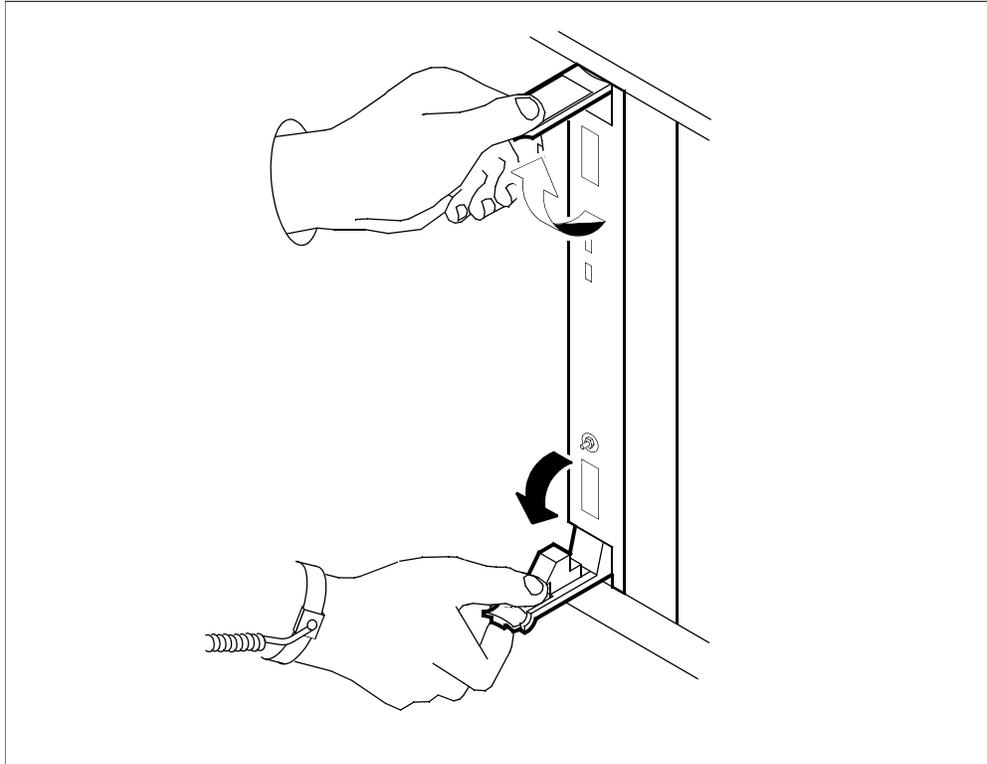
20 While grasping the locking levers, gently pull the module towards you until it protrudes about 2 in. (5 cm) from the SDM shelf.

21   Hold the module by the face plate with one hand while supporting the bottom edge with the other hand. Gently pull the module toward you until it clears the shelf.
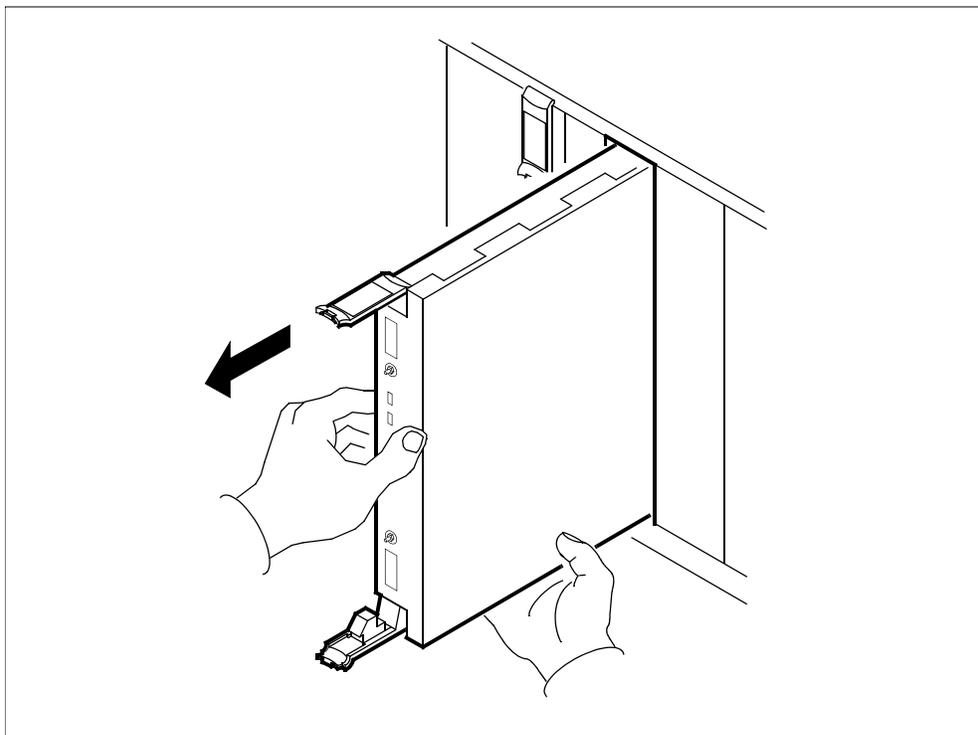
22   Place the module you have removed in an ESD protective container.

