297-5051-900

DMS-100 Family

SuperNode Data Manager

Simplex User Guide

SDM06.1 Standard 02.04 May 1997

NORTEL
NORTHERN TELECOM

DMS-100 Family

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- Added information on Distributed Computing Environment (DCE)
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About this document

When to use this document

This document contains information for administering and maintaining the SuperNode Data Manager (SDM). It is intended for SDM system administration and maintenance personnel.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *DMS-100 Family Guide to Northern Telecom Publications*, 297-1001-001.

References in this document

The following documents are referred to in this document:

- *DMS-100 Family Guide to Northern Telecom Publications*, 297-1001-001

What precautionary messages mean

The types of precautionary messages used in NT documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task, or the correct interpretation of

information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER Possibility of personal injury

DANGER

Risk of electrocution

Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING Possibility of equipment damage

WARNING

Damage to the backplane connector pins

Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION Possibility of service interruption or degradation

CAUTION

Possible loss of service

Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are presented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command or other required input:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at the MAP display are shown in uppercase letters:

>BSY LINK

UNIX commands and fixed parameters that are entered at the SDM are shown in lowercase and uppercase letters, depending on the UNIX syntax:

>echo $TERM

Variables

Variables that are entered at the MAP display are shown in lowercase letters:

>BSY LINK ps_link

UNIX variables that are entered at the SDM are shown in italicized lowercase letters:

>setenv TERM *term_type*

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Multiple keystrokes

Multiple keystrokes, such as control character sequences, are shown enclosed in angle brackets and separated by a dash. The following example indicates that you hold down the control key while pressing b:

<CTRL-b>

Responses

Responses generated by the MAP display and the SDM are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

1 Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no
and pressing the Enter key.

where

ctrl_no is the number of the CTRL (0 or 1)

Example of a MAP display response:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

Understanding the simplex SDM

This chapter provides a description of the SuperNode Data Manager (SDM) simplex platform in the following subsections.

- *SDM overview* on page 1-1 provides a summary of SDM characteristics and capabilities.
- *SDM hardware* on page 1-4 describes the hardware of the SDM simplex platform.
- *SDM software* on page 1-10 describes the base, service, and application software provided with the SDM simplex platform, and the maintenance and administration user interfaces.
- *LAN-based input-output interface capabilities* on page 1-13 summarizes equipment configuration capabilities and requirements for connecting the SDM to the operating company LAN.
- *SDM Log Delivery* on page 1-16 describes the SDM Log Delivery application.
- *SDM MAP Access* on page 1-17 describes the SDM MAP Access application.

SDM overview

The simplex SDM is a high-performance UNIX-based processing platform that supports DMS SuperNode operations, administration, maintenance, and provisioning applications.

In conjunction with the SDM-resident base and application software developed by Nortel (Northern Telecom), and corresponding DMS-based hardware and software elements, the SDM simplex platform uses Motorola technology, and includes the following elements:

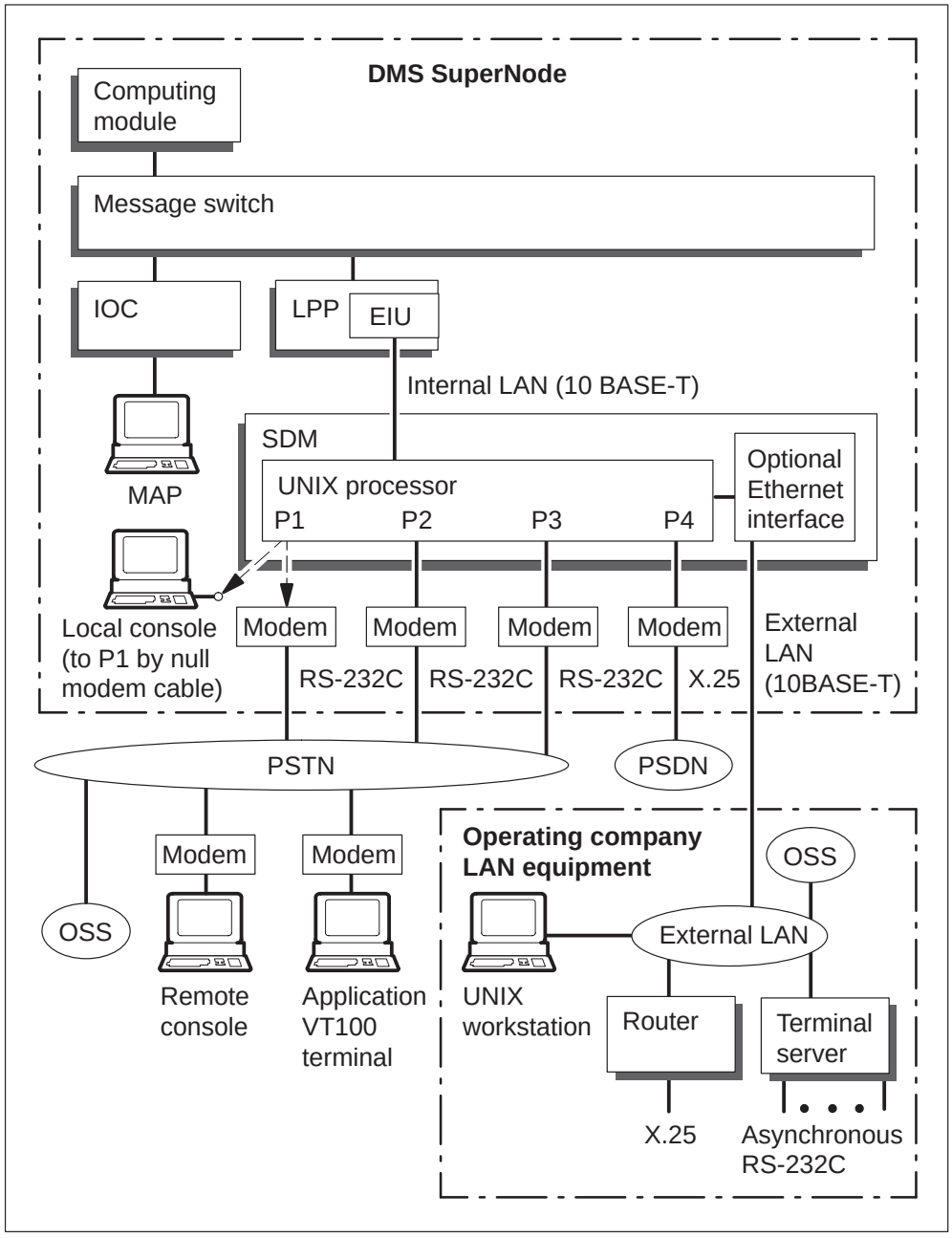
- PowerPC 603 microprocessor
- simplex hardware
- AIX 4.1.4 operating system

Figure 1-1 shows the position of the SDM within the DMS SuperNode system. The simplex SDM communicates with the DMS computing module

(CM) through an Ethernet interface unit (EIU) in the link peripheral processor (LPP), using a dedicated internal 10BASE-T (twisted-pair Ethernet) LAN.

External hardware is connected to the SDM by modems using the four serial communication ports provided, or to the operating company LAN using an optional 10BASE-T Ethernet interface. Three of the serial ports are fixed as asynchronous. The fourth port can also be configured as synchronous to provide X.25 connectivity. The first serial port (designated P1 in figure 1-1) is normally dedicated to console access for administration and emergency maintenance purposes. The console can be located adjacent to the SDM using a null modem cable, or installed at a remote location using an RS232 modem link.

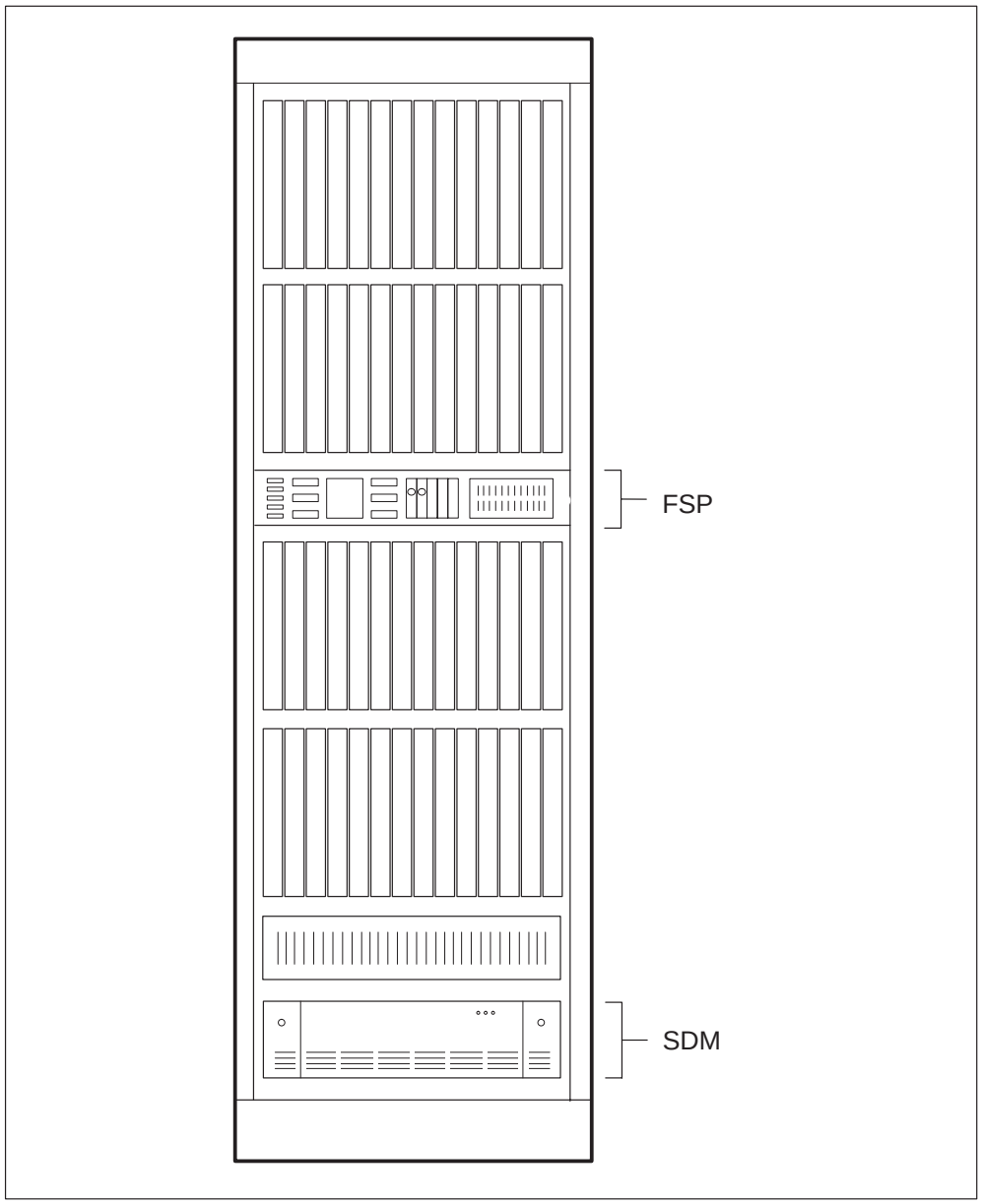
Figure 1-1
SDM position in the DMS SuperNode system



SDM hardware

This section provides an overview of the hardware components that make up the SDM simplex platform.

Figure 1-2
SDM cabinet



SDM cabinet

The SDM chassis mounts in a miscellaneous (MIS) frame as shown in figure 1-2 (this illustration is an example; the exact location of the SDM within the

MIS frame may vary depending on your specific equipment configuration). The remainder of the MIS frame can be used for other miscellaneous equipment, including modems associated with the SDM. Refer to the *DMS Provisioning Manual*, for detailed provisioning rules.

Frame supervisory panel

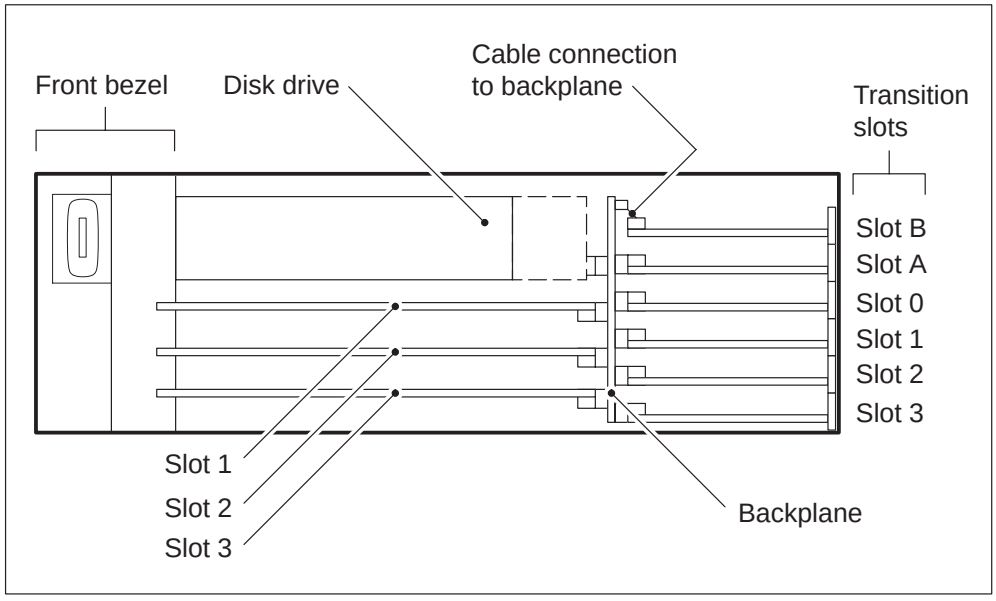
The frame supervisory panel (FSP) provides power and alarm monitoring capabilities for the MIS frame. The SDM computing hardware provides failure indication through isolated volt-free relay contacts. The FSP status is monitored at the alarm scanner and the MAP alarm banner. When an alarm occurs, the FSP activates end-of-aisle and frame-fail lamps. The SDM is powered by a single A or B feed (-48V dc).

The FSP breaker assigned to the SDM is used to turn on and off the input power to the SDM.

SDM hardware mounting

Figure 1-3 is a side view of the SDM showing equipment mounting within the SDM chassis. The SDM chassis is divided into front and rear sections, with all hardware connecting to the simplex backplane as shown.

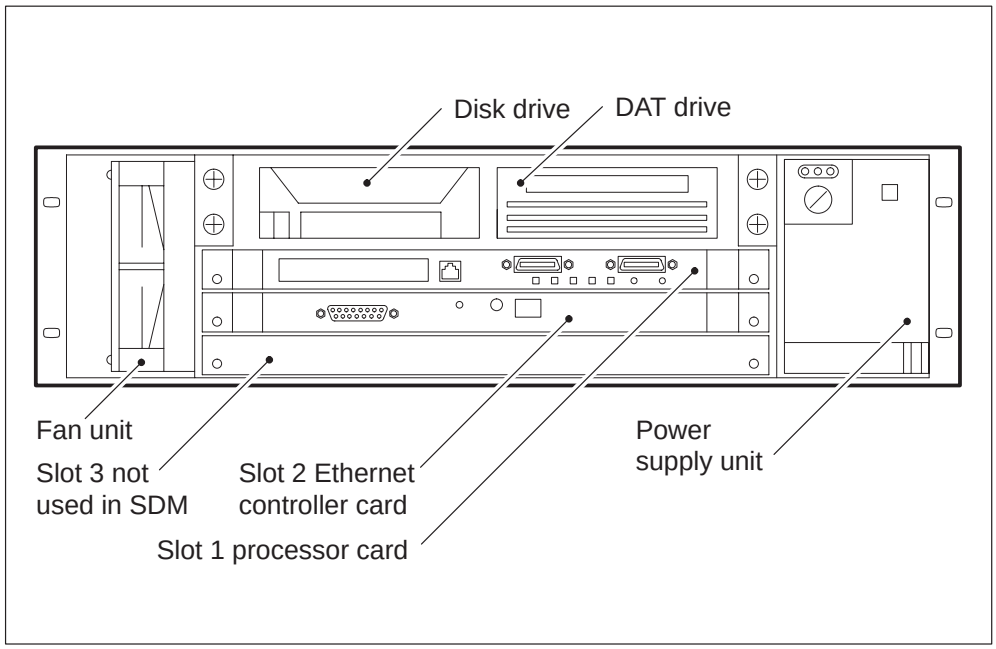
Figure 1-3
Side view of the SDM



Front-mounted SDM hardware

Figure 1-4 shows a front view of the SDM chassis with the front bezel removed.

Figure 1-4
Front view of the SDM (front bezel removed)



The hardware elements mounted at the front of the SDM chassis are described in the following subsections.

SDM System processor card (NTRX50JP, NTRX50JQ, NTRX50JR, or NTRX50JS)

The SDM system processor card is mounted in slot 1 of the SDM chassis. The SDM processor card is the central processing unit (CPU) for the SDM system. It uses a high-performance 32-bit PowerPC processor operating at 66 MHz. In addition to controlling serial port communications to and from the SDM, the processor card provides the Ethernet controller circuitry for communicating with the CM.

The SDM system processor card is available in four versions:

- NTRX50JP - 32 Mbyte DRAM
- NTRX50JQ - 64 Mbyte DRAM
- NTRX50JR - 96 Mbyte DRAM
- NTRX50JS - 128 Mbyte DRAM

The four versions of the processor card are identical in functionality, except for the increased DRAM capacity.

The processor card is equipped with a number of LEDs that provide visible information on hardware status. These LEDs are described on page 2-47.

For information on serial port access to the processor card, see the section *Processor transition card 1* on page 1-10.

Ethernet controller card (NTRX50JV)

The Ethernet controller card mounts in slot 2 at the front of the SDM. The card is accessible by removing the front bezel. This card is optional on the SDM system and is used in conjunction with the rear-mounted Ethernet transition card (NTRX50JW) to provide connectivity through a 10BASE-T port from the SDM to the operating company LAN. The Ethernet controller card provides local processing support for the physical (layer 1) and link (layer 2) messaging layers of IEEE standard 802.3.

For details on the LAN-based input-output capabilities supported on the SDM, see page 1-13.

SDM slot 3

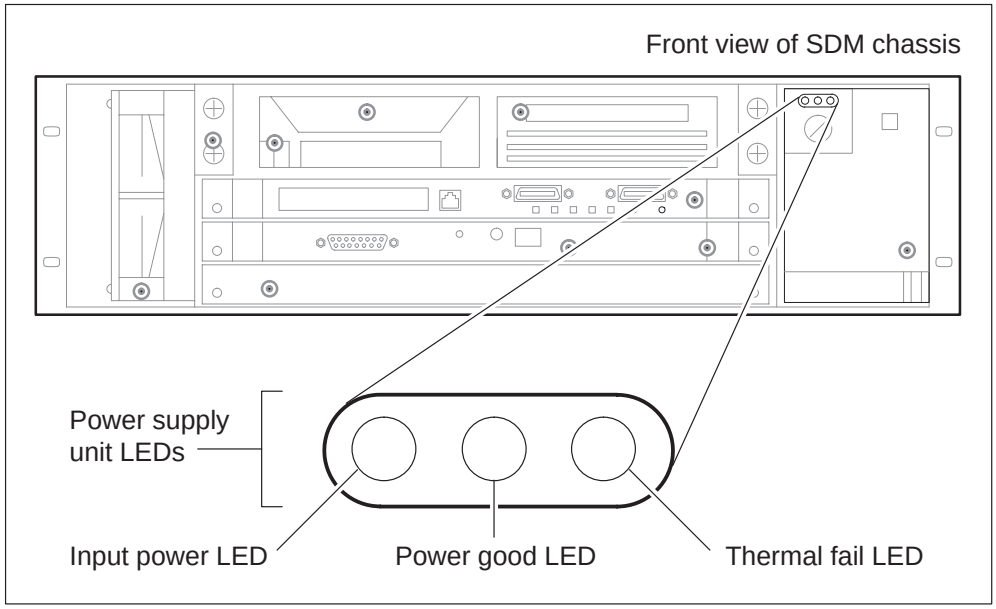
Slot 3 at the front of the SDM is not used, and is equipped with a filler faceplate to ensure electromagnetic interference (EMI) compliance.

Power supply unit (NTRX50JC)

The SDM power supply unit is accessible by removing the front bezel of the SDM. The power supply provides +5V dc, +12V dc, and -12V dc outputs to the SDM system. Its input power can range from -36V dc to -76V dc. The power supply is rated at 170 watts continuous (all outputs combined).

Three LEDs are provided on the SDM chassis that monitor input power, output power, and thermal shutdown. These LEDs, shown in figure 1-5, are visible with or without removing the front bezel, and are described in further detail on page 2-46.

Figure 1-5
Status LEDs at front of SDM chassis



DAT drive (NTRX50JJ)

The SDM is provided with one SCSI–II 4 Gbyte 4 mm digital audio tape (DAT) drive. The DAT drive is used for installation of SDM software, software restore in the event of corruption or disk drive failure, and for performing software and data backups. The DAT drive is accessible by removing the front bezel of the SDM. For information on performing software backups and restores, refer to the System Administration Overview and System Administration Procedures chapters of this document.

Disk drive (NTRX50JT, NTRX50JU)

The SDM is equipped with one SCSI-II disk drive for storage of the AIX operating system, and SDM base, service and application software and data. The disk drive is accessible by removing the front bezel of the SDM.

The disk drive unit is available in two versions:

- NTRX50JT - 1 Gbyte capacity
- NTRX50JU - 2 Gbyte capacity

Fan unit (NTRX50JD)

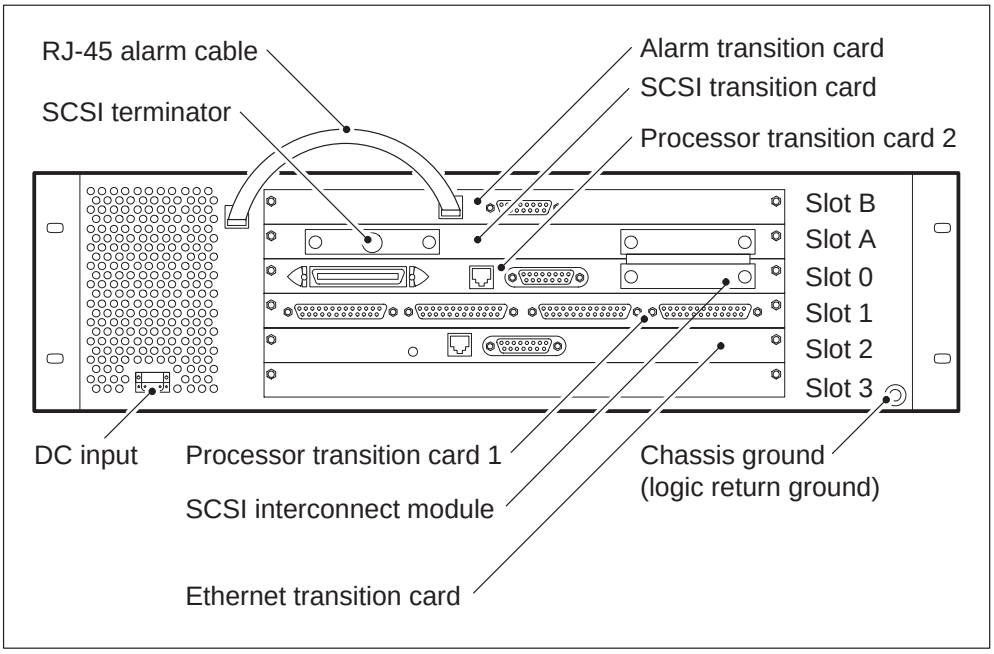
The fan unit supplies the cooling required for the SDM chassis. It is accessible by removing the front bezel of the SDM chassis. The fan must be operating at all times. The SDM system is protected from damage due to fan failure by a sensor that triggers automatic thermal shutdown of the SDM power supply unit. Thermal shutdown is indicated on the SDM by the

thermal fail LED, which is visible with or without removing the front bezel. Figure 1-5 on page 1-8 shows the location of this LED. For additional information on LED status indicators, see page 2-46.

Rear-mounted SDM hardware

Figure 1-6 shows a rear view of the SDM. The hardware elements mounted at the rear of the SDM chassis are described in the following subsections.

Figure 1-6
Rear view of the SDM



Alarm interface transition card (NTRX50JE)

The alarm interface transition card is located in slot B at the rear of the SDM. This card is used to connect the SDM to the external alarm circuitry in the FSP.

SCSI transition card (NTRX50JF)

The SCSI transition card is located in slot A at the rear of the SDM chassis. The SCSI transition card provides termination for the SCSI bus, and links the SCSI bus to processor transition card 2 through the SCSI interconnect module.

Processor transition card 2 (NTRX50JH)

Processor transition card 2 is located in slot 0 at the rear of the SDM chassis. This card provides SCSI bus connectivity for the processor card, and provides 10BASE-T Ethernet connectivity to the SDM system.

Processor transition card 1 (NTRX50JG)

Processor transition card 1 is located in slot 1 at the rear of the SDM chassis. This card provides access to the four serial ports on the SDM processor card. The data transfer rate on each of the four ports is programmable, using the SDM online commissioning tool. The minimum rate is 50 bits per second. The maximum rate is 38.4 kbits per second.

The data transfer mode for the four ports is as follows:

- P1 - asynchronous
- P2 - asynchronous
- P3 - asynchronous
- P4 - programmable as asynchronous or synchronous

Port 1 (P1) is dedicated for remote or local VT100 console connection to the SDM. Ports 2 (P2) and 3 (P3) are used to connect printers for the Log Delivery application, and are configured using the Log Delivery commissioning tool (see page 1-16 for additional details). Port 4 (P4) can be configured using the online SDM commissioning tool to provide X.25 connectivity to the SDM. When commissioned for X.25, port 4 is automatically configured as synchronous.

Ethernet transition card (NTRX50JW)

The Ethernet transition card is located in slot 2 at the rear of the SDM chassis. This card is optional on the SDM, and is used in conjunction with the Ethernet controller card (NTRX50JV) to provide 10BASE-T Ethernet connectivity to the operating company LAN.

SDM rear slot 3

Slot 3 at the rear of the SDM is not used, and is equipped with a filler faceplate to ensure EMI compliance.

SDM software

SDM software is a three-layer architecture composed of separate base, service, and application layers. This organization permits parallel development in each stream, allowing independent delivery of new services and applications.

The SDM base software layer is responsible for the maintenance and operation of the SDM. The service layer provides common software utilities and functions that can be used by multiple SDM applications. The application software layer provides applications that address DMS surveillance and provisioning needs.

SDM base software layer

The SDM base software layer consists of

- the AIX 4.1.4 operating system (the proprietary IBM implementation of UNIX) and server software
- node and process control services
- maintenance and administration services

SDM service software layer

The service software layer provides internal application support software for use by current and future SDM application packages. This includes software such as table access utilities used for provisioning applications.

SDM application software layer

The application software layer contains operations, administration, and maintenance software application packages. This layer contains all SDM application software installed on your system, including the MAP Access and Log Delivery applications. For additional information on the MAP Access application, see page 1-17. For additional information on the Log Delivery application, see page 1-16. For information on other SDM application software packages, refer to the appropriate Northern Telecom publications (NTP).

Maintenance interfaces

There are two maintenance interfaces for the SDM: the MAP interface, and the remote maintenance interface (RMI).

MAP-based SDM maintenance

The primary maintenance interface for the SDM is the DMS MAP interface. A dedicated SDM maintenance subsystem is provided at the MTC PM level of the MAP display that allows you to do the following:

- Determine the node state and operating condition of the SDM
- Alter the state of the SDM for maintenance purposes
- Determine the status of connectivity to the SDM
- Reboot the SDM if required
- Determine the status of SDM application software packages
- Determine the status of SDM system software resources

The MAP display can be used to maintain the SDM if the CM is communicating successfully with the SDM through the Ethernet link. If the SDM and the CM are unable to communicate due to a fault on the SDM side of the Ethernet link, or because the SDM itself is out of service, the RMI must be used to diagnose and clear the problem.

See *Maintaining the SDM using the MAP interface* on page 2-2 for an overview of MAP-based maintenance capabilities.

RMI-based SDM maintenance

The RMI is the secondary point of access for SDM maintenance. The RMI can be accessed using a remote or local VT100 terminal, or by telnet from the operating company LAN. External (operating company) LAN connectivity is optional on the SDM and requires installation of the NTRX50JV Ethernet controller card and the NTRX50JW Ethernet transition card in the SDM.

The RMI provides the following maintenance capabilities:

- When connectivity to the CM is down for any reason, the RMI provides access to all maintenance capabilities that would normally be available through the MAP interface, including state change and monitoring capabilities.
- The RMI provides control of individual SDM application software packages.

For full details on the capabilities provided on the RMI, see *Maintaining the SDM using the remote maintenance interface* on page 2-11.

Administration interface

SDM administration is performed by the root user, primarily by using UNIX-based utilities at the local or remote VT100 console, and tools available at the RMI. Administration capabilities supported through this interface include commissioning of the SDM simplex platform, commissioning of the Log Delivery application, setup of user groups and passwords, monitoring of system resources, and performing software backup and restore functions.

Disk partitioning

The AIX operating system provides disk partitioning capability into logical volumes. Logical volume partitioning provides the following benefits:

- protection against disk occupancy errors (full disk)
- separation of maintenance partitions from application and service partitions
- protection of the AIX root partition from SDM software

On the SDM, logical volumes are equivalent to file systems. The SDM file system structure is provisioned by Nortel. The root user can monitor file system partitioning and usage using the AIX command “df” at the local or remote VT100 terminal.

For additional information on administering the SDM, see the System Administration Overview and System Administration Procedures chapters of this document.

LAN-based I/O interface capabilities

Connectivity to the operating company LAN is optional on the SDM, and requires installation of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW).

The following types of LAN-based I/O interfaces are supported on the SDM:

- workstations
- hubs
- routers
- printers
- terminal servers

Each of these interface types is discussed in the following subsections.

Workstations

UNIX workstations can be configured as remote user interface (UI) servers to provide the UI for the SDM applications. For this SDM product release, UI clients are supported only on HP-700 series workstations running the HP-UX 9.05 operating system (or higher). The performance of the UIs running on the workstation is dependent on the workstation performance. Remote UI servers do not have an adverse impact on SDM processor performance.

Hubs

Hubs are required when 10BASE-T or unshielded twisted pair (UTP) LANs are used. The minimum requirements for a customer-supplied hub connected to the SDM are:

- compliance with IEEE 802.3/Ethernet 10BASE-T specifications
- internal self-test, diagnostics, and configuration available from a locally attached terminal or through the Simple Network Management Protocol (SNMP) over the LAN
- compliance with the Address Resolution Protocol (ARP) broadcast refinement
- auto segmentation to prevent babbling or erroneous ports from affecting the operation of the LAN
- support for cascading hubs to expand the LAN
- visual indicators of the LAN status

Routers

Routers perform wide area networking for SDM graphical user interfaces (GUI) over other networks (for example, X.25), and provide gateway (or protocol translator) functions.

The minimum requirements for the router are determined by customer requirements, the LAN configuration, and the router function. The minimum requirements for a customer-supplied router used in a configuration connected to the SDM are:

- compliance with IEEE 802.3/Ethernet 10BASE-T specifications
- internal self-test, diagnostics, and configuration available from a locally attached terminal or through the SNMP over the LAN
- compliance with the ARP broadcast refinement
- support for a variety of WAN communication facilities (X.25, ATM, and channel service unit (CSU)/data service unit (DSU))
- visual indicators of LAN and port status and connectivity

Printers

The following printing LAN-based capabilities are supported on the SDM:

- Postscript printers can be connected to the SDM through the operating company LAN. The SDM supports printing of a file in postscript format.
- ASCII-based line printers (asynchronous RS232) can be connected to the SDM by the operating company LAN, by connecting them to a terminal server port or a port on a workstation.

Terminal servers

A terminal server can be used to provide asynchronous access to the SDM for any applications that normally use the modem ports on the SDM. Terminal server ports either can be used instead of integrated application asynchronous ports or can be provisioned in addition to the integrated ports. The number of required asynchronous ports is determined by the engineering rules associated with each application.

A terminal server cannot be used for remote maintenance dial-up port access. This capability must be provided using one of the four asynchronous ports on the processor card.

The minimum requirements for a terminal server used with the SDM are:

- compliance with IEEE 802.3/Ethernet 10BASE-T specifications
- telnet - TCP/IP support
- internal self-test, diagnostics, and configuration available from a locally attached terminal or through the SNMP over the LAN
- compliance with the ARP broadcast refinement
- visual indicators of LAN and port status
- capability to configure terminal servers through a locally attached terminal (preferred)
- full modem support for dial-up applications
- port speeds of up to 64 kbit/s

SDM Log Delivery

The Log Delivery application, included as part of the base software platform on the SDM, delivers user-defined log streams of DMS SuperNode logs and SDM simplex platform and application logs to one or more of the following:

- up to two local printers, connected to asynchronous serial ports 2 or 3 of the SDM, by RS232 modem links
- up to 10 operations support systems (OSS), by TCP/IP links from the SDM to the operating company LAN. Connectivity to the operating company LAN is optional on the SDM, and requires provisioning of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW).
- up to 10 UNIX files stored on the SDM

A maximum of 10 Log Delivery output devices can be commissioned (the sum total of defined printers, TCP/IP links, and UNIX files cannot exceed 10).

Log formatting

The Log Delivery application formats logs as either Nortel standard (STD) or Switching Control Center 2 (SCC2) format. Logs in STD format specify the switch name, and if configured, the node name. Logs in SCC2 format do not specify the switch or node name. Formatting can be set on a per-device basis.

Log buffering

In the event that any destination device is unable to receive logs for any reason (for example, a printer out of paper), logs are buffered locally on the SDM until the device is ready to receive logs. The buffer can store up to 300 logs (the maximum buffer size can be commissioned, using the Log Delivery commissioning tool).

Log delivery commissioning tool

Log Delivery operating parameters are controlled by an online SDM commissioning tool, which is used at initial installation to set up the application, and can also be used after initial installation to view or modify the parameters.

The Log Delivery commissioning tool allows customization of

- global application parameters including buffer size, reconnect timeout value, lost logs threshold, ASCII line delimiter and log delimiter characters, and the number of days to keep log files
- the incoming log stream from the CM, to add or delete individual logs

- per-device parameters, including device type (UNIX file, TCP output, or printer), parameters specific to the device type (for example, the baud rate for a printer), log output format (STD or SCC2) and the logs to be sent to the device

The Log Delivery commissioning tool includes an online help facility that provides the valid ranges (and default values, where applicable) for each customizable parameter.

For additional information on configuring and troubleshooting the Log Delivery application, see page 2-34.

SDM MAP Access

The SDM MAP Access application allows a user on an SDM client workstation on the operating company LAN to connect to the CM and use the DMS MAP interface. This application is included as part of the base software platform on the SDM. Connectivity to the operating company LAN is optional on the SDM, and requires provisioning of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW). MAP Access can be used only if these cards are provisioned.

For detailed instructions on using the MAP Access application, see the procedure *Accessing the MAP from the operating company LAN* on page 4-53.

SDM maintenance overview

This chapter provides an overview of SDM maintenance capabilities and methods.

SDM monitoring and maintenance positions on page 2-1 describes the user interfaces and output devices from which you can monitor and maintain the SDM. These include the DMS MAP interface, the SDM remote maintenance interface (RMI), the DMS log stream, and the SDM log stream.

SDM Log Delivery application on page 2-34 describes the SDM Log Delivery application and provides commissioning and troubleshooting guidelines.

SDM platform troubleshooting strategy on page 2-44 provides recommendations for isolating and clearing faults on the SDM platform.

Routine maintenance recommendations on page 2-57 provides a list of routine maintenance activities.

SDM monitoring and maintenance positions

Information about the state of the SDM is available from the following monitoring and maintenance positions:

- maintenance level of the MAP interface. See *Maintaining the SDM using the MAP interface* on page 2-2.
- SDM remote maintenance interface. See *Maintaining the SDM using the remote maintenance interface* on page 2-11.
- log streams. See *SDM-related log reports* on page 2-30.
  - — from the SDM to an operations support system (OSS), UNIX file, or printer, using the SDM Log Delivery application. See page 1-16 for additional information.
  - — from the DMS input/output controller (IOC) to an OSS or printer

Each of these maintenance access points is described in the following sections.

Maintaining the SDM using the MAP interface

The primary access point for maintaining the SDM is the peripheral module (PM) subsystem of the MAP interface of the maintenance level. The MAP command and display structure for the SDM is similar to that provided for other DMS peripheral modules. Posting the SDM accesses an SDM-specific maintenance level that allows you to

- monitor and alter the state of the SDM
- determine if LAN connections to the SDM are in service
- determine the Ethernet interface unit (EIU) that is associated with the SDM
- query status information on the SDM system and application software

The MAP interface can be used to maintain the SDM if the communications link between the computing module (CM) and SDM is in service. If this link is out of service, the SDM is isolated, and maintenance must be performed using the RMI, described on page 2-11.

Figure 2-1
SDM MAP level

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

SDM                                SysB    ManB    OffL    CBsy    ISTb    InSv
  0 Quit         PM                 0       0       0       0       0       63
  2 Post_        SDM                0       0       0       –       0       1
  3 ListSet
  4              SDM  0  InSv
  5 Trnsl
  6
  7 Bsy
  8 RTS
  9 OffL
 10
 11 Disp_
 12 Next
 13
 14 QueryPM
 15 Locate
 16
 17
 18

   TEAM15
 Time  19:48  >
```

Figure 2-1 shows an example of the SDM maintenance level of the MAP display. The display shows the SDM status – InSv (in service) in this example – and provides an SDM-specific command set. Fault conditions related to the SDM are reported in the alarm banner. Using the command set provided, you can obtain additional details about the condition of the SDM to isolate a fault, remove the SDM from service to correct the fault, and return it to service.

Determining the SDM node state at the MAP display

The following table lists and describes the SDM node states that appear on the MAP display when the SDM is posted, and the MAP alarm associated with each state.

Table 2-1
SDM node states at the SDM MAP level

SDM state at the MAP interface	Associated MAP alarm	Meaning of the state
InSv	none	The SDM is in service. The SDM and its applications are running normally without faults, and the CM and the SDM are communicating successfully.
OffL	none	The SDM is offline. In offline state, the CM and the SDM are not communicating, and no applications are running. The SDM is automatically designated as offline when datafilled for the first time, or it can be set to offline state from manual busy (ManB) state by command at the MAP interface.
ISTb	PM ISTb minor	The CM is receiving an in-service trouble (ISTb) status from the SDM. One or both of the following conditions exists: • One or more SDM applications cannot run, but at least one application is still running successfully. • The SDM cannot communicate with one or more of the operating company LAN nodes defined on the SDM. • A software resource threshold has been exceeded. • An automated incremental software backup has failed. • An SDM application has reported an in-service trouble condition.

—continued—

Table 2-1
SDM node states at the SDM MAP level (continued)

SDM state at the MAP interface	Associated MAP alarm	Meaning of the state
ManB	PM SDM minor	The SDM has been manually busied by command at the MAP interface.
ManB (NA)	PM SDM minor	The SDM has been manually busied at the MAP interface. The CM cannot communicate with the SDM because the EIU is unavailable to transmit or receive messages. The actual operating condition and local state of the SDM are unknown to the CM until communications are restored.
ManB /not responding	PM SDM minor	The SDM has been manually busied by command at the MAP interface. The CM is not receiving messages from the SDM. The actual operating condition and local state of the SDM are unknown to the CM until communications are restored.
SysB	PM SDM major, or PM SysB major	The CM is receiving a system-busy status from the SDM. Use the QueryPM FLT command to determine the cause of the SysB state.
SysB (NA)	PM SDM major, or PM SysB major	The CM has designated the SDM node state as system busy. The CM cannot communicate with the SDM because the EIU is unavailable to transmit or receive messages. The actual operating condition and local state of the SDM are unknown to the CM until communications are restored.
SysB /not responding	PM SDM major, or PM SysB major	The CM has designated the SDM node state as system busy. The CM is not receiving messages from the SDM. The actual operating condition and local state of the SDM are unknown to the CM until communications are restored.

Note: The alarm reporting level for the SDM system busy state is controlled by the datafill of field EN0LKALM in table EXNDINV. If datafilled as major (MJ), SysB state is reported as a PM SDM major alarm (Nortel recommends this configuration). If datafilled as minor (MN) or no alarm (NA), SysB state is instead reported as a PM SysB major alarm. ISTb and ManB states are reported as a PM SDM minor alarm.

—end—

Using SDM commands at the MAP display

The SDM MAP level is accessed by posting the SDM at the MTC PM level, using the Post command. SDM MAP level commands are contained in directory SDMPMDIR. Online help for all commands can be obtained by entering a non-command, followed by the command name. This help information summarizes the function of the command and its syntax.

The following commands are provided at the SDM MAP level:

- Quit is the standard PM level menu command used to exit the current MAP level.
- Post is the standard PM level menu command used to select one or more PMs for maintenance action.
- ListSet is the standard PM level menu command used to display the elements of the currently posted set of PMs.
- Trnsl displays information on which EIU the SDM is connected to. An EIU is not available message is displayed when the EIU is not in service.
- Bsy is used to set the SDM to manual busy (ManB) state. See *Using the Bsy command* on page 2-6 for additional information.
- RTS is used to return the SDM to service from manual busy (ManB) state. See *Using the RTS command* on page 2-7 for additional information.
- The OffL command is used to set the SDM to offline (OffL) state from manual busy (ManB) state. Executing the OffL command disables communications between the CM and SDM.
- Disp is the standard PM level menu command used to display peripheral modules by maintenance state and PM type.
- Next is the standard PM level menu command used to access the next member of a posted set for maintenance action.
- QueryPM provides a variety of information about the status and configuration of the SDM. See *Using the QueryPM command* on page 2-7 for additional information.
- Locate is not supported for the SDM06.1 product release.
- PMReset is a non-menu command used to reboot or halt the SDM. See *Using the PMReset command* on page 2-8 for more information.

Using the Bsy command

Bsy is used to set the SDM to manual busy (ManB) state. The system response to this command depends on the status of the communication link between the CM and the SDM.

- If the CM and the SDM are communicating successfully, the CM sends the Bsy command to the SDM. If the SDM is in service, you receive a yes/no prompt indicating that executing the Bsy command causes a service interruption (that is, all applications running on the SDM shut down). Executing the command changes the state of the SDM at the MAP display to ManB, changes the local state of the SDM (as it appears on the RMI) to ManB, and shuts down all SDM applications.
- If the CM and the SDM are not communicating, the CM cannot send the Bsy command to the SDM. The CM view of the SDM state (as it appears at the MAP display) changes to ManB (NA) or ManB /not responding, depending on the reason for the communication problem. The local state of the SDM (as it appears at the RMI) and its operating condition are unaffected by the Bsy command. However, when CM-SDM communications are restored, the SDM aligns to the current CM view of its state.

  To set the local state of the SDM to ManB when the CM and the SDM are not communicating, the Bsy command must be executed at the RMI, which shuts down any applications that are running.

- If the SDM is in offline (OffL) state, the CM sets its view of the SDM state to ManB and enables CM-SDM communication. The CM then sends the Bsy command to the SDM.

The Bsy command has the options Force and Nowait. The Nowait option is the standard DMS MTC command parameter used to return command entry capability immediately (that is, you can continue to enter other commands while the system is executing the Bsy command).

Using the RTS command

RTS is used to return the SDM to service from manual busy state. The system response to this command depends on the status of the communication link between the CM and the SDM.

- If the CM and the SDM are communicating successfully, the CM sends the RTS command to the SDM. If the command executes successfully, the SDM and its applications are returned to service. Assuming there are no faults on the SDM, the state of the SDM changes to in-service (InSv) at the MAP interface, and at the RMI.
- If the CM and the SDM are not communicating, the CM cannot send the RTS command to the SDM. The CM view of the SDM state (as it appears at the MAP display) changes to SysB (NA) or SysB /not responding, depending on the reason for the communication problem. The local state of the SDM (as it appears at the RMI) and its operating condition are unaffected by the RTS command. However, when CM-SDM communications are restored, the SDM aligns to the current CM view of its state. To perform a local return-to-service of the SDM when CM-SDM communications are down, the RTS command must be executed at the RMI.

The RTS command has the options Force and Nowait. The Force invokes a forced return-to-service of SDM applications. The Nowait option is the standard DMS MTC command parameter used to return command entry capability immediately (that is, you can continue to enter other commands while the system is executing the RTS command).

Using the QueryPM command

QueryPM provides information about the SDM, as follows:

- QueryPM with no additional parameters displays the state of the SDM, its physical location, its Ethernet IP address, and the EIU number associated with the SDM. This information is displayed regardless of the status of the CM-SDM communication link.
- QueryPM FLT displays information on SDM faults, if any. This information is obtained directly from the SDM and is only displayed if the CM-SDM communication link is functioning.
- QueryPM LOADS displays the versions of software installed on the SDM.

- QueryPM STATUS displays local SDM alarm counts (LAN connectivity, application software, and system software), information on system software measurements such as CPU usage and AIX volume occupancy, the alarm thresholds for these measurements, and lists all SDM applications and their status. The response also indicates if the automated incremental backup utility is enabled or disabled. This information is obtained directly from the SDM and is only displayed if the CM-SDM communication link is functioning.
- QueryPM CONFIG displays configuration data related to the SDM. This information is obtained directly from the SDM and is only displayed if the CM-SDM communication link is functioning.

Using the PMReset command

PMReset is a non-menu command used to reset the SDM, and can only be executed if the CM-SDM communications link is functioning. The SDM must be in manual busy (ManB) state to execute this command. The command has two optional parameters:

- PMReset Reboot reboots the SDM.
- PMReset Halt halts all processes on the SDM, and is used in preparation for powering down the SDM. You will be prompted for confirmation before the PMReset Halt command is sent to the SDM.

  Note: If the SDM is halted, it must be restarted locally by cycling the power to the SDM.

Note: A PMReset with no parameters defaults to a PMReset Reboot.

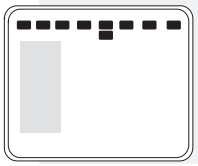
The Nowait option can also be used with the PMReset command. The Nowait option is the standard DMS MTC command parameter used to return command entry capability immediately (that is, you can continue to enter other commands while the system is executing the PMReset command).

Monitoring SDM-related alarms at the MAP display

The MAP displays SDM alarms under the PM header of the maintenance level alarm banner. Figure 2-2 shows an example of an SDM-related alarm under the PM header.

Note: Power-related faults on the SDM also trigger a frame supervisory panel (FSP) alarm under the external (Ext) header. The FSP also provides an audible alarm, and visual indications on the cabinet and at the end of the aisle.

Figure 2-2
SDM alarms on the MAP banner



CM	MS	IOD	Net	**PM SDM**	CCS	Lns	Trks	**Ext**	APPL
.	.	.	.	.	.	.	.	.	.

Table 2-2 lists the MAP alarms associated with the SDM, the SDM node states which trigger the alarms, and the meaning of each node state. These SDM node states, as they appear at the MAP display, represent the CM view of the state of the SDM. The SDM state at the MAP display is the true state of the SDM if the communication link between the SDM and the CM is functioning.

If the communication link between the SDM and the CM is not functioning, the operating condition and local state of the SDM are unknown to the CM. In this case, the CM designates the SDM as out of service, with a communication fault, as described in table 2-2. Under these conditions, the SDM state displayed at the MAP interface and the local node state of the SDM (as it appears on the RMI) may be mismatched.

Table 2-2
SDM-related alarms at the MAP MTC level

MAP alarm	SDM state at the MAP	Meaning
PM ISTb minor	ISTb	The CM is receiving in-service trouble (ISTb) status from the SDM. One or both of the following conditions exists: • One or more SDM applications cannot run, but at least one application is still running successfully. • The SDM cannot communicate with one or more of the operating company LAN nodes defined on the SDM. • A system software resource threshold has been exceeded. • An automated incremental software backup has failed. • An SDM application has reported an in-service trouble condition.
PM SDM minor	ManB	The SDM has been manually busied by command at the MAP interface.
	ManB (NA)	The SDM has been manually busied at the MAP interface. The CM cannot communicate with the SDM because the EIU is unavailable to transmit or receive messages. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.
	ManB /not responding	The SDM has been manually busied by command at the MAP interface. The CM is not receiving messages from the SDM. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.

—continued—

Table 2-2
SDM-related alarms at the MAP MTC level (continued)

MAP alarm	SDM state at the MAP	Meaning
PM SDM major, or PM SysB major	SysB	The CM is receiving system-busy status from the SDM.
	SysB (NA)	The CM has designated the SDM node state as system busy. The CM cannot communicate with the SDM because the EIU is unavailable to transmit or receive messages. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.
	SysB /not responding	The CM has designated the SDM node state as system busy. The CM is not receiving messages from the SDM. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.
Note: The alarm reporting level for the SDM system busy state is controlled by datafill of field EN0LKALM in table EXNDINV. If datafilled as major (MJ), SysB state is reported as a PM SDM major alarm (Nortel recommends this configuration). If datafilled as minor (MN) or no alarm (NA), SysB state is instead reported as a PM SysB major alarm.		
—end—		

Maintaining the SDM using the remote maintenance interface

The SDM remote maintenance interface (RMI) is the secondary maintenance and diagnostic tool for the SDM. The ASCII-based display provides information about the overall state of the SDM. Also, information about SDM connectivity, application software, and operating system resources is provided. A restricted shell provides maintenance users with additional tools that are useful for monitoring and maintaining the system. Context-sensitive help is provided for all menu screens.

The RMI can be used to alter the state of the SDM if communications between the SDM and the CM are not functioning; otherwise, state changes must be performed at the MTC PM level of the MAP interface, as described on page 2-2.

Accessing the remote maintenance interface

There are several methods to access the remote maintenance interface:

- dialing into serial port 1 on the SDM from a VT100-compatible terminal using a modem connection

- connecting a VT100-compatible terminal directly to serial port 1, using a null modem
- using a telnet connection from a workstation on the operating company LAN (requires optional Ethernet controller and transition cards in the SDM)
- using a VT100-compatible terminal connected to a terminal server on the operating company LAN (requires optional Ethernet controller and transition cards in the SDM)

Using telnet

Before trying to telnet, set your terminal to emulate a VT100 or an 80-character × 24-line xterm window. Establish a telnet connection from a UNIX shell by typing

>telnet *sdm_ip_address*

and pressing the Enter key.

where

sdm_ip_address is the IP address or the hostname of the SDM

For example, if the IP address of the SDM is 131.129.128.169, you type

>telnet 131.129.128.169

When the connection is established, you can log in to the SDM using a valid user name and password.

Using a dial-up connection

Using the Hayes-compatible command set as an example, you establish a modem connection to the SDM remote maintenance interface by entering the following command at a VT100-compatible terminal:

>atdt *dial_in_number*

where

dial_in_number is the telephone number for the modem attached to serial port 1.

When the connection is established, you can log in at the prompt using your userid and password.

Logging in to the RMI menu system

The RMI menu system is accessible to users with maintenance and root user privileges.

Maintenance user login

When a maintenance user logs in to the RMI, the system displays a message of the day, and indicates whether there are other users logged on to the SDM and the maintenance menu system:

```
There are 2 other users logged on to the SDM.
There are no users logged on to the SDM Maintenance Menu System.

Hit return to continue...
```

Once you press the Enter key, you are automatically logged in to the maintenance menu system, and the SDM Remote Maintenance menu is displayed (see figure 2-3).

Root user login

When the root user logs in, the system displays the same information as shown for a maintenance user login. The following additional information is displayed:

- the name (CLLI) of the switch to which the SDM is connected
- SDM alarm counts
- the current node state
- the AIX command entry cursor, where the root user enters AIX commands and scripts at the command line

Users with root privileges must type **sdmmtce** after logging in to access the SDM maintenance menu system.

Using the RMI menu system

Navigation through the maintenance menu system is linear, meaning that each menu has only one path leading to it. From any menu, you can

- return to the main menu
- return to the previous menu (except from the main menu)
- go to a lower level (or subtending) menu, if one exists

The RMI menu system provides the following set of navigation and interface commands:

- `h)elp` provides context-sensitive information that describes the currently accessed menu.
- `q)uit` is used to exit the SDM maintenance menu system.
- `m)ain menu` returns you to the SDM Remote Maintenance Menu from the current menu.
- `p)revious menu` moves you up one level from the current menu. This command is not available at all menu levels.
- `d)own full screen` allows you to scroll down through the information displayed in the output window. This option appears when the information cannot be displayed on a single screen.
- `u)p full screen` allows you to scroll up through the information displayed in the output window. This option appears when the information cannot be displayed on a single screen.

The following sections describe each of the menus and displays in the maintenance menu system, and the functionalities they provide.

SDM Remote Maintenance menu

Figure 2-3 shows the SDM Remote Maintenance menu. This is the topmost level of the RMI menu system and appears immediately after logging in as a maintenance user. (Users with root privileges must type “sdmmtce” after logging in to access this menu).

Figure 2-3
SDM Remote Maintenance Menu

```
                        SDM Remote Maintenance Menu
                        ---------------------------

                CM and LAN     SDM Application   SDM System
                Connectivity   Software          Software
                ------------   ---------------   ----------
    Alarm Count:      0               0               0

    Node State: InSv

1 – View Status Indicators and Logs
2 – View Software Versions
3 – Access Maintenance Tools
4 – Access Restricted Shell

h)elp, q)uit

FCC11 ==>
```

The SDM Remote Maintenance menu displays SDM alarms and the SDM node state, and provides an entry point into the menu system. The command line prompt indicates the common language location identifier (CLLI) name of the switch to which the SDM is connected.

Note: Option 4, Access Restricted Shell, does not appear if you log in as the root user, as the root user has unrestricted access to the shell.

Monitoring SDM alarms at the RMI

Alarm counts for three functional areas of the SDM are displayed at the SDM Remote Maintenance menu:

- CM and LAN connectivity
- SDM application software
- SDM system software

When SDM faults are detected, the "Alarm Count:" line is dynamically updated to indicate the number of fault conditions associated with each alarm. When the fault associated with the alarm is cleared, the "Alarm Count:" line is decremented.

The `Alarm Count:` line indicates the number of faults associated with each alarm type. No alarm exists when the "Alarm Count line:" line displays 0 under the alarm header. A fault condition that increments the alarm count also generates a log.

Additional information on a particular alarm type can be obtained by entering 1 at the SDM Remote Maintenance Menu to access the View Status Indicators and Logs menu, then choosing the appropriate category.

Table 2-3 lists the SDM alarms that can appear on the SDM maintenance menu system, describes the triggers for each, and provides a brief explanation of the required action.

Table 2-3
SDM alarms on the SDM maintenance menu system

Alarm	Trigger	Action
CM and LAN Connectivity	The connection from the SDM to the CM, or from the SDM to a defined node on the operating company LAN is down. ***Note:*** Connectivity from the SDM to nodes on the operating company LAN requires optional hardware and commissioning. See page 1-7 for additional information.	Check for alarms under the PM header of the alarm banner at the MTC level of the MAP display. If the SDM is not communicating with the CM, an SDM or SysB alarm is generated at the MAP interface. If connectivity to an operating company LAN node is down, an ISTb alarm appears at the MAP display. Use the appropriate alarm clearing procedure in the Maintenance Procedures chapter of this document to isolate and clear the fault.
SDM Application Software	An SDM application or process has failed more than three times in a day.	Use the procedure to clear a PM ISTb minor alarm in the Maintenance Procedures chapter of this document.
SDM System Software	The SDM has detected that the alarm threshold has been exceeded for a system software resource.	Use the procedure to clear a PM ISTb minor alarm in the Maintenance Procedures chapter of this document. For more information on monitoring system software resources, see page 2-23.

Monitoring the SDM node state at the RMI

The `Node State:` line is dynamically updated, and indicates the overall state of the SDM. The following table describes the possible states that may appear.

Table 2-4
SDM state indicators at RMI

SDM state at RMI	Meaning	Explanation
InSv	in service	Messages between the SDM and the CM are being successfully sent and received. All SDM applications and processes are in service with no faults.
ISTb	in-service trouble	One or more of the following conditions is present on the SDM: • One or more SDM applications cannot run, but at least one application is still running successfully. • The SDM cannot communicate with the CM, or one or more of the defined operating company LAN nodes. • A system software resource threshold has been exceeded. • An automated incremental software backup has failed. • An SDM application has reported an in-service trouble condition.
ManB	manual busy	The SDM has either received the ManB command from the CM, or has been manually busied at the RMI while communications to the CM are down. All application and service software processes are stopped.
SysB	system busy	A critical hardware or software failure has occurred on the SDM. No applications are running.
OffL	offline	The SDM is offline (OffL) and is not communicating with the CM. The SDM has received the OffL command from the CM, or it has been set to offline state locally at the RMI while isolated from the CM.

—end—

The SDM node state at the RMI is normally the same as the CM view of its state (as it appears at the MAP display). If the CM and the SDM are unable to communicate, either because of a fault in the communications link, or because the SDM is out of service, the node state at the RMI and the MAP interface may be mismatched. However, when CM-SDM communications are restored, the SDM node state at the RMI aligns to the current CM view of its state.

Commands available at the Remote Maintenance menu

The commands at the SDM Remote Maintenance menu provide the entry point into the maintenance menu system. The following options are available:

1 `View Status Indicators and Logs` provides a menu of alarm types. This option is marked as "disabled" if the SDM is offline.

2 `View Software Versions` provides a list of the names and versions of the SDM base and applications software.

3 `Access Maintenance Tools` provides a menu of SDM operation, administration, and maintenance options.

4 `Access Restricted Shell` invokes a shell that provides a limited set of command-based maintenance and monitoring tools. This selection applies only to users with maintenance user permissions, and does not appear on the menu if you log in as root.

Each of the these menu selections is described in the following sub-sections.

SDM Status Indicators and Logs menu

Figure 2-4 shows the SDM Status Indicators and Logs menu. To access this menu, enter 1 at the SDM Remote Maintenance menu.

Figure 2-4
SDM Status Indicators and Logs menu

```
                    SDM Status Indicators and Logs Menu
                    -----------------------------------

1 – SDM Connectivity to CM and LAN
2 – SDM Application Software
3 – SDM System Software

h)elp, m)ain menu, q)uit

FCC11 ==>
```

The SDM Status Indicators and Logs menu allows you to view the following SDM status information:

1 `SDM Connectivity to CM and LAN` displays the status of the SDM connections to the computing module (CM) and the operating company LAN.

2 `SDM Application Software` shows the status of SDM application software packages.

3 `SDM System Software` displays the status of AIX operating system resources and logical volumes.

SDM Connectivity Status Indicators menu

Figure 2-5 shows the SDM Connectivity Status Indicators menu. To access this menu, enter 1 at the SDM Status Indicators and Logs menu.

Figure 2-5
SDM Connectivity Status Indicators menu

```
                    SDM Connectivity Status Indicators Menu
                    ---------------------------------------

Name                                                    Status
=========================================================================
CM Connectivity                                         UP
Host1                                                   UP









=========================================================================

1 – Logs
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

The SDM Connectivity Status Indicators menu displays the status of the connections from the SDM to the CM and, if configured, connections to the operating company LAN (in this example, a LAN node named Host1 is connected to the SDM). The status of each connection is either UP or DOWN. Selecting the `Logs` option allows you to view the logs associated with SDM connectivity.

SDM Connectivity Logs menu

Figure 2-6 shows the SDM Connectivity Logs menu. This menu displays the logs that are generated when connectivity from the SDM to the CM (or to nodes on the operating company LAN, if this option is configured) is lost or established.

Logs are displayed only after a problem occurs or is corrected, and only the most recent log associated with each communication link is displayed. The logs describe an event and indicate the date and time it occurred. Refer to table 2-5 on page 2-31 for more information about SDM logs and the required actions.

Figure 2-6
SDM Connectivity Logs menu

```
                          SDM Connectivity Logs Menu
                          --------------------------

========================================================================
SDM600 SDM Maintenance connection has been established
Type: CM
CM Link Up : heartbeat received by the CM
Fri Oct 20 11:51:08 1995

SDM600 SDM Maintenance connection has been established
Host Name: Host1
Fri Oct 20 11:36:53 1995


========================================================================
u)p full screen, d)own full screen
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

SDM Application Software Status Indicators menu

Figure 2-7 shows the SDM Application Software Status Indicators menu. To access this menu, enter 2 at the SDM Status Indicators and Logs menu.

Figure 2-7
SDM Application Software Status Indicators menu

```
                SDM Application Software Status Indicators Menu
                -----------------------------------------------

Package Name (Process Name)                          Status
=============================================================================
TASL
     /sdm/tasl/das/taslddm                           Running
     /sdm/tasl/tam/tasltm                            Running
LM
     /sdm/tasl/lm/lmsrv                              Running
logs
     /sdm/logs/laq/start_sdmlaq                      Running
     /sdm/logs/osf/start_RTOsf                       Running
map
     /sdm/logs/map/map.procctrl                      Running
=============================================================================
1 – Logs
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

The SDM Application Software Status Indicators menu displays the application software packages installed on the SDM, the processes associated with each package, and indicates the status of each package. The status of each software package is Running, Running (Trouble), Stopped, or Failed. The message `No Application Status Indicators to report` indicates that there are no applications installed on the SDM. Selecting the `Logs` option allows you to view the logs associated with SDM applications.

In the example shown, the processes for the MAP Access application (map) and the Log Delivery application (logs) are shown. The processes associated with the SDM table access utility (TASL and LM) are also shown. TASL and LM provide data schema tuple access and locking functions for current and future SDM provisioning applications.

SDM Application Software Logs menu

Figure 2-8 shows the SDM Application Software Logs menu.

Figure 2-8
SDM Application Software Logs menu

```
                      SDM Application Software Logs Menu
                      ----------------------------------

=========================================================================
SDM607
Package: tasl
Process: /sdm/tasl/das/taslddm
State: started
Fri Oct 20 12:03:03 1995

SDM607
Package: tasl
Process: /sdm/tasl/tam/tasltm
State: started
Fri Oct 20 12:03:03 1995

=========================================================================
u)p full screen, d)own full screen
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

The SDM Application Software Logs menu displays the most recent log associated with each application process. Use the up full screen and down full screen functions to view all the logs. Logs are generated when a process starts, restarts (after a failure), stops, or fails more than three times in a day.

Refer to table 2-5 on page 2-31 for more information about SDM logs and the required actions.

SDM System Software Status Indicators menu

Figure 2-9 shows the SDM System Software Status Indicators menu. To access this menu, enter 3 at the SDM Status Indicators and Logs menu.

Figure 2-9
SDM System Software Status Indicators menu

```
                  SDM System Software Status Indicators Menu
                  ------------------------------------------

Name                                    Value/ Threshold (Alarm)
=========================================================================
CPU (run queue entries):                0    / 3
Number of Processes:                    44   / 200
Number of Zombies:                      0    / 1
Swap space (% full):                    15   / 75
Number of Swap Queue Entries:           0    / 5
/ (% full)                              68   / 80
/usr (% full)                           82   / 80  *
/var (% full)                           4    / 80
/tmp (% full)                           57   / 80
/home (% full)                          4    / 80
/sdm (% full)                           42   / 80
Automated Incremental Backup            ENABLED
=========================================================================

1 – Logs
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

The SDM System Software Status Indicators menu provides information about UNIX operating system resources and logical volume usage. The display also indicates the most recent event associated with the automated incremental backup utility (enabled, disabled, passed, or failed). Resources that have exceeded their threshold are marked by an asterisk (*), and trigger an in-service trouble (ISTb) alarm. Selecting the Logs option allows you to view the logs associated with the system resources.

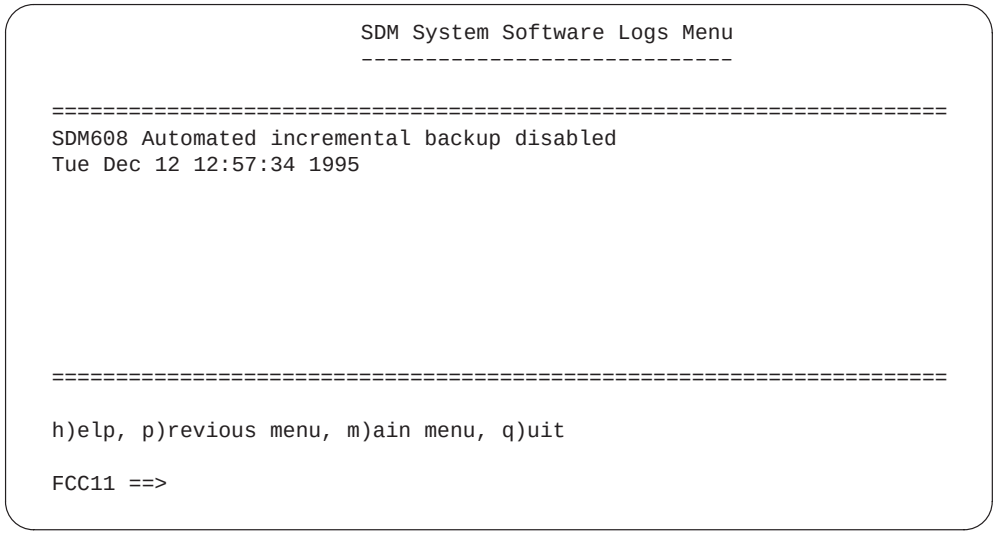
Note: When an alarm condition exists, the value displayed in the Status column is the current value for the resource, whereas the value in the log is the value that caused the threshold to be exceeded.

The root user can modify the system software alarm thresholds. If logged in as root, an additional menu option appears at the bottom of the SDM System Software Status Indicators menu: `2 - Edit Alarm Threshold Values`. See page 2-25 for more information.

SDM System Software Logs menu

Figure 2-10 shows the SDM System Software Logs menu. This menu displays the most recent event log associated with system software. Events that trigger logs include system software resources exceeding or returning below their alarm thresholds, and events associated with the automated incremental backup utility. The log specifies the event and indicates the date and time it occurred. Refer to table 2-5 on page 2-31 for more information about SDM logs and the required actions.

Figure 2-10
SDM System Software Logs menu



System software threshold editor

Figure 2-11 shows the System Software Threshold Editor menu. To access this menu, enter 2 at the SDM System Software Status Indicators menu. Only the root user can access the threshold editor. The threshold values shown are the default values.

Figure 2-11
SDM System Software Threshold Editor

```
System Software Threshold Editor



      Number events before log:          2
      CPU (run queue entries):           3
      Number of Processes:               200
      Number of Zombies:                 1
      Swap space (% full):               75
      Number of Swap Queue Entries:      5
      Logical Volume default (% full):   80
      /     (% full):                    80
      /usr  (% full):                    80
      /var  (% full):                    80
      /tmp  (% full):                    80
      /home (% full):                    80
      /sdm  (% full):                    80

h)elp,  restore d)efaults,  r)estore saved values,
s)ave changes and quit,  q)uit.
```

When you access the threshold editor, the name of the first threshold and its current value are highlighted. Use the threshold editor as follows:

- To select the threshold you wish to edit, press the Enter or Tab key until the appropriate threshold is highlighted. Type in the new numeric value. Repeat for other thresholds as required.
- To obtain online help, type h.
- To restore the system default thresholds, type d.
- To restore the saved threshold values (the values stored prior to starting the current editing session), type r.
- To save your threshold changes and exit the editing session, type s.
- To exit the editing session without saving threshold changes, type q. Any threshold changes from the editing session will be ignored.

SDM Software Versions menu

Figure 2-12 shows the SDM Software Versions menu. To access this menu, enter 2 at the SDM Remote Maintenance menu.

Figure 2-12
SDM Software Versions menu

```
                          SDM Software Versions Menu
                          --------------------------

Software Name                                        Version
=========================================================================
Log Delivery Application                             1.15.0.0
SDM Base Maintenance                                 1.15.0.0
SDM Base Services                                    1.15.0.0




=========================================================================


h)elp, m)ain menu, q)uit

FCC11 ==>
```

The Software Versions menu displays the base software packages running on the SDM, and lists the version of each package. The software installation process maintains a file containing the name and version of all base and application software packages installed on the SDM.

SDM Maintenance Tools menu

Figure 2-13 shows the SDM Maintenance Tools menu. To access this menu, enter 3 at the SDM Remote Maintenance menu.

Note: This menu appears as SDM Root Maintenance Tools, if you logged in as root user.

Figure 2-13
SDM Maintenance Tools menu

```
                        SDM Maintenance Tools Menu
                        --------------------------

1 – Password Update
2 – Application Control

3 – Offline Unit
4 – Busy Unit
5 – Return Unit To Service
6 – Halt Unit
7 – Reboot Unit

8 – Set Date and Time (Not Available – root only)
9 – SDM Backup Utility (Not Available – root only)

h)elp, m)ain menu, q)uit

FCC11 ==>
```

The SDM Maintenance Tools menu provides the following operations, administration, and maintenance capabilities:

1 `Password Update` allows you to change your password. If logged in as maintenance user, you can change the password for that account. If logged in as root, you can change the root password, or the password for any other account.

2 `Application Control` allows you to busy or to restart individual SDM applications. If the SDM is in manual busy (ManB) or offline (OffL) state, this command is marked “not available” on the menu.

3 `Offline Unit` allows you to put the SDM in offline state. The offline state is normally used for commissioning and installation, and isolates the SDM from the CM. The Offline Unit command can only be used if the SDM is not communicating with the CM. If the SDM is communicating with the CM, the SDM can only be put in offline state using the SDM level of the MAP display, and the Offline Unit command is marked “not available – use MAP” (display) on the RMI maintenance tools menu.

4 `Busy Unit` allows you to manually busy the SDM. This option executes a graceful shutdown of all applications running on the SDM. If the SDM is communicating with the CM, the SDM can only be put in manual busy state using the SDM level of the MAP display, and the Busy Unit command is marked "not available – use MAP" on the RMI maintenance tools menu.

5 `Return Unit To Service` allows you to return the SDM to service from manual busy state. If the SDM is communicating with the CM, the SDM can only be returned to service using the SDM level of the MAP display, and the Return Unit To Service command is marked "not available – use MAP" on the RMI maintenance tools menu.

6 `Halt Unit` allows you to halt the SDM to prepare for powering down. The SDM must be in manual busy state before it can be halted. If the SDM is communicating with the CM, the SDM can only be halted using the SDM level of the MAP display, and the Halt Unit command is marked "not available – use MAP" on the RMI maintenance tools menu.

7 `Reboot Unit` allows you to reboot the SDM. This option executes a soft reset of all processes. The SDM must be in manual busy state before it can be rebooted. If the SDM is communicating with the CM, the SDM can only be rebooted using the SDM level of the MAP display, and the Halt Unit command is marked "not available – use MAP" on the RMI maintenance tools menu.

8 `Set Date and Time` allows the root user to change the date and time. If logged as a maintenance user, this command is marked "not available – root only" on the RMI maintenance tools menu.

9 `SDM Backup Utility` allows the root user to access the SDM Backup and Restore menu. This utility is used for performing full and partial backups and restores of SDM software. If logged as a maintenance user, this command is marked "not available – root only" on the RMI maintenance tools menu.

Restricted shell

Figure 2-14 shows the list of restricted shell commands available to maintenance users. To access the restricted shell and display the commands available, enter 4 at the SDM Remote Maintenance Menu.

Note: The Access Restricted Shell option does not appear on the SDM Remote Maintenance menu for users logged in as root, as the root user has unrestricted shell access.

Figure 2-14
SDM restricted shell screen

```
************************************************************

The following commands are available:

 who_is_on     – displays the users logged in to the SDM as well as
                 users logged into the Maintenance Menu System
 who           – displays users logged on to the SDM in long format
 ping <host>   – send ICMP ECHO_REQUEST packets to network hosts
 osfcomtool    – invokes the Log Delivery commissioning tool
 help          – displays this help information
 exit          – return to SDM Maintenance Menu System

maint:
```

The commands in the restricted shell are as follows:

who_is_on indicates the number of users logged in to the SDM, and the number of users using the maintenance menu system. This command is useful for determining the number of users on the system before performing service affecting procedures.

who displays the names of the users logged on to the SDM, and the time at which they logged on.

ping is used to confirm SDM LAN connectivity to a network host.

osfcomtool accesses the Log Delivery commissioning tool.

help displays help information for the restricted shell.

exit returns you to the SDM maintenance menu system.

SDM-related log reports

Two types of log reports provide information related to the SDM:

- SDM events are recorded in a local series of UNIX log reports (SDM logs). These log reports are local to the SDM, and do not appear in the generic DMS log utility stream. SDM logs are described in table 2-5 on page 2-31.
- A number of SDM activities are recorded in the PM series of log reports, available from the generic DMS log utility. The PM logs that record SDM-related events are described in table 2-6 on page 2-34.

SDM logs

The SDM generates detailed customer logs that are available on the SDM maintenance menu system and from the output of the SDM Log Delivery application. SDM logs fall into three categories: trouble (TBL) logs, state change logs, and information (INFO) logs.

Trouble logs

TBL logs (SDM3xx) provide an indication of some type of fault for which action can be taken. These logs are generated for connectivity failures, system resource problems, and application software failures. Each of these trouble conditions corresponds to an alarm on the SDM Remote Maintenance Menu. When a TBL log is generated by the SDM, the alarm count indicator on the SDM Remote Maintenance menu display increments to reflect the fault condition.

State change logs

State change logs (SDM5xx) provide information about SDM state changes to InSv, ManB, ISTb, and SysB. While state changes from InSv to ISTb or SysB are actionable, the logs indicating these changes do not provide detailed information about the reason for the state change. Specific information is contained in the TBL logs.

Info logs

INFO logs (SDM6xx) provide information about events that do not normally require action. These logs are generated for system restarts, non service affecting state changes, and for events that clear TBL logs.

Table 2-5 lists the SDM logs generated by the SDM, describes the triggers for each log, and provides a summary of the actions to take.

Table 2-5
SDM logs generated by the SDM

Log	Trigger	Action
SDM300	The connection from the SDM to the CM or the operating company LAN is down.	See “Isolating SDM LAN communication problems” on page 2-50.
SDM302	The SDM has detected that a system software resource has exceeded its threshold.	Use the procedure to clear a PM ISTb alarm in the Maintenance Procedures chapter of this document to isolate and clear the problem.
SDM303	An SDM application or process has failed more than three times in a day, or a process has declared itself to be in trouble.	Users with root permissions can examine the log files in /usr/adm to determine the cause of the process failure. If required, contact your SDM system administrator or Nortel for assistance.
SDM304	The SDM Log Delivery application cannot deliver logs to the specified device (a printer, UNIX file, or TCP/IP link).	Use the Log Delivery online commissioning tool (osfcomtool) to verify the existence and validity of device routing parameters. See page 2-34 for more information on the commissioning tool. If required, contact your SDM system administrator or Nortel for assistance.
SDM306	SDM Table Access software has detected that the CM software load is incompatible with the SDM software load.	Upgrade the CM software to a version that is compatible with the SDM software. ***Note:*** SDM software should never be at a lower release level than CM software.
SDM307	An SDM application or process has been manually stopped. This log appears on the RMI, but is not delivered to the SDM Log Delivery log stream.	None
SDM308	An automatic incremental software backup has failed.	Check to ensure backup tape is inserted. If the problem cannot be isolated, perform the incremental backup manually. If required, contact your SDM system administrator or Nortel for assistance.

—continued—

Table 2-5
SDM logs generated by the SDM (continued)

Log	Trigger	Action
SDM500	Indicates the initial startup of the SDM. This log is included in the SDM Log Delivery log stream, but does not appear on the RMI.	None
SDM501	Indicates an SDM state change to in service (InSv). This log is included in the SDM Log Delivery log stream, but does not appear on the RMI.	None
SDM502	Indicates an SDM state change to manual busy (ManB). This log is included in the SDM Log Delivery log stream, but does not appear on the RMI.	None
SDM503	Indicates an SDM state change to system busy (SysB). This log is included in the SDM Log Delivery log stream, but does not appear on the RMI.	Refer to the procedure for clearing a PM SDM major alarm in this document.
SDM504	Indicates an SDM state change to in-service trouble (ISTb). This log is included in the SDM Log Delivery log stream, but does not appear on the RMI.	Refer to the procedure for clearing an PM ISTb minor alarm in this document.
SDM505	Indicates an SDM state change to offline (OffL) state. This log is included in the SDM Log Delivery log stream, but does not appear on the RMI.	None
SDM600	The connection from the SDM to the CM or to a node on the operating company LAN has been re-established. This log is generated only after a connectivity failure has been corrected, and not at system startup.	None
SDM602	A system software resource has returned below its alarm threshold (see also SDM302 log).	None
SDM603	A fault on an application process has cleared. See also SDM303 log.	None
SDM604	The SDM log delivery application generates this log if incoming logs are being discarded by the CM.	No immediate action is required. However, if large numbers of logs are lost, contact Nortel for assistance.

—continued—

Table 2-5
SDM logs generated by the SDM (continued)

Log	Trigger	Action
SDM607	An SDM application or process has been manually restarted. This log appears on the RMI, but is not delivered to the SDM Log Delivery log stream.	None
SDM608	An automated incremental software backup has completed successfully.	None

—end—

DMS logs

The DMS generates SDM-specific PM logs when there is a change of state on the SDM. These logs detail the current and previous state of the SDM. Maintenance action is required for logs that indicate a state change from an InSv condition to an ISTb or SysB condition.

Table 2-6 lists the SDM-specific logs generated by the DMS, describes the triggers for each, and provides a brief explanation of the required action.

Table 2-6
SDM logs generated by the DMS

Log	Trigger	Action
PM102	The SDM node state changes to SysB. The SDM changes to system busy (SysB) state at the MAP display if any of the following conditions exist: • The EIU associated with the SDM is unavailable, preventing the CM from communicating with the SDM. • The SDM is not responding to messages from the CM, either because the link is down, or the SDM is out of service. • The SDM is sending SysB status to the CM.	Use the procedure to clear a PM SDM major alarm in the Maintenance Procedures chapter of this manual.
PM103	The SDM node state changes to OffL. This change occurs when the SDM is put into offline state. In offline state, the SDM and the CM do not communicate.	Offline state is used for commissioning purposes, or to disable CM-SDM communications. Manually busy the SDM to restore CM-SDM communications in preparation for returning it to service.
PM104	The SDM node is deleted from table EXNDINV.	None
PM105	The SDM node state changes to ManB. The SDM has been set to manual busy state by entering the Bsy command.	None
PM106	The SDM node state changes to InSv. This change occurs if the CM receives in-service (InSv) status from the SDM.	None
PM128	The SDM node state changes to ISTb. This change occurs if the CM receives in-service trouble (ISTb) status from the SDM.	Use the procedure to clear a PM ISTb minor alarm in the Maintenance Procedures chapter of this document.

SDM Log Delivery application

The SDM Log Delivery application provides access through the SDM to the generic DMS log stream, and local SDM logs. The log stream is available from the SDM in several ways:

- Up to two printers can be connected to the SDM through RS232 ports.

- The log stream can be directed to up to 10 operations support systems (OSS) through TCP/IP.
- The log stream can be directed to up to 10 UNIX files on the SDM.

A maximum of 10 devices in total (printers, UNIX files, and TCP/IP links) can be commissioned.

Log Delivery commissioning

Log Delivery operating parameters are controlled by an online SDM commissioning tool, which is used at initial installation to set up the application, and can also be used after initial installation to view or modify the parameters. To access the commissioning tool, log in to the remote maintenance interface (RMI) as maint (maintenance user), access the restricted shell, and enter the command “osfcomtool”.

The Log Delivery commissioning tool allows customization of

- global application parameters including buffer size, reconnect timeout value, lost logs threshold (number of lost logs before a system log is generated), ASCII line delimiter and log delimiter characters, and the number of days to keep log files.
- the incoming log stream from the CM, to add or delete individual logs
- client device parameters, including device type (UNIX file, TCP output, or printer), parameters specific to the device type (for example, the baud rate for a printer), log output format (STD or SCC2) and the log set to be sent to the device.

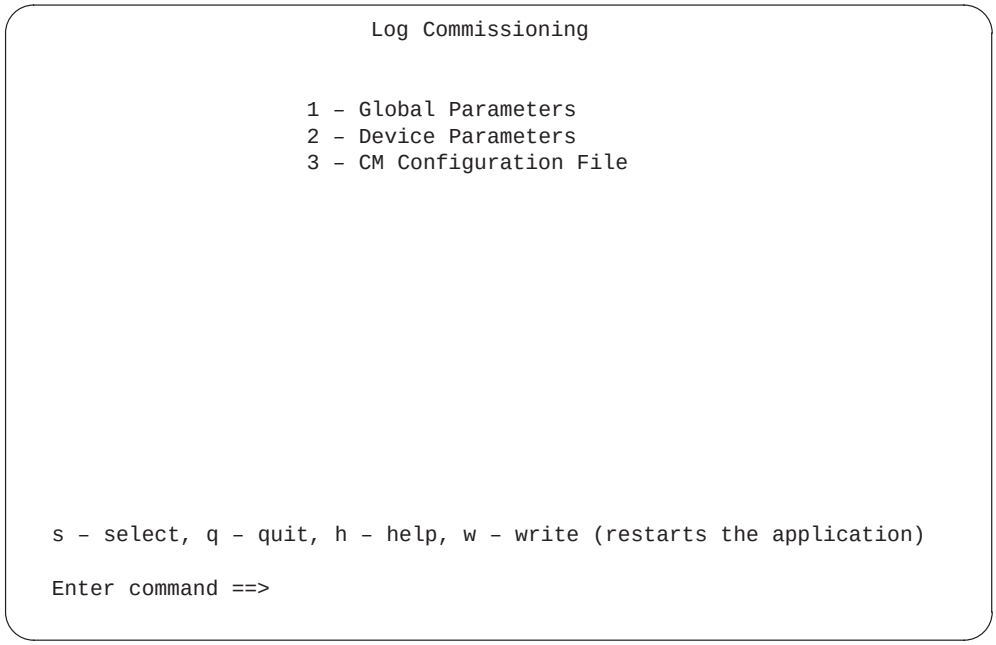
The Log Delivery commissioning tool includes an online help facility that provides the valid ranges (and default values, where applicable) for each customizable parameter. The commissioning tool is subdivided into three functional areas:

- Global Parameters (menu option 1)
- Device Parameters (menu option 2)
- CM Configuration File (menu option 3)

When any commissioning changes are written (saved), the Log Delivery application is automatically busied and returned to service. The Log Delivery application is unavailable for a brief period while this takes place.

Figure 2-15 shows the top-level Log Commissioning menu that is displayed when you access the Log Delivery commissioning tool.

Figure 2-15
Log Delivery commissioning tool



Log Delivery global commissioning parameters

The Global Parameters menu allows you to configure operating characteristics that apply to the Log Delivery application as a whole. These parameters apply to all Log Delivery output devices and are independent of device-specific parameters such as the baud rate of a printer. Figure 2-16 shows the Global Parameters commissioning menu.

The global parameters are set to default values at initial installation and should not require customer modification in most cases.

Figure 2-16
Log Delivery global parameters commissioning menu

```
                        Global Parameters


Surveillance Installed : NO

     1 – Buffer size                     :   150
     2 – Reconnect timeout value         :   15
     3 – Lost logs threshold (NT only) :     100
     4 – Incoming end of line character  :   10
     5 – Outgoing end of line characters :   10 13
     6 – Start of log characters         :   10 13
     7 – End of logs characters          :   10 13
     8 – Number of days to keep log files:   5









s – select parameter,  q – quit,  h – help,  m – main

Enter command ==>
```

Log Delivery device commissioning parameters

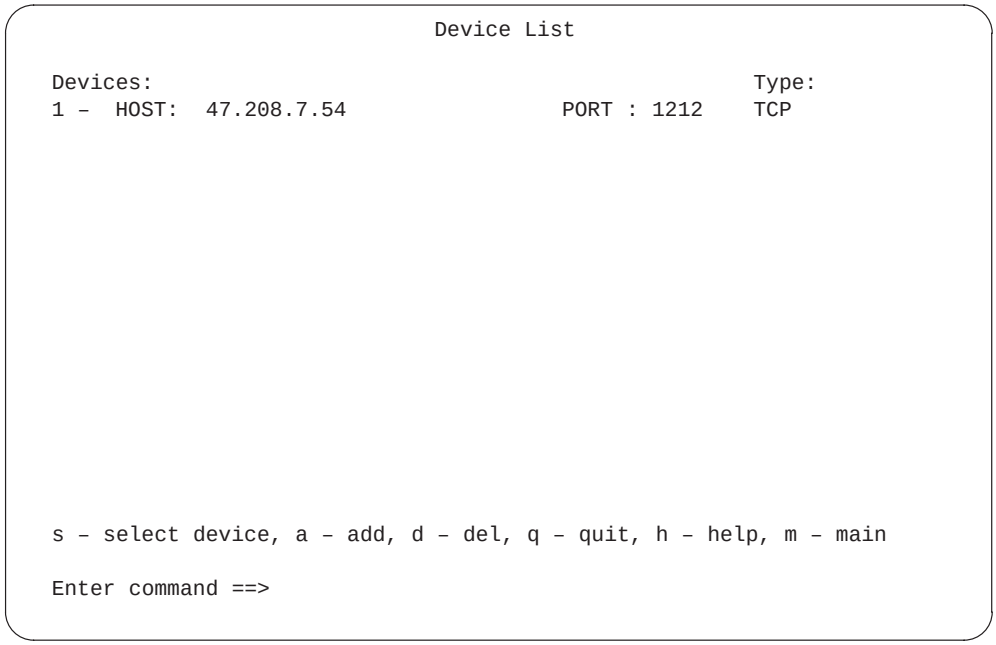
The Device Parameters menu is used to specify the output devices for Log Delivery, and the device-specific operating characteristics for each defined device. When you access this menu, the Log Delivery output devices currently defined are displayed. At initial commissioning time, no output devices are defined, and all required output devices must be specified. This menu can also be used to add or delete devices, or change their operating parameters, after initial commissioning.

Up to 10 output devices (printers, UNIX files, and TCP/IP links) in total can be commissioned. This total of 10 can be made up of any combination of up to two printers, up to 10 UNIX files, and up to 10 TCP/IP links.

Each defined device receives no logs by default at initial commissioning; that is, all logs are suppressed. To route the entire incoming log stream to the device, add the entry ALL. The device-specific log report stream can then be customized by adding or deleting entries as required. Alternately, if the device-specific log stream to be defined is fairly small, you can add the specific logs required individually instead of adding the entry ALL.

Figure 2-17 shows an example of the topmost Device Parameters menu. In this example, one output device - a TCP/IP output client - has already been commissioned.

Figure 2-17
Log Delivery device parameters commissioning menu



The Device Parameters menu provides access to the following device-specific sub menus:

- TCP defines TCP/IP output clients. For each TCP/IP client, the hostname, port, and log format for each TCP/IP output client must be defined.
- File defines SDM-resident UNIX file output clients. The filename and log format must be defined for each UNIX file.
- Printer Device defines printers as log delivery output clients. The printer name, log format, baud rate, data format, parity, and stop bit must be defined.

At this menu, you can select a device that has already been defined to view or modify its current parameters, delete a device that is currently defined, or add a new device. If you choose to add a new device, you are prompted to enter the device type (TCP, file, or printer). A sub menu is then displayed that is specific to the device type. These sub menus are described in the following subsections:

- *Commissioning TCP client devices for Log Delivery* on page 2-39
- *Commissioning file client devices for Log Delivery* on page 2-40
- *Commissioning printer client devices for Log Delivery* on page 2-41

Commissioning TCP client devices for Log Delivery

Figure 2-18 shows an example of the TCP Device menu, with one device already defined. Up to 10 TCP/IP links can be commissioned. The total number of output devices (printers, files, or TCP/IP links) cannot exceed 10.

Figure 2-18
Log Delivery commissioning - TCP Device menu example

```
                              TCP Device


Device Parameters   1 – HOSTNAME   : 47.208.7.54
                    2 – PORT       : 1212
                    3 – FORMAT     : STD

Entries             4 – ADDREP ALL









s – select, f – forward, b – back, a – add entry, d – delete entry,
    q – quit, h – help, p – previous menu, m – main menu

Enter command ==>
```

Commissioning file client devices for Log Delivery

Figure 2-19 shows an example of the File device menu, with one device already defined. Up to 10 files can be commissioned. The total number of output devices (printers, files, or TCP/IP links) cannot exceed 10.

Figure 2-19
Log Delivery commissioning - File device menu example

```
                              File


Device Parameters   1 – FILENAME   : /data/logs/File1
                    2 – FORMAT     : STD

Entries             4 – ADDREP ALL









s – select, f – forward, b – back, a – add entry, d – delete entry,
    q – quit, h – help, p – previous menu, m – main menu

Enter command ==>
```

Log delivery file storage

A Log Delivery stream routed to a UNIX file device on the SDM is stored in the directory /data/logs. When you define the filename using the commissioning tool, the filename must begin with this path. When defining the filename, you can append a file name to /data/logs, or define a subdirectory path if required. For example, to store the logs in a file named File1 with no additional directory structure, the filename required is /data/logs/File1. If you wish to store the file in a directory called CMlogs, for example, the filename required is /data/logs/CMlogs/File1.

Log Delivery UNIX files are automatically closed (and a new file started) at noon and midnight each day. The closed files are appended with a suffix; either <date>.am or <date>.pm, depending on when the file was closed. (<date> is the calendar date the file is closed).

The closed files remain stored until manually removed, or are automatically removed if they reach their expiry date. The default expiry date is 5 days after file closure. This value can be globally changed by accessing the

Global Parameters menu of the Log Delivery commissioning tool, and modifying the parameter “Number of days to keep log files”.

Commissioning printer client devices for Log Delivery

Figure 2-20 shows an example of the printer device menu, with one printer and its operating parameters already defined. Up to two printers can be commissioned. The total number of output devices (printers, files, or TCP/IP links) cannot exceed 10.

Figure 2-20
Log Delivery commissioning - Printer Device menu example

```
                          Printer Device


Device Parameters   1 – PRINTER    : /dev/tty1
                    2 – FORMAT     : STD
                    3 – BAUD       : 2400
                    4 – DATA       : 8
                    5 – PARITY     : 0
                    6 – STOP       : 1


Entries             4 – ADDREP ALL









s – select, f – forward, b – back, a – add entry, d – delete entry,
    q – quit, h – help, p – previous menu, m – main menu

Enter command ==>
```

When you are commissioning a new printer device, parameters 2 through 6 are initially set to the default values shown above, and can be modified if required. Parameter 1 - the printer name - must be assigned at initial commissioning. To do this, select option 1. You will be prompted to enter the printer port number (2 or 3). These are the two asynchronous serial ports on the SDM that can be used for Log Delivery output. When you enter the port number, the commissioning tool automatically defines the printer name.

The port numbers correspond to printer names as follows:

- printer port 2 is defined as printer /dev/tty1
- printer port 3 is defined as printer /dev/tty2

Log Delivery CM configuration file commissioning parameters

The CM configuration file menu is used to add or delete log reports from the incoming global log stream from the computing module (CM) to the Log Delivery application. At initial commissioning, all logs in the CM log stream are included by default, and this parameter does not require manual definition unless you wish to modify the incoming global log stream.

Figure 2-21 shows an example of the CM configuration file commissioning menu. In this example, one log report - IOAUD 107 - has been deleted from the incoming CM log stream.

Figure 2-21
Log Delivery CM configuration file commissioning example

```
                          CM Config File


                      1 – DEL IOAUD 107









f – forward, b – back, a – add entry, d – delete entry
    q – quit,  h – help,  m – main menu

Enter command ==>
```

Troubleshooting Log Delivery problems

This section describes fault conditions affecting Log Delivery operation and how to isolate and clear them.

Lost logs

Lost logs can be detected by examining the sequence numbers of the logs at a client output device and determining if they are sequential. If they are not sequential, logs are likely being lost. To clear the problem, access the Log Delivery commissioning tool, select the Global Parameters menu, and increase the buffer size.

No logs being received at a Log Delivery client

If no logs are being received at a Log Delivery client, check the following Log Delivery commissioning parameters:

- At the Device Parameters menu of the Log Delivery commissioning tool, verify that the client is defined, and that the log stream for the client is defined.
- If the defined client not receiving any logs is a printer, select the printer device at the Device Parameters menu of the Log Delivery commissioning tool, and verify that the commissioning parameters for the printer have not been deleted or accidentally modified.

  If the commissioned values appear correct, check the documentation provided with the printer, and its corresponding modem, to ensure the commissioned parameters are compatible with the printer and modem. The operation of this equipment should also be verified using the appropriate documents to ensure that cabling is correct and the equipment is functional.

Logs not formatted properly

If the log reports at a Log Delivery client device are not formatted correctly, access the Log Delivery commissioning tool and check the following:

- At the Device Parameters menu, verify that the correct log format has been commissioned for the device (STD or SCC2).
- At the Global Parameters menu, check that the parameters for start and end of line, and start and end of log, are set correctly.

SDM platform troubleshooting strategy

This section summarizes troubleshooting information for the SDM platform in the following subsections:

- *Problem indicators* on page 2-44 describes the ways in which SDM faults may be visible.
- *Fault isolation* on page 2-45 provides an overview of how to isolate faults on the SDM.
- *Hardware LED status indicators* on page 2-46 describes the meaning of the LED status indicators on the SDM hardware.
- *Recovering the SDM* on page 2-49 describes manual and automatic recovery of the SDM.
- *Isolating SDM LAN communication problems* on page 2-50 provides an overview of SDM connectivity to the CM and to nodes on the operating company LAN, and how to isolate and clear connectivity faults.
- *State mismatches between the CM and the SDM* on page 2-54 describes the conditions under which an SDM state mismatch can occur, how a mismatch condition is handled, and a comparison of meanings of SDM node states at the MAP interface and the RMI.

Problem indicators

SDM problems are indicated in one or more of the following ways:

- by user-reported problems:
  - — one or more SDM applications is not functioning, or not functioning properly
  - — attempts to access the SDM by telnet from the operating company LAN fail
  - — attempts to access the SDM console through VT100 terminal (locally, or by modem) fail
- by the MTC level of the MAP display
  - — SDM-related alarms under the PM header
  - — an FSP alarm under the EXT header, indicating a power fault either with the SDM power supply, or the MIS cabinet in which it resides
  - — by posting the SDM and checking the node state
  - — by posting the SDM and issuing the QueryPM command using the Status and Flt options
- by the maintenance menu system on the RMI
  - — the node state at the SDM Remote Maintenance Menu indicates that the SDM is not in service (InSv)

— an incremented alarm count at the SDM Remote Maintenance Menu

— system status details available at the Status Indicators and Logs menu

- by log reports

  — a DMS log report indicates that the SDM has changed to system-busy state (PM102 log) or in-service trouble state (PM128 log)

  — SDM log reports (SDMnnn), available using the SDM Log Delivery functionality, indicating state transitions and fault conditions.

- by physical equipment inspection

  — a failure LED is active on the SDM hardware

  — a frame fail lamp indicating a power problem on the MIS shelf

Fault isolation

Assuming that the SDM was in service, and a problem with SDM operation has developed, the following guidelines can be used as a quick reference to isolate the problem. This information is intended as a summary only; use the detailed MAP alarm clearing procedures in the Maintenance Procedures chapter of this document to clear faults on the SDM.

1 Access the MTC level of the MAP interface and post the SDM.

2 Determine if the CM and the SDM are communicating successfully.

— if the SDM is SysB /not responding, the CM-SDM communications link is down. The problem resides within the physical link, or on the SDM itself. If you are able to log in to the RMI, ping the EIU associated with the SDM to determine if the link is faulty. If the link test passes, physically inspect the SDM for fault indications, and use the RMI to further isolate the fault.

— if the SDM is SysB (NA), the EIU associated with the SDM is unavailable to transmit messages from the CM to the SDM. The fault may be the EIU itself, or in other controller-side equipment. Identify the EIU associated with the SDM using the QueryPM command, and post it to determine why it is out of service.

3 If CM-SDM communications are working, and some other type of SDM fault exists, the SDM node state at the MAP interface is ISTb (in-service trouble), or SysB (system busy) with no additional state qualifier.

— ISTb indicates one or more of the following problems, which can be identified by using the QueryPM Flt command.

– one or more SDM applications is not running (but at least one application has not failed). This indicates an application-specific problem rather than a problem with the SDM platform.

- one or more system software thresholds has been exceeded. These thresholds monitor two types of information: processor-related activities such as swap space availability, and space available in AIX file systems on the SDM, such as /usr.
- a communications link between the SDM and a defined node on the operating company LAN is not working.
- an automated incremental software backup has failed.
- an SDM application has reported an in-service trouble condition.

— SysB, with no additional state qualifier at the MAP display (NA or /not responding), indicates that the SDM hardware and software are still capable of communicating with the CM, but all SDM applications are not running. Unless all SDM applications have been terminated manually, this indicates a serious software fault on the SDM.

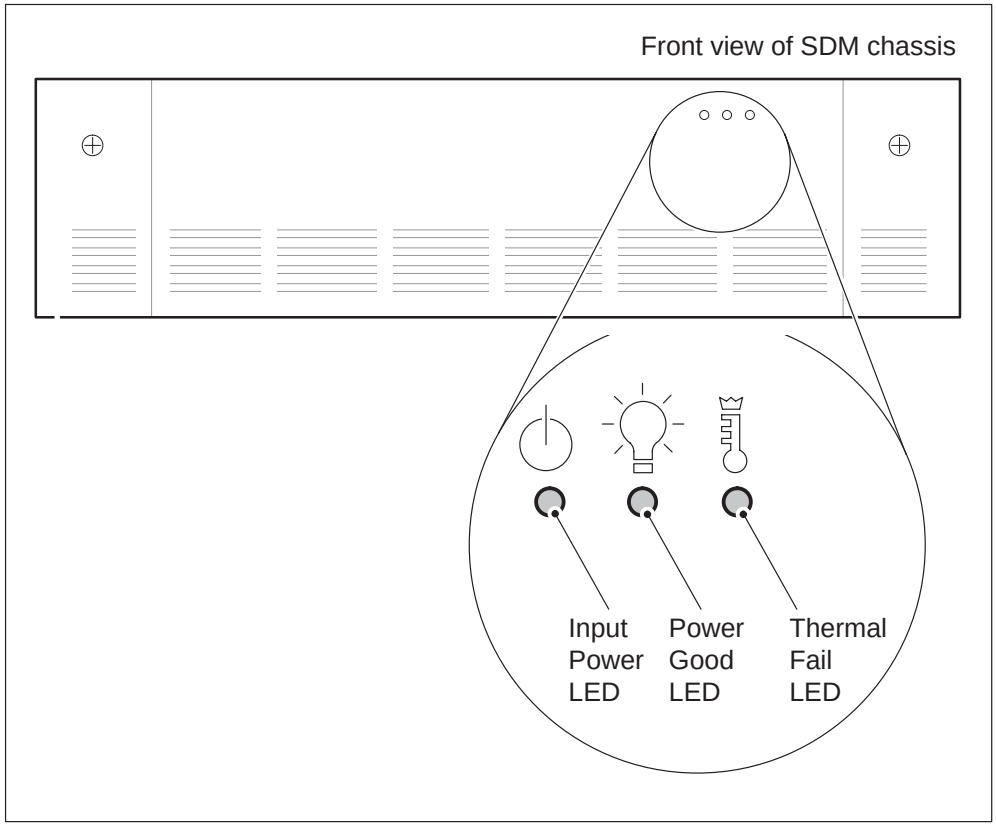
Hardware LED status indicators

The SDM hardware platform is equipped with a number of LEDs which provide information on the status of SDM hardware resources. These include LEDs visible through the front bezel of the SDM, on circuit cards visible by removing the front bezel, and on transition circuit cards at the rear of the SDM.

Figure 2-22 shows the three LEDs that are visible through the front bezel of the SDM. These LEDs indicate the following conditions:

- The Input Power LED indicates the status of input power (-48 Vdc) to the SDM. This LED is normally on (green). If this LED is off, there is no input power to the SDM.
- The Power Good LED indicates the status of output power of the SDM power supply. This LED is normally on (green). If this LED is off, there is no output from the SDM power supply.
- The Thermal Fail LED, when on (yellow) indicates that the thermal failure threshold has been reached. This LED is normally off. Thermal failure causes an automatic shutdown of the SDM.

Figure 2-22
Status LEDs visible through front bezel of SDM



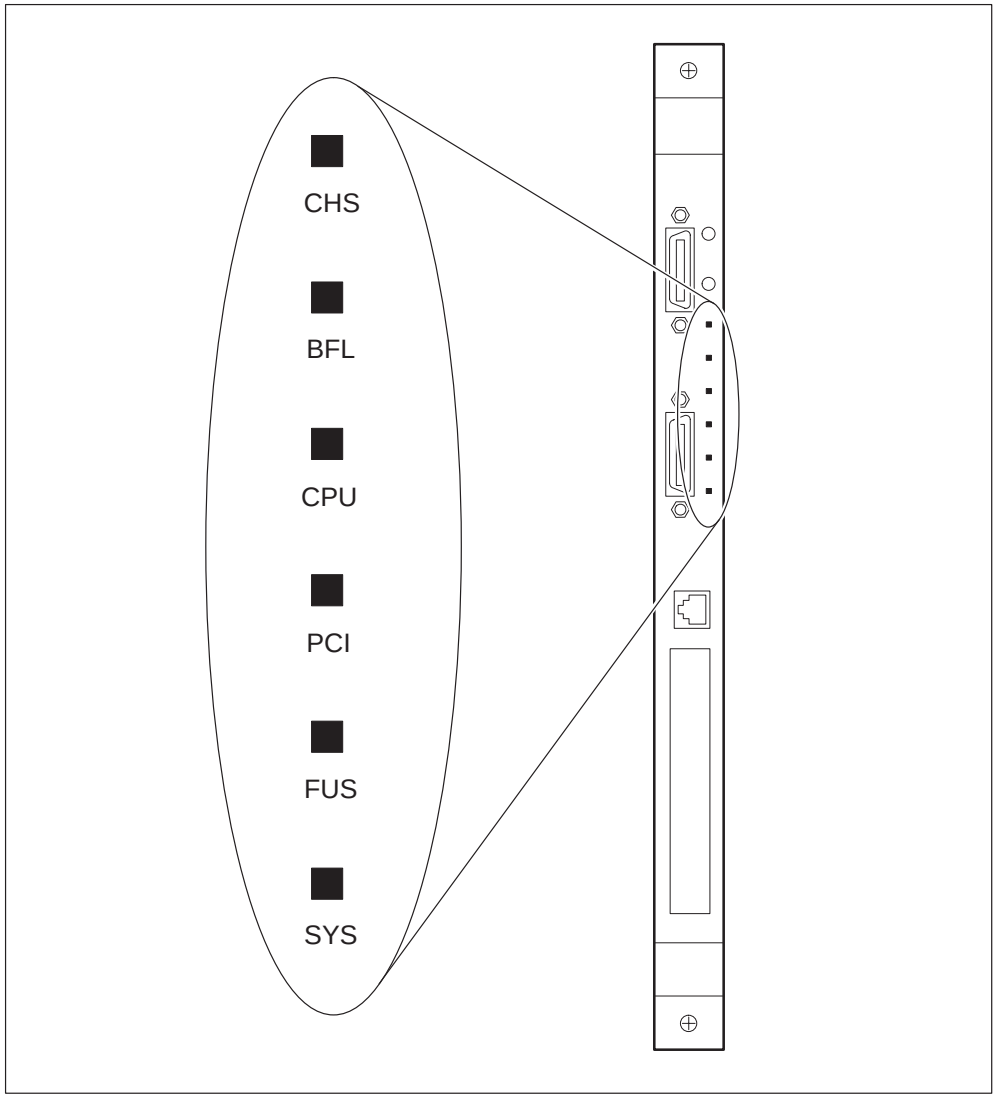
Processor card LEDs

Figure 2-23 shows the LEDs on the front of the SDM processor card. These LEDs can be examined by removing the front bezel of the SDM. These LEDs indicate the following conditions:

- The CHS (checkstop) LED is normally off. It is yellow when a halt condition from the processor is detected.
- The BFL (board failure) LED is normally off. It is yellow when the processor card has failed.
- The CPU (central processing unit) LED indicates CPU activity. This LED is normally flickering (green) when there is activity on the processor bus.
- The PCI (peripheral component interconnect) LED indicates PCI bus activity. This LED is normally flickering (green) when there is activity on the PCI bus.
- The FUS (fuse ok) LED is normally on (green). This LED indicates that +5 Vdc, +12 Vdc and -12 Vdc voltages are available from the base board to transition modules and remote devices.

- The SYS (system controller) LED is normally on (green). This is a configuration indicator showing that the VME chip on the processor card is acting as a simplex bus system controller. The SDM always uses this configuration.

Figure 2-23
Processor card LEDs



Ethernet controller card LEDs

The following LEDs appear on the NTRX50JV Ethernet controller card. These are visible by removing the front bezel of the SDM.

- The STATUS LED indicates the operating condition of the card. If the card is operating normally, this LED is on (green). If there is power to the card, but it is not operating, it is on (red). If there is no power to the card, the LED is off.
- There are four media access unit (MAU) LEDs which indicate communications to and from the card. These are normally flickering (red) when there is traffic on the card.

Note: This card is optional in the SDM.

Recovering the SDM

Automatic reboot

In the event of a power outage, the SDM automatically reboots when power is restored, and re-establishes communications with the CM when the boot process is complete. Manual intervention is not usually required during the boot process unless hardware has been replaced.

The autoboot process must be manually interrupted in progress to perform diagnostic tests of SDM hardware after replacement. After these tests are complete, the boot process completes automatically. Specific instructions are included in the affected card replacement procedures in this document.

Manual reboot

Manual reboot of the SDM is typically only required after installation of new SDM base or service software. A reboot is not required to install new SDM applications.

The SDM can be rebooted manually by several methods:

- turning the SDM power off and on at the appropriate FSP breaker
- posting the SDM at the MAP display, and entering the command PMReset Reboot.
- accessing the Maintenance Tools menu of the RMI, and issuing the Reboot Unit command. This command is only available if the CM and the SDM are not communicating.
- the root user can enter the AIX command “reboot” at the local or remote VT100 terminal.

Pressing the reset (RST) button on the faceplate of the SDM system processor card also causes a manual reboot. Nortel does not recommend this method.

Software and data restore

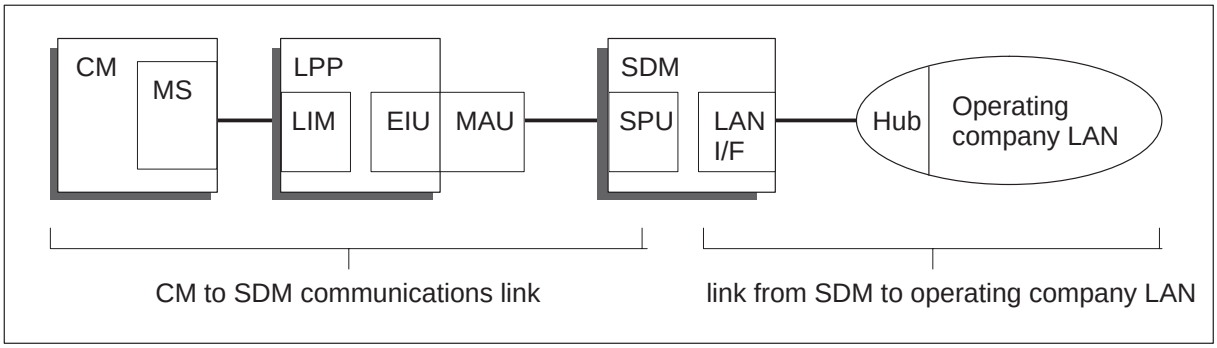
The RMI includes an online utility used to perform full or partial software and data restores from backup tapes. This utility is only accessible to the root user and is described in detail in the Administration Overview chapter of this document. Information on scheduling and performing software and data backups is also provided.

Isolating SDM LAN communication problems

There are two types of Ethernet LAN communication links to the SDM, as shown in figure 2-24.

- The SDM connects to the DMS system, and communicates with the CM, through an Ethernet link between the SDM processor card and an Ethernet interface unit (EIU) in the link peripheral processor (LPP).
- The SDM can be connected to the operating company LAN using additional Ethernet controller hardware in the SDM. This configuration is optional and may not be installed on your SDM system.

Figure 2-24
SDM communication links



There are several methods to detect and isolate SDM communication problems, as follows.

Isolating communication faults at the MAP interface

To isolate SDM communication faults at the MAP, post the SDM at the MTC PM level. If there is a communication fault on the CM-SDM link, the node state is SysB or ManB and one of the following two state qualifiers (messages) appears to the right of the node state.