At the local or remote VT100 console

23   Exit the maintenance interface:

> quit all

24   For the DS512 module you have removed, delete the information from the SDM configuration database:

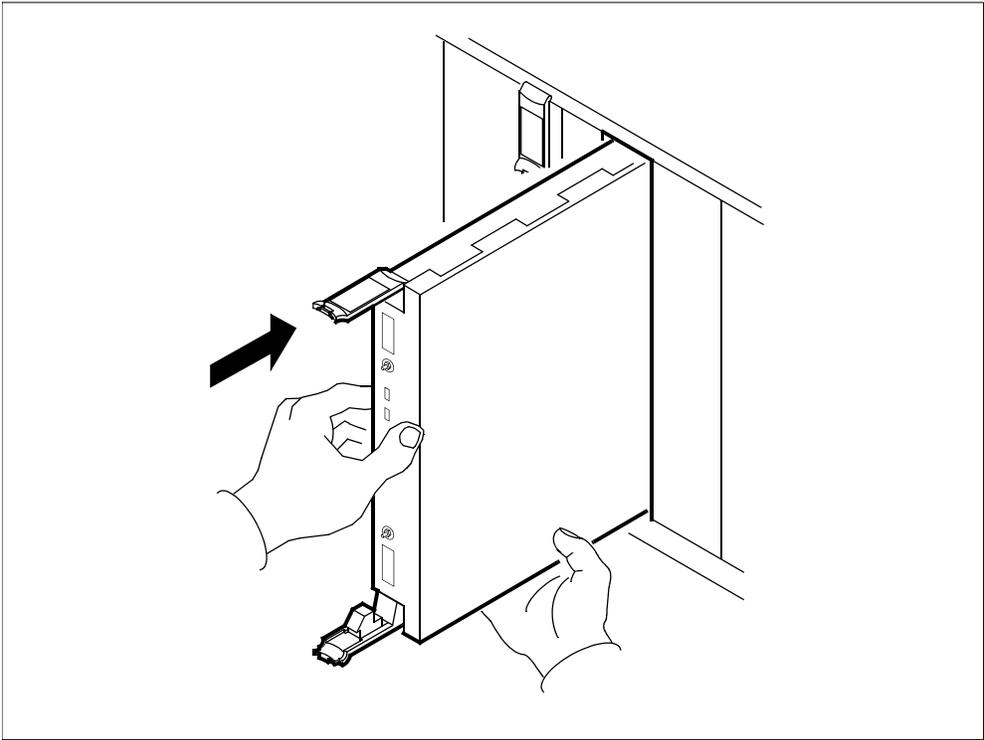**# ftds512clean <*n*>**

where

> **<*n*>**
>   is 0 if the removed module was in domain 0, and 1 for a module that was in domain 1.