State qualifier *(NA)* – EIU unavailable

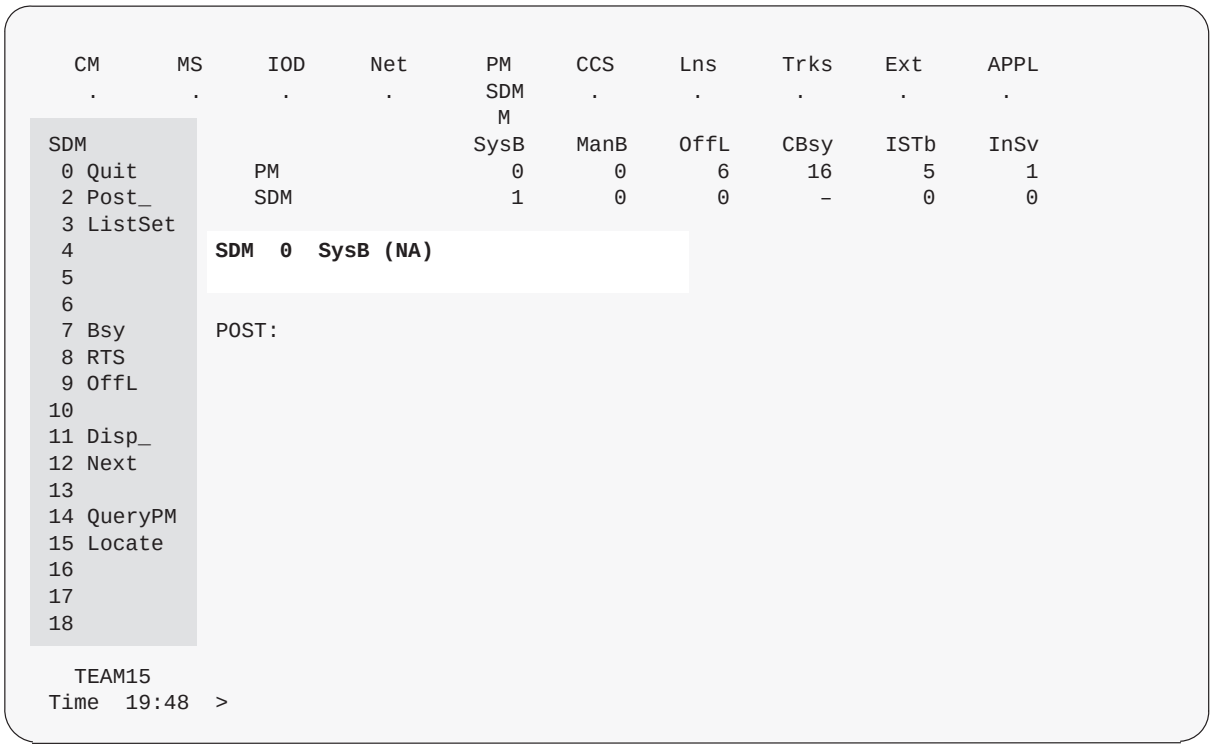
The state qualifier *(NA)*, as shown in figure 2-25, indicates a problem with the EIU, or controller-side equipment in the CM-SDM communications link. Controller side equipment includes:

- The F-buses associated with the EIU.
- The LIMs associated with the EIU.
- The DS30 links connecting the LPP to the message switch (MS).
- The TCP/IP software running on the CM.

Except for the EIU, the LPP-resident components operate within a redundant architecture, and failures of a LIM, F-bus, or DS30 link are rarely service affecting.

Note: The EIU can also reside in other variants of the LPP platform, including the single-shelf LPP (SS LPP) and the SuperNode SE link interface shelf (SNSE LIS).

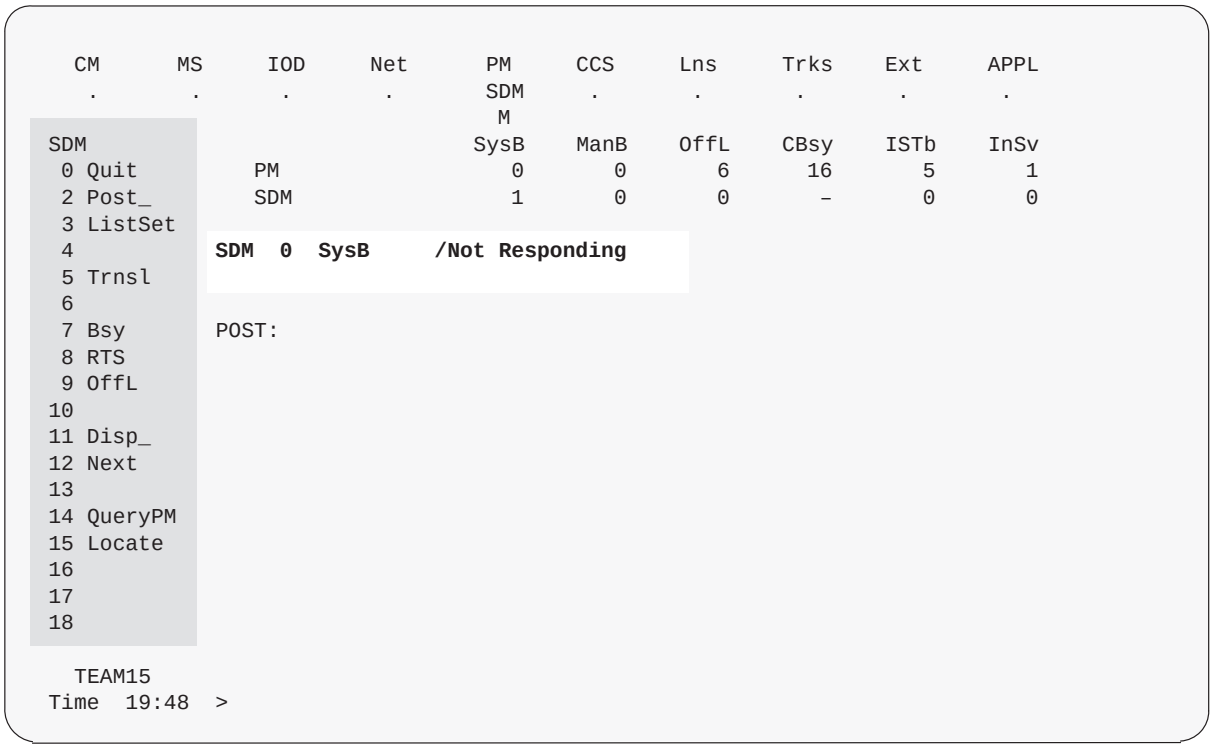
Figure 2-25
MAP display showing communication fault due to unavailable EIU



State qualifier */not responding* – SDM not responding

The state qualifier */not responding*, as shown in figure 2-26, indicates that the CM is not receiving messages from the SDM. In this case, the fault is on the MAU attached to the EIU, the Ethernet cabling, or the SDM itself. The communications link can be tested by logging into the RMI and using the ping command to test connectivity of the EIU from the SDM. If the ping test passes, or you are unable to log in to the RMI, the fault is on the SDM itself and can be isolated by physical inspection. See the procedure to clear a PM SDM major alarm in the Maintenance Procedures chapter of this document for detailed instructions.

Figure 2-26
MAP display showing communication fault due to SDM not responding



Isolating link faults between the SDM and the operating company LAN

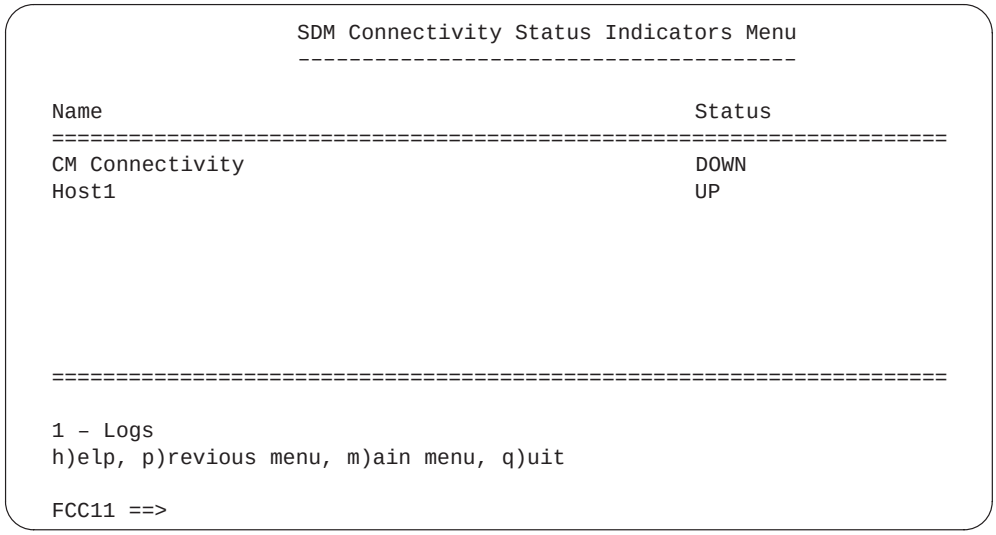
Assuming the CM-SDM link is functioning, problems on links between the SDM and the operating company LAN can be detected and isolated using the MAP command QueryPM Flt at the SDM level. This type of fault triggers a PM ISTb alarm at the MTC level alarm banner, and the SDM node state changes to in-service trouble (ISTb).

Isolating communication faults at the RMI

The RMI can be used to detect and isolate communication faults as follows:

- At the SDM Remote Maintenance Menu, communication faults increment the alarm count under the CM and LAN Connectivity header.
- Communication faults on an in-service SDM cause the node state to change to ISTb.
- The specific link causing the problem can be identified using the SDM Connectivity Status Indicators menu. A faulty link is indicated by the status DOWN, as shown in figure 2-27.
- The ping command can be used to send packets to test connectivity to the EIU associated with the SDM, the CM, or to nodes on the operating company LAN (if configured). The ping command is available to the maint user at the restricted shell, and to the root user upon login.

Figure 2-27
RMI indication of CM-SDM connectivity fault



State mismatches between the CM and the SDM

Under normal operating conditions, the SDM node state at the MAP display and the RMI are identical. However, if the link between the CM and the SDM is down, either due to a fault in the link, or because the SDM itself is out of service, the SDM node state at the MAP display and the RMI may become mismatched. When CM-SDM communications are restored, the SDM node state aligns to the CM view of its state. Manual state changes to the SDM must be performed at the MAP interface, unless the CM-SDM link is down, in which case state changes must be performed at the RMI.

Table 2-7 shows a comparison of the CM view and RMI view of the SDM node states. At the MAP display, the SDM node state can be determined by accessing the MTC PM level, and posting the SDM. At the RMI, the SDM node state is visible at the Remote Maintenance menu.

Table 2-7
SDM maintenance states – MAP interface versus RMI

SDM node state	Meaning at the MAP interface	Meaning at the RMI
InSv	The CM is receiving in-service (InSv) status from the SDM.	Messages between the SDM and the CM are being successfully sent and received. All SDM applications and processes are in service with no faults.
ISTb	The CM is receiving in-service trouble (ISTb) status from the SDM.	One or more of the following conditions is present on the SDM: • One or more SDM applications cannot run, but at least one application has not failed. • A system software resource has exceeded its threshold. • The SDM cannot communicate with the CM, or one or more defined nodes on the operating company LAN. • An automated incremental software backup has failed. • An SDM application has reported an in-service trouble condition.

—continued—

Table 2-7
SDM maintenance states – MAP interface versus RMI

SDM node state	Meaning at the MAP interface	Meaning at the RMI
ManB	The SDM has been manually busied from the MAP interface. Messages are successfully being exchanged between the CM and the SDM.	The SDM has either received the ManB command from the CM, or has been manually busied at the RMI while communications to the CM are down. All application and service software processes are stopped.
ManB (NA)	The SDM has been manually busied from the MAP interface. The CM cannot communicate with the SDM because the EIU is unavailable to route messages. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.	not applicable
ManB /not responding	The SDM has been manually busied from the MAP interface. The CM is not receiving messages from the SDM. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.	not applicable

—continued—

Table 2-7
SDM maintenance states – MAP interface versus RMI

SDM node state	Meaning at the MAP interface	Meaning at the RMI
SysB	The CM is receiving system busy (SysB) status from the SDM, indicating that no applications are running.	A critical hardware or software failure has occurred on the SDM. No applications are running.
SysB (NA)	The CM has designated the SDM node state as system-busy. The CM cannot communicate with the SDM because the EIU is not available to route messages. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.	not applicable
SysB /not responding	The CM is not receiving messages from the SDM and has designated its state as system-busy. The actual operating condition or local state of the SDM is unknown to the CM until communications are restored.	not applicable
OffL	The SDM has been set to offline (OffL) state by command at the MAP interface, or the initial datafill for the SDM has just been completed. Communications to the SDM are disabled.	The SDM is offline (OffL) and is not communicating with the CM. The SDM has received the OffL command from the CM, or it has been set to offline state locally at the RMI while isolated from the CM.

—end—

Routine maintenance recommendations

Nortel recommends that you perform the following activities as part of the SDM routine maintenance strategy. Some tasks can be performed by maintenance users, while others require root user permissions for accessing the SDM.

Maintenance user tasks

The following activities require maintenance user permissions:

- Check dial-up access to port 1 on the SDM by periodically dialing into the SDM from a VT100 terminal and logging in to the RMI. This ensures that the RMI is readily available for maintenance purposes.
- If your system is configured with a local VT100 terminal, connected directly to port 1 by a null modem, log in to the RMI periodically to ensure it is readily available for maintenance activities.
- Clean the SDM tape drive after every 25 hours of use, using the appropriate cleaning tape (Hewlett Packard part number 92283K or equivalent).

Root user tasks

The following activities require root user permissions:

- Backup the SDM software and data as required. Refer to the SDM system administration overview chapter of this document for more information.
- Monitor log files in the /usr/adm directory for system or security abnormalities.

SDM system administration overview

ATTENTION

The information in this chapter is intended for SuperNode Data Manager (SDM) system administrators who have root user privileges for accessing the SDM. Nortel recommends that SDM system administrators have specialized AIX training before performing system administration procedures.

This chapter provides introductory information about administering the SDM. The information contained in this chapter describes system administration requirements, specifies limitations and restrictions, and provides recommendations. Refer to *SDM system administration procedures*, in this document for detailed procedures.

Commissioning SDM software

Initial installation and commissioning of SDM platform software is performed by Nortel, using a detailed installation method (IM). Initial software installation includes the base software, and the Log Delivery and MAP Access applications, which are included as part of the platform. The Log Delivery application must be commissioned separately after it is installed to define its operating parameters. The MAP Access application requires a two-part installation: installing the server software on the SDM, and installing corresponding client workstation software.

The SDM platform software is delivered on digital audio tapes (DAT). The tapes are accompanied by release notes that describe software packaging and tape labeling.

Information about commissioning and using optional SDM applications software is available in the Northern Telecom publication (NTP) for each application, or in the corresponding release notes documents.

Using the SDM commissioning tool

Commissioning parameters for the SDM base platform can be viewed and modified after initial installation using the online commissioning tool. This tool can be accessed by logging in to the local or remote VT100 terminal as the root user, and entering the command “commission”. The tool consists of a series of menus that allow you to view or alter a variety of commissioning parameters, and an online help utility.

The commissioning tool is used for the following tasks:

- installing software
- defining IP (Internet protocol) addresses in the computing module (CM)-Ethernet interface unit (EIU)-SDM Ethernet communications link
- defining IP addresses and local area network (LAN) parameters for connectivity to nodes on the operating company LAN
- enabling and disabling file transfer protocol (FTP) and telnet access to the SDM
- viewing and editing software resource alarm thresholds
- commissioning X.25 connectivity on the SDM
- adding new users to group “users”

Note: Connectivity to the operating company LAN is optional on the SDM, and requires installation of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW).

For commissioning of the following, the SDM must be in manual busy or offline state, and the changes must be performed at the local or remote VT100 console:

- SDM CM side IP address
- CM IP address
- CM common language location identifier (CLLI)
- SDM hostname on operating company LAN
- SDM IP address on operating company LAN
- SDM IP netmask on operating company LAN
- operating company LAN type

Figure 3-1 shows the main menu of the SDM commissioning tool.

Figure 3-1
SDM commissioning tool - main menu

```
                    + SDM Commissioning Tool +

Please select one of the following:

1) View/Enter Base Commissioning Values
2) Enable/Disable Network Services
3) View/Edit Status Indicator Alarm Thresholds
4) X.25 Commissioning
5) Software Installation/Update
6) Add User to 'users' Group
7) Base Commissioning Help
Q) Quit

Selection >
```

Viewing and entering base commissioning values

To view or modify base commissioning values for the SDM, select option 1 at the SDM commissioning tool main menu. The system displays the current values (active) and the most recently entered values. The "entered" values remain saved but inactive, until you verify to the system that you wish to activate them.

When you select the base commissioning option, the Active and Entered Values display is split into two successive displays. The first display, shown in figure 3-2 on page 3-5, shows the commissioning information for the LAN connection between the CM and the SDM. When you press the Enter key, the values for the SDM to operating company LAN connection are displayed (if this option is configured on your system). The information displayed is shown in figure 3-3 on page 3-7.

When the display of the current commissioned values is complete, the system prompts you to confirm whether or not you wish to change any of the existing parameters. If you enter "n" (no), the system returns you to the main menu of the commissioning tool. If you enter "y" (yes), the system accesses the base commissioning editor.

Each commissionable parameter is then displayed one at a time in sequence. You can modify each parameter by entering a new value, or bypass it (retain its current value) by pressing the Enter key. The SDM to CM LAN

parameters are displayed first, followed by the SDM to operating company LAN parameters, if this option is installed on your SDM.

When you have responded to the prompt for each commissionable parameter (by either entering a new value, or pressing Enter to retain the current value), the system re-displays the active and entered values. The active parameters are displayed in the Active Value column. The pending values, including any changes you have made, appear in the Entered Value column, allowing you to confirm your changes visually before activating them.

You are then prompted to confirm the pending values by typing "y" (yes), edit them by typing "e" (edit), or cancel the commissioning session by typing "a" (abort). Typing "e" repeats the editing session. Typing "a" returns you to the main commissioning menu, and retains your changes as entered values (that is, they are saved for future commissioning sessions, but are not activated).

If you type "y" to confirm your changes are correct, a second prompt appears that gives you the option of activating your changes now, or retaining them in a pending state for a future commissioning session. If you enter "y", the message "Performing Commissioning ..." is displayed. When the message "complete" appears, the new values have been activated. Typing "n" returns you to the main commissioning menu, and retains your changes as entered values (that is, they are saved for future commissioning sessions, but are not activated).

See the following subsections for guidelines on defining each type of base commissioning parameter.

Commissioning SDM-to-CM LAN parameters

Figure 3-2 on page 3-5 shows the Active and Entered Values display for the SDM-to-CM LAN commissioning parameters.

Defining IP addresses for the SDM-to-CM LAN

The parameters for the SDM-to-CM LAN are configured when your system is initially commissioned by Nortel, using a detailed installation method. They consist of the IP addresses for the CM, the EIU that hosts the SDM, and the CM side of the SDM. They are established as part of initial commissioning and should not require subsequent modification. These IP addresses must be consistent with the values datafilled in the DMS data schema tables that control CM-to-SDM connectivity.

Note: The IP address for the CM side of the SDM is datafilled in the SDM. If this address is invalid, severe problems will result. The last number of the IP address must not end in 00 (zero, zero) or 11 (one, one) when it is converted to binary. If it does, you will see an error message telling you the IP address has been rejected.

The following list shows the pattern that should be followed.

- x.x.x.0 is invalid (last two binary digits are 00, reserved)
- x.x.x.1 is valid (last two binary digits are 01)
- x.x.x.2 is valid (last two binary digits are 10)
- x.x.x.3 is invalid (last two binary digits are 11, reserved)
- x.x.x.4 is invalid (last two binary digits are 00, reserved)
- x.x.x.5 is valid (last two binary digits are 01)
- x.x.x.6 is valid (last two binary digits are 10)
- x.x.x.7 is invalid (last two binary digits are 11, reserved)

This pattern continues up to x.x.x.255.

Figure 3-2
Base commissioning display - SDM to CM LAN connectivity

```
                    + Active and Entered Values +

                                      Active Value        Entered Value
                                      ------------        -------------

SDM CM side IP:                       47.35.1.198         47.35.1.198
CM IP:                                255.255.255.0       255.255.255.0
CM CLLI:                              FCC2                FCC2
EIU CM lan side IP:                   47.35.7.4           47.35.7.4
FTP (enabled/disabled):               disabled            disabled
TELNET (enabled/disabled):            enabled             enabled

Console Login prompt:                 SDM bmerycb0
     entered value=>                  SDM bmerycb0

[ Enter return to continue with telco lan values. ]
```

The following DMS data schema tables require datafill, in the order listed, to establish connectivity between the CM and the SDM.

- LIUINV
- IPNETWRK
- IPROUTER
- IPHOST
- IPTHRON
- ENSITES
- ENTYPES
- EXNDINV

For detailed information on SDM-related datafill of these tables, refer to the customer data schema NTP for your switching system.

Defining the CM CLLI

The CM common language location identifier (CLLI) entered at the SDM commissioning tool is used to generate the switch identifier at the command line prompt on the remote maintenance interface (RMI). The CLLI must be a single word from 3 to 16 characters. The following character types are valid for use in the CLLI:

- all alphanumeric characters
- the underscore (_)
- the dash (-)

Note: For consistency, match this switch identifier with the CLLI that is used in the data schema of your DMS switch.

Setting FTP and telnet access

FTP and telnet access to the SDM can be enabled or disabled as required. This capability is also accessible by selecting the Enable/Disable Network Services option of the SDM Commissioning Tool menu. See page 3-8 for information on this menu.

Defining the console login prompt

The console login prompt is displayed at VT100 terminals connected to the SDM prior to login. The prompt string can be from 1 to 50 characters in length. All alphanumeric characters and most special characters can be used. The asterisk (*) and quotation marks cannot be used.

Commissioning SDM to operating company LAN parameters

Figure 3-3 on page 3-7 shows the Active and Entered Values display for the SDM to operating company LAN commissioning parameters.

Note: Connectivity to the operating company LAN is optional on the SDM, and requires installation of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW).

Figure 3-3
Base commissioning display - SDM to operating company LAN connectivity

```
                                  Active Value        Entered Value
                                  ------------        -------------

SDM telco side hostname           bmerycb0            bmerycb0
SDM telco side IP:                47.35.9.28          47.35.9.28
SDM telco lan netmask:            255.255.240.0       255.255.240.0
SDM telco lan side type:          ether               ether
Telco node hostname (1):          router              router
Telco node IP (1):                47.35.0.1           47.35.0.1


Do you wish to change these values? ((y)es or (n)o) (y/n?)
```

Defining the SDM hostname on the operating company LAN

The SDM hostname must be a single word from 3 to 16 characters. The following character types are valid for use in the CLLI:

- all alphanumeric characters
- the underscore (_)
- the dash (-)

Defining the SDM IP address on the operating company LAN

The SDM IP address defines the SDM as a node on the operating company LAN. The IP address must be entered in standard 8-byte dotted decimal format.

Defining the SDM netmask on the operating company LAN

The SDM netmask is used to support standard telnet subnet addressing. The netmask must be entered in standard 8-byte dotted decimal format.

Defining the operating company LAN type on the SDM

The operating company LAN type must be defined on the SDM as either ether (standard Ethernet) or ieee (IEEE 802.3 Ethernet).

Defining operating company LAN nodes on the SDM

The operating company LAN nodes must be defined on the SDM by hostname and IP address. A minimum of one operating company LAN node must be commissioned on the SDM. A maximum of four operating company LAN nodes can be commissioned on the SDM.

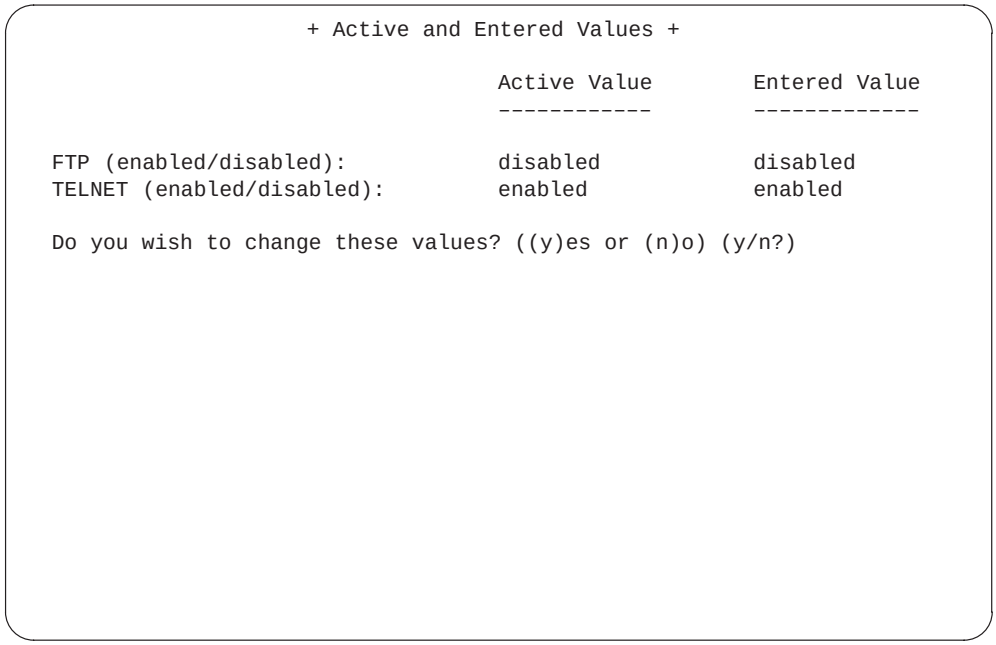
- The hostname must be a single word from 3 to 16 characters. The following character types are valid for use in the CLLI:
- all alphanumeric characters
- the underscore (_)
- the dash (-)

The IP address must be entered in standard 8-byte dotted decimal format.

Enabling and disabling FTP and telnet access

To view, modify, or initially set up FTP and telnet access to the SDM, select option 2 at the SDM commissioning tool main menu. Figure 3-4 shows the network services commissioning menu and display. The system displays the current values (active) and the most recently entered values. The “entered” values remain saved but inactive, until you verify to the system that you wish to activate them.

Figure 3-4
Network services commissioning display



To modify or initially set up FTP and telnet access to the SDM, enter “y” in response to the prompt. The system displays the current status of FTP access, and prompts you to enter the appropriate value (“e’ for enable, or “d’ for disable). If you do not wish to alter FTP access, press the Enter key. The system then displays the status of telnet access and prompts you to change its status, or you can bypass changing it by pressing Enter.

The pending (unactivated) values appear in the Entered Value field. You are prompted to verify these values (“y’ to confirm they are correct, “e’ to edit them, or “a’ to cancel the session and return to the main menu).

If you confirm your changes are correct, you are then prompted to activate the values. If you activate the changes (by typing “y”), the entered values become the active values. If you choose not to activate your changes (by typing “n”, your changes are not activated, but remain saved in the “entered value” field, and can be activated later, if required.

Commissioning system software thresholds

To view, modify, or initially set up system software resource threshold values, select option 3 at the SDM commissioning tool main menu. The system displays the current values. This utility is also available through the RMI. See *System software threshold editor* on page 3-23 for information on using this utility. For general information on software resource monitoring,

see *Monitoring system software resources* on page 3-20. Figure 3-5 shows the system software threshold editor commissioning menu and display.

Figure 3-5
Commissioning system software thresholds

```
System Software Threshold Editor


      Number events before log:          2
      CPU (run queue entries):           3
      Number of Processes:               200
      Number of Zombies:                 1
      Swap space (% full):               75
      Number of Swap Queue Entries:      5
      Logical Volume default (% full):   80
      /    (% full):                     80
      /usr (% full):                     80
      /var (% full):                     80
      /tmp (% full):                     80
      /home(% full):                     80
      /sdm (% full):                     80

h)elp,  restore d)efaults,  r)estore saved values,
s)ave changes and quit,  q)uit.
```

Commissioning X.25 connectivity on the SDM

To commission X.25 connectivity, you must have

- X.25 license key that is associated with the processor card in your SDM
- the DTE address

Commissioning must be performed

- to initialize X.25 connectivity
- to replace or upgrade SDM processor cards

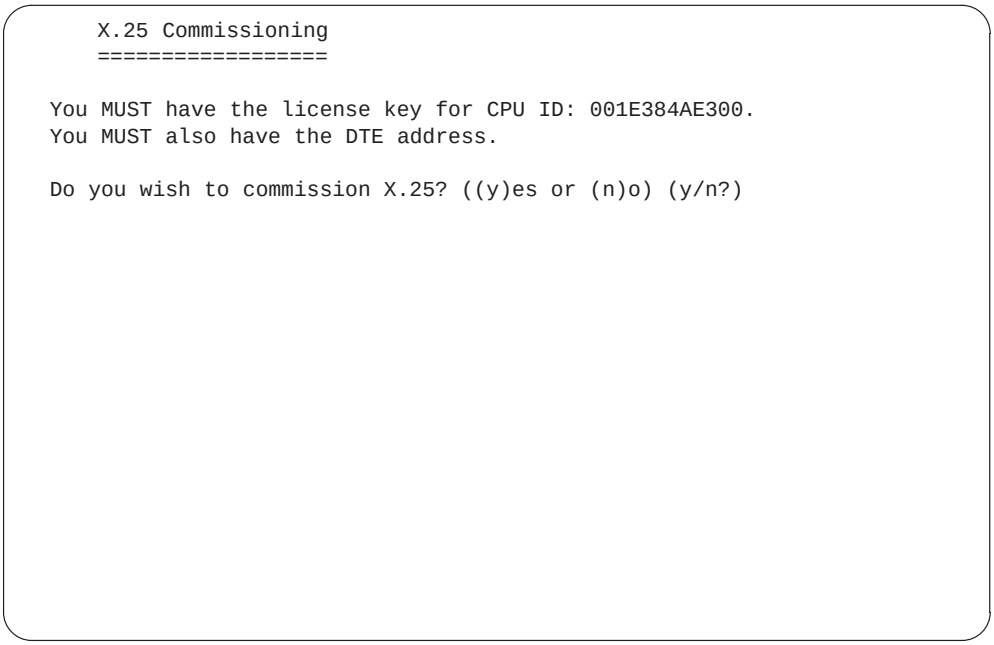
At the SDM Commissioning Tool menu

- select option 4, X.25 Commissioning
- enter “y” in response to the prompt
- enter the license key in response to the prompt
- enter the DTE address in response to the prompt

Note: This tool can be used to obtain the CPU ID for the processor card in advance, in order to obtain the license key. To do this, access the X.25 commissioning tool, obtain the CPU ID from the display, then type “n” to cancel the commissioning session.

Figure 3-6 shows the X.25 commissioning menu and display.

Figure 3-6
X.25 commissioning menu and display



Installing and updating software

To install or update software on the SDM, select option 5 at the SDM commissioning tool main menu. Use this tool to install or update SDM base or application software packages, as instructed by the release notes or NTPs that accompany the software product. Figure 3-7 shows the software installation and update menu and display.

Figure 3-7
Software installation and update menu and display

```
                Install/Update From All Available Software

Type or select a value for the entry field.
Press Enter AFTER making all desired changes.

                                                      [Entry Fields]
* INPUT device / directory for software      []                      +









F1=Help        F2=Refresh          F3=Cancel           F4=List
F5=Reset       F6=Command          F7=Edit             F8=Image
F9=Shell       F10=Exit            Enter=Do
```

Adding users to the “users” group

To add a new user to the group “users”, select option 6 at the SDM commissioning tool main menu. This group is intended for use by any users who require direct access to the SDM to use SDM application software packages. A step-by-step procedure to add new users is provided on page 6-2 of this document.

Figure 3-8 shows an example session, adding a new user “Builder” with initial password 1ABCDE. The system prompts and responses are shown in plain type. The root user entries are shown in bold type.

See *Password administration* on page 3-15 for restrictions on defining and changing user passwords.

Figure 3-8
Software installation and update - example session

```
Adding New User to group 'users'
================================

Do you wish to add a new user to group 'users'? ((y)es or (n)o) (y/n?)
> y
Enter the User Name:
> Builder

User Name:Builder

Is the User Name correct? ((y)es or (n)o) (y/n?)
> y
Adding user 'Builder' to group 'users'.

Builder was added to group 'users'

Please enter an initial logon password.
The user will be forced to change it on first log in.
>
Changing password for "Builder"
Builder's New password: > 1ABCDE
Enter the new password again: > 1ABCDE
[press enter to continue]
```

Removing users from the users group

To remove a user from the users group, log in to the local or remote VT100 console as the root user. Enter the command “rmuser <username>”, where <username> is the name of the user’s account you wish to delete.

Viewing and modifying Log Delivery commissioning parameters

Log Delivery operating parameters are controlled by an online SDM commissioning tool, that is used at initial installation to set up the application, and thereafter to view or modify the parameters.

The Log Delivery commissioning tool allows customization of

- global application parameters including
  - buffer size
  - reconnect timeout value
  - lost logs threshold (number of lost logs before a system log is generated)
  - ASCII line delimiter and log delimeter characters
  - the number of days to keep log files
- the incoming log stream from the CM, to add or delete individual logs
- per-device parameters, including
  - device type (UNIX file, TCP/IP link, or printer)
  - parameters specific to the device type (for example, the baud rate for a printer)
  - log output format (STD or SCC2)
  - logs to be sent to the device

For additional information on commissioning the Log Delivery application, see page 2-34.

User and group administration

Three predefined user categories are provisioned on the SDM: one root user account (system administrator), one maint user (maintenance personnel), and users (every other user). The capabilities that are available to each user category are listed in table 3-1.

Table 3-1
User group profiles

Group	Responsibilities	Capabilities
root	SDM system administration	user and group administration • adding and removing users • assigning and restricting user access • password administration system image backup and restore unrestricted shell access local console access from LAN setting the date and time all maint and user capabilities
maint	SDM maintenance personnel	maintenance commands (for example, busy and offline) monitoring system performance restricted shell access password update
user	every other user	application-specific configuration tools password update

Password administration

The root user can change any password on the system at any time. The maintenance user (maint) and members of the users group can change their own passwords. The following conditions apply to maint and user passwords:

- The maximum age of passwords is seven weeks.
- Warnings are issued seven days before the password expires, and are repeated at each login until the password is changed.
- Passwords, once changed, cannot be changed again (except by the root user) for at least three weeks
- Passwords cannot be reused until at least five other passwords have been used.

- If a password expires, the user has up to two weeks after the expiry date to change the password. During this period, the user is forced to enter a new password on login. The root user must reset the password if it is not changed by the end of this two-week period.
- The minimum length of passwords is six characters. The password must contain a minimum of one alphabetic character, and a minimum of one nonalphabetic character.

Idle logins

Users are logged out automatically after 10 min of inactivity.

Time and date administration

Time and date administration allows the time of day on the SDM to be changed. Changes between daylight saving and standard time are automatically accommodated on the SDM without a need for manual time and date adjustment. Refer to the procedure *Setting the date and time* on page 6-7 for more information.

Software and data backups

SDM software and data backups must be performed by the root user. Software backups are stored on 4-mm digital data storage (DDS) tapes with lengths of either 90 m or 120 m.

Backups are performed using the SDM backup and restore online utility, which the root user can access in two ways:

- by logging in to the local or remote VT100 console and entering the command “sdmbkup”
- by selecting the SDM Backup Utility option at the SDM Root Maintenance Tools menu of the RMI.

There are two types of backup on the SDM: a system image backup, and incremental backups. The following sections describe both types of backup.

For detailed instructions on performing software backups, refer to the following procedures in the SDM System Administration Procedures chapter in this document.

- *Creating SDM software and data backup tapes - System image backup (S-tape)* on page 6-13
- *Creating SDM software and data backup tapes - Manual incremental backup (I-tape)* on page 6-23
- *Creating SDM software and data backup tapes - Scheduling and enabling automated incremental backups* on page 6-28

System image backup

The system image backup is used to back up all SDM software and data in the root volume group on a system image backup tape (S-tape). The SDM must be in manual-busy or offline state to perform a system image backup. The system image backup includes the following:

- boot (startup) files
- base operating system (BOS)
- system configuration data
- SDM software
- SDM data

When to perform a system image backup

Nortel recommends that you perform a system image backup after the following:

- initial installation and commissioning of the SDM
- after changes to the configuration of the disk or the logical volumes
- after installing a new version of SDM platform software

Incremental backups

Incremental backups are used to back up files that have been updated or created since the last system image backup was performed. Incremental backups are stored on an incremental backup tape (I-tape). Nortel recommends that you perform regularly scheduled incremental backups to minimize the risk of lost data.

When to perform incremental backups

An incremental backup can be performed while the system is in service. However, if any files are open when the incremental backup begins, the last closed (saved) versions of these files are backed up. To prevent inconsistency between saved and backed up versions of files, perform incremental backups during a low-usage period.

Incremental backups can be performed manually or automatically. The scheduling of incremental backups is at the discretion of the SDM system administrator; however, Nortel recommends that an incremental backup be performed as soon as possible after the following activities:

- adding new users to the SDM
- changing the configuration of the system
- entering important data

Using the automated incremental backup utility

The default schedule for the automated incremental backup utility is one incremental backup per week, at 2 a.m. on Monday. The root user can modify this schedule by editing the file in "/sdm/smm/sdminc.cron".

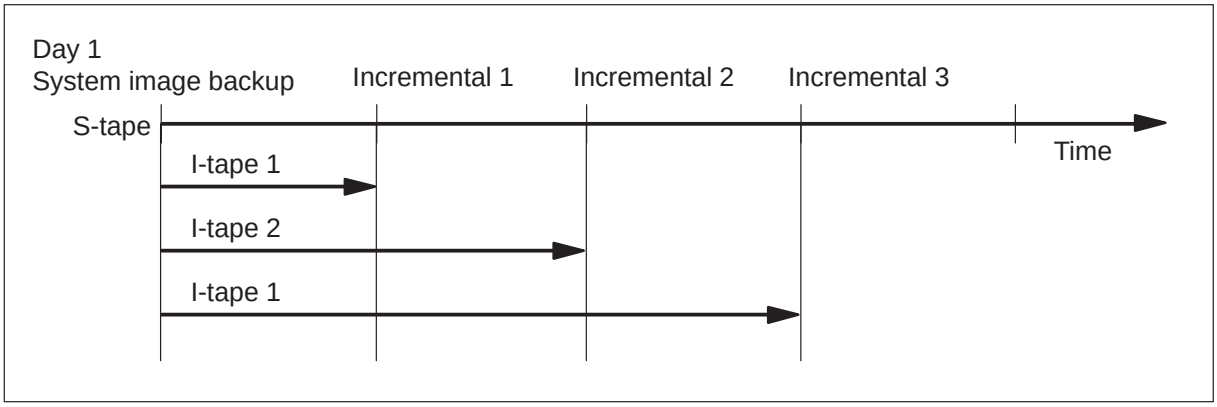
The automated incremental backup utility can be enabled or disabled using the Incremental Backup and Restore menu of the online backup and restore utility.

Replacing incremental backup tapes

Replace the tapes that are used for incremental backup purposes after six months to ensure integrity of the data. Nortel recommends using two tapes for incremental backups (I-tapes) and alternating them on a weekly basis. This ensures that a second incremental backup tape is available in the event that the most recent incremental backup fails, or the most recent I-tape is misplaced, damaged, corrupted, or unavailable for any reason. Software backups are stored on 4-mm DDS tapes, in either 90 m or 120 m lengths.

Figure 3-9 illustrates the use of one S-tape and two I-tapes for SDM backups.

Figure 3-9
Using one S-tape and two I-tapes for incremental backups



Restoring SDM software and data

This section provides an overview of SDM software restore capabilities and methods. For detailed instructions on restoring SDM software, refer to the following procedures in the SDM System Administration Procedures chapter in this document.

- *Restoring SDM software and data - Full restore from S-tape and I-tape* on page 6-32
- *Restoring SDM software and data - Partial restore from the system image tape (S-tape)* on page 6-38
- *Restoring SDM software and data - Partial restore from an incremental backup tape (I-tape)* on page 6-43

SDM software and data restore operations must be performed by the root user. The root user must be a trained UNIX system administrator who is capable of correctly identifying files or directories to be restored, and who fully understands the impact of restoring or overwriting software files.

SDM software and data are restored using backup tapes. See *Software and data backups* on page 3-16 for information on performing software backups.

Software and data restores are performed using the SDM backup and restore online utility, which the root user can access in two ways:

- by logging in to the local or remote VT100 console and entering the command “sdmbkup”
- by selecting the SDM Backup Utility option at the SDM Root Maintenance Tools menu of the RMI.

Note: The full restore must be done at the local VT100 terminal, connected to the SDM by a null modem cable.

Performing a full software and data restore

A full software and data restore is required if SDM software becomes corrupted, or the disk drive unit is replaced. A full restore consists of loading the full contents of the system image tape (S-tape), followed by loading the full contents of the most recent incremental backup tape (I-tape).

Full software restore requires rebooting the SDM twice; once to begin the restore process, and once to reinitialize the system when the restore process is complete.

Performing partial software and data restores

The root user can restore individual files or sets of files from the system image tape or from an incremental backup tape. Use of these procedures is at the discretion of the root user. Only a trained AIX system administrator

who is familiar with the files and knows exactly which files to restore should perform a partial restore procedure. SDM software could inadvertently be corrupted if the wrong files are restored.

Listing the contents of a backup tape

The root user can list the contents of a backup tape by inserting it into the tape drive and accessing the SDM Backup and Restore menu.

To view the contents of the S-tape, select “System Image Backup and Restore”, then select “List Contents of the System Image Tape”.

To view the contents of an I-tape, select “Incremental Backup and Restore”, then select “List Contents of an Incremental Backup Tape”.

Monitoring system software resources

SDM software resources can be monitored using the QueryPM command at the SDM level of the MAP display, or using the RMI. To access the RMI, log on as root or maint. Root users must enter the command “sdmmtce” after logging in to access the RMI menu system. To obtain information on software status, select the View Status Indicators and Logs option from the main menu.

SDM System Software Status Indicators menu

Figure 3-10 shows the SDM System Software Status Indicators menu. To access this menu, enter 3 at the SDM Status Indicators and Logs menu.

Figure 3-10
SDM System Software Status Indicators menu

```
                  SDM System Software Status Indicators Menu
                  ------------------------------------------

Name                                    Value/ Threshold (Alarm)
=========================================================================
CPU (run queue entries):                0    / 3
Number of Processes:                    44   / 200
Number of Zombies:                      0    / 1
Swap space (% full):                    15   / 75
Number of Swap Queue Entries:           0    / 5
/ (% full)                              68   / 80
/usr (% full)                           82   / 80  *
/var (% full)                           4    / 80
/tmp (% full)                           57   / 80
/home (% full)                          4    / 80
/sdm (% full)                           42   / 80
Automated Incremental Backup            ENABLED
=========================================================================

1 – Logs, 2 - Edit Alarm Threshold Values
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

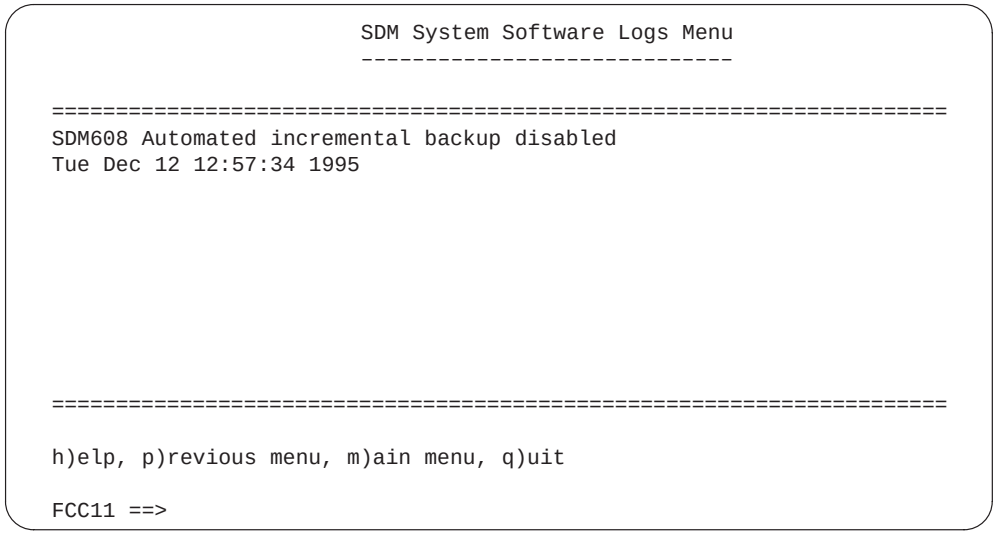
The SDM System Software Status Indicators menu provides information about AIX operating system resources and logical volume usage. The display also indicates the most recent event that is associated with the automated incremental backup utility (enabled, disabled, passed, or failed). Resources that have exceeded their threshold are marked by an asterisk (*), and trigger an in-service trouble (ISTb) alarm. Selecting the Logs option allows you to view the logs associated with the system resources.

The root user can modify the system software alarm thresholds. See page 3-23 for more information.

SDM System Software Logs menu

Figure 3-11 shows the SDM System Software Logs menu. This menu displays the most recent event log that is associated with system software. Events that trigger logs include system software resources exceeding or returning below their alarm thresholds, and events that are associated with the automated incremental backup utility. The log specifies the event and indicates the date and time it occurred. Refer to table 2-5 on page 2-31 for more information about SDM logs and the required actions.

Figure 3-11
SDM System Software Logs menu



System software threshold editor

Figure 3-12 shows the System Software Threshold Editor menu. To access this menu, enter 2 at the SDM System Software Status Indicators menu. Only the root user can access the threshold editor.

Figure 3-12
SDM System Software Threshold Editor

```
System Software Threshold Editor



      Number events before log:          2
      CPU (run queue entries):           3
      Number of Processes:               200
      Number of Zombies:                 1
      Swap space (% full):               75
      Number of Swap Queue Entries:      5
      Logical Volume default (% full):   80
      /     (% full):                    80
      /usr  (% full):                    80
      /var  (% full):                    80
      /tmp  (% full):                    80
      /home (% full):                    80
      /sdm  (% full):                    80

h)elp,  restore d)efaults,  r)estore saved values,
s)ave changes and quit,  q)uit.
```

When you access the threshold editor, the name of the first threshold and its current value are highlighted. Use the threshold editor as follows:

- To select the threshold you wish to edit, press the Enter or Tab key until the appropriate threshold is highlighted. Type in the new numeric value. Repeat for other thresholds as required.
- To obtain online help, type h.
- To restore the system default thresholds, type d.
- To restore the saved threshold values (the values stored prior to starting the current editing session), type r.
- To save your threshold changes and exit the editing session, type s.
- To exit the editing session without saving threshold changes, type q. Any threshold changes from the editing session are ignored.

SDM Software Versions menu

Figure 3-13 shows the SDM Software Versions menu. To access this menu, enter 2 at the SDM Remote Maintenance menu.

Figure 3-13
SDM Software Versions menu

```
                          SDM Software Versions Menu
                          --------------------------

Software Name                                        Version
=========================================================================
SDM_BASE
Log Delivery Application                             1.15.0.0
SDM Base Maintenance                                 1.15.0.0
SDM Base Services                                    1.15.0.0




=========================================================================


h)elp, m)ain menu, q)uit

FCC11 ==>
```

The Software Versions menu displays the base software packages running on the SDM, and lists the version of each package. The software installation process maintains a file containing the name and version of all base and application software packages installed on the SDM.

Hardware upgrades

The system processor card and the disk drive unit on the SDM are upgradable. These upgrades require a complete shutdown of the SDM. For detailed instructions on performing these upgrades, refer to the appropriate procedure in the SDM Hardware Upgrade Procedures chapter of this document.

The SDM system processor card is available in four versions:

- NTRX50JP - 32 Mbyte DRAM
- NTRX50JQ - 64 Mbyte DRAM
- NTRX50JR - 96 Mbyte DRAM
- NTRX50JS - 128 Mbyte DRAM

Note: Before upgrading to a 128 Mbyte processor, the disk drive must be upgraded to the 2-Gbyte version.

The four versions of the processor card are identical in functionality, except for the increased DRAM capacity.

The disk drive unit is available in two versions:

- NTRX50JT - 1 Gbyte capacity
- NTRX50JU - 2 Gbyte capacity

DCE configuration

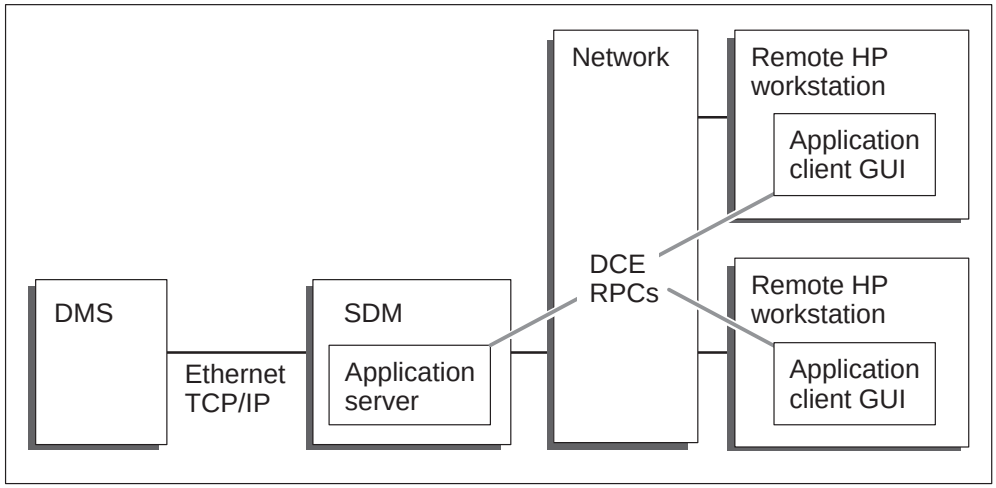
The SDM06.1 product release supports a limited use of server-less Distributed Computing Environment (DCE) to allow operations to be monitored from remote HP workstations. The remote workstations run graphical user interface (GUI) applications as clients of application servers running on the SDM. The GUI applications communicate with the SDM by remote procedure calls (RPCs) supported by DCE. This configuration is shown in figure 3-14.

In SDM06.1, DCE only serves to provide RPC communication between GUI clients and SDM servers. More advanced capabilities are not used. The SDM06.1 product release incorporates the following DCE criteria:

- Remote GUIs do not use directory services to locate the SDM. You supply the IP address of the SDM when a remote GUI is started.
- Security services are not used.
- Distributed Time Service (DTS) servers are not used.
- The SDM and remote GUI workstations do not need to be configured as part of a DCE cell.

The DCE core client software must be installed on the HP workstation that runs the remote GUI. This software must be version 1.2 or later. Refer to the document *HP DCE/9000 Version 1.2 Release Notes* for more information.

Figure 3-14
Non SDM-resident DCE server



SDM maintenance procedures

Introduction to SDM maintenance procedures

This chapter contains SDM maintenance procedures that can be performed by operating company personnel who have maintenance user (or root user) permissions for accessing the SDM. Each procedure contains the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Explanatory and context-setting information

Depending on the type of procedure, the first page of each procedure may contain the following headings:

- Indication (where an alarm appears on the MAP display)
- Meaning (what the alarm means)
- Impact (how the alarm affects service)
- Application (why you would perform the procedure)
- Action (how to use the flowchart and step-action instructions)

Summary flowchart

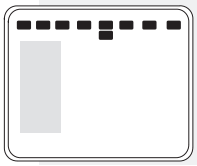
The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it. For example, if you see that the procedure involves actions at the SDM site, you will know to advise that office before you begin the step-action instructions.

Step-action instructions

The step-action instructions tell you how to perform the procedure. Normally you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

The step-action instructions provide the command syntax and system information you use or see while performing the procedure. For help on DMS and SDM commands or output, see the "About this document" chapter at the beginning of this document.

Clearing MAP alarms triggered by the SDM PM SDM minor



CM	MS	IOD	Net	**PM SDM**	CCS	Lns	Trks	Ext	APPL
.	.	.	.		.	.	.	.	.

Indication

At the MTC level of the MAP display, SDM appears under the PM header of the alarm banner, and indicates an SDM minor alarm.

Meaning

An SDM minor alarm indicates that the SDM is in manual-busy (ManB) state.

Impact

If the SDM state at the MAP display is ManB, the SDM has been set to manual-busy state by MAP command. If the computing module (CM)-SDM communication link is functioning, this is the true state of the SDM, and all SDM applications are out of service.

If the SDM is ManB /not responding, the local state and operating condition of the SDM are unknown to the CM because the CM and the SDM cannot communicate. This may be due to a fault in the communication link, or the SDM itself is out of service. When CM-SDM communications are restored, the SDM aligns to the current CM view of its state.

If the SDM is ManB (NA), the local state and operating condition of the SDM are unknown to the CM because the Ethernet interface unit (EIU) associated with the SDM is out of service. When CM-SDM communications are restored, the SDM aligns to the current CM view of its state.

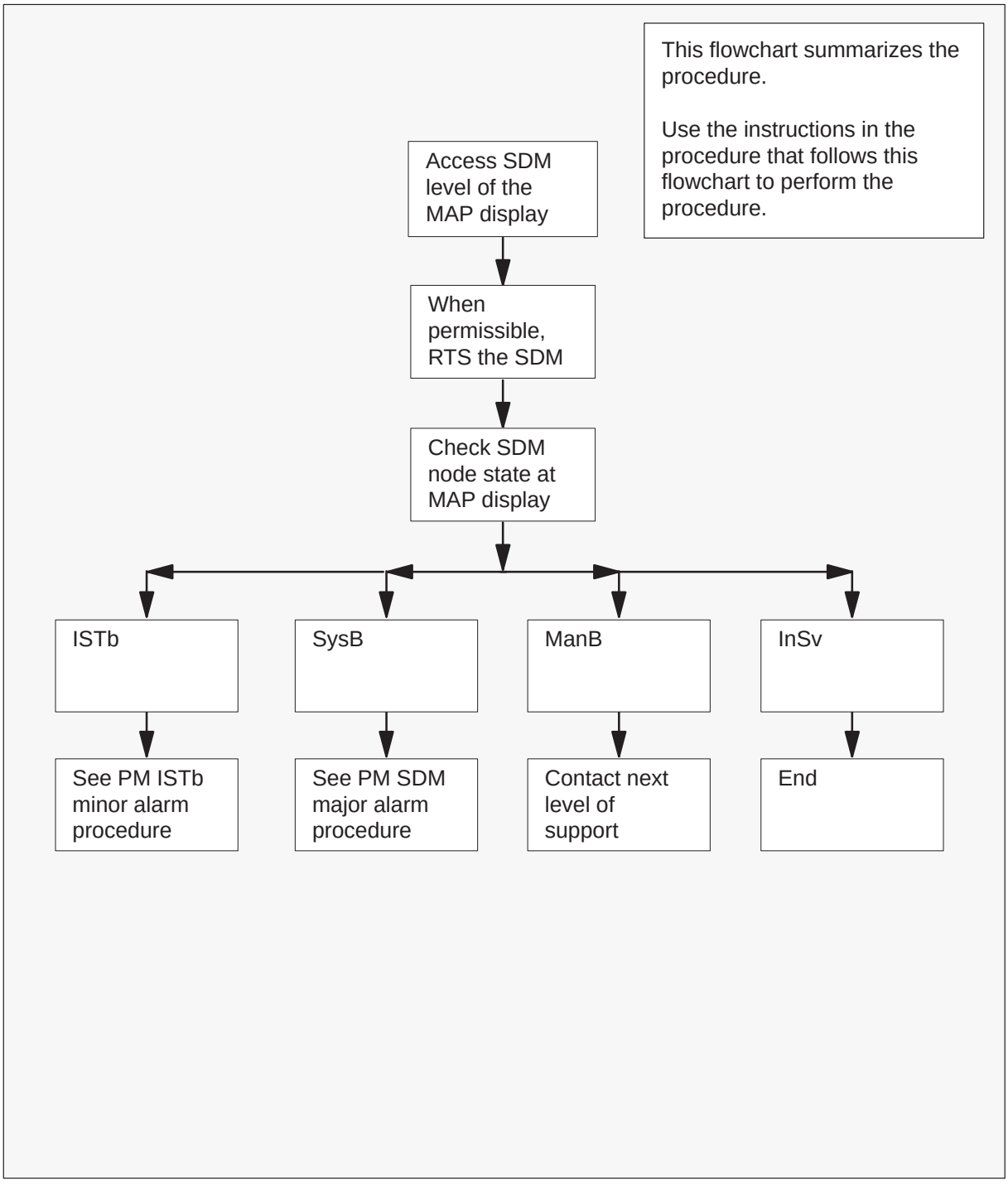
If the CM-SDM communications link is down, the SDM remote maintenance interface (RMI) can be used to determine or alter the local state of the SDM, and to isolate and clear faults.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Clearing MAP alarms triggered by the SDM PM SDM minor (continued)

Summary of Clearing MAP alarms triggered by the SDM - PM SDM minor



Clearing MAP alarms triggered by the SDM PM SDM minor (end)

Clearing MAP alarms triggered by the SDM - PM SDM minor

At the MAP display

1 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

2 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM 0  ManB
```

3 If applicable, determine from office records or other personnel why the SDM was set to manual busy state. When permissible, return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

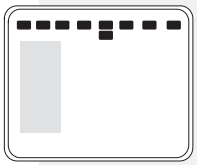
4 Check the node state of the SDM.