At the front of the SDM

25   Insert the replacement module into the SDM shelf.

26   Gently slide the module into the shelf until it is fully inserted.

27 To seat the module properly, make sure that both the top and bottom micro switches are lined up with the levers. Close the locking levers to secure the module.
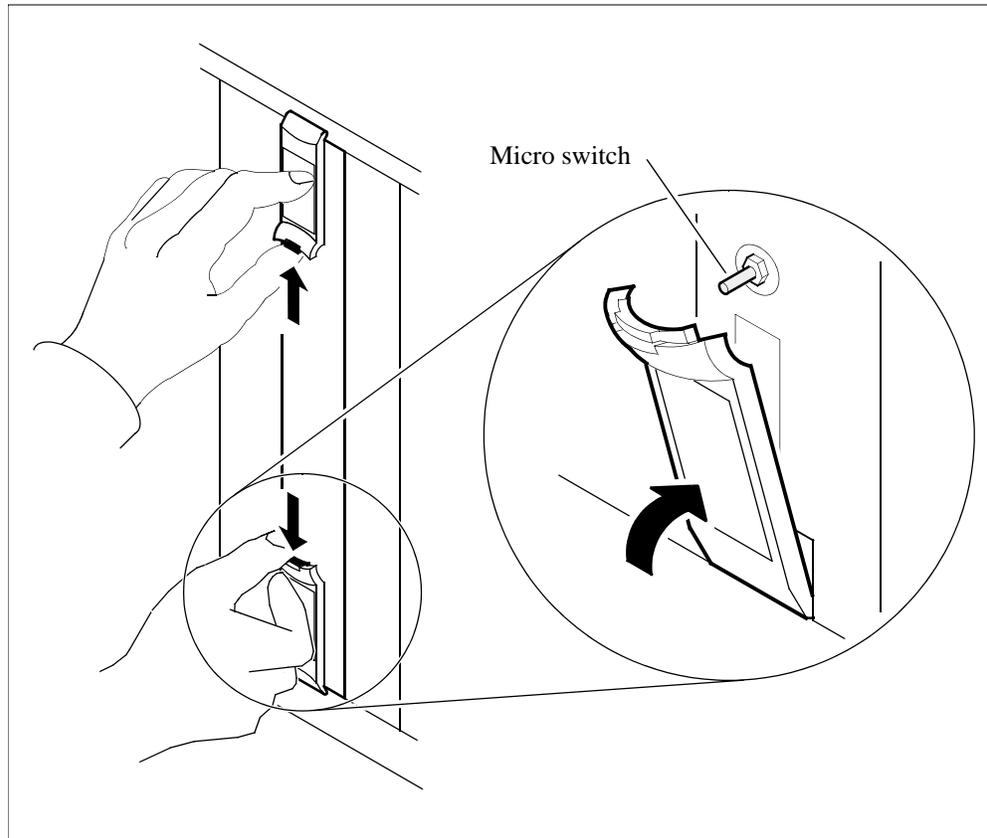
28 Tighten the thumbscrews (if present) on the module. If you are replacing domain 0, proceed to step 29. If you are replacing domain 1, proceed to step 41.

At the local or remote VT100 console

29 Access the maintenance interface:

 # sdmmtc

30 Access the hardware (Hw) level:

> hw

31 Return the DS512 controller module to service:

> rts 0 512

Example response

```
Hardware RTS : Domain 0 Device 512 - Command
initiated.
Please wait...
```

When the RTS command is finished, the *Please wait...* message and the command confirmation disappear. The word *initiated* also changes to *submitted*, then to *complete*.

Example response

```
Hardware RTS : Domain 0 Device 512 - Command
complete.
```

> *Note:* At the hardware menu level of the SDM maintenance interface, the state of the DS512 controller module changes to a dot (.). This change indicates that the module has returned to service. The in-service LED on the DS512 controller module is on (green).

At the MAP display

32 Access the MS port module level of the MAP display (accessed in step 7). Return to service the DS512 link between MS plane 0 and the DS512 controller module you replaced:

> **> rts 0 link 0**

Example response:

```
Request to RTS MS: 0 shelf: 0 chain:15 link:  0
submitted.
Request to RTS MS: 0 shelf: 0 chain:15 link: 0
passed.
```

> *Note:* The state for the DS512 link changes to a dot (.) if the SDM DS512 link is in service. Otherwise, the state for the DS512 link changes to a "P".