If the SDM state at the MAP display is	Do
InSv	step 6
ISTb	see the procedure to clear a PM ISTb minor alarm in this document
SysB	see the procedure to clear a PM SDM major alarm in this document
ManB	step 5

5 For further assistance, contact the personnel responsible for the next level of support.

6 You have completed this procedure.

Clearing MAP alarms triggered by the SDM PM SDM major



CM	MS	IOD	Net	**PM SDM M**	CCS	Lns	Trks	Ext	APPL
.	.	.	.		.	.	.	.	.

Indication

At the MTC level of the MAP display, SDM M appears under the PM header of the alarm banner, and indicates an SDM major alarm.

Meaning

An SDM major alarm indicates that the SDM is sending system busy status to the computing module (CM) because it is out of service, or the CM has designated the SDM as system busy because it is unable to communicate with the SDM.

Impact

If the SDM is out of service, all SDM applications are unavailable.

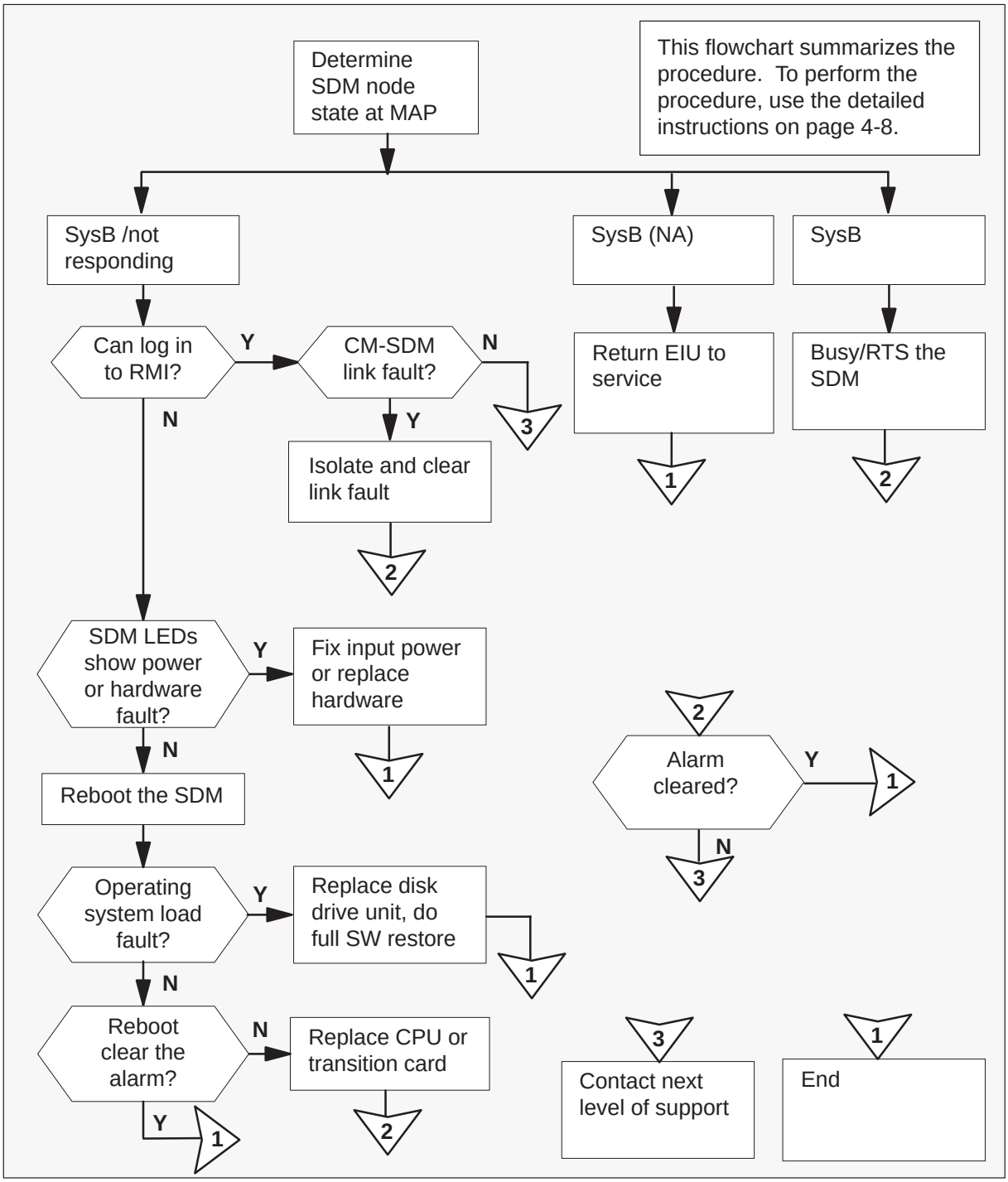
If the CM is unable to communicate with the SDM, the local state and operating condition of the SDM are unknown to the CM. MAP commands requesting state changes to the SDM are not sent to the SDM, and MAP requests for information from the SDM cannot be completed. The SDM remote maintenance interface can be used to change the local state of the SDM, or obtain information about the SDM, when the CM-SDM link is not functioning. When communications are restored, the SDM local state aligns itself to the CM view of its state.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

Summary of Clearing MAP alarms triggered by the SDM — PM SDM major



Clearing MAP alarms triggered by the SDM PM SDM major (continued)

Clearing MAP alarms triggered by the SDM – PM SDM major

At the MAP display

1 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

2 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM 0  SysB /not responding
```

3 Determine the state of the SDM.

If the state of the SDM is	Do
SysB (NA)	step 4
SysB /not responding	step 10
SysB	step 52

4 The CM has designated the SDM as system busy because the Ethernet interface unit (EIU) associated with the SDM is unavailable to communicate with the SDM. Determine which EIU is associated with the SDM by typing

>QUERYPM
and pressing the Enter key.

Example response:

```
ENLOCN          1 A 1
ENADDR (ENIP) : 47.35.2.13 (Via EIU 0)
```

5 Post the EIU by typing

>POST EIU *eiunumber*
and pressing the Enter key.

where

eiunumber is the number of the EIU, determined in step 4

Example response:

```
EIU     0 SysB      Rsvd
```

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

6 Note the status of the EIU and complete the procedure to clear a PM EIU alarm, provided in the generic alarm clearing manual for your switch. The fault may reside on the EIU itself, or on controller-side (C-side) equipment associated with the EIU, such as the LIM, the F-bus, or the DS30 links connecting the LPP to the MS. When the EIU has been returned to service, continue this procedure.

At the PM level of the MAP display

7 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM 0  InSv
```

If the state of the SDM is	Do
InSv	step 55
SysB (NA)	step 54
SysB	step 52
SysB /not responding	step 10
ISTb	step 8

8 Allow 2 min for SDM applications to re-establish communications with the CM and return to service. When this is complete, the SDM state should automatically change to InSv, unless another fault exists.

Note: The time value of 2 min is approximate. The actual time required for the system to restart all applications varies depending on the number and type of application software packages installed on your SDM.

If the state of the SDM is	Do
InSv	step 55
remains ISTb	step 9

9 Clear the ISTb alarm using the procedure “Clearing MAP alarms triggered by the SDM - PM ISTb minor” in this document.

Go to step 55.

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

At the local or remote VT100 console

10 Log in to the SDM Remote Maintenance Interface using the root user or maint user account name and password.

If you are	Do
unable to access the RMI, or unable to log in	step 32
able to access the RMI and log in	step 11

At the SDM level of the MAP display

11 Determine the number of the EIU associated with the SDM by typing

>QUERYPM
and pressing the Enter key.

Example response:

```
SDM 0  SysB /not responding
ENLOCN          1 A 1
ENADDR (ENIP):  47.35.2.38 (Via EIU 0)
```

Note: In the example above, the EIU number is 0.

12 Access table IPROUTER by typing

>TABLE IPROUTER
and pressing the Enter key.

13 List the contents of table IPROUTER by typing

>LIS ALL
and pressing the Enter key.

Example response:

```
TOP
RKEY    ROUTER          SNIPADDR        ETHIPADR
  2      EIU 0      47  35  7   4   47  35  2   1
  3      EIU 2      47  35  7   1   47  35  1   2
```

Note: Fields ETHARP and ETHPARP are not shown in this example.

14 Determine the internet protocol (IP) address of the EIU associated with the SDM, listed under header ETHIPADR.

Note: In the MAP display example in step 13, the IP address of EIU 0 is 47.35.2.1.

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

At the SDM Remote Maintenance Interface

15 Proceed according to which account you used to log in to the RMI.

If you logged in as	Do
root user	step 17
maint user	step 16

16 Access the restricted shell by typing

>4
and pressing the Enter key.

17 Test the IP link from the SDM to the EIU by typing

>ping *ipaddress*
and pressing the Enter key.

where

ipaddress is the IP address of the EIU associated with the SDM

If the ping test	Do
passes	step 54
fails	step 18

At the rear of the SDM

18 Check the LAN PWR LED on the processor transition card 2 (NTRX50JH in slot S0).

If the LAN PWR LED is	Do
on (green)	step 20
off	step 19

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

19 Replace the NTRX50JH processor transition card 2 using the replacement procedure in this document. Return the SDM to service using the instructions provided in the card replacement procedure.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

Go to step 55.

At the LPP

20 Physically inspect the media access unit (MAU) on the EIU associated with the SDM, and the Ethernet cable connecting the SDM to the EIU.

If the MAU or Ethernet cabling	Do
is faulty	step 21
is not faulty	step 23

Note: Inspect the Ethernet cable for physical damage, or disconnection at either end of the link. At the EIU, check the LEDs on the MAU to determine if the MAU is working.

21 Replace the MAU, or replace or reconnect the Ethernet cable, as applicable.

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

At the SDM level of the MAP display

22 Check the node state of the SDM.

If the SDM state at the MAP display is	Do
InSv	step 55
ISTb	step 8
SysB /not responding	step 23
SysB	step 52
SysB (NA)	step 4

At the FSP

23 Turn the SDM power off and on at the FSP breaker.

At the local or remote VT100 console

24 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If	Do
the selection menu appears	step 26
the response is `PPC1–Bug>`	step 25

25 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1–Diag>
```

Go to step 27.

26 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Response:

```
PPC1–Diag>
```

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

27 Test the Ethernet interface portion of the SDM processor card by typing

>dec21040

and pressing the Enter key.

If	Do
the tests all pass	step 30
any of the tests fail	step 28

28 Replace the SDM processor card using the replacement procedure in this document. Return the SDM to service using the instructions provided in the card replacement procedure, then return to this point.

WARNING

Potential equipment damage or loss of service

Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

At the SDM level of the MAP display

29 Check the node state of the SDM.

If the SDM state at the MAP display is	Do
InSv	step 55
ISTb	step 8
SysB /not responding	step 30
SysB	step 52
SysB (NA)	step 4

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

30 Replace the processor transition card 2 using the replacement procedure in this document. Return the SDM to service using the instructions provided in the card replacement procedure, then return to this point.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

At the SDM level of the MAP display

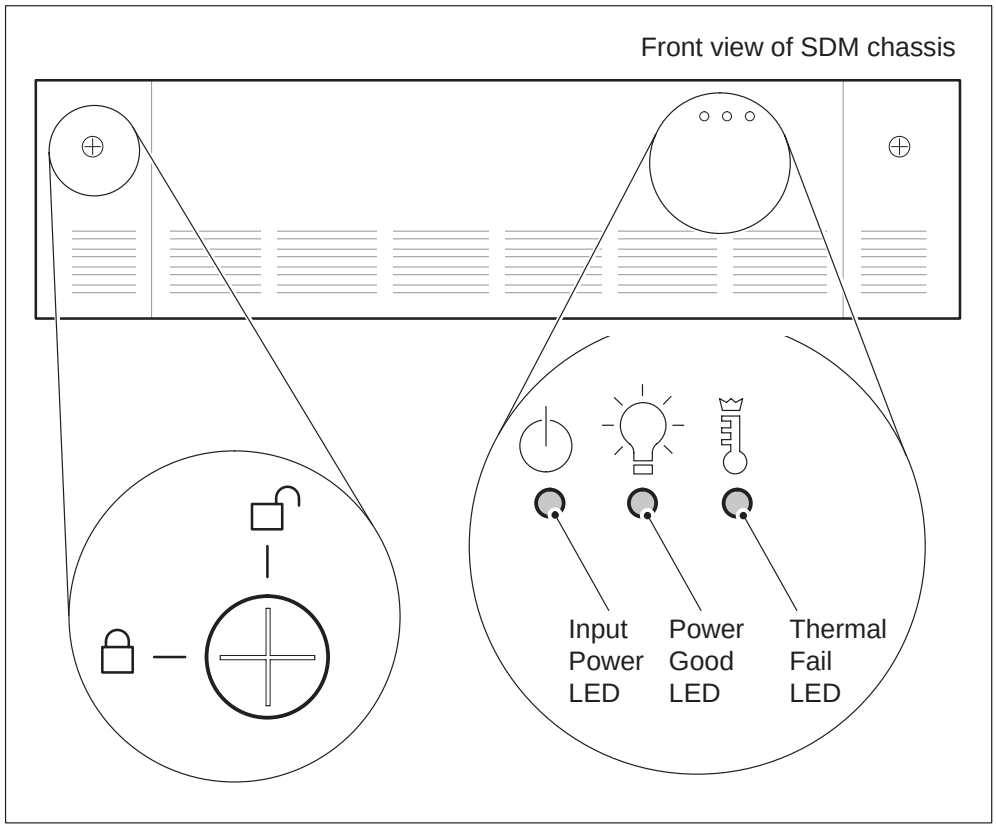
31 Check the node state of the SDM.

If the SDM state at the MAP display is	Do
InSv	step 55
ISTb	step 8
SysB /not responding	step 54
SysB	step 52
SysB (NA)	step 4

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

At the front of the SDM

32 Check the Input Power LED.



If the Input Power LED is	Do
on (green)	step 34
off	step 33

33 The -48V dc supply to the SDM is faulty. Restore input power to the SDM. Assuming there are no other faults, the SDM will automatically reboot, return to service, and clear the SysB alarm when input power is restored.

Note: If required, use the procedure to clear an EXT FSP alarm, provided in the generic alarm clearing manual for your switching system.

Go to step 55.

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

34 Check the Power Good LED.

If the Input Power LED is on, and the Power Good LED is	Do
on (green)	step 41
off	step 35

35 Check the Thermal Fail LED.

If the Thermal Fail LED is	Do
off	step 36
yellow	step 37

36 Replace the SDM power supply unit (NTRX50JC) using the replacement procedure in this document. Return the SDM to service using the instructions provided in the card replacement procedure.

Go to step 55.

37 The SDM has shut down because it has reached its internal temperature threshold. Determine if the problem is due to a faulty fan unit by turning on power at the FSP breaker which supplies the SDM, and physically inspecting the fan to see if it operates.

If the fan	Do
operates normally	step 38
does not operate	step 40

Clearing MAP alarms triggered by the SDM
PM SDM major (continued)

At the FSP

38 Turn the SDM power off at the FSP breaker. Determine if there is an excessive heat source (in excess of 50 degrees Celsius) near the SDM which may have caused the thermal shutdown.

If	Do
an external heat source is present	step 39
the ambient temperature near the SDM appears normal	step 54

39 Remove the heat source. When the ambient temperature has dropped to an acceptable level (below 50 degrees celsius), restore power to the SDM at the FSP breaker. Assuming there are no other faults on the system, the SDM will automatically reboot, return to service, and clear the SysB alarm.

Go to step 55.

At the FSP

40 Turn the SDM power off at the FSP breaker. Replace the SDM fan unit (NTRX50JD) using the hardware replacement procedure in this document. Return the SDM to service using the instructions provided in the hardware replacement procedure.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

Go to step 55.

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

At the front of the SDM

41 Using a flathead or a Phillips screwdriver, unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

42

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

43 Examine the indicator LEDs on the front of the SDM processor card (NTRX50JP, NTRX50JQ, NTRX50JR, or NTRX50JS, depending on your system configuration). Determine if these LEDs indicate a faulty processor, as follows:

- The board failure (BFL) LED is off when the system is operating normally. If it is on (yellow), the processor card has failed.
- The fuse ok (FUS) LED is on (green) when the internal DC power supplies on the processor card (+5Vdc, +12Vdc, -12Vdc) are operating normally. If the FUS LED is off or flickering, the processor card is faulty.
- If the output power LED on the SDM is on (green, indicating that the SDM power supply is functioning normally), and all LEDs on the processor card are off, the processor card is faulty.

If the LEDs	Do
indicate a faulty processor card	step 44
do not indicate a faulty processor card	step 45

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

44 Replace the SDM processor card using the replacement procedure in this document. Return the SDM to service using the instructions provided in the card replacement procedure.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

Go to step 55.

At the FSP

45 Turn the SDM power off and on at the FSP breaker. The SDM will begin to autoboot.

At the local or remote VT100 console

46 Monitor the boot process to determine if the system can successfully load the operating system from disk.

If the operating system	Do
loads successfully, and the boot process continues	step 48
does not load successfully	step 47

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

47 Replace the disk drive unit using the hardware replacement procedure in this document. Follow the instructions in the disk drive replacement procedure to return the system to service, including performing a full software restore from backup tape.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

Go to step 55.

48 Allow the boot process to complete uninterrupted. The system will attempt to return to service automatically and clear the alarm.

At the SDM level of the MAP display

49 Check the node state of the SDM.

If the SDM state at the MAP display is	Do
InSv	step 55
ISTb	step 8
SysB /not responding	step 50
SysB	step 52
SysB (NA)	step 4

Clearing MAP alarms triggered by the SDM PM SDM major (continued)

50 Replace the SDM processor card using the replacement procedure in this document. Return the SDM to service using the instructions provided in the card replacement procedure, then return to this point.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

At the SDM level of the MAP display

51 Check the node state of the SDM.

If the SDM state at the MAP display is	Do
InSv	step 55
ISTb	step 8
SysB /not responding	step 54
SysB	step 52
SysB (NA)	step 4

At the SDM level of the MAP display

52 The SDM state SysB, with no additional qualifier (NA, or not responding) means that the SDM is communicating successfully with the CM, but all SDM applications have failed. Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

Clearing MAP alarms triggered by the SDM PM SDM major (end)

53 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM state at the MAP display is	Do
InSv	step 55
ISTb	step 8
SysB /not responding	step 10
SysB	step 54
SysB (NA)	step 4

54 Contact the personnel responsible for the next level of support.

55 You have completed this procedure.

Clearing MAP alarms triggered by the SDM PM ISTb minor

Application

Use this procedure to clear a PM ISTb MAP alarm that has been triggered by the SDM.

Note: The PM alarm ISTb is used to report fault conditions on numerous types of DMS peripheral modules (PMs), including the SDM. This procedure assumes that you have isolated the SDM as the cause of the ISTb alarm. To clear an ISTb alarm generated by another type of PM, use the ISTb alarm clearing procedure in the generic alarm clearing manual for your DMS switching system.

Definition

A PM ISTb alarm triggered by the SDM indicates that the computing module (CM) is receiving in-service trouble (ISTb) status from the SDM. One or more of the following conditions exists:

- One or more SDM applications has failed, but at least one application has not failed.
- A system software resource has exceeded its alarm threshold.
- An automated incremental software backup has failed.
- The SDM is unable to communicate with one or more defined nodes on the operating company LAN.
- An SDM application is reporting an in-service trouble condition.

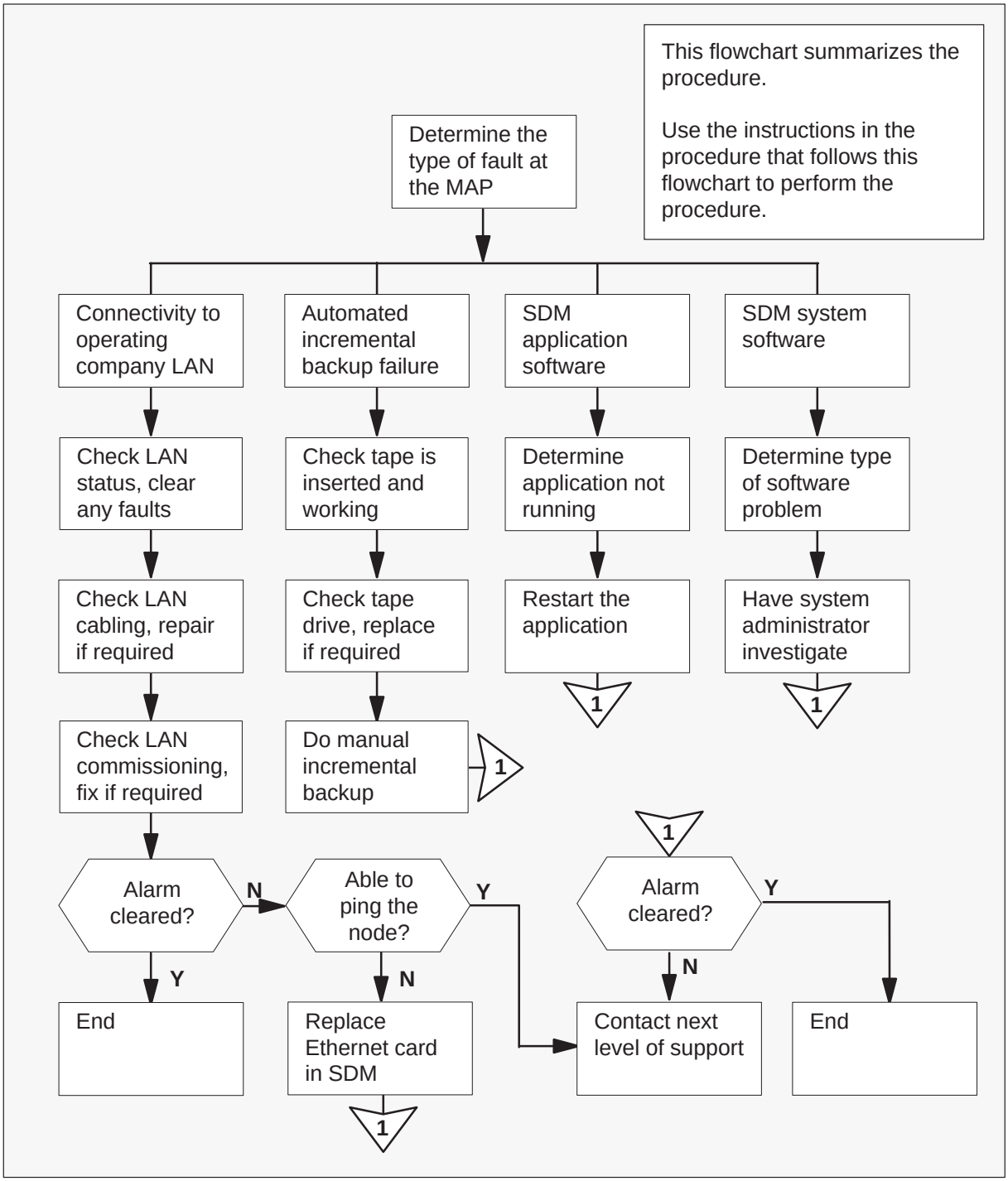
Note: If all SDM applications fail, the SDM node state is system busy (SysB) and a PM SDM major or PM SysB major alarm is generated.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

Summary of Clearing MAP alarms triggered by the SDM - PM ISTb minor



Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

Clearing MAP alarms triggered by the SDM - PM ISTb minor

At the MAP display

1 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

2 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ISTb
```

3 Obtain status information from the SDM by typing

>QUERYPM FLT
and pressing the Enter key.

4 Determine the type of fault.

If the fault is	Do
an operating company LAN connectivity problem	step 16
an application software problem	step 42
an exceeded software resource threshold	step 48
an automated incremental backup failure	step 5

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

At the SDM

5 Using a flathead or a Phillips screwdriver, unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

6

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

7 Ensure that the tape used to store incremental backups is in the tape drive.

If the tape is	Do
present	step 10
not present	step 8

8 Insert the tape used to store incremental backups into the tape drive.

9 Perform the incremental backup manually using the procedure in the SDM Administration Procedures chapter of this manual.

Go to step 52.

10 Physically inspect the tape drive to determine if it is operational.

If the tape drive is	Do
operational	step 13
defective	step 11

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

11 Replace the tape drive using the procedure provided in the SDM Hardware Replacement Procedures chapter of this manual. When you have completed that procedure, return to this point.

WARNING
Potential equipment damage or loss of service
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

12 Perform the incremental backup manually using the procedure in the *SDM system administration procedures* chapter of this document.

Go to step 52.

13 Eject the tape and inspect it for damage.

If the tape is	Do
damaged	step 14
not damaged	step 51

14 Insert a new tape for storing incremental backups.

15 Perform the incremental backup manually using the procedure “Creating SDM software backup tapes - Manual incremental backup (I-tape)” in the SDM Administration Procedures chapter of this manual.

Go to step 52.

At the SDM MAP level

16 Using the connectivity fault information provided in the response to the QUERYPM FLT command, identify the operating company LAN host that is unable to communicate with the SDM. An example appears below.

```
         Connectivity faults
_______________________________________
SDM Maintenance connection has been lost
Host name: router1
Wed Dec 13 00:10:55 1995
```

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

17 Contact your LAN system administrator to determine if the communications problem is external to the SDM; that is, due to other problems on the operating company LAN (for example, the LAN host is out of service).

If the fault is	Do
on the operating company LAN	step 18
not on the operating company LAN	step 19

At the MAP display

18 When your system administrator has cleared the problem on the operating company LAN, determine if the MAP ISTb alarm has cleared.

If the ISTb alarm	Do
cleared	step 52
is still present	step 19

At the SDM

19 Check the external cabling to the Ethernet transition module (NTRX50JW), located at the rear of the SDM.

If the LAN cabling	Do
requires reconnection or repair	step 20
appears to be functional	step 22

20 Reconnect, repair, or replace the cable, as appropriate. If required, contact Nortel for assistance.

At the MAP display

21 Determine if the MAP ISTb alarm has cleared.

If the ISTb alarm	Do
cleared	step 52
is still present	step 22

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

At the local or remote VT100 console

22 Log in to the SDM remote maintenance interface (RMI) using the root user account name and password.

23 Access the SDM commissioning tool by typing

>commission
and pressing the Enter key.

24 View the base commissioning values by typing

>1
and pressing the Enter key.

25 Press the Enter key when prompted to access the operating company LAN parameters.

26 Verify that the commissioned values are correct.

If the commissioned values are	Do
all correct	step 27
not all correct	step 29

27 Return to the main menu of the commissioning tool by typing

>n
and pressing the Enter key.

28 Exit the commissioning tool by pressing the Enter key, then typing

>q
and pressing the Enter key.

Go to step 39.

At the MAP display

29 Busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM  0  ManB
```

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

At the local or remote VT100 console

30 Access the commissioning editor by typing

>y
and pressing the Enter key.

31 Correct the appropriate values as they appear.

Note: The SDM-CM parameters are displayed first, followed by the operating company LAN parameters, which begin after the heading “Telco Lan Configuration”. If you do not wish to change the value of a particular operating parameter, press the Enter key to bypass it and advance to the next parameter.

32 When prompted, verify the changed values.

If the changed values are	Do
all correct	step 34
not all correct	step 33

33 Return to the commissioning editor by typing

>e
and pressing the Enter key.

Go to step 31.

34 Confirm that the current values are correct by typing

>y
and pressing the Enter key.

35 Activate the new commissioning values by typing

>y
and pressing the Enter key.

At the MAP display

36 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Example response:

```
SDM  0  InSv
```

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

37 Determine if the SDM returned to ISTb state.

If the state is	Do
InSv	step 52
ISTb	step 38

38 Check the commissioning information by repeating the previous steps (beginning at step 23). If the ISTb alarm persists, and you have verified that the cause is not a commissioning problem, go to step 39.

At the local or remote VT100 console

39 Test the IP link from the SDM to the node on the operating company LAN by typing

>ping *ipaddress*
and pressing the Enter key.

where

ipaddress is the IP address of the operating company LAN node

If the ping test	Do
passes	step 51
fails	step 40

40 Replace the Ethernet controller card (NTRX50JV), using the hardware replacement procedure for that card in this document, then return to this point.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware replacement procedure.

Clearing MAP alarms triggered by the SDM PM ISTb minor (continued)

At the MAP display

41 Determine if the ISTb alarm cleared.

If the ISTb alarm	Do
cleared	step 52
is still present	step 51

At the local or remote VT100 console

42 Log in to the SDM remote maintenance interface using your maintenance or root user account name and password.

43 If you logged in as root, access the SDM Remote Maintenance menu by typing

>sdmmtce
and pressing the Enter key.

Note: Users with maintenance privileges are automatically logged into this menu.

At the SDM Remote Maintenance menu

44 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

45 Access the SDM Application Software Control menu by typing

>2
and pressing the Enter key.

46 Use the menu to restart the application that has stopped.

If the application	Do
restarts	step 47
does not restart	step 51

At the MAP display

47 Verify that the MAP ISTb alarm has cleared.

Go to step 52.

Clearing MAP alarms triggered by the SDM PM ISTb minor (end)

48 Determine the type of system resource that has exceeded its threshold.

If the system resource that has exceeded the alarm threshold is	Do
swap	step 49
number of processes	step 49
number of swap queue entries	step 49
number of zombies	step 49
filesystem / (% full)	step 50
filesystem /usr (% full)	step 50
filesystem /var (% full)	step 50
filesystem /tmp (% full)	step 50
filesystem /home (% full)	step 50
filesystem /sdm (% full)	step 50

49 The specified software resource has exceeded its alarm threshold. Contact your system administrator to investigate the problem and determine if the problem is serious. If required, contact Nortel for assistance.

Go to step 52.

50 The occupancy level of the specified software directory has exceeded its alarm threshold. Contact your system administrator to assess the current content of the directory and take the appropriate action. If required, contact Nortel for assistance.

Go to step 52.

51 For further assistance, contact the personnel responsible for the next level of support.

52 You have completed this procedure.

Clearing MAP alarms triggered by the SDM PM SysB major (end)

Application

Use this procedure to clear a PM SysB major MAP alarm that has been triggered by the SDM.

Note: The PM alarm SysB is used to report fault conditions on numerous types of DMS peripheral modules (PMs), including the SDM. This procedure assumes that you have isolated the SDM as the cause of the SysB alarm. To clear a SysB alarm generated by another type of PM, use the PM SysB alarm clearing procedure in the generic alarm clearing manual for your DMS switching system.

Meaning

A PM SysB major alarm triggered by the SDM indicates that the SDM is sending system busy status to the computing module (CM) because it is out of service, or the CM has designated the SDM as system busy because it is unable to communicate with the SDM.

Impact

If the SDM is out of service, all SDM applications are unavailable.

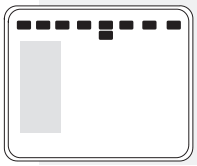
If the CM is unable to communicate with the SDM, the local state and operating condition of the SDM are unknown to the CM. MAP commands requesting state changes to the SDM are not sent to the SDM, and MAP requests for information from the SDM cannot be completed. The SDM remote maintenance interface can be used to change the local state of the SDM, or obtain information about the SDM, when the CM-SDM link is not functioning. When communications are restored, the SDM local state aligns itself to the CM view of its state.

Action

Use the procedure “Clearing MAP alarms triggered by the SDM - PM SDM major” in this document to clear the alarm.

Note: The alarm severity level for SDM system busy (SysB) state is controlled by datafill of field EN0LKALM in table EXNDINV. If datafilled as major (MJ), SysB state is reported as a PM SDM major alarm (Nortel recommends this configuration). If datafilled as minor (MN) or no alarm (NA), SysB state is instead reported as a PM SysB major alarm.

Clearing MAP alarms triggered by the SDM Ext FSP major



CM	MS	IOD	Net	PM	CCS	Lns	Trks	**Ext FSP M**	APPL
.	.	.	.	.	.	.	.		.

Application

Use this procedure to clear an EXT FSP major MAP alarm that has been triggered by the SDM.

Note: The EXT alarm FSP is used to report fault conditions on frame supervisory panels (FSPs) in various types of cabinets in a DMS switching system, including the miscellaneous (MIS) frame which houses the SDM. This procedure assumes that you have isolated the SDM as the cause of the FSP alarm. To clear an FSP alarm generated by another cabinet or frame, or by equipment other than the SDM, use the EXT FSP alarm clearing procedure in the generic alarm clearing manual for your DMS switching system.

Indication

At the MTC level of the MAP display, FSP preceded by a number appears under the Ext header of the alarm banner, and indicates an external frame supervisory panel (FSP) major alarm.

Meaning

An EXT FSP alarm triggered by the SDM means that one of the following faults has occurred:

- Input power to the SDM has failed.
- The SDM has shut down because it has reached its maximum allowable operating temperature threshold.
- The SDM power supply has failed.

Impact

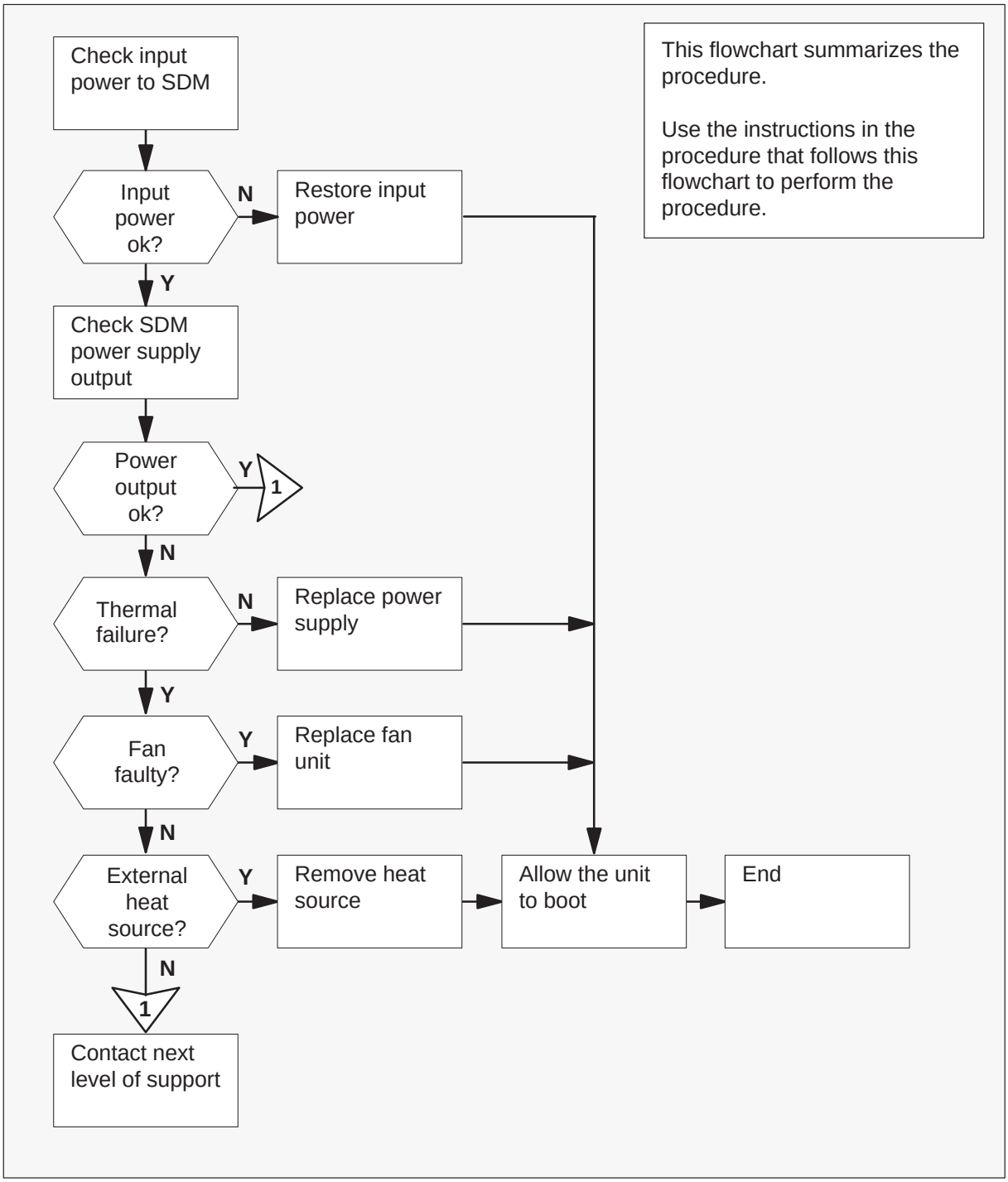
The SDM is out of service and no applications can run.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Clearing MAP alarms triggered by the SDM Ext FSP major (continued)

Summary of Clearing MAP alarms triggered by the SDM—Ext FSP major

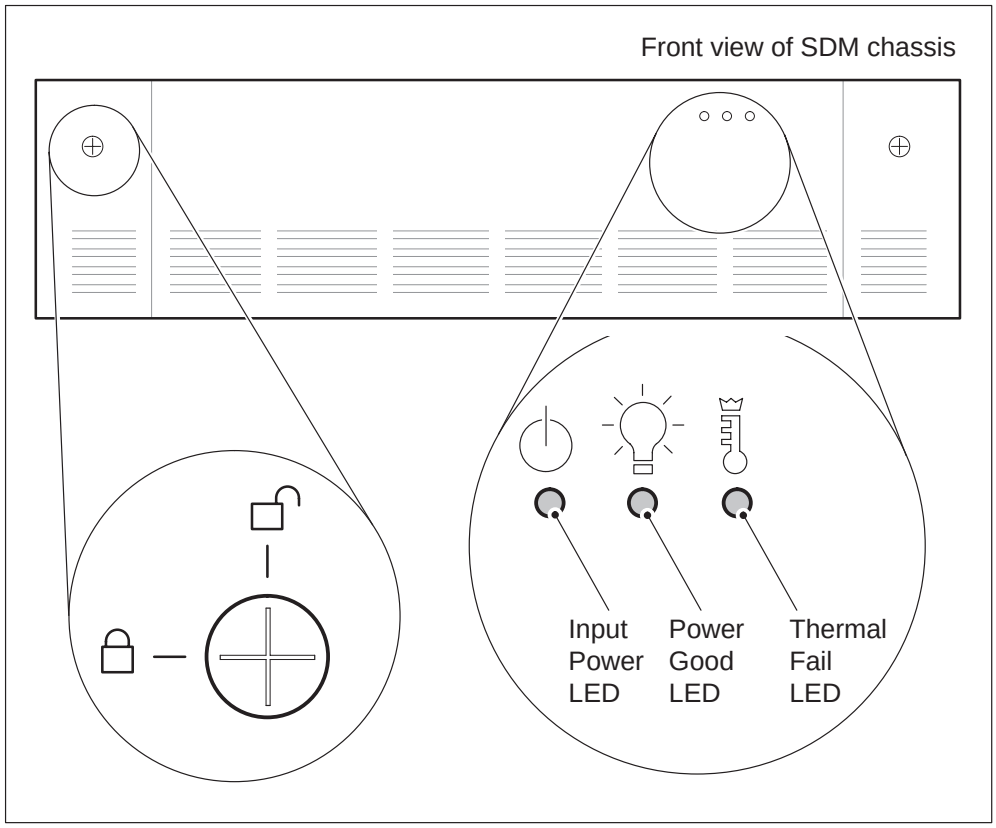


Clearing MAP alarms triggered by the SDM Ext FSP major (continued)

Clearing MAP alarms triggered by the SDM—Ext FSP major

At the front of the SDM

1 Check the input power LED.



If the input power LED is	Do
on (green)	step 3
off	step 2

2 The -48V dc supply to the SDM is faulty. Restore input power to the SDM. Assuming there are no other faults, the SDM will automatically reboot and return to service when input power is restored.

Note: If required, use the procedure to clear an EXT FSP alarm, provided in the generic alarm clearing manual for your switching system, to restore input power.

Go to step 11.

Clearing MAP alarms triggered by the SDM Ext FSP major (continued)

3 Check the SDM power supply output (Power Good) LED.

If the input power LED is on, and the power good LED is	Do
on (green)	step 10
off	step 4

4 Check the thermal fail LED.

If the thermal fail LED is	Do
off	step 5
yellow	step 6

5 Replace the SDM power supply unit (NTRX50JC) using the replacement procedure in this document. Return the SDM to service using the instructions provided in the hardware replacement procedure.

Go to step 11.

6 The SDM has shut down because it has reached its internal temperature threshold. Determine if the problem is due to a faulty fan unit by cycling the power at the FSP breaker which supplies the SDM, and physically inspecting the fan to see if it operates.

If the fan	Do
operates normally	step 7
does not operate	step 9

Clearing MAP alarms triggered by the SDM Ext FSP major (end)

At the FSP

7 Turn the SDM power off at the FSP breaker. Determine if there is an excessive heat source (in excess of 50 degrees Celsius) near the SDM which may have caused the thermal shutdown.

If	Do
an external heat source is present	step 8
the ambient temperature near the SDM appears normal	step 10

8 Remove the heat source. When the ambient temperature has dropped to an acceptable level (below 50 degrees Celsius), restore power to the SDM at the FSP breaker. Assuming there are no other faults on the system, the SDM will automatically reboot, return to service, and clear the SysB alarm.

Go to step 11.

At the FSP

9 Turn the SDM power off at the FSP breaker. Replace the SDM fan unit (NTRX50JD) using the hardware replacement procedure in this document. Return the SDM to service using the instructions provided in the hardware replacement procedure.

Go to step 11.

10 Contact the personnel responsible for the next level of support.

11 You have completed this procedure.

Changing maintenance user passwords

Application

Use this procedure to change the maintenance user password.

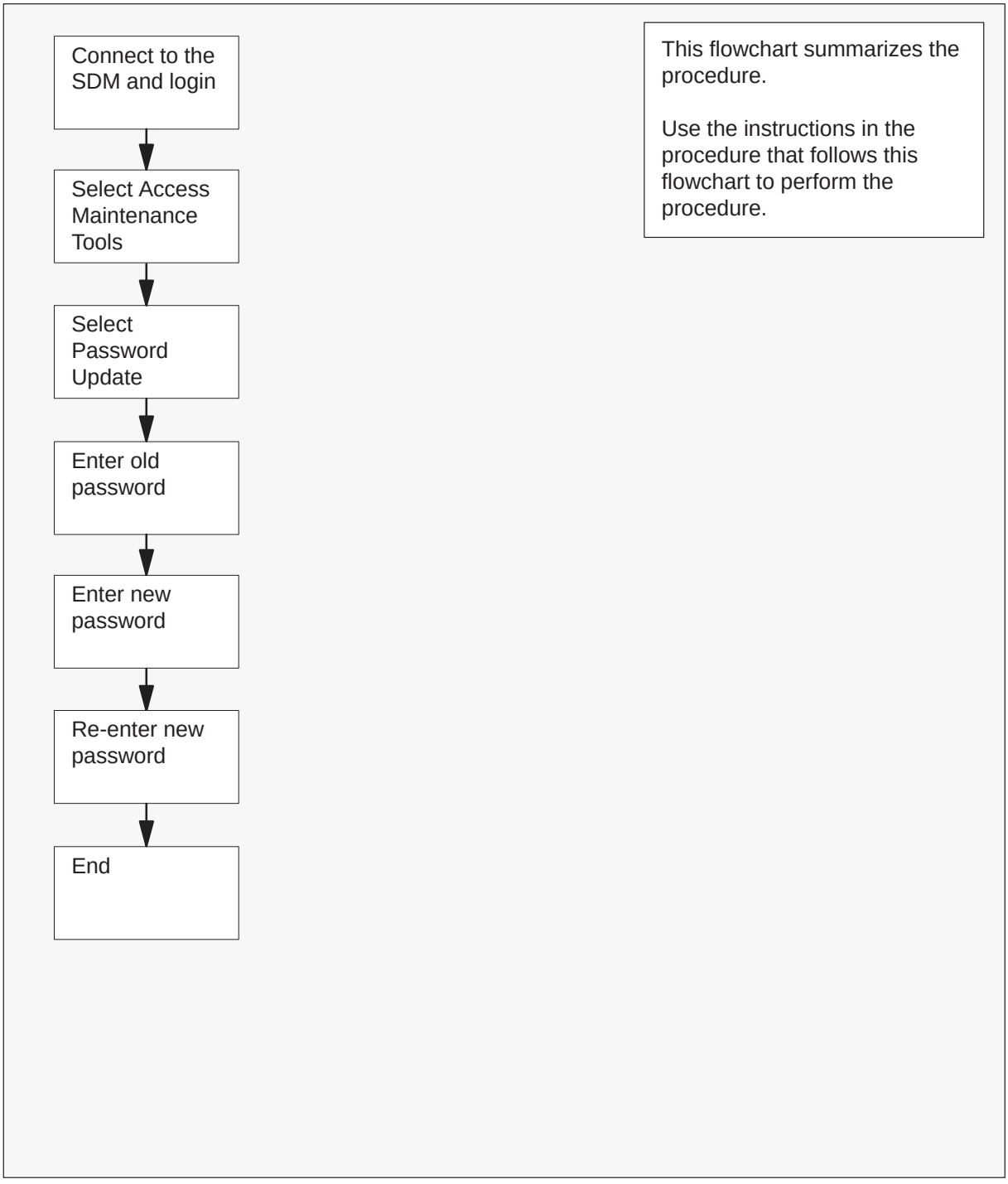
Note: The maintenance (maint) user password can be changed while logged in as the maintenance user, assuming the person attempting the password change knows the current password. The maint user password can also be changed by the root user. The root user can change the password on any account on the system at any time, and does not need to know the current password of the account to make the change.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Changing maintenance user passwords (continued)

Summary of Changing maintenance user passwords



Changing maintenance user passwords

At the local or remote VT100 terminal

1 Log in to the SDM remote maintenance interface (RMI) as the maintenance user using your current account name and password.

Note: This procedure assumes you are logging in as the maintenance user and changing your own password. The procedure for the root user is similar; the system responses vary slightly. The root user must type “sdmmtce” after logging in to access the SDM Remote Maintenance menu.

At the SDM Remote Maintenance menu

2 Select Access Maintenance Tools by typing

>3
and pressing the Enter key.

3 Select Password Update by typing

>1
and pressing the Enter key.

Example Password Update screen:

```
                          SDM Password Update Menu
                          ------------------------

Changing password for “maint”
maint’s Old password:
```

Changing maintenance user passwords (end)

4 Enter the current maintenance user password by typing

>password
and pressing the Enter key.

where

password is your old password

Response:

```
                          SDM Password Update Menu
                          ------------------------

Changing password for “maint”
maint’s Old password:
maint’s New password:
```

5 Enter the new maintenance user password by typing

>password
and pressing the Enter key.

where

password is a minimum six-character string containing at least one alphabetic character and one numeric or special character

Response:

```
                          SDM Password Update Menu
                          ------------------------

Changing password for user1
Old password:
New password:
Re–enter new password:
```

6 Re-enter the new password and press the Enter key to confirm the change.

7 Press any key to return to the Maintenance Tools menu.

8 You have completed this procedure.

Cleaning the SDM DAT drive NTRX50JJ

Application

Use this procedure to clean the digital audio tape (DAT) drive.

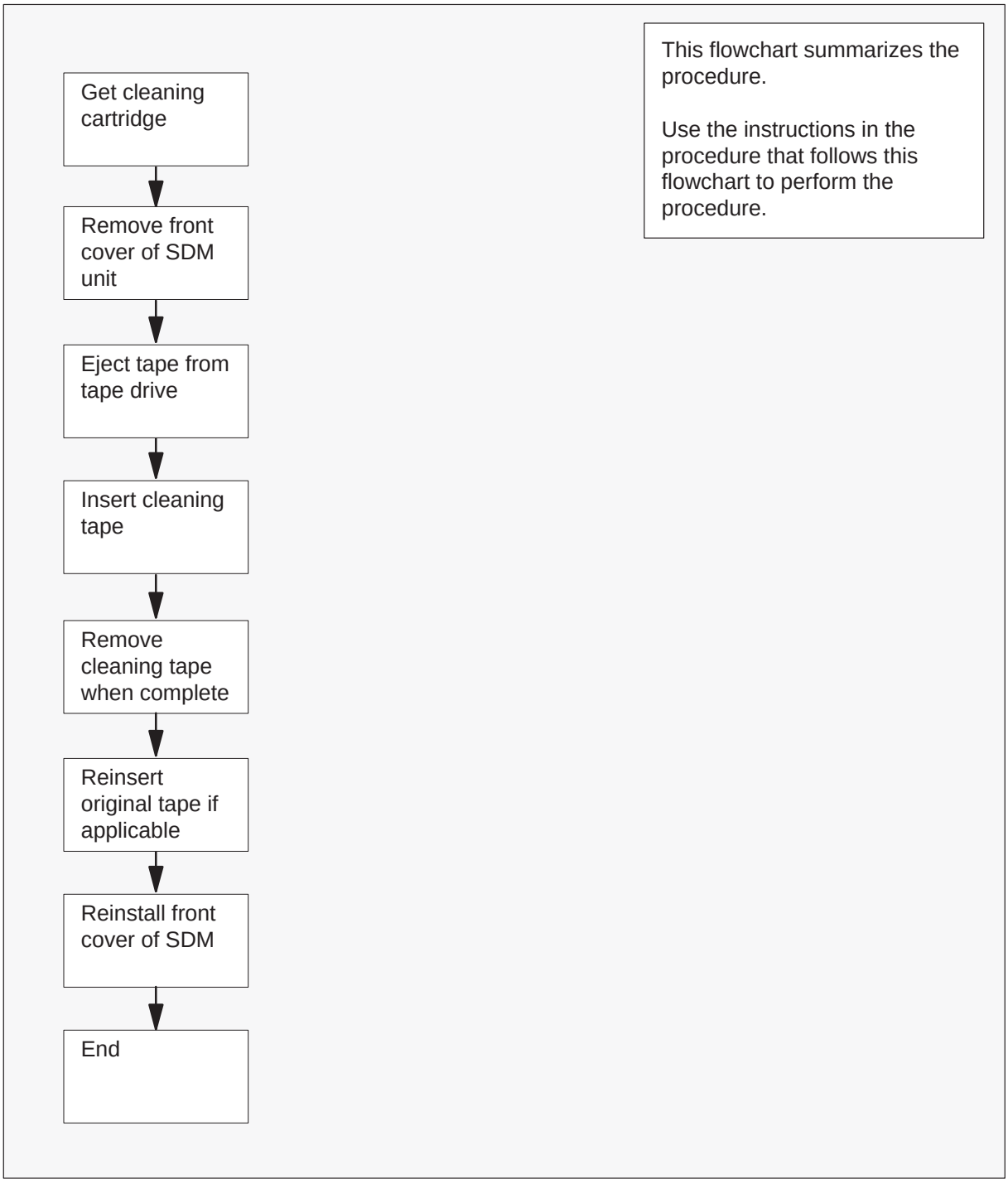
To clean the tape drive, use an appropriate DAT tape drive cleaning cartridge (Hewlett Packard part number 92283K or equivalent). Refer to the documentation that comes with the cleaning cartridge for additional information about its use, and the life expectancy of the cleaning tape.

Action

This procedure contains a summary flowchart as an overview of the procedure. Follow the specific steps to perform this procedure.

Cleaning the SDM DAT drive
NTRX50JJ (continued)

Summary of Cleaning the SDM DAT tape drive



Cleaning the SDM DAT drive NTRX50JJ (end)

Cleaning the SDM DAT tape drive

At the front of the SDM

1 Obtain a replacement cleaning cartridge (Hewlett Packard part number 92283K or equivalent).

2 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

3

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

4 Press the eject button on the DAT drive and remove the tape cartridge, if applicable.

5 Insert the cleaning cartridge into the DAT drive.

Note: Cleaning begins automatically. When cleaning is complete, the cartridge is automatically ejected.

6 Remove the cartridge from the tape drive.

7 If applicable, re-insert the tape removed in step 4.

8 Replace the front bezel.

9 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

10 You have completed this procedure.

Controlling SDM applications

Application

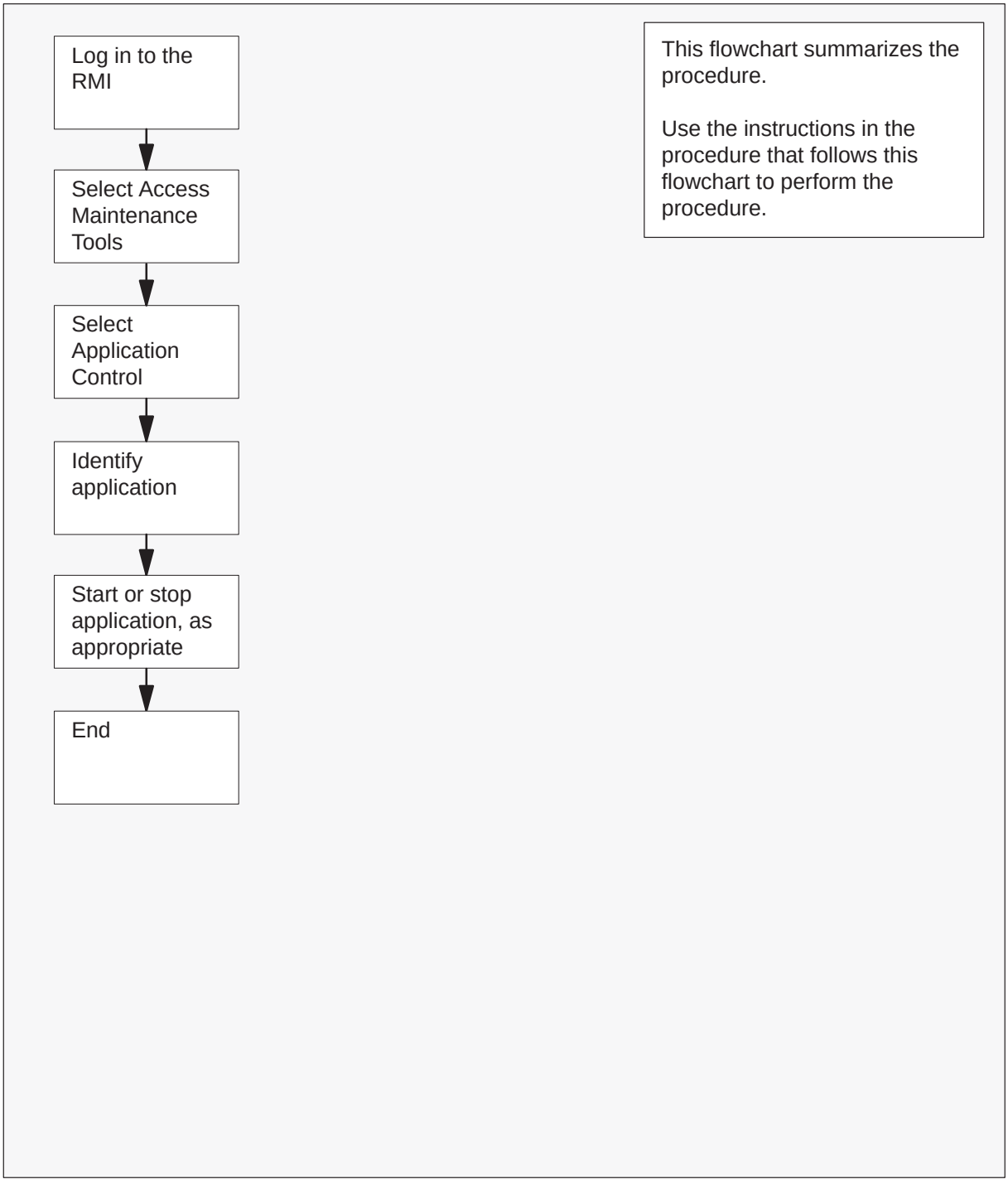
Use this procedure to shut down (manually busy) or restart SDM application software packages. The SDM must be in in-service (InSv), in-service trouble (ISTb), or system busy (SysB) state to perform this procedure.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Controlling SDM applications (continued)

Summary of Controlling SDM applications



Controlling SDM applications (continued)

Controlling SDM applications

At the local or remote VT100 terminal

1 Access the SDM remote maintenance interface (RMI) and log in using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 3
root user	step 2

2 Access the SDM Main Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance menu

3 Determine the SDM node state.

If the SDM node state is	Do
InSv, ISTb, or SysB	step 5
anything else	step 4

4 The SDM must be in InSv, ISTb, or SysB state to busy or restart application software software packages. Use the appropriate SDM-related MAP alarm clearing procedure in this document to return the SDM to service.

Go to step 3.

5 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

6 Access the SDM Application Software Control menu by typing

>2
and pressing the Enter key.

Note: Figure 4-1 on page 4-51 shows an example of the SDM Application Software Control menu.

Controlling SDM applications (continued)

Figure 4-1
SDM Application Software Control menu

```
                    SDM Application Software Control Menu
                    -------------------------------------

Package                                                 Status
=============================================================================
TASL                                                    Running
LM                                                      Running
logs                                                    Stopped
map                                                     Running




=============================================================================

b)usy package, f)orce busy, r)estart package, u)p, d)own
h)elp, p)revious menu, m)ain menu, q)uit

FCC11 ==>
```

7 Highlight the appropriate application software package on the display.

Note: To move one step down through the list of applications, type d and press the Enter key. Type u and press the Enter key to move upwards.

8 Determine the application control activity you wish to perform.

If you want to	Do
restart an SDM application software package	step 9
shut down (manually busy) an SDM application software package	step 11
force an SDM application software package to shut down immediately	step 12

Note: To shut down an SDM application, the manual-busy option should be used in most cases. This option performs an orderly shutdown that can take up to 2 min. In cases where an immediate, abrupt shutdown of the application is warranted, the force busy option can be used.

9 Restart the application software package by typing

>r
and pressing the Enter key.

Note: If the application restarts successfully, the application status changes from Stopped to Running.

Controlling SDM applications (end)

10 Determine if the application restarted successfully.

If the application status is	Do
Stopped	step 13
Running	step 14

11 Manually busy the application software package by typing

>b
and pressing the Enter key.

Go to step 14.

Note: The application status changes from Running to Stopped when the package has been busied. This may take up to 2 min to complete.

12 Force the application software package to shut down (manual busy) immediately by typing

>f
and pressing the Enter key.

Note: The application status changes from Running to Stopped when the package has been busied.

Go to step 14.

13 Contact your next level of support for assistance.

14 You have completed this procedure.

Accessing the MAP from the operating company LAN

Application

Use this procedure to access the MAP display from a UNIX workstation on the operating company LAN, using the SDM MAP Access application. Connectivity to the operating company LAN is optional on the SDM, and requires provisioning of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW).

Note: You must start the MAP Access application from an xterm window. The application does not work in a hpterm window.

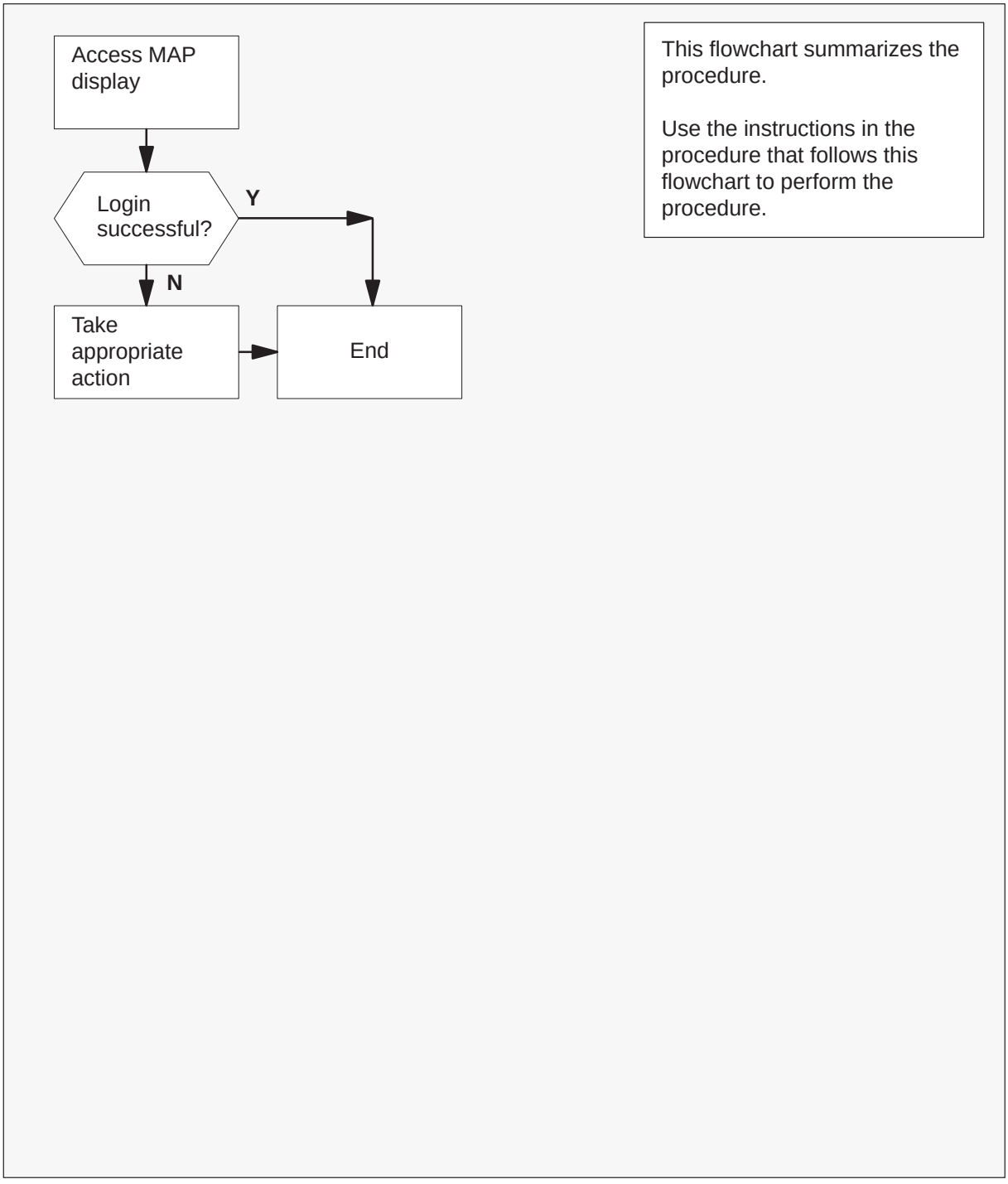
This procedure assumes that the MAP Access client software has been installed on the workstation. If the MAP Access application is not installed on your workstation, have your system administrator perform the procedure *Installing the MAP Access application on workstations* on page 6-48 of this document.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform this procedure.

Accessing the MAP from the operating company LAN (continued)

Summary of Accessing the MAP from the operating company LAN



Accessing the MAP from the operating company LAN (continued)

Accessing the MAP from the operating company LAN

At a remote workstation

1 Create or access an xterm window.

Note: If you are in an hpterm window, type **xterm&** to create an xterm.

In the xterm window

2 Determine the switch you want to access using the MAP display.

If you wish to access the MAP display on	Do
the default switch	step 3
another switch (not the default)	step 4

Note: For additional information on defining the default MAP connection, refer to the procedure *Installing the MAP Access application on workstations* on page 6-48 of this document.

3 Access the MAP display by typing

>map
and pressing the Enter key.

Go to step 5.

4 Access MAP display by typing

>map *destination*
and pressing the Enter key.

where

destination is the IP address of the host SDM, the host name of the SDM, or the alias of the switch CLLI

5 Determine if the MAP login prompt appears.

If the MAP login prompt	Do
appears	step 6
does not appear	step 15

6 Enter your computing module (CM) MAP user identification.

7 Enter your CM MAP password.

Accessing the MAP from the operating company LAN (continued)

8 Determine the system response.

If the response is	Do
the MAPCI prompt	step 16
`MAP Access: Invalid login.`	step 10
`MAP Access: CM login permission denied.`	step 11
`MAP Access: User is already logged into the CM on another device.`	step 12
`MAP Access: A fatal error occurred. The SDM is busy. RTS the SDM and try again.`	step 13
`MAP Access: CM connection failed. There are probably too many MAP Access users.`	step 14
`All available login sessions on the SDM are in use..`	step 14
`MAP Access:  Unknown host.  Check /etc/hosts file on this machine for the machine name passed to MAP Access.`	step 9
anything else	step 15

9 The MAP Access application could not access the destination you specified. The valid destinations that can be accessed from your workstation are specified in the /etc/hosts file on your workstation. Verify the hostname, IP address, or switch name you are attempting to access, or if required, have your system administrator modify your /etc/hosts file. Detailed instructions are provided in the procedure *Installing the MAP Access application on workstations* on page 6-48 of this document.

Go to step 3.

10 Ensure that you are using the correct CM userid and password and try to log in again.

Go to step 3.

11 You do not have permission to access the MAP display.

Go to step 15.

Accessing the MAP from the operating company LAN (end)

12 You can log in to the CM from only one device at a time. Log out from the other device before attempting to log in again.

Go to step 3.

13 The SDM is out of service. Use the appropriate MAP alarm clearing procedure in the Maintenance Procedures chapter of this document to return the SDM to service.

When the SDM is in service, go to step 3.

14 Wait for another user to log off, or close out another login session.

Go to step 3.

15 Contact your SDM system administrator or the personnel responsible for the next level of support.

Note: If you are unable to obtain the MAP login prompt, the client workstation software for MAP Access may not have been set up properly. Have your system administrator check this using the procedure *Installing the MAP Access application on workstations* on page 6-48 of this document.

16 You have completed this procedure.

SDM hardware replacement procedures

Introduction to SDM hardware replacement procedures

This chapter contains SDM hardware replacement procedures. Each procedure contains the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Explanatory and context-setting information

The first page of each procedure contains the following headings:

- Application (why you would perform the procedure)
- Action (how to use the flowchart and step-action instructions)

Summary flowchart

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it. For example, if you see that these instructions involve another office, you will know to advise that office before you begin the step-action instructions.

Step-action instructions

The step-action instructions tell you how to perform the procedure. Normally you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

While following the step-action instructions, you may be sent to other procedures of this book to perform a set of instructions, or to another NTP for a related procedure. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and system information you use or see while performing the procedure. For help on DMS and SDM commands or output, see the "About this document" chapter at the beginning of this document.

NTRX50JC
SDM power supply unit

Application

Use this procedure to replace the power supply unit in an SDM.

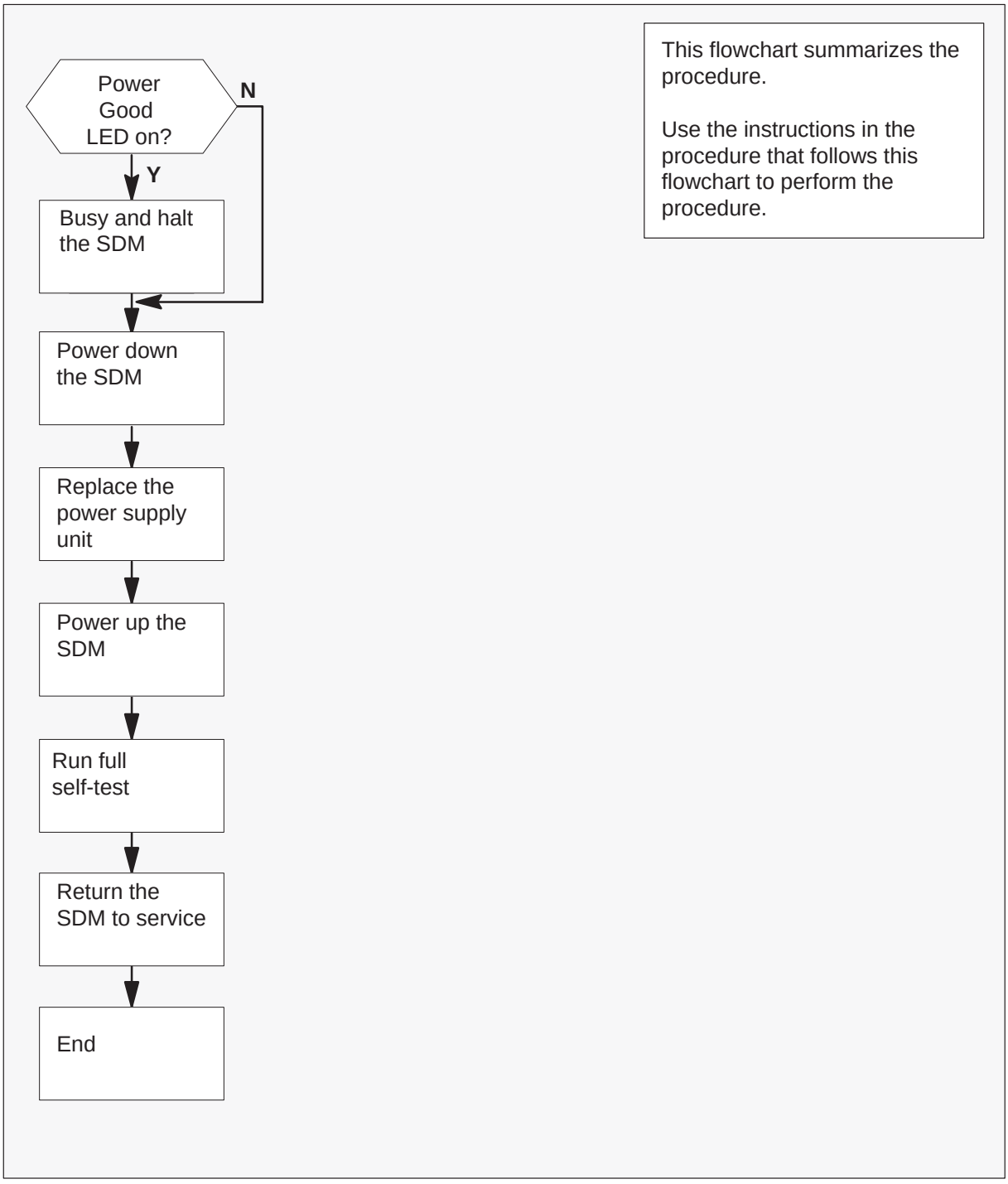
Nortel PEC	Name
NTRX50JC	Power supply unit

Action

The following flowchart is only a summary of the procedure. To replace the power supply unit, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JC
SDM power supply unit (continued)

Summary of Replacing an SDM power supply unit



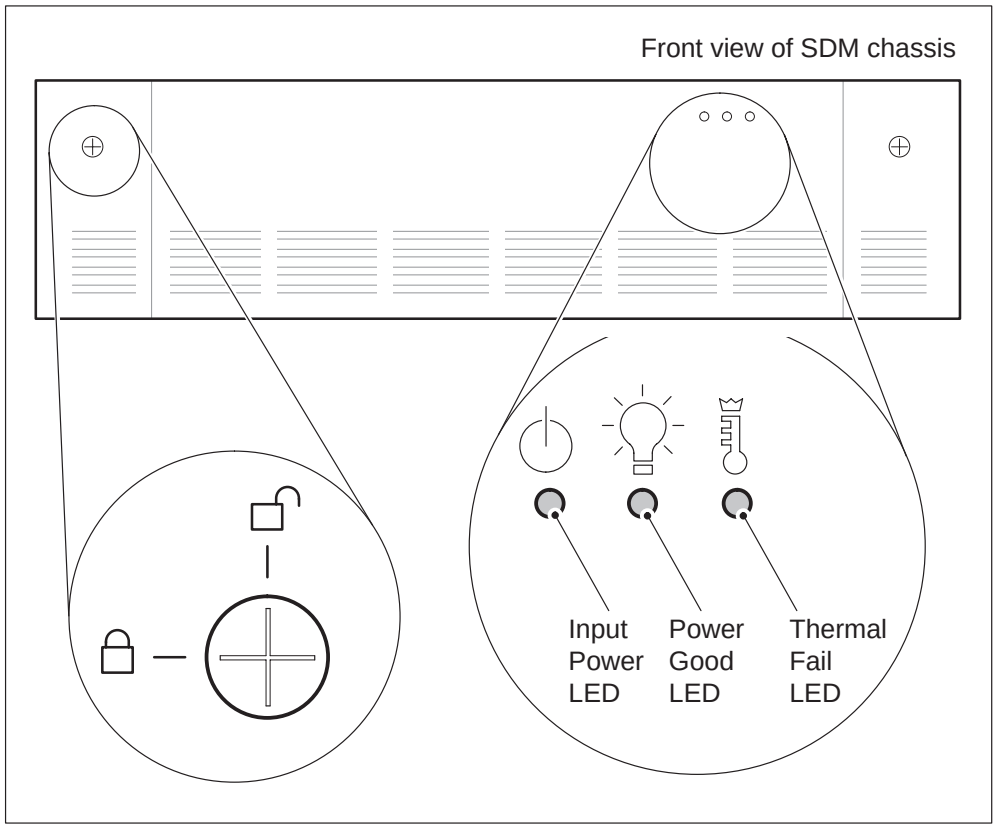
NTRX50JC
SDM power supply unit (continued)

Replacing an SDM power supply unit

1 Obtain a replacement power supply unit (PSU), and a small flathead or a Phillips screwdriver. Ensure that the replacement has the same product engineering code (PEC), including suffix, as the unit being removed.

At the SDM

2 Determine if the Power Good LED is on or off.



If the Power Good LED is	Do
on	step 3
off	step 17

NTRX50JC
SDM power supply unit (continued)

At the MAP display

3 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

4 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

5 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated because it is not communicating with the computing module (CM).

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 10
not present	step 6

NTRX50JC
SDM power supply unit (continued)

6

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

7 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

8 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JC
SDM power supply unit (continued)

9 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 17.

At the local or remote VT100 console

10 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 12
root user	step 11

11 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

12 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JC
SDM power supply unit (continued)

13

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

14 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

15 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

16 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JC
SDM power supply unit (continued)

At the FSP

17

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

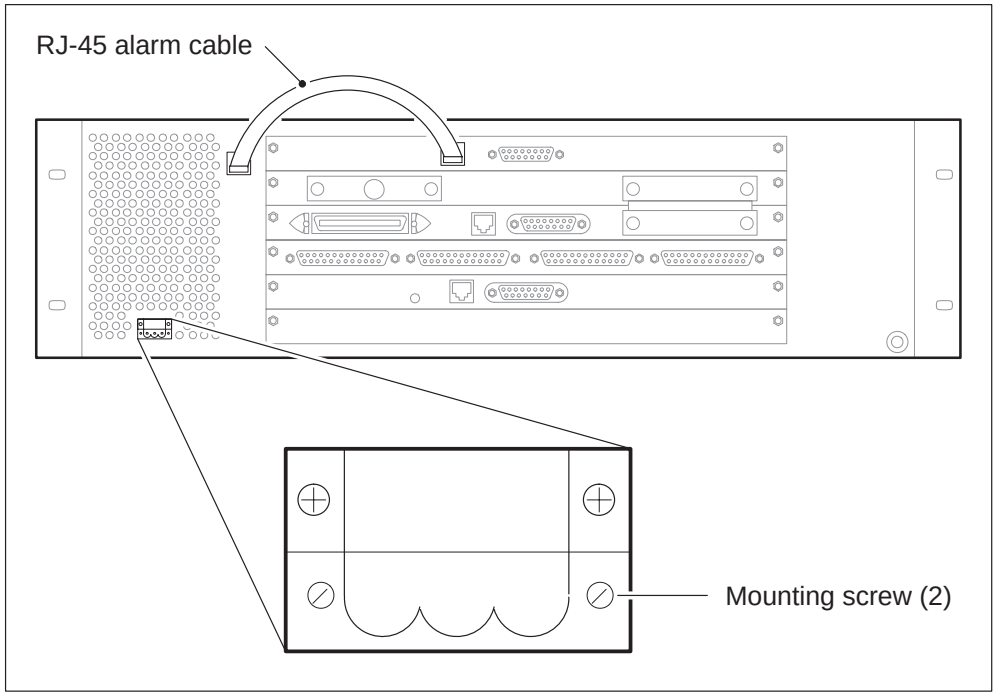
WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

NTRX50JC
SDM power supply unit (continued)

At the rear of the SDM

18 Remove the RJ-45 alarm cable.



19 Use a flathead or a Phillips screwdriver to detach the DC input power connector by removing the two mounting screws.

At the front of the SDM

20 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

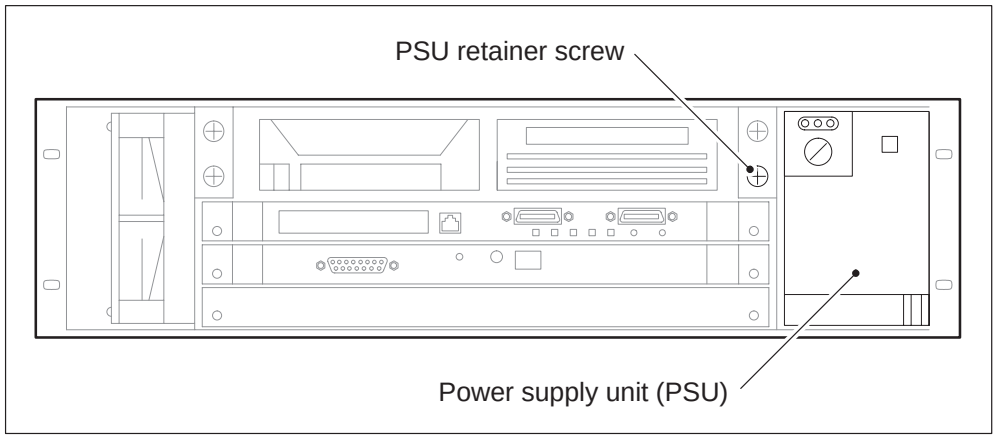
21

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

NTRX50JC
SDM power supply unit (continued)

22 Release the PSU retainer screw and remove the power supply unit. Place the unit in an electrostatic discharge (ESD) protective container.



23 Carefully slide the new power supply unit into its slot until fully inserted into the backplane connector.

24 Tighten the PSU retainer screw.

At the rear of the SDM

25 Attach the RJ-45 alarm cable.

26 Attach the DC input power connector at the SDM chassis and tighten mounting screws.

At the FSP

27 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

28 The SDM will begin to boot automatically. At the “Self-tests/Boots about to begin” prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 30
response is `PPC1-Bug>`	step 29

NTRX50JC
SDM power supply unit (continued)

29 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1–Diag>
```

Go to step 31.

30 Select option 3 - “Go To System Debugger” from the selection menu and press the Enter key.

Response:

```
PPC1–Diag>
```

31 Run self-tests at the PPC-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 43
all tests passed or bypass	step 32

32 Access the selection menu by typing

>menu
and pressing the Enter key.

33 Select option 1 - “Continue System Start Up” and press the Enter key.

34 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 36
does not boot successfully	step 35

NTRX50JC
SDM power supply unit (continued)

At the FSP

35 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 36
does not boot successfully	step 43

At the front of the SDM

36 Replace the front bezel.

37 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

38 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

At the MAP display

39 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

40 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

NTRX50JC
SDM power supply unit (end)

41 Check the SDM node state.

If the node state is	Do
InSv	step 44
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 42

42 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 44
did not return to service	see PM SDM Minor alarm clearing procedure in this document

43 For further assistance, contact the personnel responsible for the next level of support.

44 You have completed this procedure.

NTRX50JD
SDM fan unit

Application

Use this procedure to replace the fan unit in an SDM.

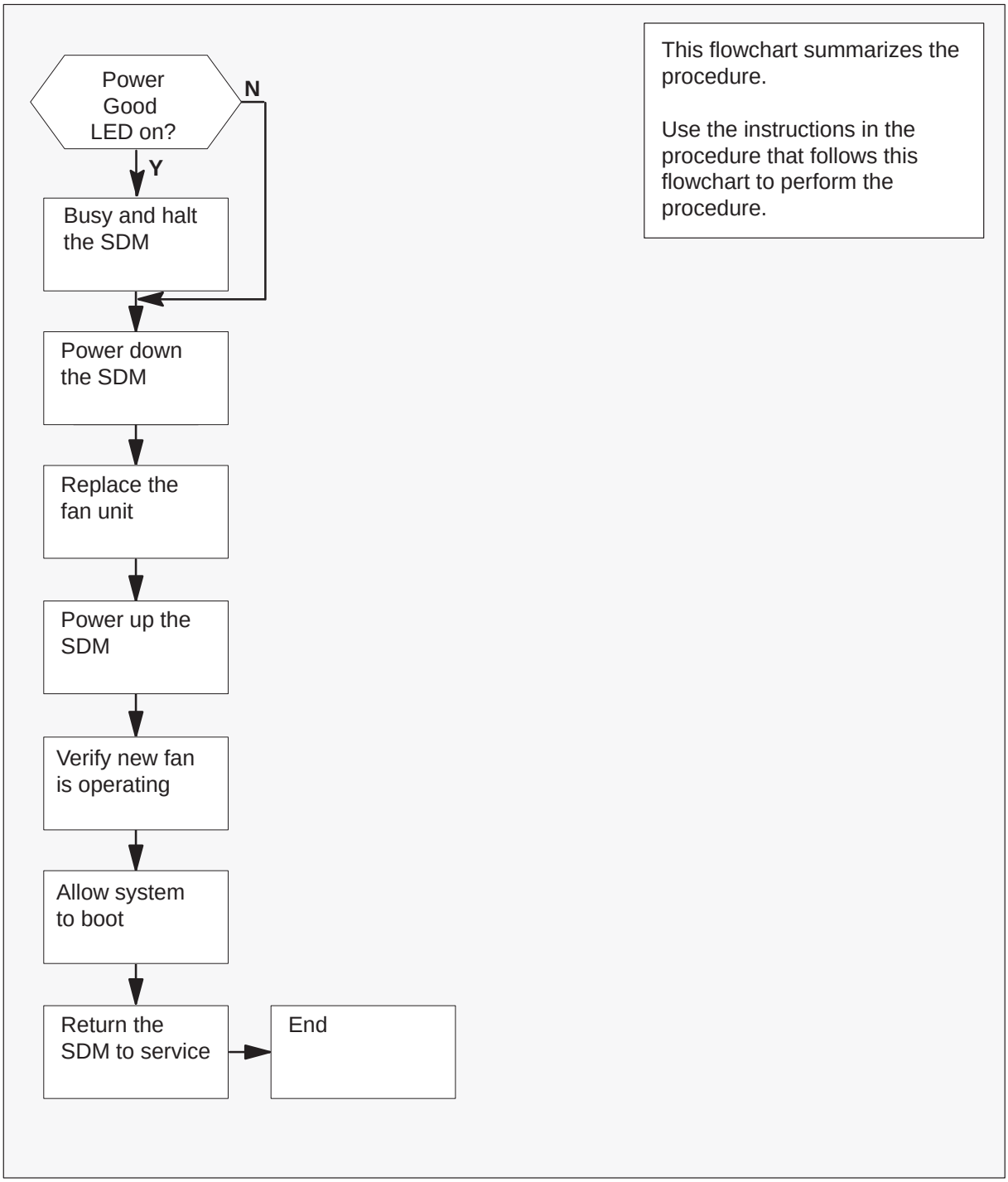
Nortel PEC	Name
NTRX50JD	Fan unit

Action

The following flowchart is only a summary of the procedure. To replace the fan unit, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JD
SDM fan unit (continued)

Summary of Replacing an SDM fan unit



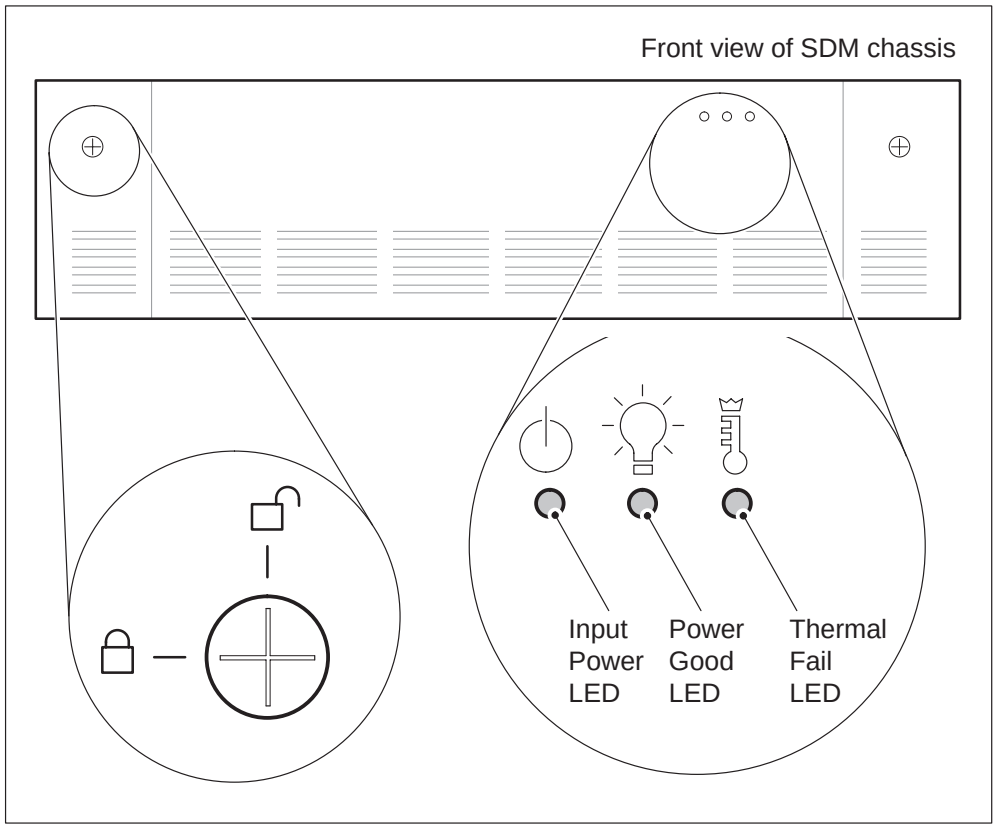
NTRX50JD
SDM fan unit (continued)

Replacing an SDM fan unit

1 Obtain a replacement fan unit, and a small flathead or a Phillips screwdriver. Ensure that the replacement has the same product engineering code (PEC), including suffix, as the unit being removed.

At the SDM

2 Determine if the Power Good LED is on or off.



If the Power Good LED is	Do
on	step 3
off	step 17

NTRX50JD
SDM fan unit (continued)

At the MAP display

3 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

4 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

5 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 10
not present	step 6

NTRX50JD
SDM fan unit (continued)

6

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

7 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

8 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

9 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 17.

At the local or remote VT100 console

10 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 12
root user	step 11

11 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

12 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JD
SDM fan unit (continued)

13

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

14 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

15 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

16 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JD
SDM fan unit (continued)

At the FSP

17

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

Power down the SDM at the FSP breaker.

At the front of the SDM

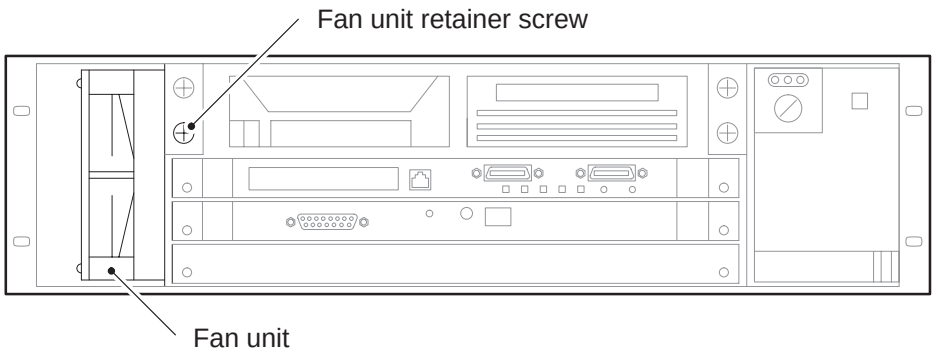
18 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

19

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

20 Release the fan unit retainer screw and gently unplug the fan unit. Place the unit in an electrostatic discharge (ESD) protective container.



21 Slide the new fan unit into its slot until fully inserted into the backplane connector.

NTRX50JD
SDM fan unit (continued)

22 Tighten the fan unit retainer screw.

At the FSP

23 Power up the SDM at the FSP breaker. Physically verify that the fan unit is now operating.

At the local or remote VT100 console

24 Allow the SDM to boot completely.

At the front of the SDM

25 Replace the front bezel.

26 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

27 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

At the MAP display

28 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

29 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

30 Check the SDM node state.

If the node state is	Do
InSv	step 33
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 31

31 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 33
did not return to service	step 32

32 For further assistance, contact the personnel responsible for the next level of support.

33 You have completed this procedure.

NTRX50JE
SDM alarm interface transition card

Application

Use this procedure to replace the alarm interface transition card in an SDM.

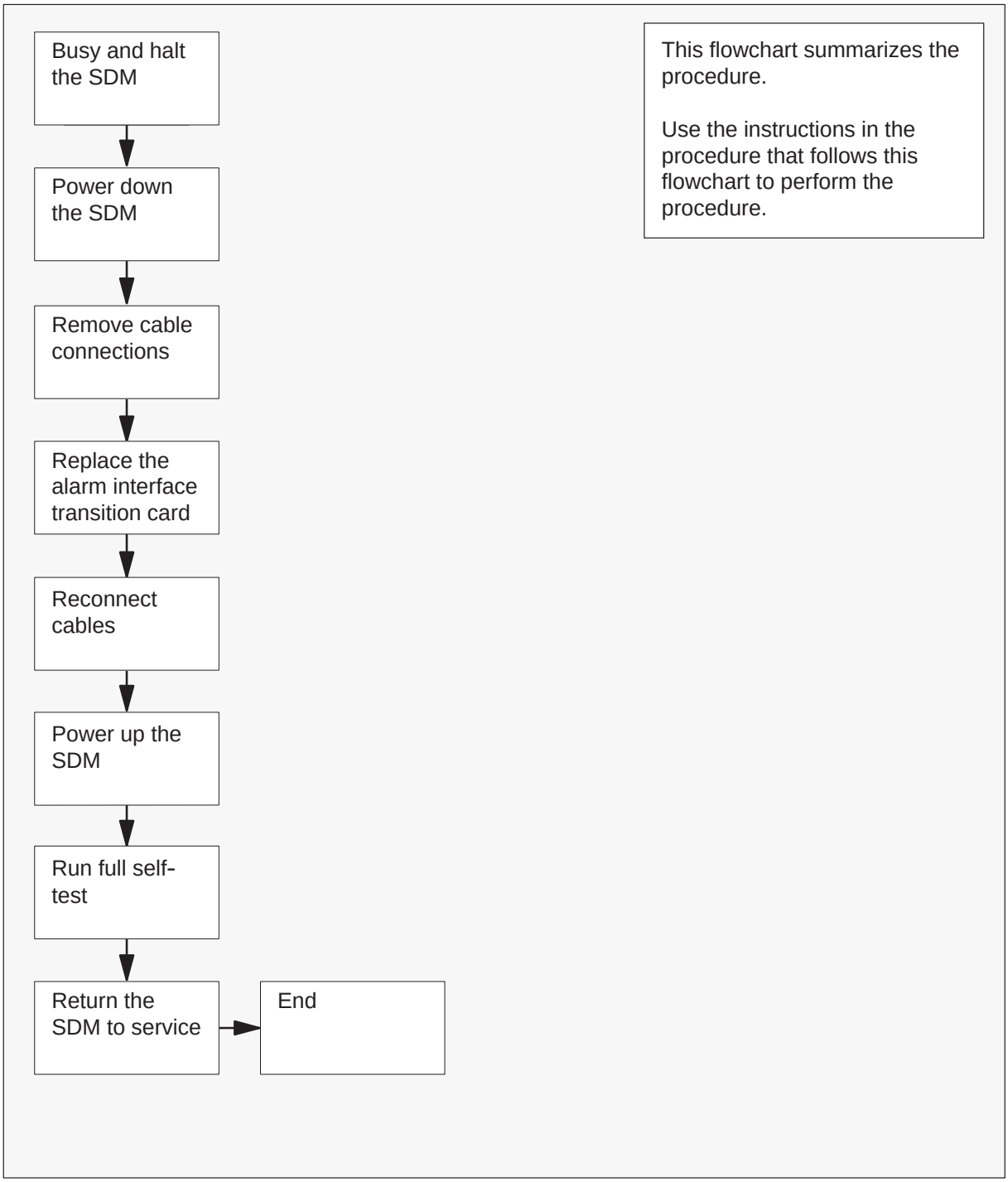
Nortel PEC	Name
NTRX50JE	Alarm interface transition card

Action

The following flowchart is only a summary of the procedure. To replace the alarm interface transition card, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JE
SDM alarm interface transition card (continued)

Summary of Replacing an SDM alarm interface transition card



NTRX50JE
SDM alarm interface transition card (continued)

Replacing an SDM alarm interface transition card

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JE
SDM alarm interface transition card (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JE
SDM alarm interface transition card (continued)

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 16.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 11
root user	step 10

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JE
SDM alarm interface transition card (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JE
SDM alarm interface transition card (continued)

At the FSP

16

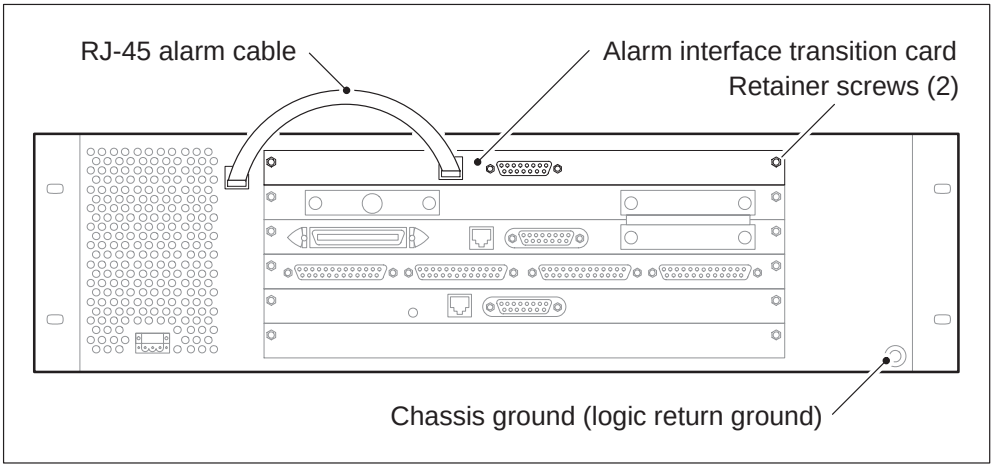
WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the rear of the SDM

17 Remove and label all cables connected to the alarm interface transition card.



18 Release the alarm interface transition card retainer screws.

NTRX50JE
SDM alarm interface transition card (continued)

19 Gently slide out the card from the SDM chassis tray.

20 Ensure the location of each jumper on the replacement alarm interface transition card matches that of the faulty card.

21 Place the card you have removed in an electrostatic discharge (ESD) protective container.

22 Insert the replacement card into its transition slot.

23 Gently slide the card until fully inserted into the backplane connector.

24 Tighten the alarm interface transition card retainer screws.

25 Reconnect all cables to the alarm interface transition card.

At the FSP

26 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

27 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 29
response is `PPC1-Bug>`	step 28

28 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 30.

29 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

NTRX50JE
SDM alarm interface transition card (continued)

30 Run self-tests at the PPC-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 40
all tests passed or bypass	step 31

31 Access the selection menu by typing

>menu
and pressing the Enter key.

32 Select option 1 - “Continue System Start Up” from the selection menu and press the Enter key.

33 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 35
does not boot successfully	step 34

At the FSP

34 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 35
does not boot successfully	step 40

NTRX50JE
SDM alarm interface transition card (continued)

At the MAP display

35 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

36 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

37 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

38 Check the SDM node state.

If the node state is	Do
InSv	step 41
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 39

39 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 41
did not return to service	see PM SDM Minor alarm clearing procedure in this document

NTRX50JE
SDM alarm interface transition card (end)

40 For further assistance, contact the personnel responsible for the next level of support.

41 You have completed this procedure.

NTRX50JF
SDM SCSI transition card

Application

Use this procedure to replace the SCSI transition card in an SDM.

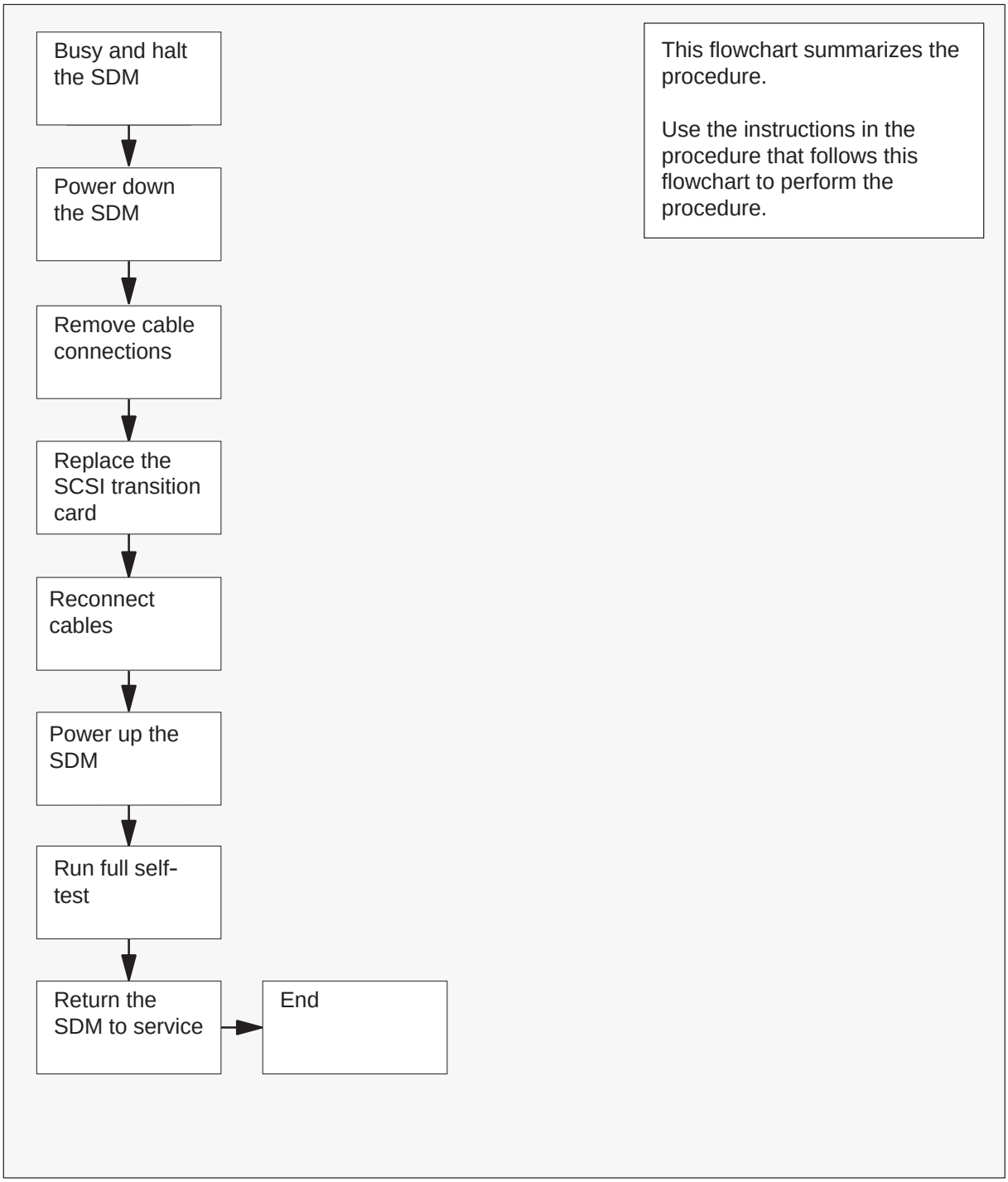
Nortel PEC	Name
NTRX50JF	SCSI transition card

Action

The following flowchart is only a summary of the procedure. To replace the SCSI transition card, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JF
SDM SCSI transition card (continued)

Summary of Replacing an SDM SCSI transition card



NTRX50JF
SDM SCSI transition card (continued)

Replacing an SDM SCSI transition card

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JF
SDM SCSI transition card (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JF
SDM SCSI transition card (continued)

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 16.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 11
root user	step 10

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JF
SDM SCSI transition card (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JF
SDM SCSI transition card (continued)

At the FSP

16

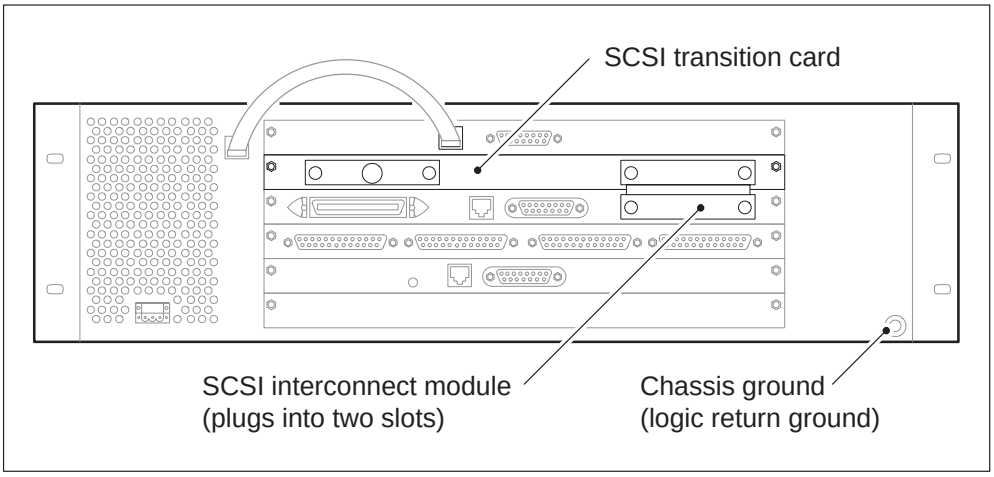
WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the rear of the SDM

17 Remove all cables and the SCSI interface module which is connected to the SCSI transition card (slot SA).



18 Release the SCSI transition card retainer screws.

NTRX50JF
SDM SCSI transition card (continued)

19 Gently slide out the card from the SDM chassis tray. Place the card in an electrostatic discharge (ESD) protective container.

20 Insert the replacement card into its transition slot.

21 Gently slide the card until fully inserted into the backbone connector.

22 Tighten the SCSI transition card retainer screws.

23 Reconnect all cables and the SCSI interconnect module to the SCSI transition card.

At the FSP

24 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

25 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 27
response is `PPC1-Bug>`	step 26

26 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 28.

27 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

NTRX50JF
SDM SCSI transition card (continued)

28 To verify the integrity of the SCSI bus, list the recognized devices by typing

>IOI

and pressing the Enter key.

Example response:

```
I/O Inquiry Status:
CLUN  DLUN CNTRL-TYPE  DADDR  DTYPE  RM  Inquiry-Data
   0     0 NCR53C810   0      $00    N   SEAGATE  ST11200N  ST31230  0456
   0    40 NCR53C810   4      $01    Y   ARCHIVE  Python  28388-XXX 5.28
   1     0 PC8477      0      $00    Y   <None>
```

Note: In the example response above, the recognized devices are the SEAGATE disk drive and the ARCHIVE DAT drive.

If the devices are	Do
recognized	step 31
not recognized	step 29
not recognized, and you have already repeated the IOI test	step 40

At the FSP

29 Power down the SDM at the FSP breaker.

30 Ensure that the new card is seated properly and the cabling is connected correctly.

Go to step 24.

31 Access the selection menu by typing

>menu

and pressing the Enter key.

32 Select option 1 - “Continue System Start Up” - from the selection menu and press the Enter key.

33 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 35
does not boot successfully	step 34

NTRX50JF
SDM SCSI transition card (continued)

At the FSP

34 Cycle the SDM power to repeat the autoboot. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 35
does not boot successfully	step 40

At the MAP display

35 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

36 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

37 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

38 Check the SDM node state.

If the node state is	Do
InSv	step 41
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 39

NTRX50JF
SDM SCSI transition card (end)

39 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 41
did not return to service	see PM SDM Minor alarm clearing procedure in this document

40 For further assistance, contact the personnel responsible for the next level of support.

41 You have completed this procedure.

NTRX50JG
SDM processor transition card 1

Application

Use this procedure to replace processor transition card 1 in an SDM.