33 Return to service the DS512 link between MS plane 1 and the DS512 controller module you replaced:

> **> rts 1 link 0**

Example response:

```
Request to RTS MS: 1 shelf: 0 chain:15 link:  1
submitted.
Request to RTS MS: 1 shelf: 0 chain:15 link: 1
passed.
```

> *Note:* The state for the DS512 link changes to a dot (.) if the SDM DS512 link is in-service. Otherwise, the state for the DS512 link changes to a "P".

34   You must now replace the second NTRX50GA module with the second NTRX50GX module. Busy the DS512 link between MS plane 0 and the SDM DS512 controller module you wish to replace:

> **bsy 0 link 1**

Example response

```
Request to MAN BUSY MS: 0 shelf: 0 chain:15
link:  0 submitted.
Request to MAN BUSY MS: 0 shelf: 0 chain:15
link: 0 passed.
```

> *Note:* The state for the DS512 link changes to "M" for MS plane 0.

35   Busy the DS512 link between MS plane 1 and the SDM DS512 controller module you wish to replace:

> **bsy 1 link 1**

Example response:

```
Request to MAN BUSY MS: 1 shelf: 0 chain:15
link:  0 submitted.
Request to MAN BUSY MS: 1 shelf: 0 chain:15
link: 0 passed.
```

> *Note:* The state for the DS512 link changes to "M" for MS plane 1.

At the local or remote VT100 console

36   Busy the DS512 controller module:

> **bsy 0 512**

If you are	Do
prompted to confirm the busy command	step 37
not prompted to confirm the busy command	step 39

37   Confirm the busy command:

> **y**

At the front of the SDM

38

> **WARNING**
> **Static electricity damage**
> Wear an electrostatic discharge (ESD) grounding wrist strap connected to the C28B cabinet when handling a module. This protects the module against damage caused by static electricity.

Put on an electrostatic discharge (ESD) grounding wrist strap.

39   Locate the NTRX50GA card in slot 12.

40   Replace the NTRX50GA module in slot 12 with the NTRX50GX module. To replace the module in slot 12, use steps 17 to 28, then continue with step 41.

At the local or remote VT100 console

41   At the hardware level, return the DS512 controller module to service:

```
> rts 1 512
```

Example response

```
Hardware RTS : Domain 1 Device 512 - Command
initiated.
Please wait...
```

When the RTS command is finished, the *Please wait...* message and the command confirmation disappear. The word *initiated* also changes to *submitted*, then to *complete*.

Example response

```
Hardware RTS : Domain 1 Device 512 - Command
complete.
```

> *Note:* At the hardware level, the state of the DS512 controller module changes to a dot (.). This change indicates that the module has returned to service. The in-service LED on the DS512 controller module is on (green).

At the MAP display

42   Access the MS port module level of the MAP display (accessed in step 7).

43   Return to service the DS512 link between MS plane 1 and the DS512 controller module you replaced:

> **rts 0 link 1**

Example response

```
Request to RTS MS: 0 shelf: 0 chain:15 link:  0
submitted.
Request to RTS MS: 0 shelf: 0 chain:15 link: 0
passed.
```

> *Note:* The state for the DS512 link changes to a dot (.) if the SDM DS512 link is in service. Otherwise, the state for DS512 link changes to a "P".

44   Return to service the DS512 link between MS plane 1 and the DS512 controller module you replaced:

> **rts 1 link 1**

Example response

```
Request to RTS MS: 1 shelf: 0 chain:15 link:  1
submitted.
Request to RTS MS: 1 shelf: 0 chain:15 link: 1
passed.
```

> *Note:* The state for the DS512 link changes to a dot (.) if the SDM DS512 link is in service. Otherwise, the state for DS512 link changes to a "P".

At the local or remote VT100 console

45   Exit the maintenance interface:

> **quit all**

46   Confirm that the new cards are properly installed:

> **locate**

The system displays a list of SDM hardware. The NTRX50GX module is the hardware in slots 1 and 12.

> *Note:* If the system does not list the NTRX50GX modules, the card(s) may be faulty. Replace the NTRX50GX DS512 controller modules with the original NTRX50GA modules. To replace the modules, return to step 13 of this procedure and reinstall the NTRX50GA DS512 controller modules.

At the MAP display

47   Exit the MAP session:

> **quit all**

48   You have completed this procedure.