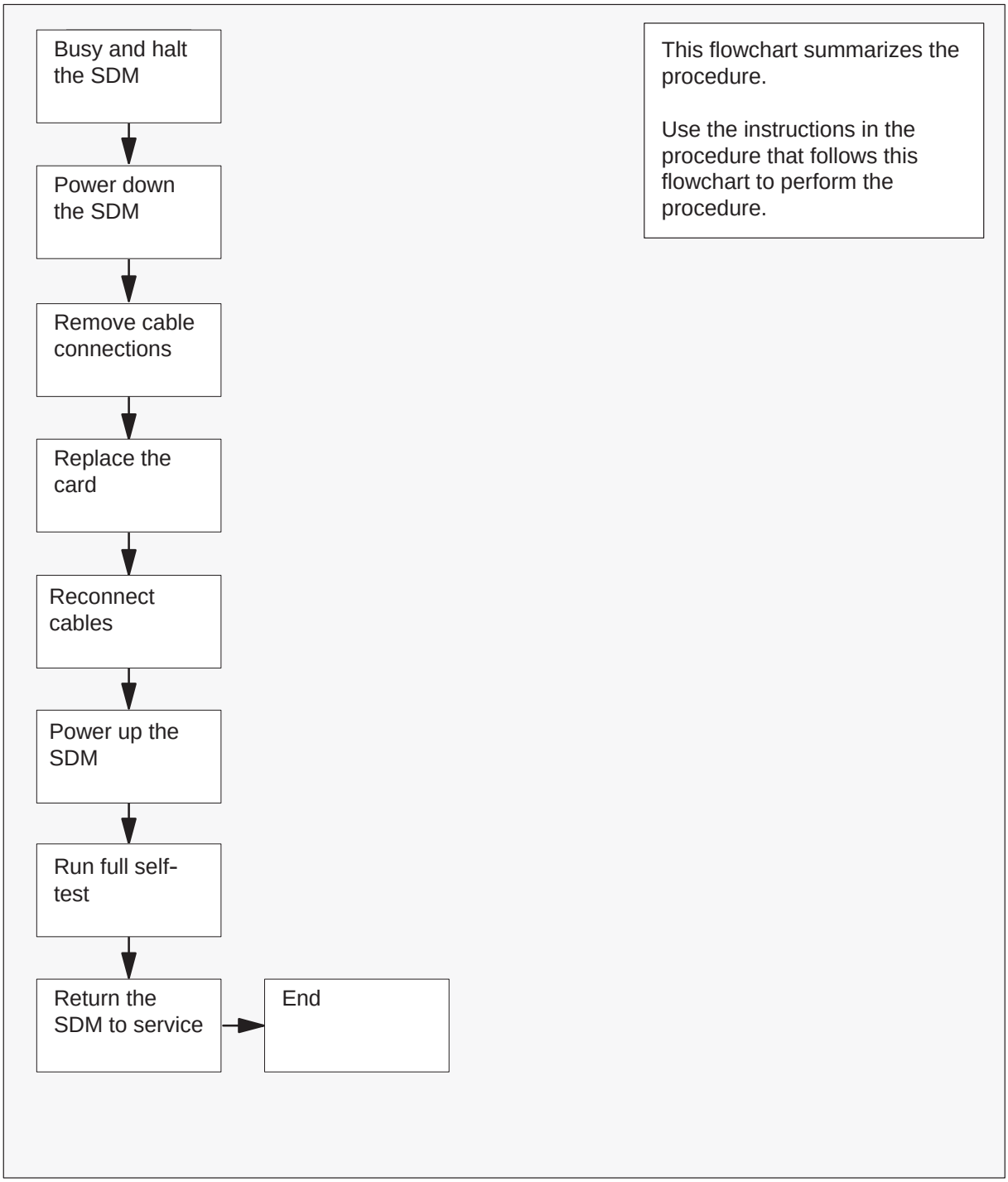
Nortel PEC	Name
NTRX50JG	Processor transition card 1

Action

The following flowchart is only a summary of the procedure. To replace processor transition card 1, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JG
SDM processor transition card 1 (continued)

Summary of Replacing SDM processor transition card 1



NTRX50JG
SDM processor transition card 1 (continued)

Replacing SDM processor transition card 1

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JG
SDM processor transition card 1 (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JG
SDM processor transition card 1 (continued)

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 17.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you	Do
can log in	step 10
cannot log in	step 17

10 Proceed according to how you logged in.

If you logged in as	Do
a maintenance user	step 12
root user	step 11

11 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

NTRX50JG
SDM processor transition card 1 (continued)

At the SDM Remote Maintenance Menu

12 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

13

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4
and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

14 Confirm that you want to manually busy the SDM by typing

>y
and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

15 Halt the SDM by typing

>6
and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

NTRX50JG
SDM processor transition card 1 (continued)

16 Confirm that you want to stop the unit by typing

>y
and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

At the FSP

17

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

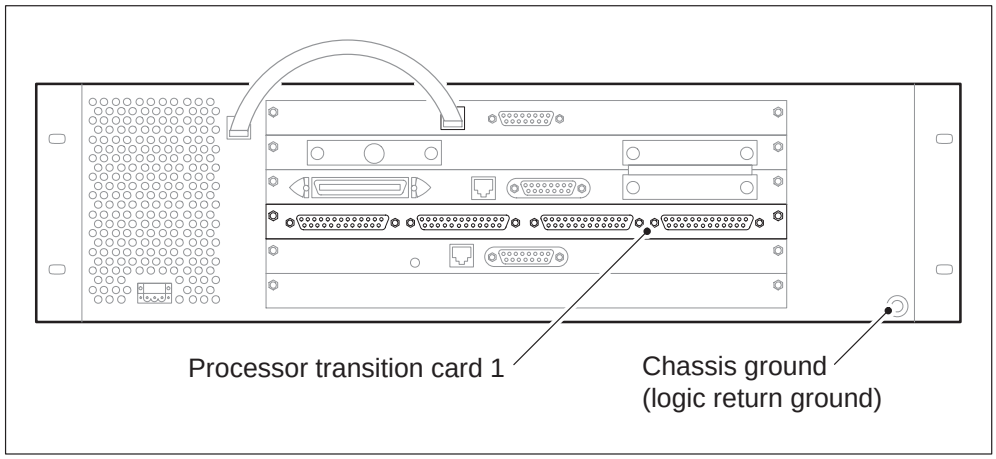
WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

NTRX50JG
SDM processor transition card 1 (continued)

At the rear of the SDM

18 Remove all cables connected to processor transition card 1 (slot S1).



19 Release the processor transition card 1 retainer screws.

20 Gently slide out the card from the SDM chassis tray.

21 Ensure the location of each jumper on the replacement processor transition card 1 matches that of the faulty card.

22 Place the card you have removed in an electrostatic discharge (ESD) protective container.

23 Insert the replacement card into its transition slot.

24 Gently slide the card until it is fully inserted into the backplane connector.

25 Tighten the processor transition card 1 retainer screws.

26 Reconnect all cables to processor transition card 1.

At the FSP

27 Power up the SDM at the FSP breaker.

NTRX50JG
SDM processor transition card 1 (continued)

At the local or remote VT100 console

28 The SDM will begin to boot automatically. At the “Self-tests/Boots about to begin” prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 30
response is `PPC1-Bug>`	step 29

29 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 31.

30 Select option 3 - “Go To System Debugger” from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

31 Run self-tests at the PPC1-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 41
all tests passed or bypass	step 32

32 Access the selection menu by typing

>menu
and pressing the Enter key.

33 Select “Continue System Start Up” from the selection menu and press the Enter key.

NTRX50JG
SDM processor transition card 1 (continued)

34 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 36
does not boot successfully	step 35

At the FSP

35 Cycle the SDM power to repeat the autoboot. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 36
does not boot successfully	step 41

At the MAP display

36 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

37 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

38 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

NTRX50JG
SDM processor transition card 1 (end)

39 Check the SDM node state.

If the node state is	Do
InSv	step 42
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 40

40 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 42
did not return to service	see PM SDM Minor alarm clearing procedure in this document

41 For further assistance, contact the personnel responsible for the next level of support.

42 You have completed this procedure.

NTRX50JH
SDM processor transition card 2

Application

Use this procedure to replace processor transition card 2 in an SDM.

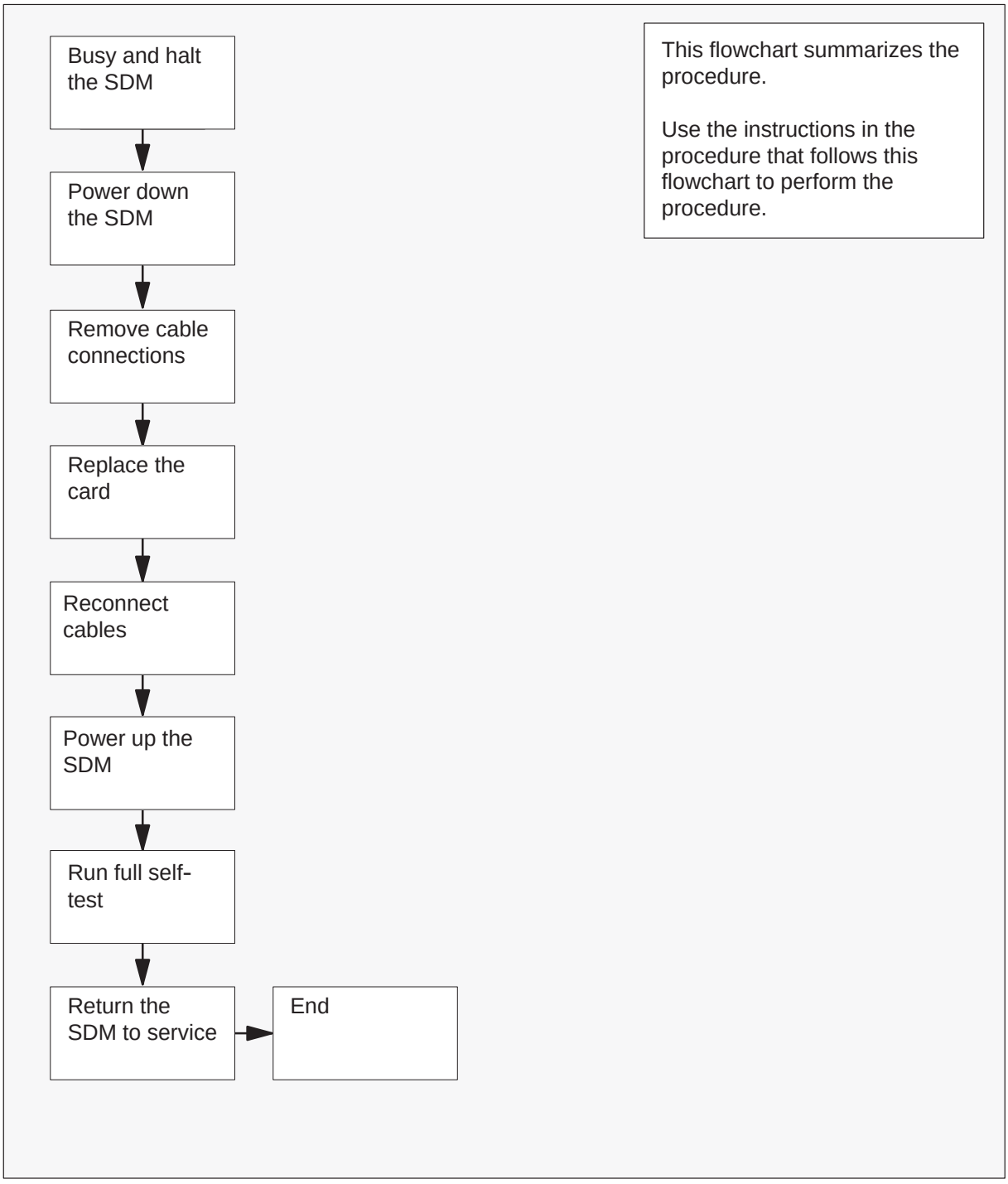
Nortel PEC	Name
NTRX50JH	Processor transition card 2

Action

The following flowchart is only a summary of the procedure. To replace processor transition card 2, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JH
SDM processor transition card 2 (continued)

Summary of Replacing SDM processor transition card 2



NTRX50JH
SDM processor transition card 2 (continued)

Replacing SDM processor transition card 2

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JH
SDM processor transition card 2 (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JH
SDM processor transition card 2 (continued)

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 16.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 11
root user	step 10

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JH
SDM processor transition card 2 (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JH
SDM processor transition card 2 (continued)

At the FSP

16

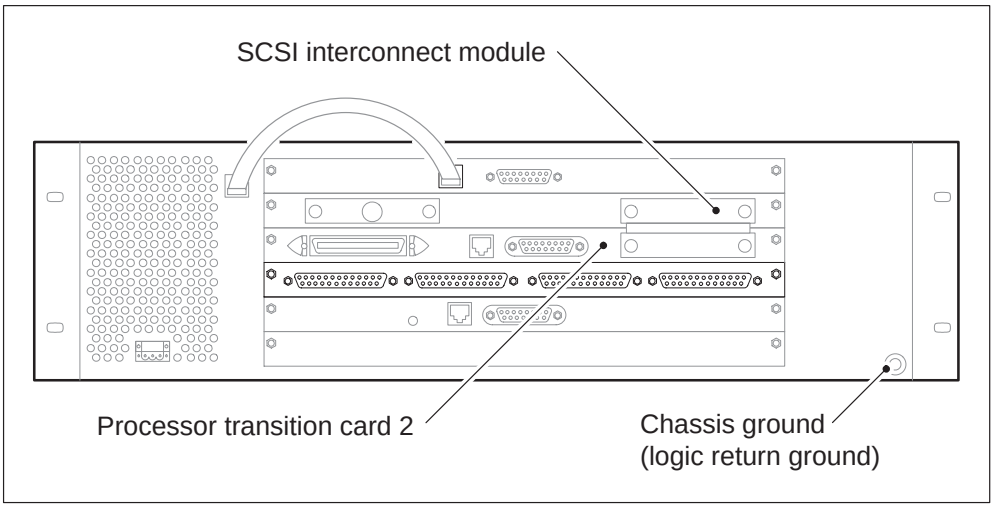
WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the rear of the SDM

17 Remove all cables and the SCSI interconnect module connected to processor transition card 2 (slot S0).



18 Release the processor transition card 2 retainer screws.

NTRX50JH
SDM processor transition card 2 (continued)

19 Gently slide out the card from the SDM chassis tray.

20 Ensure the location of each jumper on the replacement processor transition card 2 matches that of the faulty card.

21 Place the card you have removed in an electrostatic discharge (ESD) protective container.

22 Insert the replacement card into its transition slot.

23 Gently slide the card until fully inserted into the backplane connector.

24 Tighten the processor transition card 2 retainer screws.

25 Reconnect all cables and the SCSI interconnect module to processor transition card 2.

At the FSP

26 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

27 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 29
response is `PPC1-Bug>`	step 28

28 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 30.

NTRX50JH
SDM processor transition card 2 (continued)

29 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Example response:

```
PPC1-Diag>
```

30 To verify the integrity of the SCSI bus, list the recognized devices by typing

>IOI

and pressing the Enter key.

Example response:

```
I/O Inquiry Status:
CLUN  DLUN CNTRL-TYPE  DADDR  DTYPE  RM  Inquiry-Data
   0     0 NCR53C810   0      $00    N   SEAGATE  ST11200N  ST31230  0456
   0    40 NCR53C810   4      $01    Y   ARCHIVE  Python  28388-XXX 5.28
   1     0 PC8477      0      $00    Y   <None>
```

Note: In the example response above, SCSI bus integrity is indicated when you see SEAGATE and ARCHIVE Python.

If the devices are	Do
recognized	step 33
not recognized	step 31
not recognized, and you have already repeated the IOI test	step 43

NTRX50JH
SDM processor transition card 2 (continued)

At the FSP

31 Power down the SDM at the FSP breaker.

32 Ensure that the new card is seated properly and the cabling is connected correctly.

Go to step 26.

33 Run self-tests at the PPC1-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 43
all tests passed or bypass	step 34

34 Access the selection menu by typing

>menu
and pressing the Enter key.

35 Select “Continue System Start Up” from the selection menu and press the Enter key.

36 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 38
does not boot successfully	step 37

At the FSP

37 Cycle the SDM power to repeat the autoboot. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 38
does not boot successfully	step 43

NTRX50JH
SDM processor transition card 2 (continued)

At the MAP display

38 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

39 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

40 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

41 Check the SDM node state.

If the node state is	Do
InSv	step 44
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 42

42 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 44
did not return to service	see PM SDM Minor alarm clearing procedure in this document

NTRX50JH
SDM processor transition card 2 (end)

43 For further assistance, contact the personnel responsible for the next level of support.

44 You have completed this procedure.

NTRX50JJ
SDM DAT drive

Application

Use this procedure to replace the digital audio tape (DAT) drive in an SDM.

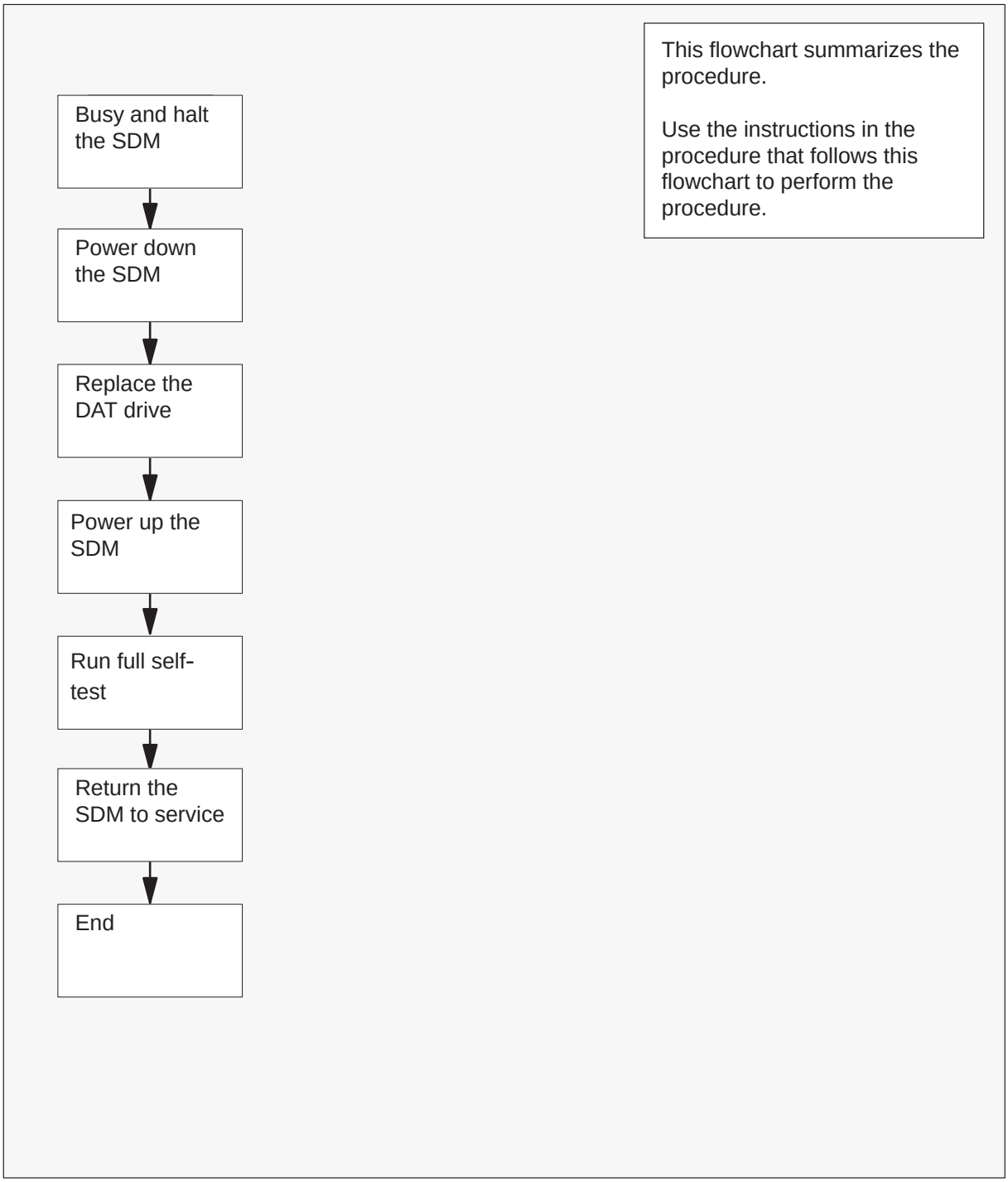
Nortel PEC	Name
NTRX50JJ	DAT drive

Action

The following flowchart is only a summary of the procedure. To replace the DAT drive, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JJ
SDM DAT drive (continued)

Summary of Replacing an SDM DAT drive



NTRX50JJ
SDM DAT drive (continued)

Replacing an SDM DAT drive

1 Obtain a replacement DAT drive, and a small flathead or a Phillips screwdriver. Ensure that the replacement has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JJ
SDM DAT drive (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 18.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 11
root user	step 10

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JJ
SDM DAT drive (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JJ
SDM DAT drive (continued)

At the front of the SDM

16 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

17

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

18 Press the eject button on the DAT drive to ensure the unit is empty before powering down the SDM.

At the FSP

19

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

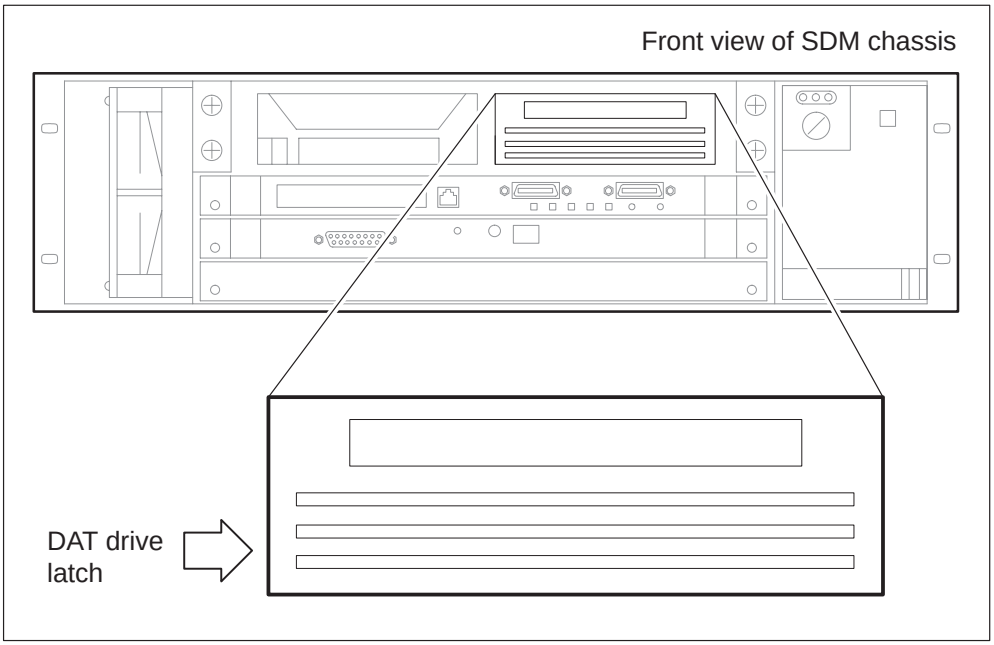
WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the front of the SDM

20 Press the latch of the DAT drive assembly and unplug the unit. Place the unit in an electrostatic discharge (ESD) protective container.

NTRX50JJ
SDM DAT drive (continued)



21 Set the SCSI address dial at the rear of the replacement DAT drive to 4.

22 Carefully slide the new DAT drive into its slot until fully inserted into the backplane connector.

At the FSP

23 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

24 The SDM will begin to boot automatically. At the “Self-tests/Boots about to begin” prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 26
response is `PPC1-Bug>`	step 25

NTRX50JJ
SDM DAT drive (continued)

25 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 27.

26 Select option 3 - “Go To System Debugger” from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

27 Verify that the system recognizes the new DAT drive by typing

>IOI
and pressing the Enter key.

Example response:

```
I/O Inquiry Status:
CLUN  DLUN CNTRL-TYPE  DADDR  DTYPE  RM  Inquiry-Data
   0     0 NCR53C810   0      $00    N   SEAGATE  ST11200N  ST31230  0456
   0    40 NCR53C810   4      $01    Y   ARCHIVE  Python  28388-XXX 5.28
   1     0 PC8477      0      $00    Y   <None>
```

Note: In the example response above, the DAT drive is the ARCHIVE Python.

If the new DAT drive is	Do
on the list of recognized devices	step 28
not on the list of recognized devices	step 40

28 Run self-tests at the PPC-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 40
all tests passed or bypass	step 29

NTRX50JJ
SDM DAT drive (continued)

29 Access the selection menu by typing

>menu
and pressing the Enter key.

30 Select option 1 - “Continue System Start Up” from the selection menu and press the Enter key.

31 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 33
does not boot successfully	step 32

At the FSP

32 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 33
does not boot successfully	step 40

At the front of the SDM

33 Replace the front bezel.

34 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

35 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

At the MAP display

36 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

37 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

38 Check the SDM node state.

If the node state is	Do
InSv	step 41
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 39

39 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 41
did not return to service	see PM SDM Minor alarm clearing procedure in this document

40 For further assistance, contact the personnel responsible for the next level of support.

41 You have completed this procedure.

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card

Application

Use this procedure to replace the processor card in an SDM.

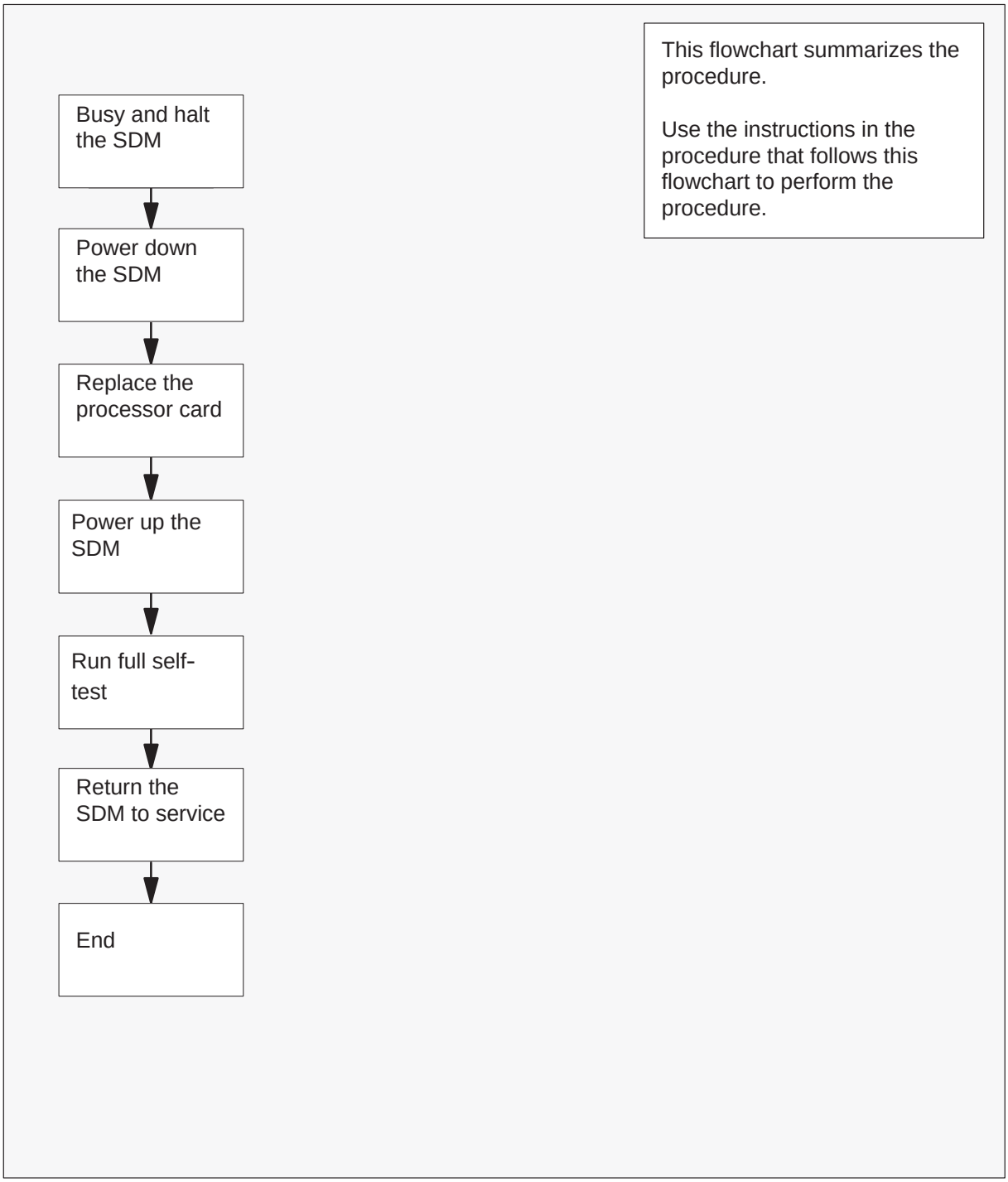
Nortel PEC	Name
NTRX50JP	processor card with 32 MByte DRAM
NTRX50JQ	processor card with 64 MByte DRAM
NTRX50JR	processor card with 96 MByte DRAM
NTRX50JS	processor card with 128 MByte DRAM

Action

The following flowchart is only a summary of the procedure. To replace the processor card, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card (continued)

Summary of Replacing an SDM processor card



NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card (continued)

Replacing an SDM processor card

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the front of the SDM

2 Use a flathead or a Phillilps screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

3

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

At the SDM processor card

4 Check the Board Failure (BFL) LED.

If the BFL LED is	Do
on (yellow)	step 20
off	step 5

At the MAP display

5 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

6 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS
SDM processor card (continued)

7 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 12
not present	step 8

8

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

9 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card (continued)

10 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

11 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag “/PMReset Halt in progress” is displayed until the SDM recovers from the power cycle.

Go to step 20.

At the local or remote VT100 console

12 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you	Do
can log in	step 13
cannot log in	step 20

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS
SDM processor card (continued)

13 Proceed according to how you logged in.

If you logged in as	Do
a maintenance user	step 15
root user	step 14

14 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

15 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

16

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4
and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card (continued)

17 Confirm that you want to manually busy the SDM by typing

>y
and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

18 Halt the SDM by typing

>6
and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o :
```

19 Confirm that you want to stop the unit by typing

>y
and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

At the FSP

20

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

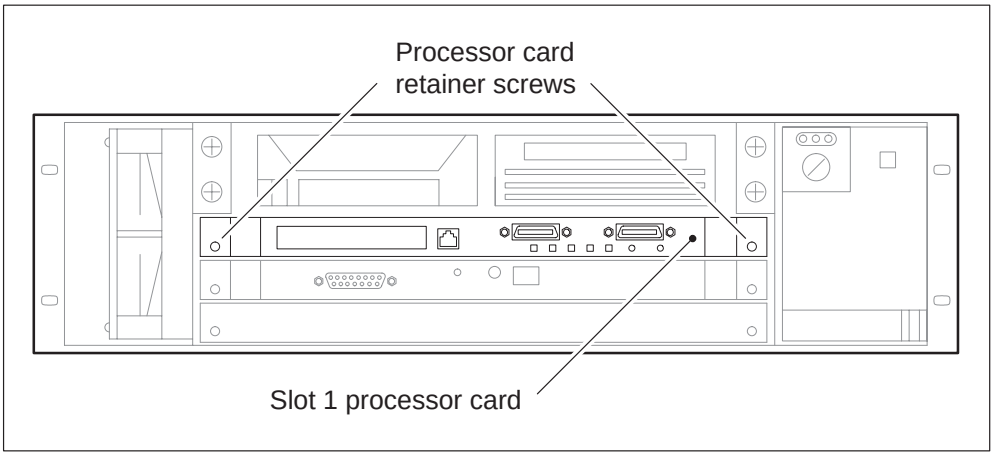
WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS
SDM processor card (continued)

Power down the SDM at the FSP breaker.

At the front of the SDM

21 At slot 1, release the processor card retainer screws.



22 Open the locking levers on the face of the processor card by moving the levers outward.

23 While grasping the locking levers, gently pull the card towards you until it protrudes about 2 in. (5.1 cm) from the equipment shelf.

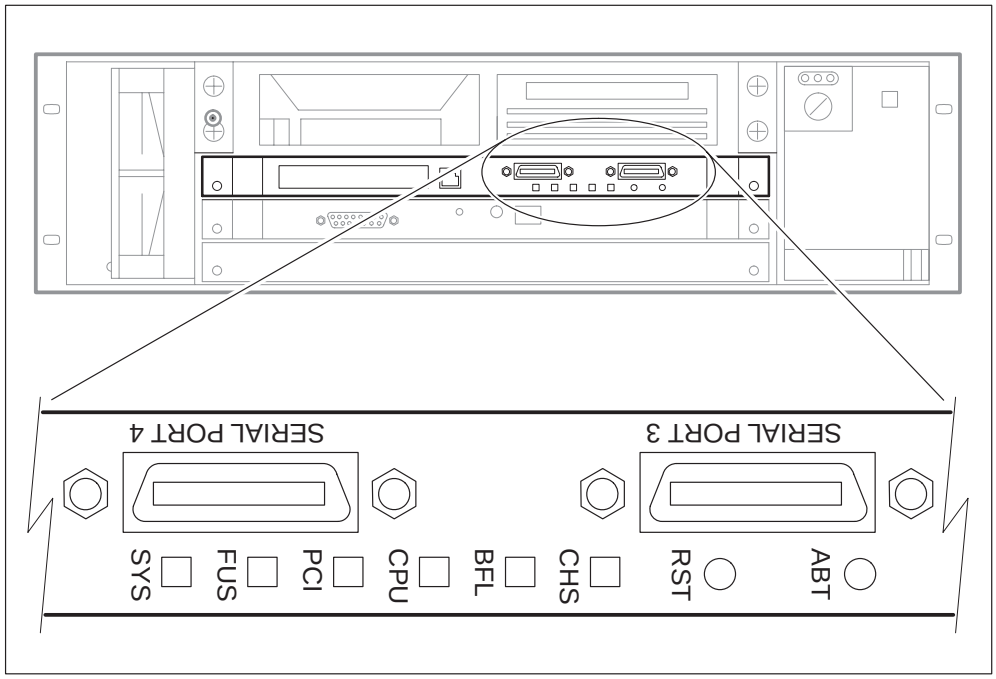
24 Gently pull the card toward you until it clears the shelf.

25 Ensure the location of each jumper on the replacement processor card matches that of the faulty card.

26 Place the card you have removed in an electrostatic discharge (ESD) protective container.

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS
SDM processor card (continued)

27 Insert the replacement card into slot 1 with its locking levers open. Make sure that the card is inserted as shown in the following diagram.



28 Gently slide the card until fully inserted into the backplane connector.

29 Close the locking levers to secure the card.

30 Tighten the processor card retainer screws.

At the FSP

31 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

32 The SDM will begin to boot automatically. At the “Self-tests/Boots about to begin” prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 34
response is `PPC1-Bug>`	step 33

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS
SDM processor card (continued)

33 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 35.

34 Select option 3 - “Go To System Debugger” from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

35 Run self-tests at the PPC1-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 47
all tests passed or bypass	step 36

36 Access the selection menu by typing

>menu
and pressing the Enter key.

37 Select option 1 - “Continue System Start Up” from the selection menu and press the Enter key.

38 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 40
does not boot successfully	step 39

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card (continued)

At the FSP

39 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 40
does not boot successfully	step 47

At the front of the SDM

40 Replace the front bezel.

41 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

42 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

At the MAP display

43 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

44 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS SDM processor card (end)

45 Check the SDM node state.

If the node state is	Do
InSv	step 48
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 46

46 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service	step 48
did not return to service	see PM SDM Minor alarm clearing procedure in this document

47 For further assistance, contact the personnel responsible for the next level of support.

48 You have completed this procedure.

Note: If your SDM is commissioned with X.25 connectivity, contact Nortel to obtain the new X.25 license key assigned to the new processor card.

NTRX50JT, NTRX50JU SDM disk drive

Application

Use this procedure to replace the disk drive in an SDM.

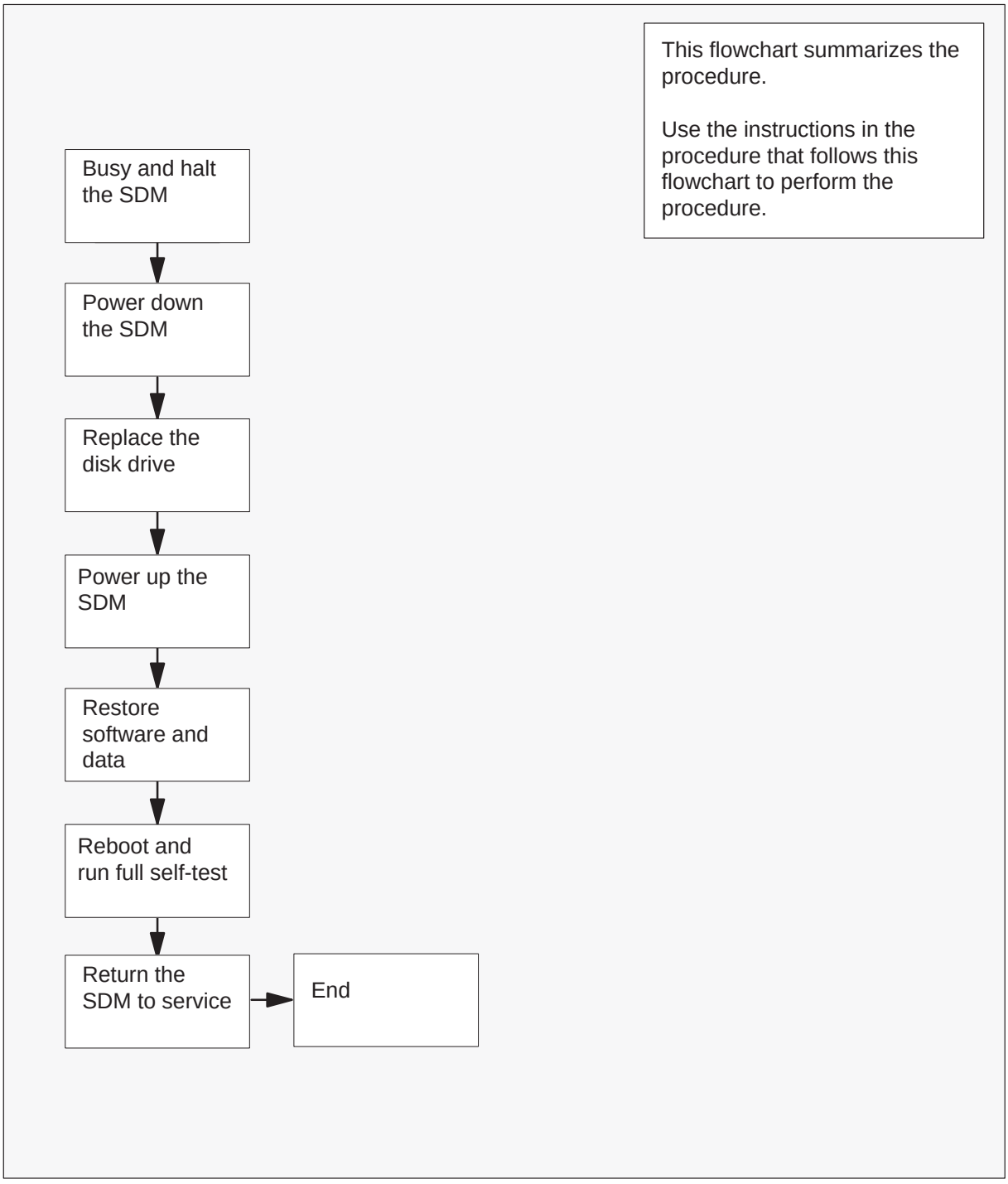
Nortel PEC	Name
NTRX50JT	1 GByte disk drive
NTRX50JU	2 GByte disk drive

Action

The following flowchart is only a summary of the procedure. To replace the disk drive, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JT, NTRX50JU
SDM disk drive (continued)

Summary of Replacing an SDM disk drive



NTRX50JT, NTRX50JU
SDM disk drive (continued)

Replacing an SDM disk drive

1 Obtain a replacement disk drive, and a flathead or a Phillips screwdriver. Ensure that the replacement has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JT, NTRX50JU
SDM disk drive (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JT, NTRX50JU
SDM disk drive (continued)

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 16.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If	Do
you logged in as maintenance user	step 11
you logged in as root user	step 10
there is no response	step 16

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JT, NTRX50JU
SDM disk drive (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JT, NTRX50JU
SDM disk drive (continued)

At the FSP

16

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the front of the SDM

17 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

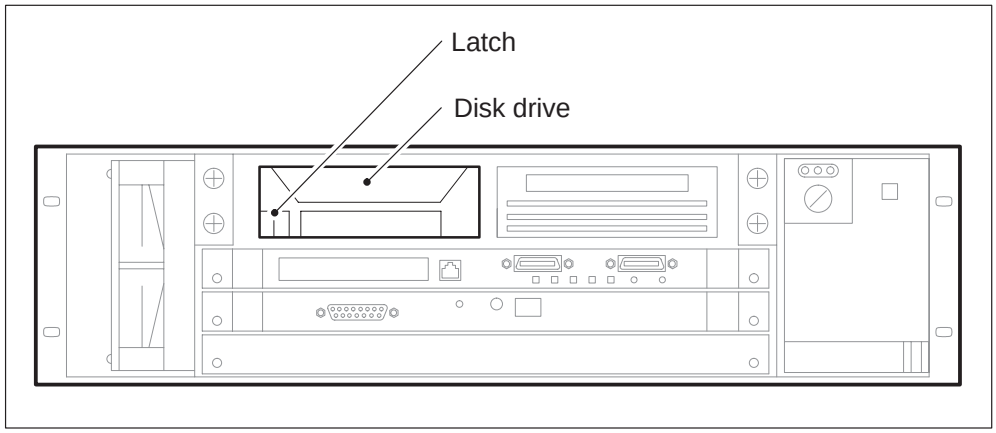
18

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

NTRX50JT, NTRX50JU
SDM disk drive (continued)

19 Push the latch of the disk drive assembly inward and unplug the unit. Pull the unit out, and place it in an electrostatic discharge (ESD) protective container.



20 Set the SCSI address dial at the rear of the disk drive to 0 on the new drive.

Note: The SCSI address dial is located at the rear left corner of the disk drive.

21 Carefully slide the new disk drive into its slot until fully inserted into the backplane connector.

At the FSP

22 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

23 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If the	Do
selection menu	step 25
response is `PPC1-Bug>`	step 24

NTRX50JT, NTRX50JU
SDM disk drive (continued)

24 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 26.

25 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

26 Verify that the system recognizes the new disk drive by typing

>IOI
and pressing the Enter key.

Example response:

```
I/O Inquiry Status:
CLUN  DLUN CNTRL-TYPE  DADDR  DTYPE  RM  Inquiry-Data
   0     0 NCR53C810   0      $00    N   SEAGATE  ST11200N  ST31430  0456
   0    40 NCR53C810   4      $01    Y   ARCHIVE  Python  28388-XXX 5.28
   1     0 PC8477      0      $00    Y   <None>
```

Note: The disk drive shown is a SEAGATE unit.

If the disk drive is	Do
on the list of recognized devices	step 27
not on the list of recognized devices	step 38

27 Run self-tests at the PPC-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 38
all tests passed or bypass	step 28

NTRX50JT, NTRX50JU
SDM disk drive (continued)

28 Perform a full software restore using the procedure *Restoring the SDM – Full restore from S-tape and I-tape* on 6-32 in the SDM System Administration Procedures chapter of this document. When you have completed the software restore and begun to reboot the SDM, as instructed by that procedure, return to this point.

29 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 31
does not boot successfully	step 30

At the FSP

30 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 31
does not boot successfully	step 38

At the front of the SDM

31 Replace the front bezel.

32 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

33 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

At the MAP display

34 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

NTRX50JT, NTRX50JU
SDM disk drive (end)

35 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

36 Check the SDM node state.

If the node state is	Do
InSv	step 39
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 37

37 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service successfully	step 39
did not return to service	see PM SDM Minor alarm clearing procedure in this document

38 For further assistance, contact the personnel responsible for the next level of support.

39 You have completed this procedure.

NTRX50JV
SDM Ethernet controller card

Application

Use this procedure to replace the Ethernet controller card in an SDM.

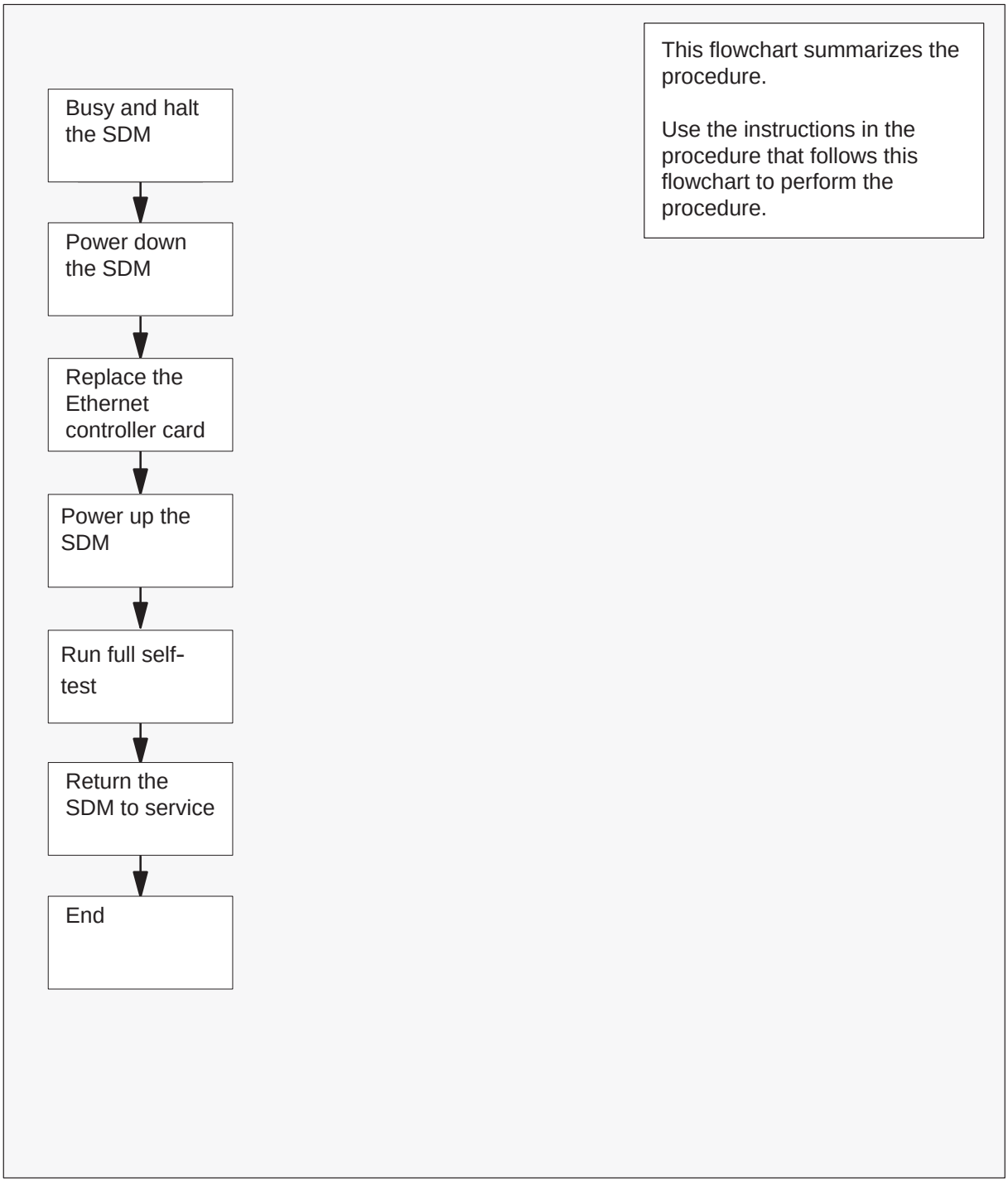
Nortel PEC	Name
NTRX50JV	Ethernet controller card

Action

The following flowchart is only a summary of the procedure. To replace the Ethernet controller card, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JV
SDM Ethernet controller card (continued)

Summary of Replacing an SDM Ethernet controller card



NTRX50JV
SDM Ethernet controller card (continued)

Replacing an SDM Ethernet controller card

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JV
SDM Ethernet controller card (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 16.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 11
root user	step 10

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce

and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JV
SDM Ethernet controller card (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JV
SDM Ethernet controller card (continued)

At the FSP

16

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the front of the SDM

17 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

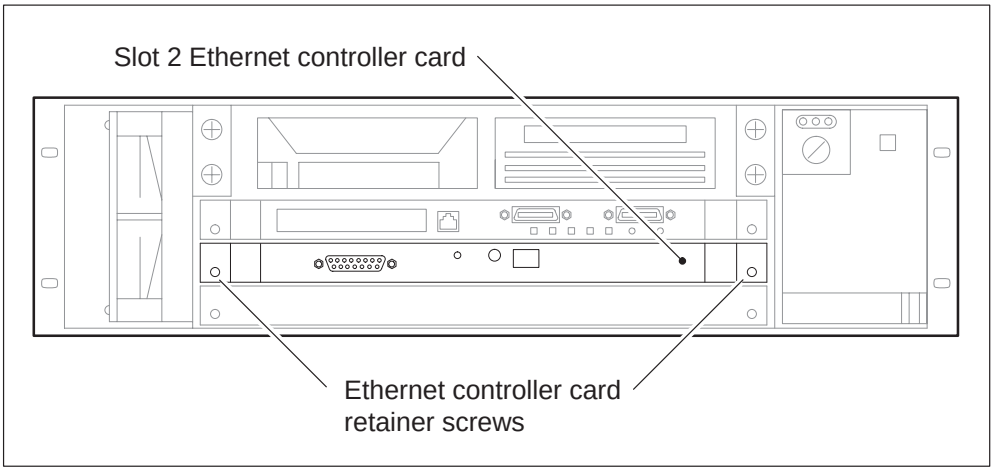
18

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

NTRX50JV
SDM Ethernet controller card (continued)

19 At slot 2, release the Ethernet controller card retainer screws.



20 Open the locking levers on the face of the Ethernet controller card by moving the levers outward.

21 While grasping the locking levers, gently pull the card towards you until it protrudes about 2 in. (5.1 cm) from the equipment shelf.

22 Gently pull the card toward you until it clears the shelf.

23 Ensure the location of each jumper and DIP switches on the replacement Ethernet controller card matches that of the faulty card.

24 Place the card you have removed in an electrostatic discharge (ESD) protective container.

25 Insert the replacement card into slot 2 with its locking levers open.

26 Gently slide the card until fully inserted into the backplane connector.

27 Close the locking levers to secure the card.

28 Tighten the Ethernet controller card retainer screws.

At the FSP

29 Power up the SDM at the FSP breaker.

NTRX50JV
SDM Ethernet controller card (continued)

At the local or remote VT100 console

30 The SDM will begin to boot automatically. At the “Self-tests/Boots about to begin” prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 32
response is `PPC1-Bug>`	step 31

31 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1–Diag>
```

Go to step 33.

32 Select option 3 - “Go To System Debugger” from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

33 Run self-tests at the PPC1-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 43
all tests passed or bypass	step 34

34 Access the selection menu by typing

>menu
and pressing the Enter key.

35 Select option 1 - “Continue System Start Up” from the selection menu and press the Enter key.

NTRX50JV
SDM Ethernet controller card (continued)

36 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 38
does not boot successfully	step 37

At the FSP

37 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key). The status LED on the Ethernet controller card will turn green.

If the SDM	Do
boots successfully	step 38
does not boot successfully	step 43

At the MAP display

38 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

39 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

40 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

NTRX50JV
SDM Ethernet controller card (end)

41 Check the SDM node state.

If the node state is	Do
InSv	step 44
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 42

42 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service successfully	step 44
did not return to service	see PM SDM Minor alarm clearing procedure in this document

43 For further assistance, contact the personnel responsible for the next level of support.

44 You have completed this procedure.

NTRX50JW
SDM Ethernet transition card

Application

Use this procedure to replace the Ethernet transition card in an SDM.

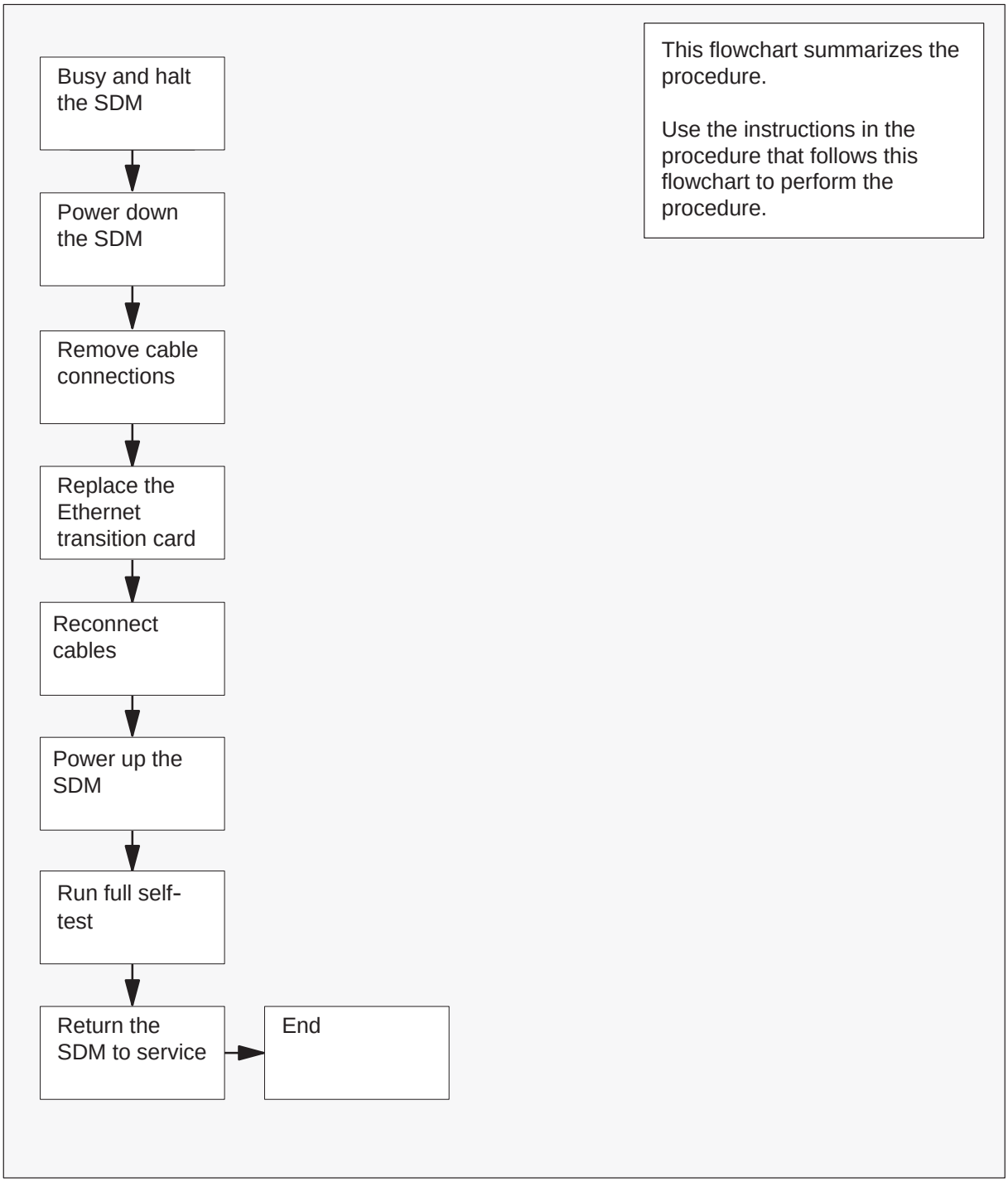
Nortel PEC	Name
NTRX50JW	Ethernet transition card

Action

The following flowchart is only a summary of the procedure. To replace the Ethernet transition card, use the instructions in the step-action procedure that follows the flowchart.

NTRX50JW
SDM Ethernet transition card (continued)

Summary of Replacing an SDM Ethernet transition card



NTRX50JW
SDM Ethernet transition card (continued)

Replacing an SDM Ethernet transition card

1 Obtain a replacement card, and a small flathead or a Phillips screwdriver. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the unit being removed.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  SysB
```

4 Determine if the message “not responding” or “(NA)” appears beside the SDM state at the MAP display. These messages indicate that the SDM is isolated from the computing module (CM) because of a communication fault.

Example response:

```
SDM  0  SysB /not responding
```

If a communication fault message is	Do
present	step 9
not present	step 5

NTRX50JW
SDM Ethernet transition card (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Continue the service interruption by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

7 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

NTRX50JW
SDM Ethernet transition card (continued)

8 Continue the SDM shutdown by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

Go to step 16.

At the local or remote VT100 console

9 Log into the Remote Maintenance Interface (RMI) using your root user or maintenance user account name and password.

If you logged in as	Do
a maintenance user	step 11
root user	step 10

10 Access the SDM Remote Maintenance Menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance Menu

11 Access the SDM Maintenance Tools menu by typing

>3
and pressing the Enter key.

NTRX50JW
SDM Ethernet transition card (continued)

12

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>4

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all application software packages.
         Please Confirm, y)es or n)o :
```

13 Confirm that you want to manually busy the SDM by typing

>y

and pressing the Enter key.

Response:

```
The unit is busying. This operation may take up to
2 minutes to complete.
Command has been submitted.

Hit any key to continue...
```

14 Halt the SDM by typing

>6

and pressing the Enter key.

Response:

```
WARNING: The operation terminates all processes and stops the unit.
Please confirm y)es or n)o
```

15 Confirm that you want to stop the unit by typing

>y

and pressing the Enter key.

Response:

```
The unit is halting.
Command has been submitted.
```

NTRX50JW
SDM Ethernet transition card (continued)

At the FSP

16

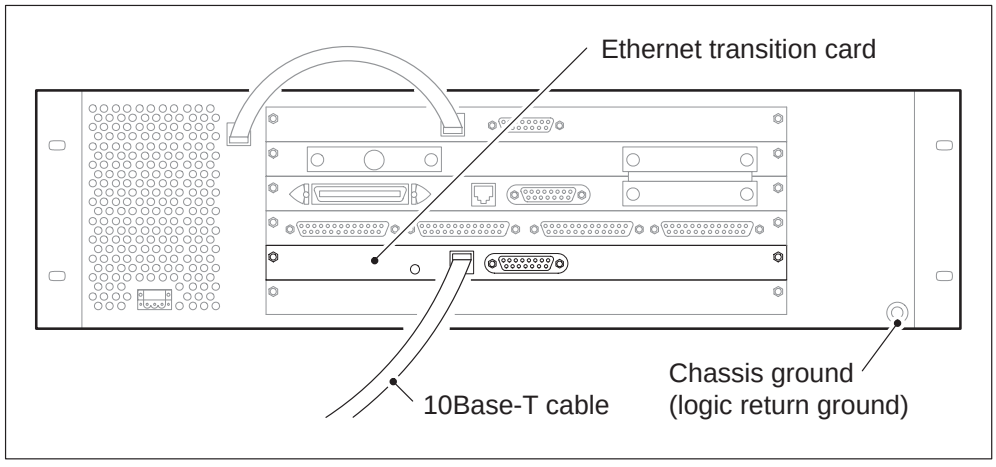
WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the rear of the SDM

17 Disconnect the 10Base-T cable from the Ethernet transition card (slot S2).



18 Release the Ethernet transition card retainer screws.

NTRX50JW
SDM Ethernet transition card (continued)

19 Gently slide out the card from the SDM chassis tray.

20 Ensure the location of each jumper on the replacement Ethernet transition card matches that of the faulty card.

21 Place the card you have removed in an electrostatic discharge (ESD) protective container.

22 Insert the replacement card into its transition slot.

23 Gently slide the card until fully inserted into the backplane connector.

24 Tighten the Ethernet transition card retainer screws.

25 Reconnect the 10BASE-T cable.

At the FSP

26 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

27 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If	Do
the selection menu appears	step 29
the response is `PPC1-Bug>`	step 28

28 Change the prompt by typing

>sd
and pressing the Enter key.

Response:

```
PPC1-Diag>
```

Go to step 30.

29 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Response:

```
PPC1-Diag>
```

NTRX50JW
SDM Ethernet transition card (continued)

30 Run self-tests at the PPC1-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 40
all tests passed	step 31

31 Access the selection menu by typing

>menu
and pressing the Enter key.

32 Select “Continue System Start Up” from the selection menu and press the Enter key.

33 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 35
does not boot successfully	step 34

At the FSP

34 Cycle the SDM power to repeat the autoboot. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 35
does not boot successfully	step 40

NTRX50JW
SDM Ethernet transition card (continued)

At the MAP display

35 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the CM.

36 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

37 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

38 Check the SDM node state.

If the node state is	Do
InSv	step 41
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	step 39

39 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

If the SDM	Do
returned to service successfully	step 41
did not return to service	see PM SDM Minor alarm clearing procedure in this document

NTRX50JW
SDM Ethernet transition card (end)

40 For further assistance, contact the personnel responsible for the next level of support.

41 You have completed this procedure.

SDM system administration procedures

Introduction to SDM system administration procedures

This chapter contains SDM system administration procedures. Each procedure contains the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Explanatory and context-setting information

The first page of each procedure contains the following headings:

- Application (why you would perform the procedure)
- Action (how to use the flowchart and step-action instructions)

Summary flowchart

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it.

Step-action instructions

The step-action instructions tell you how to perform the procedure. Normally you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

While following the step-action instructions, you may be sent to other procedures of this book to perform a set of instructions, or to another NTP for a related procedure. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

SDM users group
Adding a new user

Application

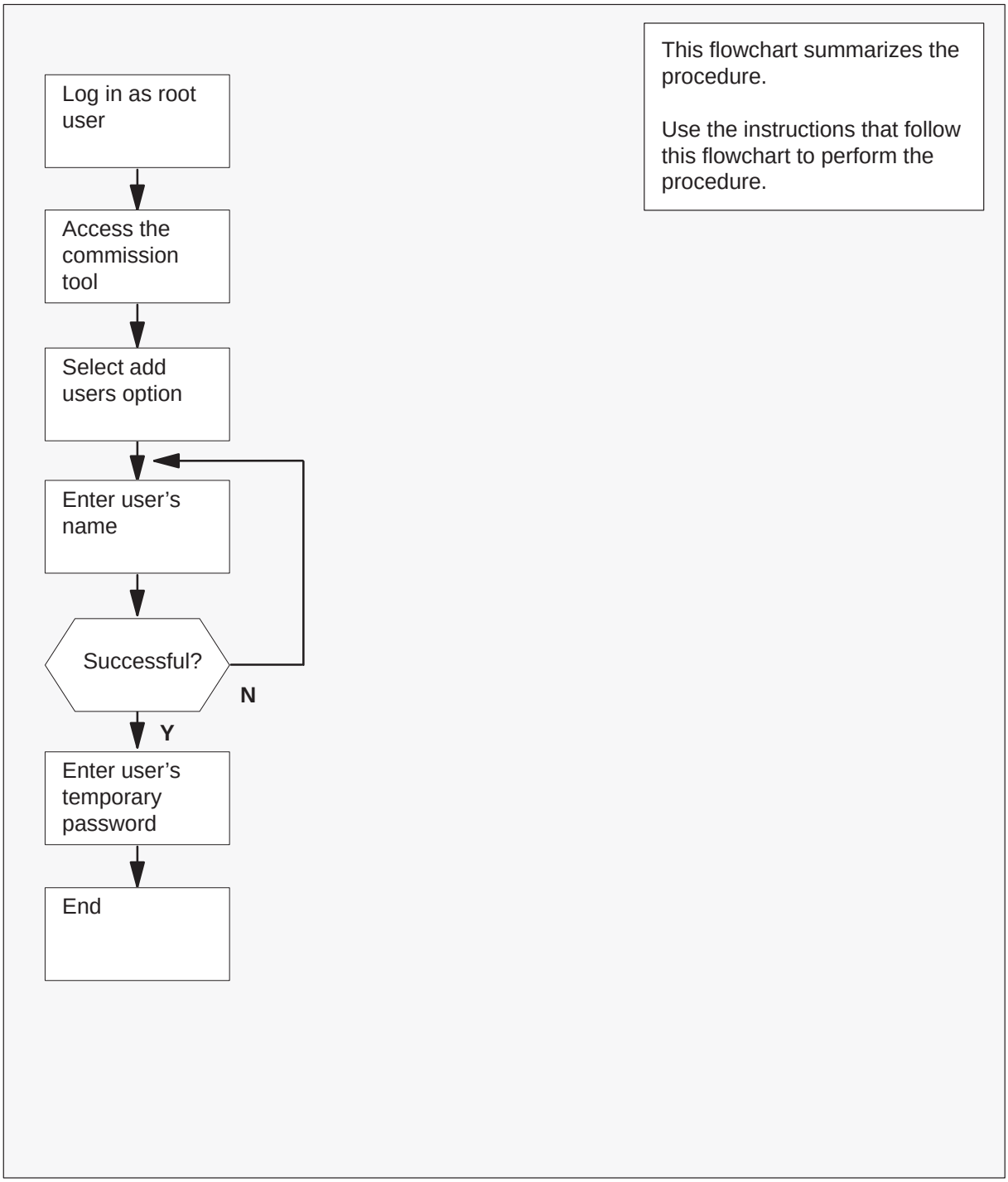
Use this procedure to add a new user to the Users group. This procedure must be performed by the root user.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

SDM users group
Adding a new user (continued)

Summary of Adding a new user to the users group



SDM users group
Adding a new user (continued)

Adding a new user to the users group

At the local or remote VT100 console

1 Log in as the root user.

2 Access the SDM platform commissioning tool by typing

>commission
and pressing the Enter key.

3 At the SDM Commissioning Tool menu, select the option “Add User to users group” by typing

>6
and pressing the Enter key.

Response:

```
Adding New User to group 'users'
================================
Do you wish to add a new user to group 'users'?  ((y)es or (n)o) (y/n?)
```

4 Confirm that you want to add a new user by typing

>y

Response:

```
Enter the User Name:
```

5 Enter the name of the new user and press the Enter key. The user name can be up to eight alphanumeric characters long.

Example response:

```
User Name:username
Is the User Name correct?  ((y)es or (n)o) (y/n?)
```

6 Determine if the username you entered is correct.

If the user name is	Do
correct	step 8
not correct	step 7

SDM users group
Adding a new user (continued)

7 Cancel addition of the new user by typing

>n

Response:

```
Aborted.
Do you wish to add a new user to group ‘users’?  ((y)es or (n)o) (y/n?
```

Go to step 4.

8 Confirm that the username is correct by typing

>y

Example response:

```
Adding user ‘newuser’ to user group ‘users’

newuser was added to group ‘users’

Please enter an initial logon password.
The user will be forced to change it on first log in.
```

If the attempt to add the new user	Do
was successful	step 10
failed	step 9

9 If you have not successfully added a new user to the system, error messages will be displayed on the screen. The system will inform you if you are trying to add a user who already exists, or if the user name is too long.

Example response:

```
Adding user ‘newuser’ to user group ‘users’.
3004–689 User “newuser” exists.

ERROR:  Not able to create user newuser.

Do you wish to add a new user to group ‘users”? ((y)es or (n)o) (y/n?)
```

Go to step 4.

Note: Enter “n” if you do not wish to continue. This returns you to the SDM commissioning tool main menu.

SDM users group
Adding a new user (end)

10 Enter an initial logon password for the new user.

Note: This password is temporary. The user must enter a new password the first time they log in. The password must be at least six characters long, and contain at least one non alphabetic character.

Example response:

```
Changing password for “newuser”
newuser’s New password:
Enter the new password again:
```

11 Enter the password again for verification.

Response:

```
[press enter to continue]
```

12 You have completed this procedure.

Setting the date and time

ATTENTION

This procedure must be performed only by UNIX system administration personnel who have root user permissions for accessing the SDM.

CAUTION

Loss of service

This procedure requires that you manually busy the SDM, thereby shutting down all applications. Perform this procedure when there are no applications running, or notify users before the shut down.

Application

Use this procedure to set the date and time on the SDM. Once you have entered the new date and time, the date and time are recalculated from the system clock and displayed on the screen to confirm the change.

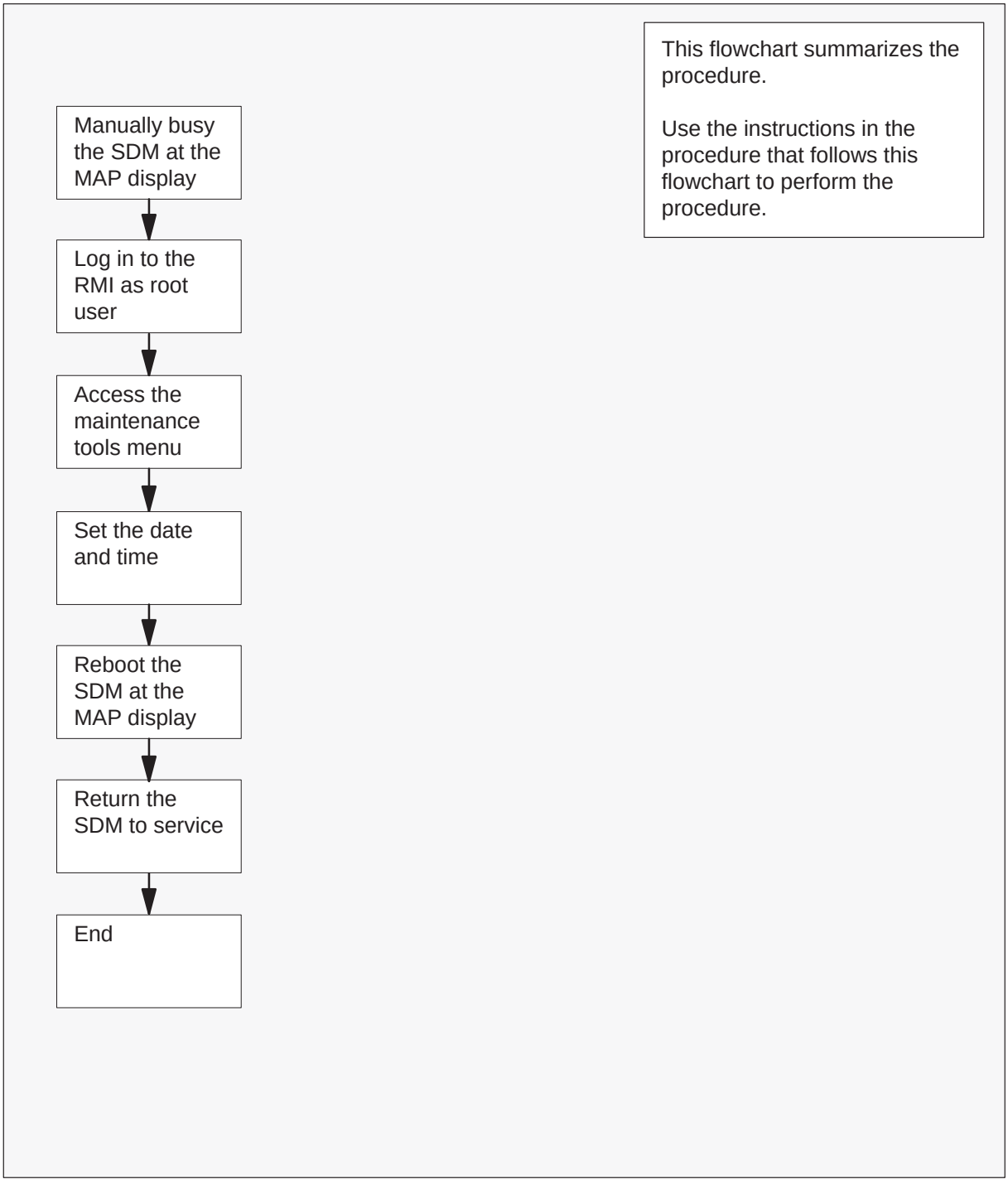
Nortel recommends that you reboot the SDM after changing the date and time.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Setting the date and time (continued)

Summary of Setting the date and time



Setting the date and time (continued)

Setting the date and time

At the MAP display

1 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

2 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  InSv
```

3 Determine the SDM node state (shown as InSv in the example above).

If the SDM node state is	Do
in service (InSv)	step 5
anything else	step 4

4 A fault exists on the SDM, or another SDM maintenance activity is already in progress. Clear the fault, or complete the maintenance activity, as appropriate. To clear faults, check for SDM-related alarms under the PM header of the MAP display alarm banner, and use the appropriate alarm clearing procedure in this document to clear the fault before continuing this procedure.

Go to step 3.

Setting the date and time (continued)

5

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

6 Confirm the Bsy command by typing

>Y
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

At the local or remote VT100 terminal

7 Log in to the RMI as the root user.

8 Access the SDM Remote Maintenance menu by typing

>sdmmtce
and pressing the Enter key.

At the SDM Remote Maintenance menu

9 Select Access Maintenance Tools by typing

>3
and pressing the Enter key.

Setting the date and time (continued)

10 Select Set Date and Time by typing

>8
and pressing the Enter key.

Example of the Set Date and Time Menu screen:

```
                          SDM Set Date and Time Menu
                          --------------------------

************************************************************
It is strongly recommended to reboot the system after
successfully modifying the date and time.
************************************************************

Current Date [mm/dd/yy]: 5/29/94
Current Time    [hh:mm]: 15:52

New Date     [mm/dd/yy]:
New Time        [hh:mm]:
```

11 Enter the new date by typing

>mm/dd/yy
and pressing the Enter key.

where

mm	is the month (1 to 12)
dd	is the day (1 to 31)
yy	is the year (0 to 99)

Note: Since the year field is only two digits, the following rules apply: values 0 to 37 correspond to years 2000 to 2037, and values 38 to 99 correspond to years 1938 to 1999.

Enter the new time by typing

>hh:mm
and pressing the Enter key.

where

hh	is the hour (00 to 23)
mm	is the minute (00 to 59)

Example response:

```
Current Date [mm/dd/yy]: 5/29/94
Current Time    [hh:mm]: 16:14


Hit any key to continue...
```

Setting the date and time (end)

12 Press any key to return to the Maintenance Tools menu.

At the SDM level of the MAP display

13 Reboot the SDM by typing

>PMRESET REBOOT
and pressing the Enter key.

Response:

```
SDM 0 ManB      /PMReset Reboot in progress

SDM 0 PMReset reboot initiated.
```

Note: The command response indicates that the command has been successfully received by the SDM. The maintenance flag "/PMReset Reboot in progress" is displayed until the SDM recovers from the reboot.

14 Return the SDM to service by typing

>RTS
and pressing the Enter key.

The response displayed when you enter the RTS command depends on when you enter RTS. This example shows the response when the maintenance flag "/PMReset Reboot in progress" is displayed.

Response:

```
SDM 0 SysB      /PMReset Reboot in progress

SDM 0 RTS completed.
SDM is not responding.
```

This example shows the response when the maintenance flag "/PMReset Reboot in progress" is not displayed,

Response:

```
SDM 0 InSv

SDM 0 RTS initiated.
SDM 0 RTS completed.
```

Note: Assuming there are no other faults on the system, SDM applications will then return to service automatically immediately following completion of the reboot.

15 You have completed this procedure.

Creating SDM software and data backup tapes
System image backup (S-tape)

Application

ATTENTION
This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

This procedure creates a system image software tape (S-tape). The system image includes the following:

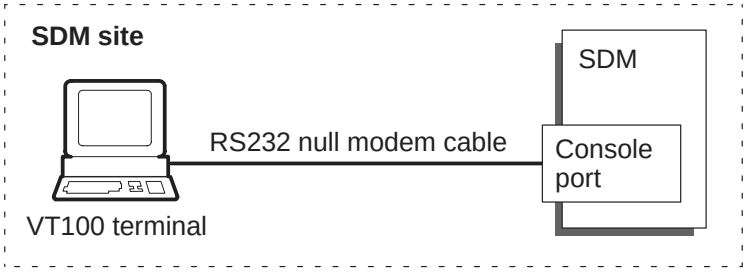
- boot (startup) files
- AIX operating system
- system configuration data
- SDM software
- SDM data

Nortel recommends that you perform a system image backup after the following:

- initial installation and commissioning of the SDM
- changes to the configuration of the disk or changes to the logical volume
- installation of a new version of SDM platform software

The SDM must be in the Offl or ManB state to create a system image backup. A system image backup takes approximately 10 min to complete, depending on the size of your file systems.

The backup procedure must be performed from a local VT100 console, as shown in the following figure.



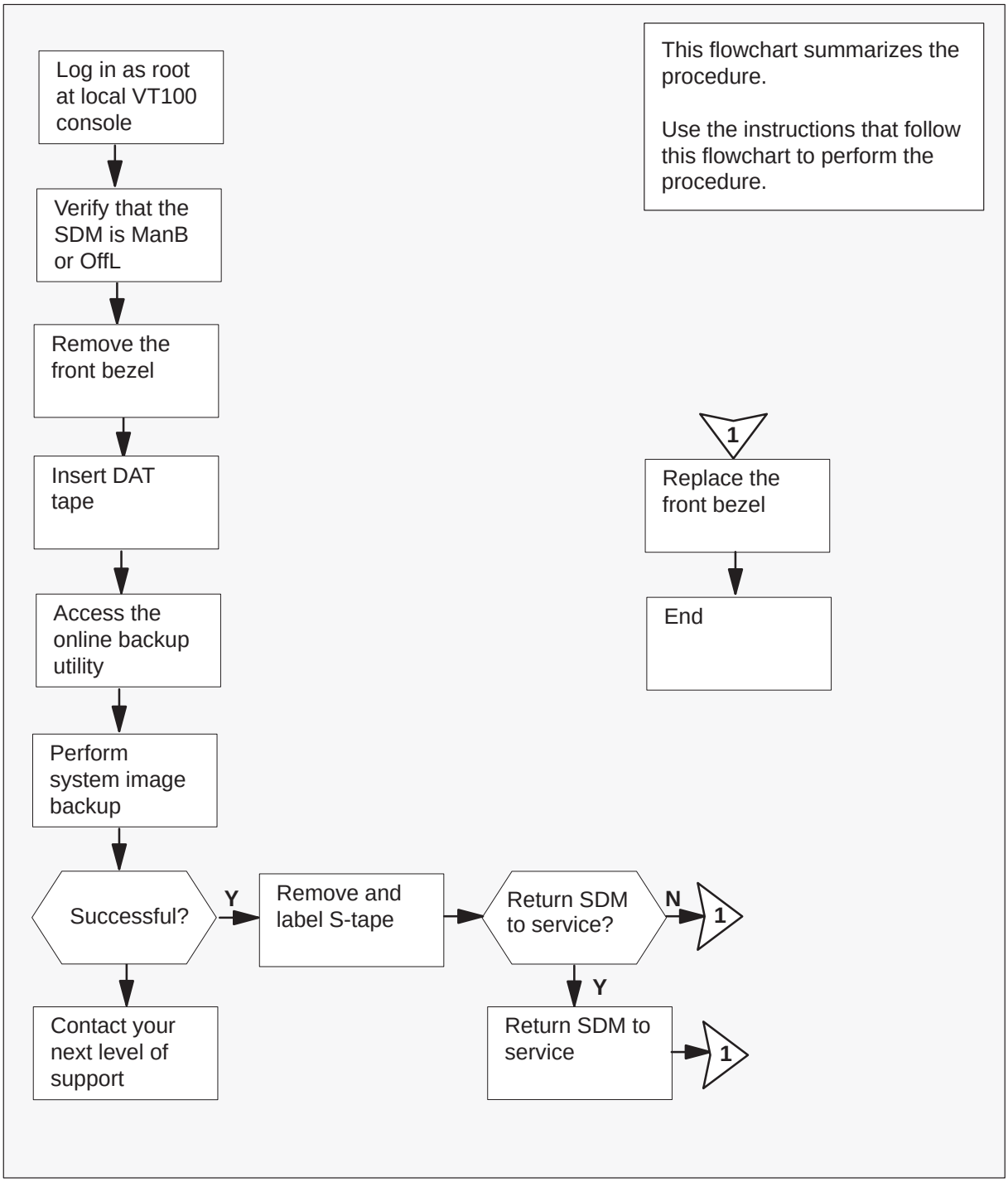
Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

Summary of System image backup



Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

System image backup

At the local VT100 console

1 Log in as the root user.

2 Verify that the SDM node state is ManB or OffL.

If the node state is	Do
ISTb or SysB	step 3
InSv	step 4
ManB or OffL	step 9

3 A fault exists on the SDM. Before continuing, clear the problem using the appropriate alarm clearing procedure in this document.

Go to step 43.

4 The SDM is currently in service. It must be removed from service to perform this procedure.

If	Do
you wish to continue	step 5
you do not wish to continue	step 43

At the MAP display

5 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

6 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  InSv
```

Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

7

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shutdown.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

8 Confirm the Bsy command by typing

>Y
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

At the SDM

9 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

10

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins during removal and installation, ensure that the front bezel is handled gently and aligned correctly.

Remove the front bezel by pressing the latches on both sides and pulling.

11 Ensure that the SDM tape drive contains a 4 mm DDS tape of either 90 m or 120 m lengths. This tape will be designated as the system image tape (S-tape).

Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

12 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

13 From the Backup and Restore Main Menu, select “System Image Backup and Restore” by typing

>1
and pressing the Enter key.

14

CAUTION
Loss of service
The creation of a system image automatically puts the SDM in single-user mode. All user processes will be cancelled.

From the System Image Backup and Restore Menu, select “Create a System Image on Tape (S-tape)” by typing

>1
and pressing the Enter key.

Response:

```
To create the System Image Backup, the SDM has to be taken down
to single-user mode, killing all user processes.

Would you like to continue with the backup? (y | n)?
```

If you wish to continue, type

>y
and press the Enter key.

15 The system takes about 4 min to enter single-user mode. Do not do anything until the system prompts you for the root password. At the prompt, enter the root password, and press the Enter key. When you see the prompt TERM=(vt100), press the Enter key. The backup continues.

16 The backup takes approximately 10 min to complete, depending on the size of your file systems. When the backup is complete, the system prompts you to remove and label the tape as an S-tape.

Example response:

```
The backup started on Fri Oct 6  10:30:32 EDT 1995
is completed successfully on Fri Oct 6  10:37:31 EDT 1995.
A log file /tmp/smmsysb.log has been created.
```

Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

Nortel recommends that you place the write protect tab of the S-tape in the open position, to prevent accidental erasing.

When you are ready for the system to reboot and return to multi-user mode, type

>y
and press the Enter key.

17 You are prompted to log in when the reboot is finished. Press the Enter key when you see the prompt TERM=(vt100). The system prompt is then displayed.

18 Determine if the system image backup was successful either by viewing the smmsysb.log file or by listing the files on the S-tape.

To	Do
view smmsysb.log	step 19
list S-tape	step 21

19 Access the smmsysb.log file by typing

>cd /tmp
and pressing the Enter key.

Scroll through the log by typing

>more smmsysb.log
and pressing the Enter key.

20 The system image backup has been completed successfully when you see the following display:

Example response:

```
bosboot:  Boot image is 5881 512 byte blocks.

Backing up the system...
................................
0512 038 mksysb: Backup Completed Successfully.
```

Go to step 30.

21 List the files on the S-tape by inserting the S-tape in the DAT drive. Be sure that you are logged in as the root user.

22 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

23 From the Backup and Restore Main Menu, select “System Image Backup and Restore” by typing

>1

and pressing the Enter key.

24 From the System Image Backup and Restore Menu, select “List Contents of the System Image Tape (S-tape)” by typing

>2

and pressing the Enter key.

Response:

```
Listing the entire contents from the S-tape is a long process.
Please allow 5 minutes to complete the listing.  A log file
will be saved in /tmp/sdmbkup.toc.

Once the LIST menu is on display, press ENTER to start the
list process.

Are you ready for the list menu? (y | n)
```

25 Show the List Files in a System Image display by typing

>y

and pressing the Enter key. Press the Enter key again to begin listing the files from the S-tape.

Note: This listing can take up to 35 min, rather than 5 min as indicated by the example response in step 24. There are several waiting periods during this procedure.

26 When the files have been listed on the S-tape, the command status indicator at the top of the screen changes from “running” to “ok”. This indicates that the system backup was successful. The contents of the displayed listing can then be accessed in the file /tmp/sdmbkup.toc.

27 Press the Break key.

28 The System Image Backup and Restore menu is displayed. Select option 5 and press the Enter key to return to the previous menu.

29 The Backup and Restore Main Menu is displayed. Select option 4 and press the Enter key to exit.

Creating SDM software and data backup tapes
System image backup (S-tape) (continued)

30 Determine if the backup was successful.

If the backup	Do
was successful	step 31
failed	step 42

At the SDM

31 Remove the S-tape from the tape drive and store it in a safe location. If your operating company performs regular incremental backups, ensure that the SDM tape drive contains the appropriate I-tape.

32 Access the Remote Maintenance Interface menu by typing

>sdmmtce
and pressing the Enter key.

33 Check the SDM node state.

If the node state is	Do
ManB	step 34
OffL	step 40

34 Determine if you wish to return the SDM to service at this time.

If you	Do
wish to return to service	step 35
do not wish to return the to service	step 40

Creating SDM software and data backup tapes
System image backup (S-tape) (end)

35 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

36 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

37 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS passed.
```

38 Access the Remote Maintenance Interface menu by typing

>sdmmtce
and pressing the Enter key.

39 Check the SDM node state.

If the node state is	Do
InSv	step 40
ISTb, SysB, ManB	see the appropriate alarm clearing procedure in this document

40 Replace the front bezel.

41 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

Go to step 43.

42 Contact the personnel responsible for the next level of support.

43 You have completed this procedure.

Creating SDM software and data backup tapes
Manual incremental backup (I-tape)

Application

ATTENTION
This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

Use this procedure to manually back up SDM software files that have been changed or created since the most recent system image backup tape (S-tape) was created. This procedure can be performed while the SDM is in service.

If a file is open when the incremental backup begins, the most recent saved version of the file is backed up, which may result in inconsistency between the open file when it is saved, and the backed-up version. To prevent or minimize this inconsistency, incremental backups should be performed in a low-usage period.

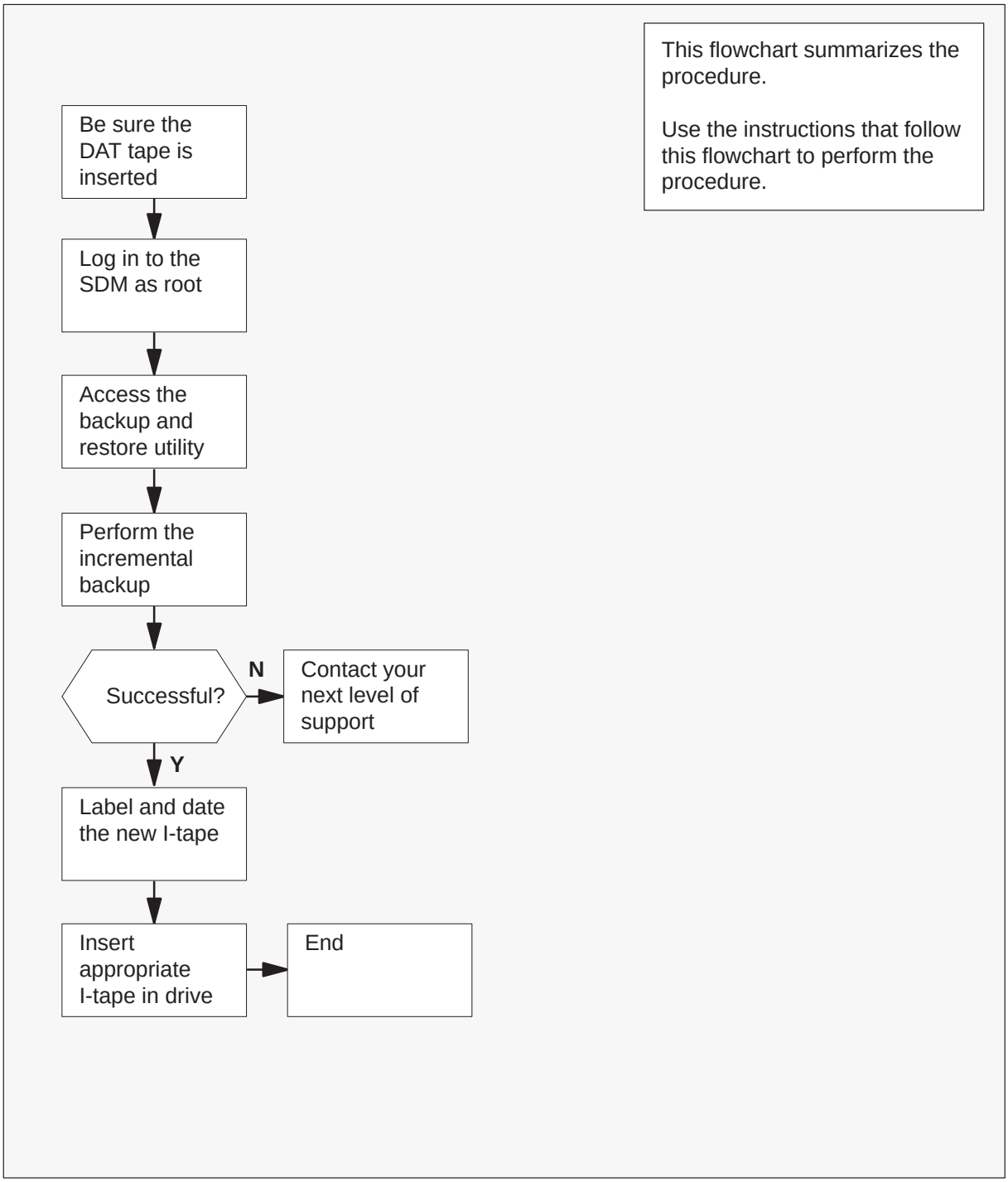
Incremental backups can be run manually or scheduled to run automatically. For additional information on scheduling and performing software backups, refer to the Administration Overview chapter of this document, and the procedure “Scheduling and enabling automated incremental backups” in this chapter.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Creating SDM software and data backup tapes
Manual incremental backup (I-tape) (continued)

Summary of Manual incremental backup



Creating SDM software and data backup tapes
Manual incremental backup (I-tape) (continued)

Manual incremental backup

At the SDM

1 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

2

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

3 Ensure that the SDM tape drive contains the tape to be used for this incremental backup.

At the local or remote VT100 terminal

4 Log in as the root user.

5 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

6 At the Backup and Restore Main Menu, select “Incremental Backup and Restore” by typing

>2
and pressing the Enter key.

7 At the Incremental Backup and Restore Menu, select “Create an Incremental Backup Tape (I-tape)” by typing

>1
and pressing the Enter key.

All files and directories that have changed or been added since the last full SDM system image backup tape (S-tape) was made are backed up.

Response:

```
Incremental backup is in progress.
A log file /tmp/sdminc.log is recording all entries.
```

Creating SDM software and data backup tapes
Manual incremental backup (I-tape) (continued)

8 When the backup is successful, the following message appears:

Response:

```
The incremental backup is successfully completed.
A log file /tmp/sdminc.log is created.
```

9 Verify the contents of the I-tape. Select “List Contents of an Incremental Backup Tape (I-tape)” by typing

>2

and pressing the Enter key.

Note: You can also verify the contents of the I-tape by checking the log file /tmp/sdminc.log.

Response:

```
Listing contents of the incremental backup tape.
A log file /tmp/sdminc.toc is being created.
```

When the system has finished listing the contents of the I-tape, the following message is displayed:

Response:

```
Listing of the incremental backup tape is complete.
A log file is in /tmp/sdminc.toc.
```

10 Determine if the incremental backup was successful.

If the backup	Do
was successful	step 11
failed	step 14

At the SDM

11 Remove the tape and label it according to your office procedures. The tape should be clearly identified as an I-tape with the date it was created. If you are using the same tape repeatedly for incremental backups, insert the tape back into the tape drive. If you are alternating I-tapes on a rotational basis, insert the appropriate I-tape to be used for the next incremental backup into the tape drive.

12 Re-install the front bezel.

13 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock. Go to step 15.

14 Contact your next level of support for assistance.

Creating SDM software and data backup tapes
Manual incremental backup (I-tape) (end)

15 You have completed this procedure.

Creating SDM software and data backup tapes Scheduling and enabling automated incremental backups

Application

ATTENTION

This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

Use this procedure to schedule and enable automated incremental software backups. Incremental backups consist of all SDM software files that have been changed or created since the most recent system image backup tape (S-tape) was created. The automated incremental backup, and the procedure to schedule and enable it, can be performed while the SDM is in service.

In the event that a file is open when the incremental backup begins, the most recent saved version of the file is backed up, which may result in inconsistency between the open file when it is saved, and the backed-up version.

To prevent or minimize this inconsistency, automated incremental backups should be scheduled to take place in a low-usage period. The default schedule for automated incremental backup is once a week, each Monday at 2 a.m. This schedule can be modified by editing the file "/sdm/mtce/smm/sdminc.cron".

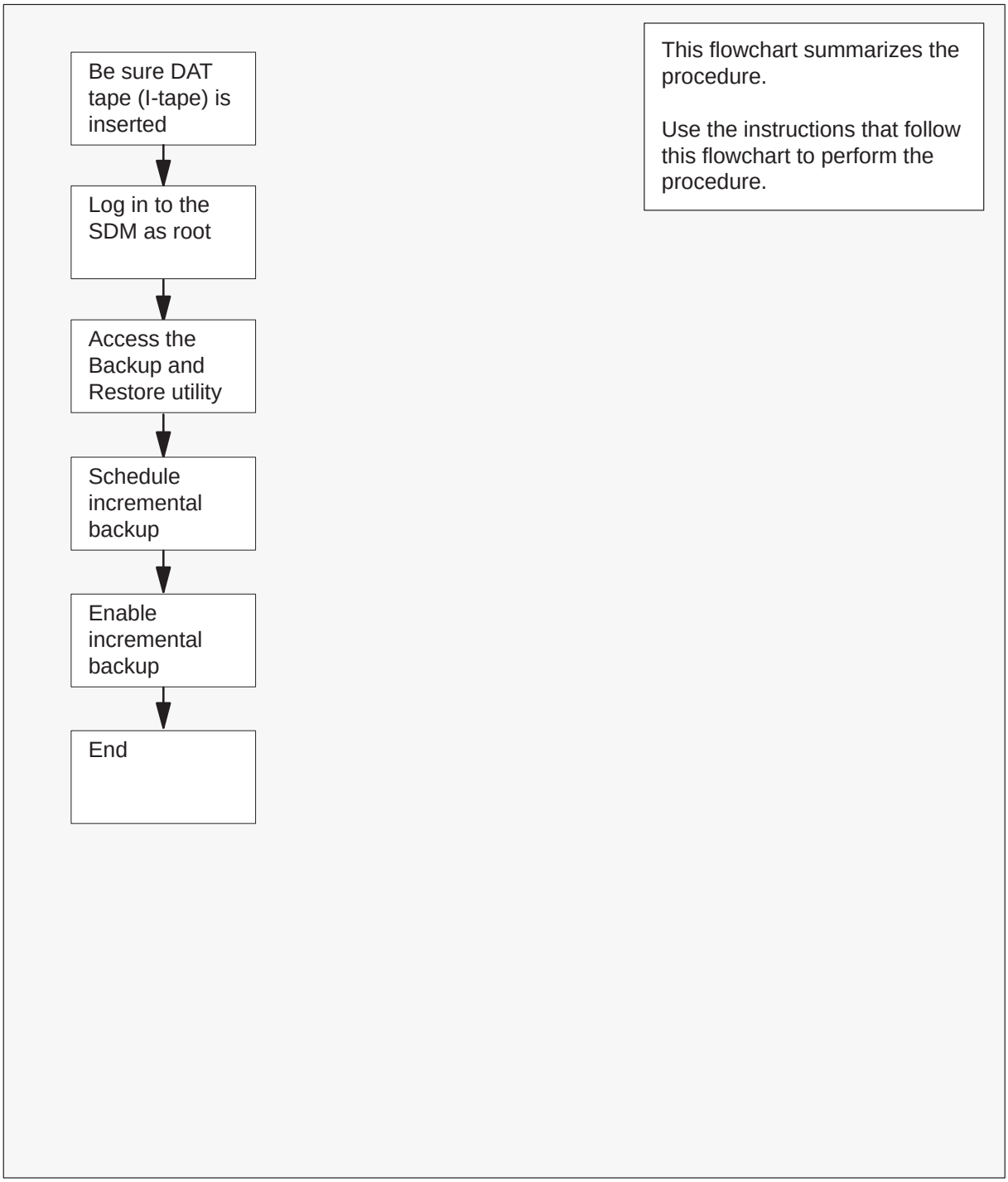
Incremental backups can be performed manually if required. Refer to the procedure "Manual incremental backup (I-tape)" in this chapter. For additional information on performing software backups, refer to the Administration Overview chapter of this document.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Creating SDM software and data backup tapes
Scheduling and enabling automated incremental backups (continued)

Summary of Scheduling and enabling automated incremental backups



Creating SDM software and data backup tapes
Scheduling and enabling automated incremental backups (continued)

Scheduling and enabling automated incremental backups

At the SDM

1 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

2

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that it is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

3 Insert the tape to be used for the automated incremental backup into the tape drive.

Note: See the Administration Overview chapter of this document for guidelines on tape usage and rotation for incremental backups.

At the local or remote VT100 terminal

4 Log in as the root user.

5 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

6 At the Backup and Restore Main Menu, select “Incremental Backup and Restore” by typing

>2
and pressing the Enter key.

7 At the Incremental Backup and Restore Menu, select “Enable Automated Incremental Backup” by typing

>5
and pressing the Enter key.

Note: To disable the automated incremental backup, select option 6, Disable Automated Incremental Backup.

8 The current automated incremental backup schedule is displayed:

Example response:

```
Please note the time scheduled for sdminc:
0   2   *   *   1     /sdmintools/bin/sdminc
```

Creating SDM software and data backup tapes
Scheduling and enabling automated incremental backups (end)

The above numbers correspond to minute, hour, day/month, month/year, and day/week. The appropriate ranges are as follows:

Minute: 0 to 59
Hour: 0 to 23
Day of the month: 1 to 31
Month of the year: 1 to 12
Day of the week: 0 to 6, with 0=Sunday, 6=Saturday

You will see the following prompt:

```
Would you like to return to the backup menu (y | n)?
```

9 Determine if you wish to change the automated incremental backup schedule.

If you wish to	Do
use the schedule displayed for automated incremental backups	enter “n” and go to step 11
change the schedule for automated incremental backups	enter “y’ and go to step 10

10 Edit the file in /sdm/mtce/smm/sdminc.cron.

Go to step 7.

At the SDM

11 Replace the front bezel.

12 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

13 You have completed this procedure.

Restoring SDM software and data
Full restore from S-tape and I-tape

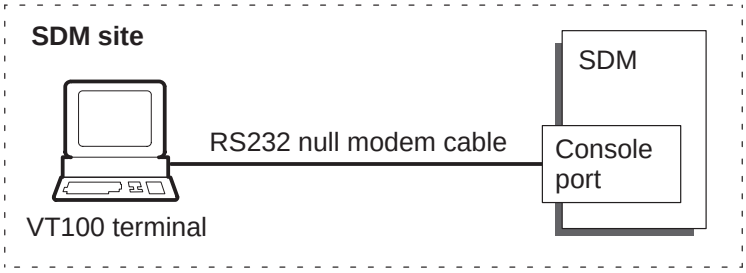
Application

ATTENTION

This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

Use this procedure to perform a full restore of the SDM software load from the system image tape (S-tape) and the most recent incremental backup tape (I-tape). A full software restore is required when the SDM is out of service because the software load has become corrupted.

This procedure must be performed by the root user from the local VT100 console as shown in following figure

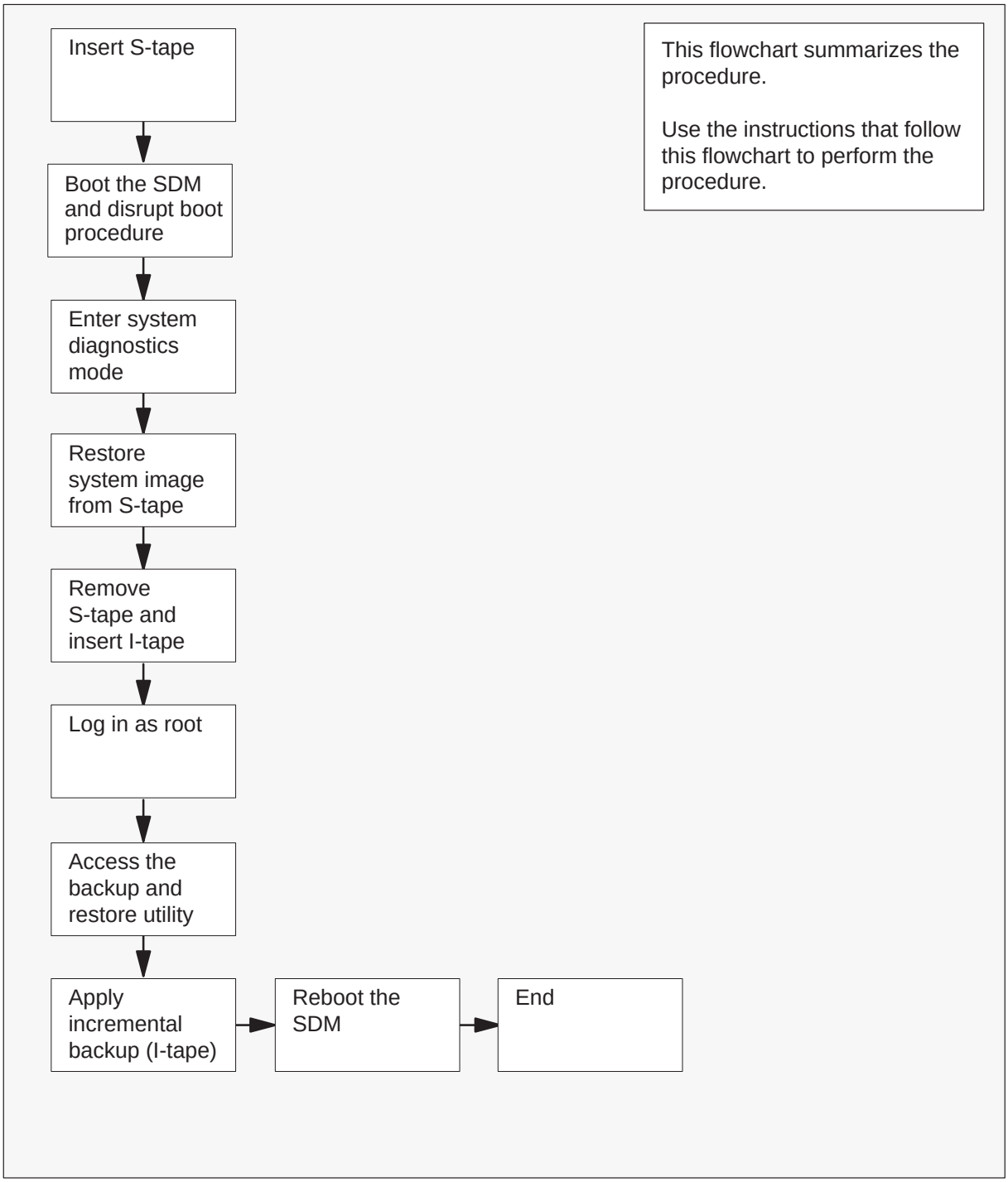


Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Restoring SDM software and data
Full restore from S-tape and I-tape (continued)

Summary of Full restore from S-tape and I-tape



Restoring SDM software and data
Full restore from S-tape and I-tape (continued)

Full restore from S-tape and I-tape

At the SDM

1 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

2

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

3 Ensure that the SDM tape drive contains the system image tape (S-tape).

At the FSP

4 Boot the SDM by turning the power off, then on, using the FSP breaker that supplies power to the SDM.

At the local VT100 terminal

5 When the system displays “SelfTests/Boots about to begin...”, press the break key to invoke the selection menu.

If the selection menu appears immediately, go to step 6.

If the response is PPC1-Bug, change the prompt to PPC1-Diag by typing

>sd
and pressing the Enter key.

Then type

>menu
and press the Enter key to display the selection menu.

Restoring SDM software and data
Full restore from S-tape and I-tape (continued)

6 From the selection menu select “Go to system debugger” by typing

>3
and pressing the Enter key.

You are now in the system diagnostics mode. The following prompt is displayed:

>PPC1-Diag

7 To verify the address of the tape drive, from the DIAG prompt type

>ioi
and press the Enter key. You will see the following information:

```
CLUN  DLUN  CNTRL-TYPE  DADDR  DTYPE  RM  Inquiry–Data
   0     0   NCR53C810      0  $00    N   SEAGATE ST11200N ST 31200 0456
   0    40   NCR53C810      4  $01    Y   ARCHIVE Python 28388-XXX 5.28
   1     0   PC8477         0  $00    Y   <None>
```

Note: In the example response above, the tape drive is ARCHIVE.

From the DIAG prompt, type

>pboot *0 40*
and press the Enter key.

where

0 is the controller’s address, and
40 is the tape drive

8 After the pboot command is entered, you are asked to enter the console setting and the language setting. When this is done, you see the following:

>Welcome to Base Operating System
Installation and Maintenance

9 Select “Change/Show Installation Settings and Install” by typing

>2
and pressing the Enter key.

10 The System Backup Installation and Settings menu is displayed. Verify the settings and press the Enter key. The restore process begins, and lasts about 25 min.

Note: As part of the restore, the system reboots automatically and displays the login prompt.

At the SDM

11 Remove the S-tape from the tape drive when the reboot is completed and store it in a secure location.

Restoring SDM software and data
Full restore from S-tape and I-tape (continued)

12 Insert the most recent incremental backup tape (I-tape) into the tape drive.

At the local or remote VT100 terminal

13 Log in as the root user.

14 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

15 From the Backup and Restore Main Menu, select “Incremental Backup and Restore” by typing

>2
and pressing the Enter key.

16 From the Incremental Backup and Restore Menu, select “Restore all files from an I-tape” by typing

>3
and pressing the Enter key.

Response:

```
Restoring all files and directories from the incremental backup tape.
A log file /tmp/sdminc.restore.all is being created.

Restoring is in progress.
```

17 The files are now being restored. When all files have been restored from the I-tape, the following message is displayed:

Response:

```
All files are restored from the incremental backup tape.
A log file is in /tmp/sdminc.restore.all
```

18 You will see the Incremental Backup and Restore menu. Select option 8 and press the Enter key to return to the previous menu.

19 You will then see the Backup and Restore Main Menu. Select option 4 and press the Enter key to exit.

20 Verify the contents of the I-tape by checking the log file /tmp/sdminc.restore.all or by listing the contents of the I-tape.

21 If you have not already done so, exit the backup and restore utility.

22 Reboot the SDM by typing

>reboot
and pressing the Enter key. The reboot display takes about 1 min to appear.

Restoring SDM software and data
Full restore from S-tape and I-tape (end)

At the SDM

23 Reinstall the front bezel.

24 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

25 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the computing module (CM). If the SDM fails to return to service automatically, use the SDM-related MAP alarm clearing procedures in this document to isolate and clear any problems. When you see the login prompt, the reboot has finished.

26 You have completed this procedure.

Restoring SDM software and data
Partial restore from the system image tape (S-tape)

Application

ATTENTION

This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

CAUTION

Possible loss of data

Use this procedure at the discretion of the system administrator. Perform a partial restore only if you are familiar with the files, and know exactly which files are to be restored. If you restore the wrong files, you may inadvertently corrupt SDM software.

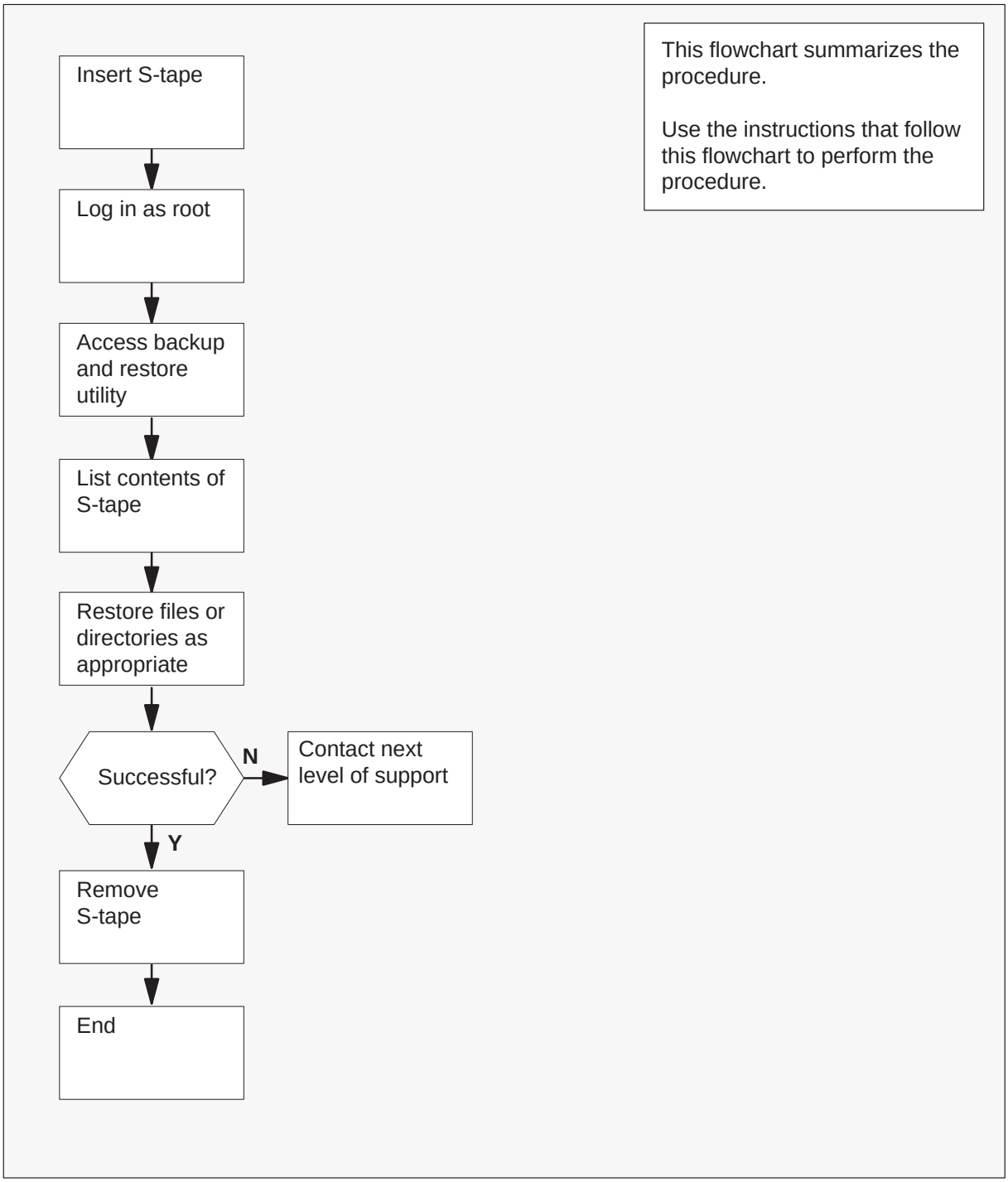
Use this procedure to restore individual files or sets of files from the system image tape (S-tape). This procedure can be performed by the root user from the local or remote VT100 terminal.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Restoring SDM software and data
Partial restore from the system image tape (S-tape) (continued)

Summary of Partial restore from the system image tape (S-tape)



Restoring SDM software and data
Partial restore from the system image tape (S-tape) (continued)

Partial restore from the system image tape (S-tape)

At the SDM

1 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

2

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

3 Ensure that the SDM tape drive contains the system image tape (S-tape).

At the local or remote VT100 terminal

4 Log in as the root user.

5 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

6 At the Backup and Restore Main Menu, select “System Image Backup and Restore” by typing

>1
and pressing the Enter key.

7 List the files and directories on the S-tape. Select “List Contents of the System Image Tape (S-tape)” by typing

>2
and pressing the Enter key.

Response:

```
Listing the entire contents from the S-tape is a long process.
Please allow 5 minutes to complete the listing.  A log file
will be saved in /tmp/sdmbkup.toc.
Once the LIST MENU is displayed, press ENTER to start the list process.
Are you ready for the list menu (y | n)?
```

Restoring SDM software and data
Partial restore from the system image tape (S-tape) (continued)

8 To display the List Files in a System Image menu, type

>y

and press the Enter key. Press the Enter key to begin listing the files from the S-tape.

9 When the system has finished listing the files on the S-tape, the status indicator changes from “running” to “ok”.

Response:

```
Press PF3 to exit.
Check /tmp/sdmbkup.toc log.
```

10 To begin restoring files, select “Restore Files from the System Image Tape (S-tape)” by typing

>3

and pressing the Enter key.

11 A warning is displayed advising that only experienced SDM system administrators should perform this procedure. The warning also advises that files and directories must be entered exactly as they appear in the list of contents. A log /tmp/sdmbkup.restore will be created.

To continue this procedure, type

>y

and press the Enter key to enter the name of the directory or file.

12 The menu, Restore Files in a System Image, is displayed. Enter the full path name of the file or directory in the “files to restore” field, including “./”, that you wish to restore, and press the Enter key.

13 The Command Status menu is displayed. The status indicator is listed as “running”.

14 When the system has finished restoring the files on the S-tape, the status indicator changes from “running” to “okay”. Once “okay” is displayed, the files have been successfully restored.

Response:

```
Press PF3 to exit.
Check /tmp/sdmbkup.restore log.
```

Note: You can also determine if the restore was successful by checking the log /tmp/sdmbkup.restore, or by listing the contents of the S-tape to ensure the file you have restored is on the tape.

Restoring SDM software and data
Partial restore from the system image tape (S-tape) (end)

15 Determine if the restore was successful.

If the restore	Do
was successful	step 16
failed	step 19

At the SDM

16 Remove the S-tape and store it in a secure place. If you are using the automated incremental backup utility, re-install the appropriate incremental backup tape (I-tape) into the tape drive.

17 Replace the front bezel.

18 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

Go to step 20.

19 Contact the personnel responsible for the next level of support.

20 You have completed this procedure.

Restoring SDM software and data
Partial restore from an incremental backup tape (I-tape)

Application

ATTENTION

This procedure must be performed by a trained AIX system administrator who has root user privileges to access the SDM.

CAUTION

Possible loss of data

Usage of this procedure is at the discretion of the system administrator. Perform a partial restore only if you are familiar with the files, and know exactly which files are to be restored. If you restore the wrong files, you may inadvertently corrupt software.

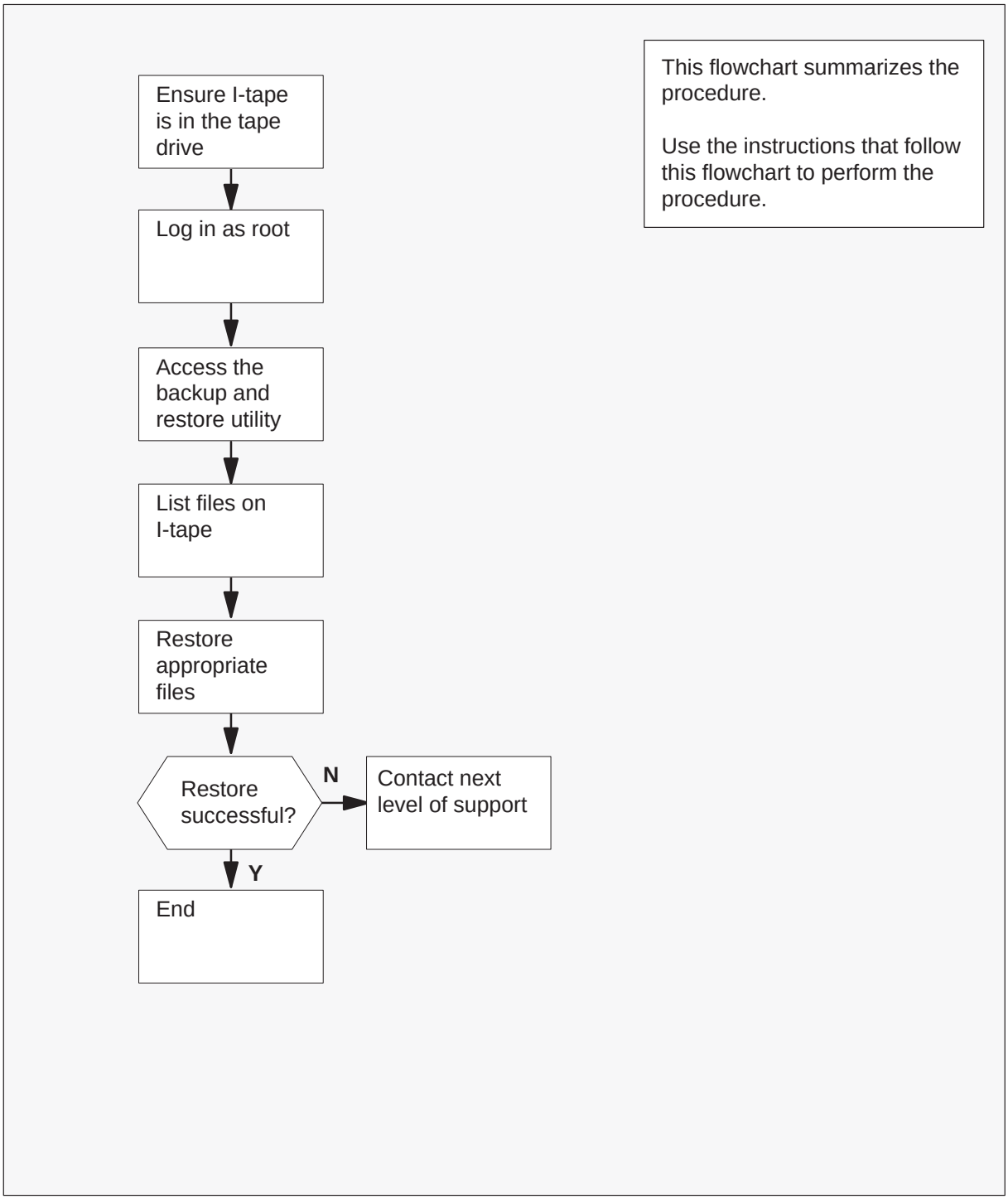
This procedure can be performed by the root user from the local or remote VT100 console.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Restoring SDM software and data
Partial restore from an incremental backup tape (I-tape) (continued)

Summary of Partial restore from an incremental backup tape (I-tape)



Restoring SDM software and data
Partial restore from an incremental backup tape (I-tape) (continued)

Partial restore from an incremental backup tape (I-tape)

At the SDM

1 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

2

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

3 Ensure that the SDM tape drive contains the most recent I-tape.

At the local or remote VT100 terminal

4 Log in as the root user.

5 Access the Backup and Restore Main Menu by typing

>sdmbkup
and pressing the Enter key.

6 From the Backup and Restore Main Menu, select “Incremental Backup and Restore” by typing

>2
and pressing the Enter key.

7 List the files and directories on the I-tape. Select“List Contents of an Incremental Backup Tape (I-tape) by typing

>2
and pressing the Enter key.

Response:

```
Listing contents of the incremental backup tape.
A log file /tmp/sdminc.toc is being created.
```

When the system has finished listing the contents on the I-tape, the following message is displayed:

Response:

```
Listing contents of the incremental backup tape is complete.
A log file is in /tmp/sdminc.toc.
```

Restoring SDM software and data
Partial restore from an incremental backup tape (I-tape) (continued)

8 At the Incremental Backup and Restore Menu, select “Restore selective files from an I-tape” by typing

>4

and pressing the Enter key.

A warning is displayed advising that only experienced SDM system administrators should perform this procedure. This warning also advised that files and directories to be restored must be entered exactly as they appear.

9 Enter the full path name of the file or directory to be restored, as it appears in the list of contents, including “/”.

Response:

```
Restoring from the incremental backup tape.
A log file /tmp/sdminc.restore is being created.

Restoring is in progress.
```

Note: The system displays the names of the files as they are restored. The restore process takes approximately 5 min.

10 When the files have been restored, the following message is displayed:

Response:

```
Restore is complete.
A log file is in /tmp/sdminc.restore.
```

11 When the restore is finished, verify the contents on the I-tape by checking the log file /tmp/sdminc.restore or listing the contents of the I-tape.

12 Determine if the restore was successful.

If the restore	Do
was successful	step 14
failed because the files could not be found	step 13
failed for any other reason	step 16

At the SDM

13 The specified files are not on the I-tape. Verify the contents of the I-tape to ensure the file you want to restore is on the I-tape.

Go to step 7.

14 Replace the front bezel.

Restoring SDM software and data
Partial restore from an incremental backup tape (I-tape) (end)

15 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

Go to step 17.

16 Contact the personnel responsible for the next level of support.

17 You have completed this procedure.

Installing the MAP Access application on workstations

ATTENTION

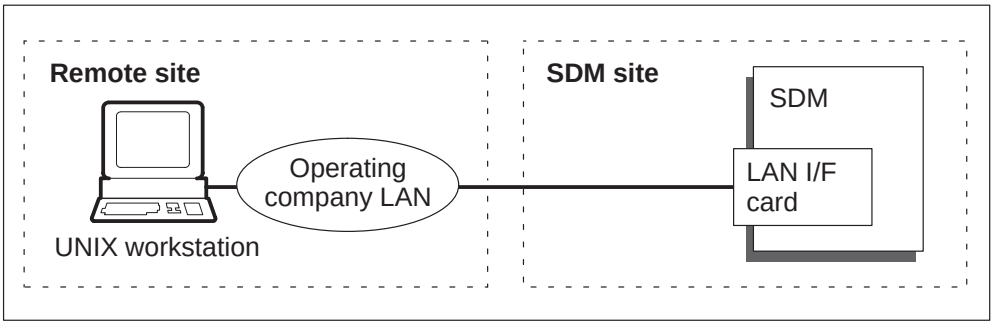
Ensure that the MAP Access application is installed on the SDM before performing this procedure. This application is supported only on Hewlett-Packard 700 series workstations running HP-UX version 9.05 or higher.

ATTENTION

This procedure must be performed by a trained AIX system administrator with root user privileges for accessing the SDM and the client workstation.

Application

Use this procedure to install the MAP Access application and its manual pages on a client workstation on the operating company LAN, as shown in the following figure.



This procedure requires root user permissions on the SDM and the client workstation. To perform this procedure, you must know the IP address of the client workstation, and the IP address of each SDM connected to the operating company LAN.

Note: Connectivity to the operating company LAN is optional on the SDM, and requires provisioning of the Ethernet controller card (NTRX50JV) and the Ethernet transition card (NTRX50JW). The MAP Access application will not function if these cards are not installed and commissioned.

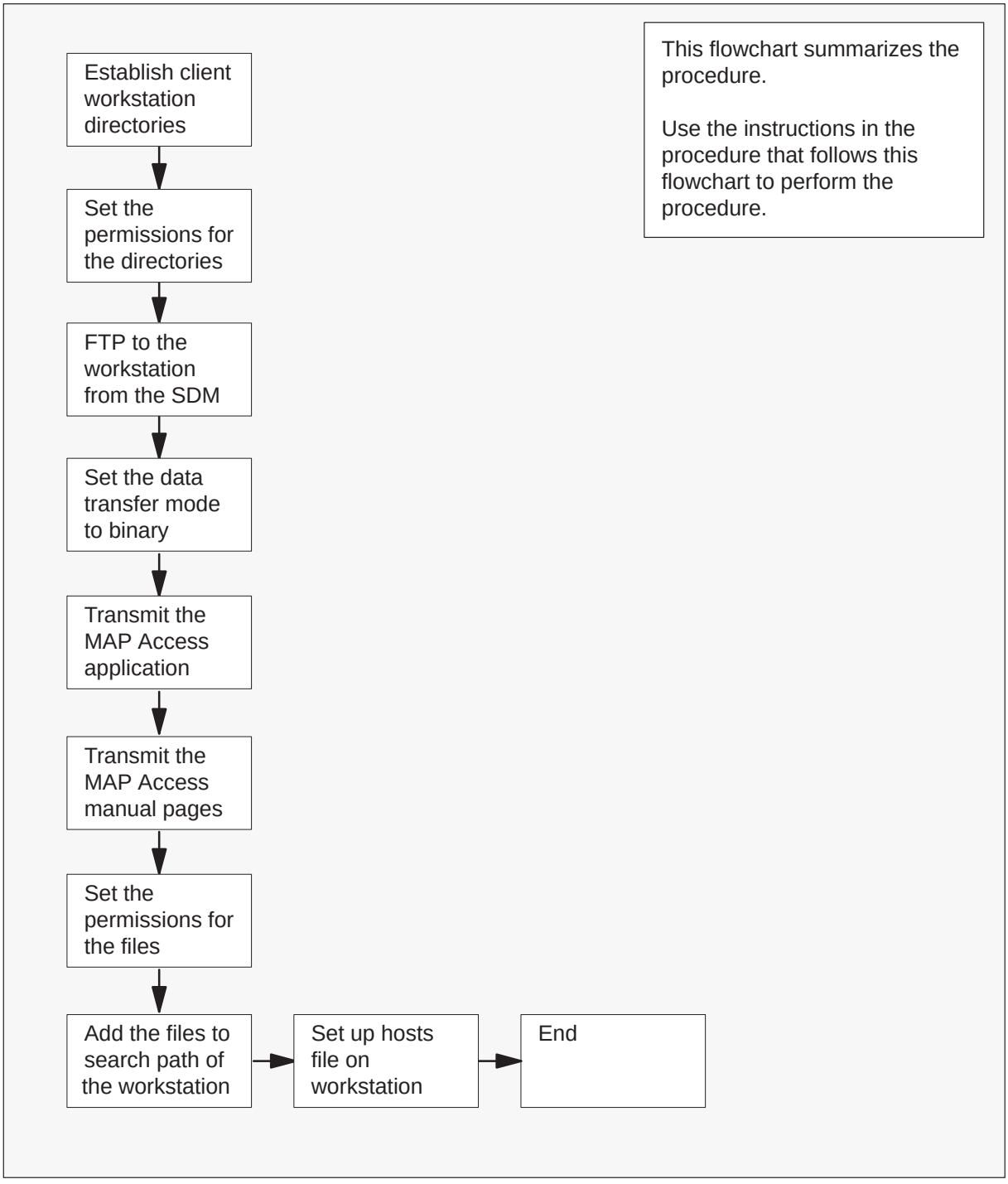
Installing the MAP Access application on workstations (continued)

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the task.

Installing the MAP Access application on workstations (continued)

Summary of Installing the MAP Access application on workstations



Installing the MAP Access application on workstations (continued)

Installing the MAP Access application on workstations

At the client workstation

1 Log in to the client workstation as root.

2 Access the root filesystem by typing

cd /
and pressing the Enter key.

3 Create the directory for the client application by typing

mkdir -p sdm/bin
and pressing the Enter key.

4 Create the directory for the client manual (man) pages by typing

mkdir -p sdm/man/man1
and pressing the Enter key.

5 Set the permissions for the new directories by typing

chmod -R 755 sdm
and pressing the Enter key.

At the local or remote VT100 terminal

6 Log in to the SDM as root.

7 Access the directory containing the MAP Access application by typing

>cd /sdm/logs/map
and pressing the Enter key.

8 FTP to the client workstation that you are installing the MAP Access application on by typing

>ftp *IP address*
and pressing the Enter key.

where

IP address is the IP address of the client workstation

Note: You will be prompted for to enter a userid and password to access the client workstation. Use the root userid and password.

9 Set the FTP data transfer mode to binary by typing

>bin
and pressing the Enter key.

Installing the MAP Access application on workstations (continued)

10 Access the destination directory for the MAP Access client workstation software by typing

>cd /sdm/bin
and pressing the Enter key.

11 Install the MAP Access application on the client workstation by typing

>put map
and pressing the Enter key.

Note: The system will tell you the transfer is complete if you have performed this procedure successfully.

12 Access the destination directory on the client workstation for the MAP Access manual pages by typing

>cd /sdm/man/man1
and pressing the Enter key.

13 Install the MAP Access application on the client workstation by typing

>put map.1
and pressing the Enter key.

Note: The system will tell you the transfer is complete if you have performed this procedure successfully.

14 When the transfer is complete, exit FTP by typing

>quit
and pressing the Enter key.

15 Log off from the SDM.

At the client workstation

16 Access the directory containing the MAP Access location by typing

>cd /sdm/bin
and pressing the Enter key.

17 Verify that the MAP Access application is present by typing

>ls
and pressing the Enter key.

18 Set execute and read permissions for the MAP Access application by typing

>chmod 755 /sdm/bin/map
and pressing the Enter key.

19 Set execute and read permissions for the MAP Access manual pages by typing

>chmod 744 /sdm/man/man1/map.1
and pressing the Enter key.

Installing the MAP Access application on workstations (end)

20 Add /sdm/bin to the search path of the client workstation (the $PATH environment variable).

21 Add /sdm/man to the manual page path of the client workstation (the $MANPATH environment variable).

22 Ensure that the client workstation has an entry in its hosts file (either /etc/hosts or an NIS/YP equivalent) for each SDM/switch combination accessible through the operating company LAN.

Each entry must contain the IP address of the SDM, the hostname of the SDM, and an alias for the common language location identifier (CLLI) of the switch to which the SDM is connected. The alias can be the actual CLLI of the switch that hosts the SDM, or an alternative name. An example follows, showing host file entries on the workstation permitting access to two switches: local1, through host “sdm”, and local2, through host “sdm2”.

Example response:

```
131.129.128.181     sdm       local1
131.129.128.060     sdm2      local2
```

Upon completion of this procedure, the user can access the MAP display from the workstation using the command “map”. If the command is entered without any additional destination information, the MAP Access application attempts to connect to the switch connected to the host named “sdm” by default. To access other switches, or if there is no host named “sdm” in the hosts file, the user must specify the destination switch when entering the “map” command. This is done by specifying the switch alias, the host name of the SDM, or the IP address of the SDM.

Using the example host file entries shown, the user would access the MAP display on switch “local1” from the workstation by typing

>map

and pressing the Enter key.

To access the MAP on switch “local2” from the workstation, the user must enter one of the three following commands:

>map 131.129.128.060

or

>map sdm2

or

>map local2

23 You have completed this procedure.

Note: For instructions on using the MAP Access application after it is installed, see the procedure *Accessing the MAP from the operating company LAN* on page 4-53 of this document.

SDM hardware upgrade procedures

This chapter contains SDM hardware upgrade procedures. Two hardware items can be upgraded on the SDM:

- the processor card can be upgraded to a card with additional DRAM. The processor card is available in four versions, with 32, 64, 96, or 128 Mbytes of DRAM.
- the 1 Gbyte disk drive unit can be upgraded to a 2-Gbyte unit.

Note: Before upgrading to a processor card with 128 MByte DRAM, the disk drive must be upgraded to the 2-GByte version.

Each procedure contains the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Explanatory and context-setting information

The first page of each procedure contains the following headings:

- Application (why you would perform the procedure)
- Impact (how the procedure affects service)
- Action (how to use the flowchart and step-action instructions)

Summary flowchart

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it.

Step-action instructions

The step-action instructions tell you how to perform the procedure. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

The step-action instructions provide the command syntax and system information you use or see while performing the procedure. For help on DMS and SDM commands or output, see the "About this document" chapter at the beginning of this document.

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS

Application

Use this procedure to upgrade the processor card in an SDM. This procedure requires root user permissions for accessing the SDM.

Note: Use this procedure only for replacing the existing SDM processor card with a new card, with a different product equipment code (PEC) suffix, for upgrade purposes. The list of valid SDM processor cards is provided below. Do not use this procedure to replace a faulty processor card. To replace a faulty processor card, refer to the appropriate procedure in the SDM hardware replacement procedures chapter of this manual.

Nortel PEC	Name
NTRX50JP	processor card with 32 MByte DRAM
NTRX50JQ	processor card with 64 MByte DRAM
NTRX50JR	processor card with 96 MByte DRAM
NTRX50JS	processor card with 128 MByte DRAM

Note: The processor card with 128 MByte DRAM requires a 2-GByte disk drive unit in the SDM. The disk drive upgrade must be performed before the processor card upgrade. Refer to the disk drive upgrade procedure in this chapter for detailed instructions.

Impact

This procedure requires complete shutdown of the SDM and all its applications. Perform this procedure during a low-usage period to minimize service disruption.

WARNING

Potential equipment damage

Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware upgrade procedure.

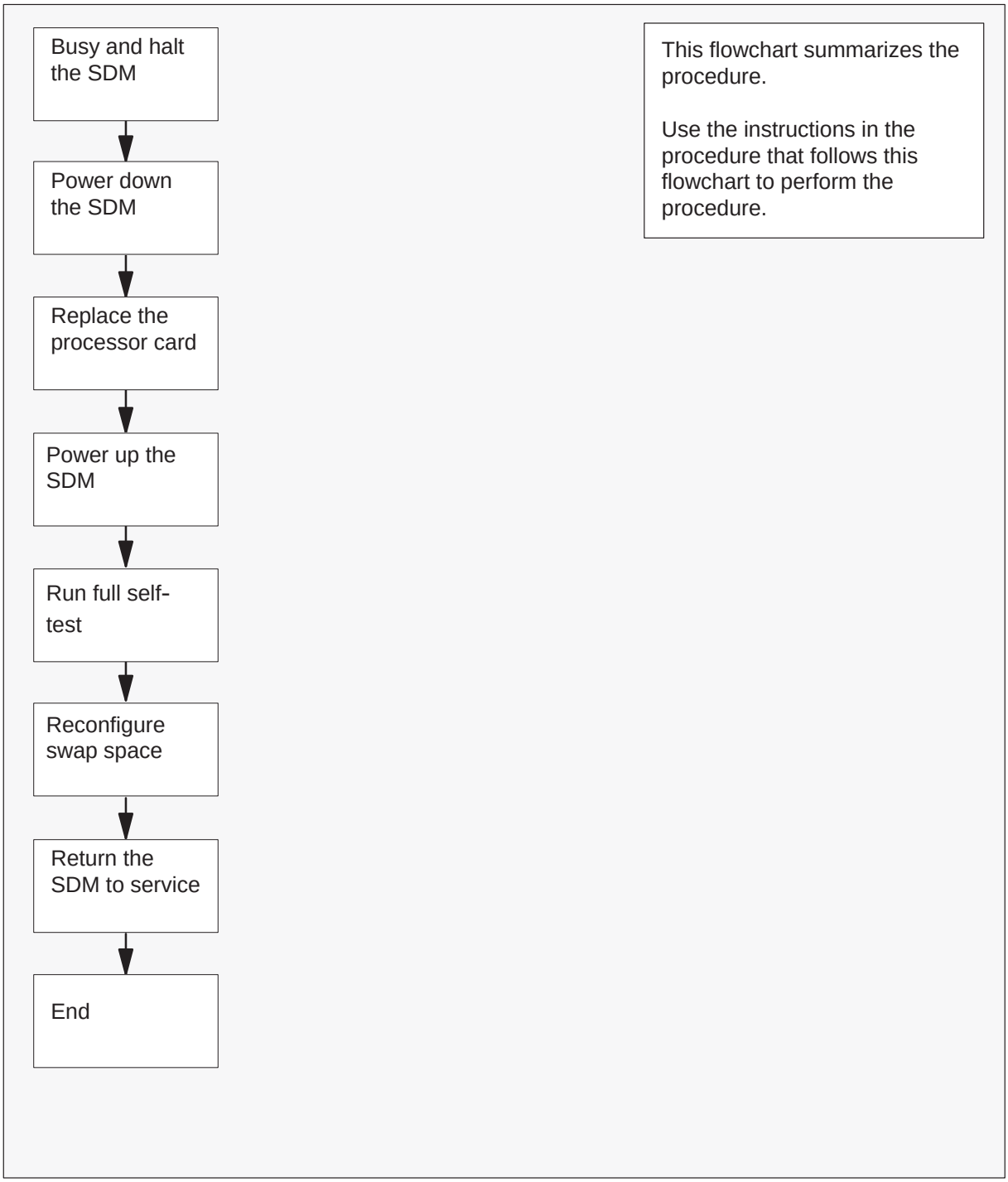
Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

Action

The following flowchart is only a summary of the procedure. To replace the processor card, use the instructions in the step-action procedure that follows the flowchart.

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

Summary of Upgrading the SDM processor card



Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

Upgrading the SDM processor card

1 Obtain a replacement card, and a small flathead or Phillips screwdriver. Ensure that the replacement card is one of the valid substitutes, as listed in the Application section on the first page of this procedure.

At the MAP display

2 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

3 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  InSv
```

4 Determine the SDM node state (shown as InSv in the example above).

If the SDM node state is	Do
in service (InSv)	step 6
anything else	step 5

5 A fault exists on the SDM, or another SDM maintenance activity is already in progress. Clear the fault, or complete the maintenance activity, as appropriate. To clear faults, check for SDM-related alarms under the PM header of the MAP alarm banner, and use the appropriate alarm clearing procedure in this manual to clear the fault before continuing this procedure.

Go to step 4.

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

6

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

7 Confirm the Bsy command by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

8 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

9 Confirm the PMRESET HALT command by typing

>YES

and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

At the FSP

10

WARNING

Potential equipment damage

Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

At the front of the SDM

11 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

12

CAUTION

Potential equipment damage

To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

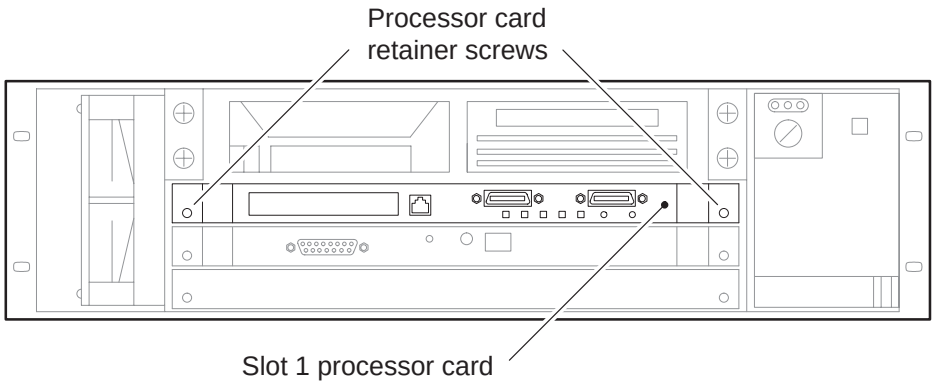
Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

Remove the front bezel by pressing the latches on both sides and pulling.

13

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

At slot 1, release the processor card retainer screws.



14 Open the locking levers on the face of the processor card by moving the levers outward.

15 While grasping the locking levers, gently pull the card towards you until it protrudes about 2 in. (5.1 cm) from the equipment shelf.

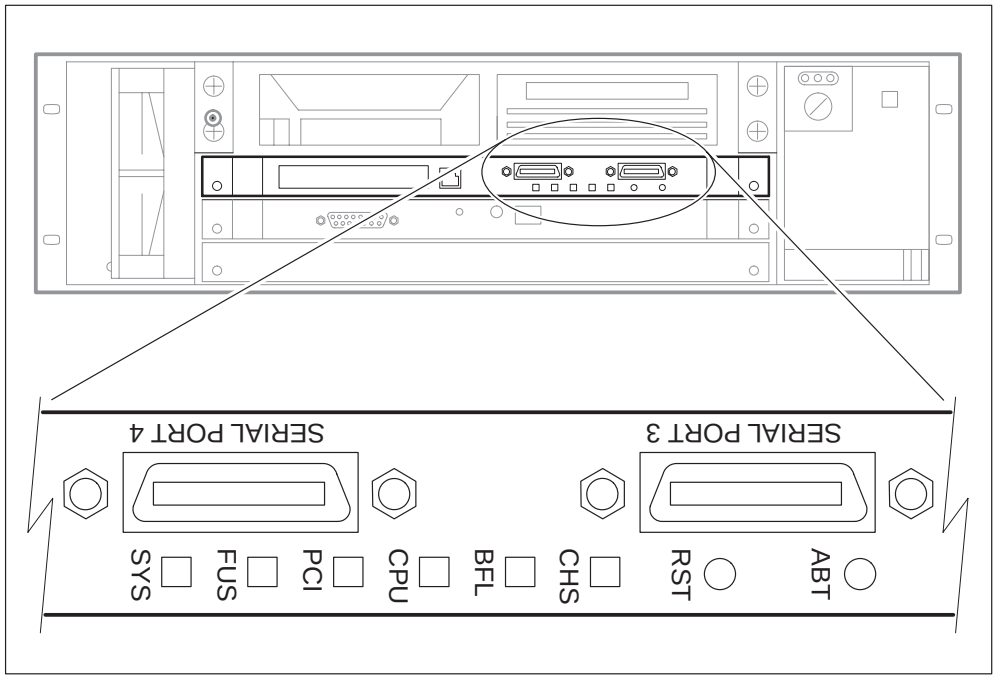
16 Gently pull the card toward you until it clears the shelf.

17 Ensure the location of each jumper on the replacement processor card matches that of the card you removed.

18 Place the card you have removed in an electrostatic discharge (ESD) protective container.

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

19 Insert the replacement card into slot 1 with its locking levers open. Make sure that the card is inserted as shown in the following diagram.



20 Gently slide the card until fully inserted into the backplane connector.

21 Close the locking levers to secure the card.

22 Tighten the processor card retainer screws.

At the FSP

23 Power up the SDM at the FSP breaker.

At the local or remote VT100 console

24 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If the	Do
selection menu appears	step 26
response is `PPC1-Bug>`	step 25

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

25 Change the prompt by typing

>sd
and pressing the Enter key.

Example response:

```
PPC1–Diag>
```

Go to step 27.

26 Select option 3 - “Go To System Debugger” from the selection menu and press the Enter key.

Response:

```
PPC1–Diag>
```

27 Run self-tests at the PPC-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any test failed	step 41
all tests passed or bypass	step 28

28 Return to the selection menu by typing

>menu
and pressing the Enter key.

29 Select option 1 - “Continue System Start Up” from the selection menu and press the Enter key.

30 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 32
does not boot successfully	step 31

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

At the FSP

31 Cycle the SDM power to repeat the boot process. Allow the boot process to finish uninterrupted. (Do not press the break key.)

If the SDM	Do
boots successfully	step 32
does not boot successfully	step 41

At the local or remote VT100 terminal

32 Log in to the SDM using the root user account name and password.

33 Configure the swap space for the new processor card by typing

>sdmconfig -z
and pressing the Enter key.

Response:

```
Performing Platform Pre-Configuration...
 Keep Alive Timer.
 Internet Service Ports.
 Users.
 Default Network Services.
 Syslog.
 Miscellaneous.
   Increasing Paging Space
..Complete
```

At the front of the SDM

34

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Replace the front bezel.

35 Use a flathead or a Philips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (continued)

36 Allow 1 min for the SDM to re-establish communication with the computing module (CM).

At the MAP display

37 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

38 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

39 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

40 Check the SDM node state.

If the node state is	Do
InSv	step 42
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	see PM SDM Minor alarm clearing procedure in this document

41 For further assistance, contact the personnel responsible for the next level of support.

42 You have completed this procedure.

Upgrading the SDM processor card NTRX50JP, NTRX50JQ, NTRX50JR, NTRX50JS (end)

Note: If your SDM is commissioned with X.25 connectivity, contact Nortel to obtain the new X.25 license key assigned to the new processor card.

Upgrading the SDM disk drive NTRX50JT, NTRX50JU

Application

Use this procedure to upgrade the disk drive unit in an SDM.

Note: Use this procedure only for replacing the existing SDM disk drive unit with a new disk drive unit, with a different product equipment code (PEC) suffix, for upgrade purposes. The list of valid SDM disk drive units is provided in the following table. Do not use this procedure to replace a faulty disk drive unit. To replace a faulty disk drive unit, refer to the appropriate procedure in the SDM hardware replacement procedures chapter of this document.

Nortel PEC	Name
NTRX50JT	1 GByte disk drive
NTRX50JU	2 GByte disk drive

Impact

This procedure requires complete shutdown of the SDM and all its applications. Perform this procedure during a low-usage period to minimize service disruption.

WARNING

Potential equipment damage

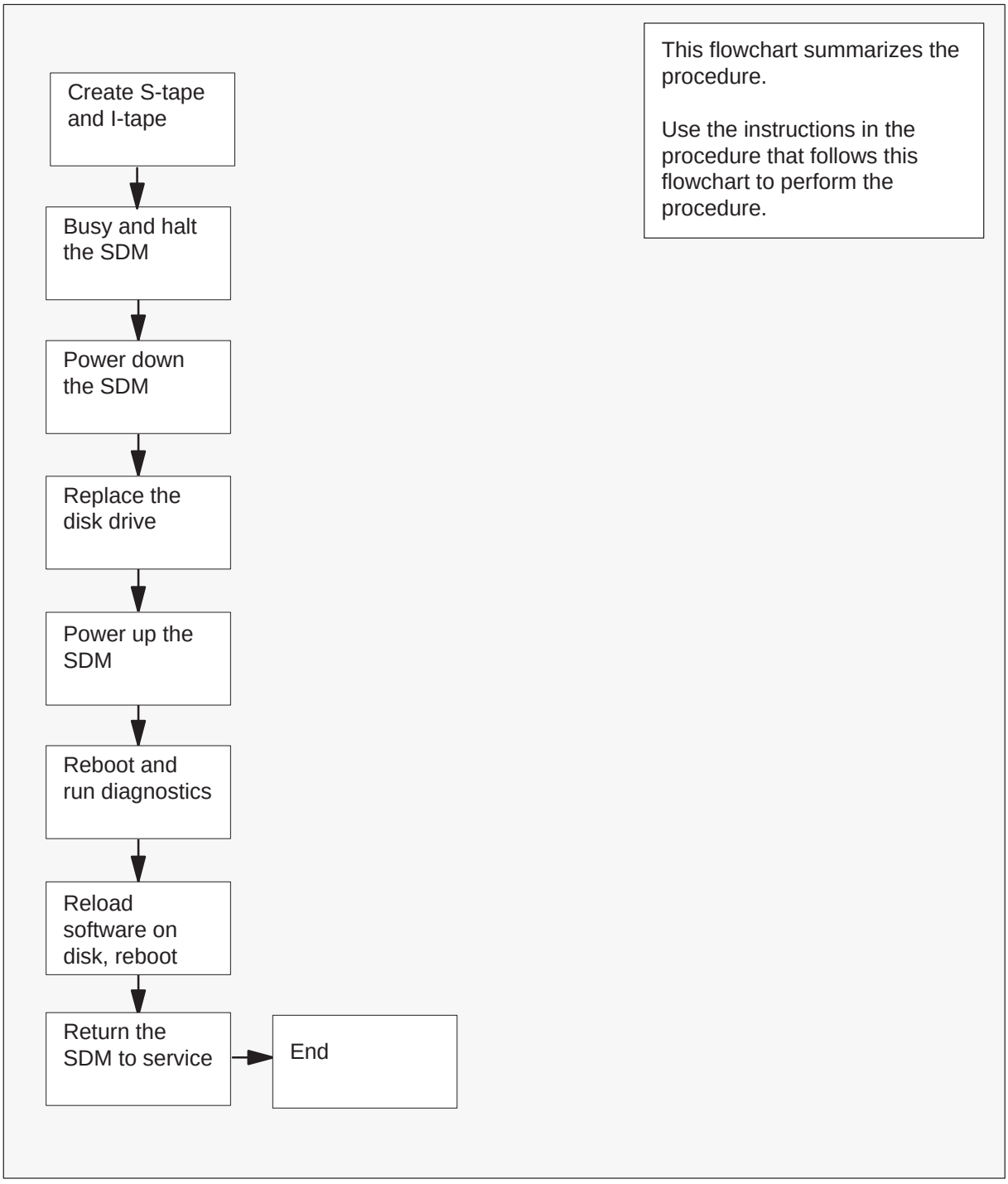
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, shut down the system as specified in the hardware upgrade procedure.

Action

The following flowchart is only a summary of the procedure. To replace the disk drive, use the instructions in the step-action procedure that follows the flowchart.

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

Summary of Upgrading an SDM disk drive unit



Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

Upgrading an SDM disk drive unit

1 If you have not already done so, create an S-tape using the procedure *Creating SDM software and data backup tapes – System image backup (S-tape)* on page 6-13 of this document.

If you have created an S-tape, go to step 2.

2 Create an I-tape using the procedure *Creating SDM software and data backup tapes – Manual incremental backup (I-tape)* on page 6-23 of this document.

3 Obtain a replacement disk drive unit, and a small flathead or Phillips screwdriver. Ensure that the replacement disk drive unit is one of the valid substitutes, as listed in the Application section on the first page of this procedure.

At the MAP display

4 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

5 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  InSv
```

6 Determine the SDM node state (shown as InSv in the example above).

If the SDM node state is	Do
in service (InSv)	step 8
anything else	step 7

7 A fault exists on the SDM, or another SDM maintenance activity is already in progress. Clear the fault, or complete the maintenance activity, as appropriate. To clear faults, check for SDM-related alarms under the PM header of the MAP alarm banner, and use the appropriate alarm clearing procedure in this document to clear the fault before continuing this procedure.

Go to step 6.

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

8

CAUTION
Loss of service
Manually busying the SDM shuts down all applications without warning to the application users. Be sure no applications are running, or notify users before the shut down.

Manually busy the SDM by typing

>BSY
and pressing the Enter key.

Response:

```
SDM 0 is in service.
This command will cause a service interruption.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

9 Confirm the Bsy command by typing

>YES
and pressing the Enter key.

Response:

```
SDM 0 Bsy initiated.
SDM 0 Bsy completed.
```

10 Halt processing on the SDM by typing

>PMRESET HALT
and pressing the Enter key.

Response:

```
SDM 0 pmreset halt will shutdown the SDM.
It can only be restarted at the SDM frame.
Do you wish to proceed?
Please confirm (“YES”, “Y”, “NO”, “N”)
```

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

11 Confirm the PMRESET HALT command by typing

>YES

and pressing the Enter key.

Response:

```
SDM 0 ManB          /PMReset Halt in progress

SDM 0 PMReset halt initiated.
The SDM frame can be powered down at hh:mm:ss.
```

where

hh:mm:ss is the DMS switch time that the SDM frame can be powered down

Note: The maintenance flag "/PMReset Halt in progress" is displayed until the SDM recovers from the power cycle.

At the FSP

12

WARNING
Static electricity damage
Wear an ESD grounding wrist strap connected to the MIS frame when handling a card. This protects the card against damage caused by static electricity.

WARNING
Potential equipment damage
Removing or replacing SDM hardware while the unit is powered up may cause serious equipment damage. Before removing or replacing SDM hardware, ensure that the power to the SDM is off.

Power down the SDM at the FSP breaker.

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

At the front of the SDM

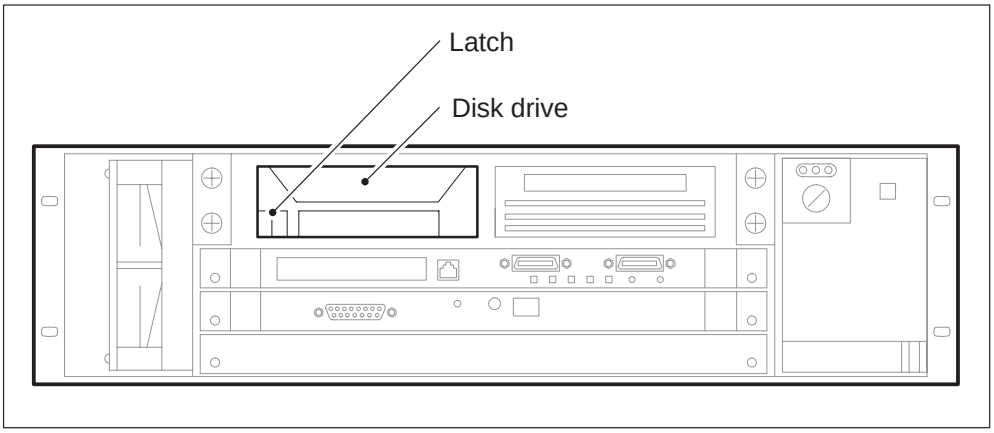
13 Use a flathead or a Phillips screwdriver to unlock the front bezel by making a 1/4 clockwise turn to each latch lock.

14

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

Remove the front bezel by pressing the latches on both sides and pulling.

15 Push the latch of the disk drive assembly inward and unplug the unit. Pull the unit out, and place it in an electrostatic discharge (ESD) protective container.



16 Set the SCSI address dial to 0 on the new disk drive.

Note: The SCSI address dial is located at the rear left corner of the disk drive.

17 Carefully slide the new disk drive into its slot until fully inserted into the backplane connector.

At the FSP

18 Power up the SDM at the FSP breaker.

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

At the local or remote VT100 console

19 The SDM will begin to boot automatically. At the "Self-tests/Boots about to begin" prompt, press the break key to invoke the selection menu.

If the	Do
selection menu	step 21
response is PPC1–Bug>	step 20

20 Change the prompt by typing

>sd
and pressing the Enter key.

Example response:

```
PPC1–Diag>
```

Go to step 22.

21 Select option 3 - "Go To System Debugger" from the selection menu and press the Enter key.

Example response:

```
PPC1–Diag>
```

22 Verify that the system recognizes the new disk drive by typing

>IOI
and pressing the Enter key.

Example response:

```
I/O Inquiry Status:
CLUN  DLUN CNTRL–TYPE  DADDR  DTYPE  RM  Inquiry–Data
   0     0 NCR53C810   0      $00    N   SEAGATE  ST11200N  ST32430  0456
   0    40 NCR53C810   4      $01    Y   ARCHIVE  Python  28388–XXX 5.28
   1     0 PC8477      0      $00    Y   <None>
```

Note: The disk drive shown is a SEAGATE unit.

If the disk drive is	Do
on the list of recognized devices	step 23
not on the list of recognized devices	step 33

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (continued)

23 Run self-tests at the PPC-Diag prompt by typing

>st
and pressing the Enter key.

If	Do
any of the tests fail	step 33
all of the tests pass or bypass	step 24

24 Perform a full software restore using the procedure *Restoring the SDM – Full restore from S-tape and I-tape* on 6-32 in the SDM System Administration Procedures chapter of this document. When you have completed the software restore and begun to reboot the SDM, as instructed by that procedure, return to this point.

25 The SDM continues to boot automatically.

If the SDM	Do
boots successfully	step 26
does not boot successfully	step 33

At the front of the SDM

26

CAUTION
Potential equipment damage
To prevent damage to the SDM front bezel guide pins, ensure that the front bezel is handled gently and aligned correctly during removal and installation.

If you have not already done so, reinstall the front bezel.

27 Use a flathead or a Phillips screwdriver to lock the bezel by making a 1/4 counter-clockwise turn to each latch lock.

28 Allow 1 min after the boot process is complete for the SDM to re-establish communication with the computing module (CM).

Upgrading the SDM disk drive NTRX50JT, NTRX50JU (end)

At the MAP display

29 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

30 Post the SDM by typing

>POST SDM 0
and pressing the Enter key.

Example response:

```
SDM  0  ManB
```

31 Return the SDM to service by typing

>RTS
and pressing the Enter key.

Response:

```
SDM 0 RTS initiated.
SDM 0 RTS completed.
```

32 Check the SDM node state.

If the node state is	Do
InSv	step 34
ISTb	see PM ISTb alarm clearing procedure in this document
SysB	see PM SDM Major alarm clearing procedure in this document
ManB	see PM SDM Minor alarm clearing procedure in this document

33 For further assistance, contact the personnel responsible for the next level of support.

34 You have completed this procedure.

List of terms

802.3 10BASE-T

An IEEE standard for operating Ethernet LANs on twisted-pair cable with a transmission rate of 10 Mbit/s.

10BASE-T

An Ethernet LAN that works on twisted pair wiring similar to telephone cabling.

Access Control List (ACL)

A set of entries associated with a file that specify permissions for all possible user ID and group ID combinations.

ACL

See Access Control List (ACL).

Advanced Interactive Executor (AIX)

The IBM implementation of UNIX. AIX is the base operating system in the SDM.

AIX

See Advanced Interactive Executor (AIX).

alarm

A signal that is visual, audible, or both that is used to alert operating company personnel to a condition requiring attention.

backplane

Connector blocks and special wiring on the rear of a shelf. Printed circuit board modules normally mount in front of the backplane.

boot

The process of loading, initializing, and running an operating system.

cabinetized miscellaneous equipment cabinet (CMIS)

A cabinet used to house customer-specified equipment.

channel service unit (CSU)

Line bridging devices that allow several inputs to share one output. CSUs exist to handle any input/output combination of synchronous or asynchronous terminals, computer ports, or modems. These units are also called modem sharing units, digital bridges, port sharing units, digital sharing devices, modem contention units, multiple access units, control signal activated electronic switches or data-activated electronic switches.

client

A computer or program that requests one or more services from a server.

CLLI

See common language location identifier (CLLI).

CM

See computing module (CM).

CMIS

See cabinetized miscellaneous equipment cabinet (CMIS).

common language location identifier (CLLI)

A standard identification method for trunk groups in the following form:

aaaa bb xx yyyy

where:

aaaa
is the city code
bb
is the province or state code
xx
is the trunk group identifier
yyyy
is the trunk number

computing module (CM)

The central processor and memory element of DMS SuperNode. The CM consists of a pair of CPUs with associated memory that operate in a synchronous matched mode on two separate planes. Only one plane is active; it maintains overall control of the system while the other plane is on standby.

CSU

See channel service unit (CSU).

data service unit (DSU)

Also called digital service unit. Converts RS-232-C or other terminal interface to DSX-1 interface.

DCE

See Distributed Computing Environment (DCE).

Distributed Computing Environment (DCE)

An architecture consisting of standard programming, interfaces, conventions and server functionalities (remote procedure call) for distributing applications transparently across networks.

DMS SuperNode

The central control and messaging component of the DMS-100 switch. DMS SuperNode consists of two major elements, the computing module (CM) and the message switch (MS). The CM is the central processing and memory element. The MS is the messaging hub for the switch. See also computing module and message switch.

DRAM

Dynamic random access memory

DSU

See data service unit (DSU).

EIU

See Ethernet interface unit (EIU).

electromagnetic interference (EMI)

The phenomenon resulting when electromagnetic energy causes an unacceptable or undesirable response, malfunction, degradation, or interruption of the intended operation of the electronic equipment, subsystem, or system.

erasable programmable read-only memory (EPROM)

A type of read-only memory in which data is initially programmable as in programmable read-only memory (PROM). Unlike PROM, in which the program is fixed (cannot be changed) after initialization, EPROM internal data can be erased and changed after the initial program has been installed.

ESD

Electrostatic discharge

Ethernet

A physical and data link protocol used for LANs.

Ethernet interface unit (EIU)

The unit that provides the Ethernet connection between the DMS SuperNode switching system and the SDM. The EIU resides in the link peripheral processor (LPP). See the chapter Understanding the SDM for additional information. *See also* link peripheral processor (LPP).

file transfer protocol (FTP)

A service that supports file transfer between local and remote consoles over a TCP/IP network.

FTP

See file transfer protocol (FTP).

frame supervisory panel (FSP)

A hardware device that accepts the frame battery feed and ground return from the power distribution center (PDC). The FSP distributes the battery feed, by means of subsidiary fuses and feeds, to the shelves of the frame or bay in which it is mounted. The FSP also contains alarm circuits.

FSP

See frame supervisory panel (FSP).

graphical user interface (GUI)

Point and click iconic interface for user-to-computer interaction.

GUI

See graphical user interface (GUI).

halting

Bringing the system to a complete stop so that no processes are running.

HP

Hewlett Packard

IEEE

Institute of Electrical and Electronic Engineers

IOC

See I/O controller (IOC).

I/O controller (IOC)

An equipment shelf that provides an interface between up to 36 I/O devices and the central message controller (CMC). The IOC contains a peripheral processor (PP) that independently performs local tasks, thus relieving the load on the CPU.

IP

Internet protocol

I-tape

Incremental software backup tape

LED

See light-emitting diode (LED).

light-emitting diode (LED)

A solid-state device which emits light when the appropriate voltage is applied to it. The LEDs are used in the DMS-100 switch components as front panel indicators, and they are usually off when equipment status is normal.

LIM

See link interface module (LIM).

link interface module (LIM)

A peripheral module (PM) that controls messaging between link interface units (LIU) in a link peripheral processor (LPP). The LIM also controls messages between the LPP and the DMS-bus component. A LIM consists of two LIM units and two frame transport buses (F-bus). The two LIM units operate in a load-sharing mode with each other. *See also* link peripheral processor (LPP).

link peripheral processor (LPP)

The DMS SuperNode equipment frame or cabinet that contains two types of peripheral modules (PM): a link interface module (LIM) and one or more application-specific units (ASU). *See also* link interface module (LIM), Ethernet interface unit (EIU).

local area network (LAN)

A network that permits the interconnection and intercommunication of multiple computers, primarily for the sharing of resources such as data storage devices and printers.

local console

A console that is connected directly to the SDM with an RS-232 null modem cable. Any other console is a remote console.

logical volume

A storage device, similar to a disk section but of flexible size, that can hold a file system, raw data, application programs, or swap.

log report

A message sent from the DMS switch whenever a significant event has occurred in the switch or one of its peripherals. A log report includes state and activity reports as well as reports on hardware and software faults, test results, and other events or conditions likely to affect the performance of the switch. A log report can be generated in response to a system or manual action.

Two types of log reports apply to the SDM. The main DMS log stream reports SDM events in the PM series of logs. The SDM also reports events locally in the SDM series of logs - this log stream is not part of the main DMS log stream. The SDM Log Delivery application provides access to both streams through the SDM. For additional information on log reports applicable to the SDM, see the Maintenance Overview chapter of this document.

LPP

See link peripheral processor (LPP).

maint (maintenance) user

Monitors SDM system performance, and performs required maintenance tasks. Maint users have restricted shell access.

maintenance and administration position

See MAP.

MAP

Maintenance and administration position. A group of components that provides a user interface between operating company personnel and the DMS-100 family of switches. The interface consists of a video display unit (VDU) and keyboard, a voice communications module, test facilities, and special furniture.

MAPCI

MAP command interpretor

MAU

Media access unit

message switch (MS)

A high-capacity communications facility that functions as the messaging hub of the dual-plane combined core (DPCC) of a DMS SuperNode processor. The MS controls messaging between the DMS-bus components by concentrating and distributing messages and by allowing other DMS components to communicate directly with each other.

MS

See message switch (MS).

MTC

An abbreviation for maintenance. MTC is the first-level maintenance subsystem of the MAP. *See also* MAP.

netmask

A 32-bit bit mask which shows how an Internet address is to be divided into network, subnet and host parts.

node

The terminating point of a link. With respect to DMS peripheral modules, a node is defined as a unit of intelligence within a system. The SDM is viewed by the DMS system as a peripheral module, linked to the DMS system via an Ethernet link. See the chapter Understanding the SDM for addtional information.

OAM

See operation, administration, and maintenance (OAM).

OAMP

Operation, administration, maintenance, and provisioning

operating company (OC)

The owner or operator of a DMS switch.

operating company personnel

Employees of an operating company.

operation, administration, and maintenance (OAM)

All the tasks necessary for providing, maintaining, or modifying the services provided by a switching system. These tasks include provisioning of hardware, creation of service, verification of new service, and trouble recognition and clearance.

OSS

Operations support system

PEC

See product engineering code (PEC).

PID

See process ID (PID).

PowerPC

Performance Optimized with Enhanced RISC for Personal Computers; the microprocessor architecture used in the SuperNode Data Manager. PowerPC by is used by Motorola, Inc. under license by IBM. The term PowerPC is a trademark of IBM.

process ID (PID)

An integer assigned to a process that uniquely identifies the process. No two processes can have the same process ID.

product engineering code (PEC)

An eight-character unique identifier for each marketable hardware item manufactured by Northern Telecom.

reboot

Taking the operating system from a running state down to a stopped state, and back to a running state.

remote console

Any other console that is not connected directly to the SDM with an RS-232 null modem cable.

remote maintenance interface (RMI)

On the SDM, the user interface which provides node maintenance, administration, and monitoring functions. This interface is accessible to the root or maint user at the local or remote VT100 terminal, or from the operating company LAN if the required SDM hardware is installed, and telnet access is enabled. See the Maintenance Overview chapter of this document for a full description of the RMI.

RMI

See remote maintenance interface (RMI).

root user

The SDM system administrator. Responsibilities include adding and removing users from the SDM, assigning and restricting user access, and password administration. A root user has unrestricted shell access.

RS-232

The industry standard for a 25-pin interface that connects computers and peripheral equipment such as modems and printers.

SCC2

Switching control centre 2. Log header used for logs sent to an SCC2 mini computer for processing.

SCSI

Small computer system interface

SDM

SuperNode Data Manager

simplex

On the SDM, a type of hardware platform

STD

Standard. Standard or normal log header format

server

A powerful, centralized computer (or program) designed to provide information to clients upon request. The SDM acts as the server for distributed software applications.

SNMP

Simple Network Management Protocol

S-tape

System image software backup tape

TCP

Transmission Control Protocol

TCP/IP

Transmission Control Protocol/Internet Protocol

telnet

A program that acts as a terminal emulator, allowing you to connect remotely to other terminals.

UI

user interface

UNIX

A computer operating system.

unseat

To dislodge a card without completely removing it from its slot. Unseating a card interrupts the functioning of that card. Cards can be unseated from line concentrating modules (LCM), ISDN line concentrating modules (LCMI), remote cluster controllers (RCC), ISDN remote cluster controllers (RCCI), and remote maintenance modules (RMM).

unshielded twisted pair (UTP)

A cable medium with one or more pairs of twisted insulated copper conductors bound in a single plastic sheath.

UTP

See unshielded twisted pair (UTP).

X.25

A CCITT-defined network layer protocol that is used in packet switching to establish, maintain, and clear virtual circuit connections between an ISDN terminal and a destination in the packet switching network.

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DMS-100 Family

SuperNode Data Manager

Simplex User Guide

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