Critical Release Notice

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The content of this customer NTP supports the SN06 (DMS) software release.

Bookmarks used in this NTP highlight the changes between the baseline NTP and the current release. The bookmarks provided are color-coded to identify release-specific content changes. NTP volumes that do not contain bookmarks indicate that the baseline NTP remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to new or modified content for the baseline NTP that is valid through the current release.

Red: Applies to new or modified content for NA017 that is valid through the current release.

Blue: Applies to new or modified content for NA018 (SN05 DMS) that is valid through the current release.

Green: Applies to new or modified content for SN06 (DMS) that is valid through the current release.

Attention!
Adobe⌀ Acrobat⌀ Reader™ 5.0 is required to view bookmarks in color.

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Digital Switching Systems
SuperNode Data Manager Carrier
User Guide

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Digital Switching Systems

SuperNode Data Manager Carrier
User Guide

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May 2000

Standard release version 03.03. This document contains information for the SDMC13 software release.

- incorporate corrective content for split-mode upgrade Procedure A and Procedure B.

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- incorporate corrective content
- changes to PCL table in Chapter 1
- add split-mode upgrade procedure (Procedure A)
- revise split-mode migration procedure (Procedure B)
- revise full installation procedure (Procedure C)
- update text to reflect NCL 13
- update Appendix E, FP to SDM transition procedure

January 2000

Standard release version 02.02. This document contains information for the SDMC12 software release.

- revised split-mode upgrade procedure
- addition of full installation procedure
- corrections to split-mode upgrade procedure
- Appendix C, new full installation SDM information sheet
- Appendix D, new full installation SBA information sheet

May 1999

Standard release version 01.02. This document contains information for the SDMC0011 software release.

Contents

About this document

This document describes features of the SuperNode Data Manager Carrier (SDMC). The information in this document is arranged in the following chapters:

- Chapter 1 provides an overview of SDMC
- Chapter 2 provides installation and upgrade procedures
- Chapter 3 provides cross reference information
- Appendix A provides an overview of the hardware elements of SDMC
- Appendix B provides an overview of the software elements of SDMC
- Appendix C provides the SDM configuration information sheet
- Appendix D provides the SBA configuration information sheet
- Appendix E provides the FP to SDM transition procedure

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 and rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

This document is written for all DMS Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in *Product Documentation Directory*, 297-8991-001.

References in this document

The following documents are referred to in this document:

- *SuperNode Data Manager Fault-tolerant User Guide*, 297-5051-906

- *SuperNode Data Manager Enhanced Terminal Access and ASCII Terminal Access User Guide*, 297-5051-909

- *SuperNode Data Manager Platform Upgrade Implementation Guide*, 297-5051-303

- *SuperNode Data Manager Exception Reporting User Guide*, 297-5051-912

- *SDMC OM Delivery Application User Guide*, 297-2667-321

- *SDMC SuperNode Billing Application User Guide*, 297-2667-328

SDMC Overview

What is SuperNode Data Manager Carrier?

The SuperNode Data Manager Carrier (SDMC) is a suite of application software, software utilities, tools, and user interfaces designed to run on the SuperNode Data Manager (SDM). This suite is designed to monitor, collect, report, and display operations, administration, and maintenance information in order to enhance the usability of an SDM.

What is SuperNode Data Manager?

The SuperNode Data Manager (SDM) is a dedicated server which runs operations, administration, maintenance, and provisioning (OAM&P) software applications. It is a high-performance computing platform connected to the operating company's DMS switch. SDM and its applications allow the operating company to off-load its OAM&P processes from the switch. The SDM is connected to the operating company's network through an Ethernet connection to its operations intranet.

Figure 1.1 represents the position of SDM in the SuperNode system.

What are the SDMC components?

The SDMC application software has three major components that operate seamlessly to enable operations personnel to provision, activate, maintain, and bill for services in considerably less time than previous methods. The following are the three major components of SDMC application software:

- SDM is the hardware platform and operating system software.

- SDMN is the SuperNode Data Manager software application programs for NA100-specific tasks, such as local billing. SDMN combines the SDM platform and operating system software with NA100-specific utilities to form a separate application program.

- SDMC is the SuperNode Data Manager software application programs for carrier switching, such as IXC/IEC, CLEC, IOC, CATV, RBOC and international networks. SDMC combines the SDM platform and operating system software with the SDMN NA100 software and adds carrier-specific utilities, creating a seamless application software package.

This user guide is designed to provide the operating company with basic information on the SDMC hardware and software. Detailed information on the SDM platform and SDMN software is available in the suite of SDMC documents delivered with the SDMC13 release.

Figure 1-1
SDM position in the DMS SuperNode system
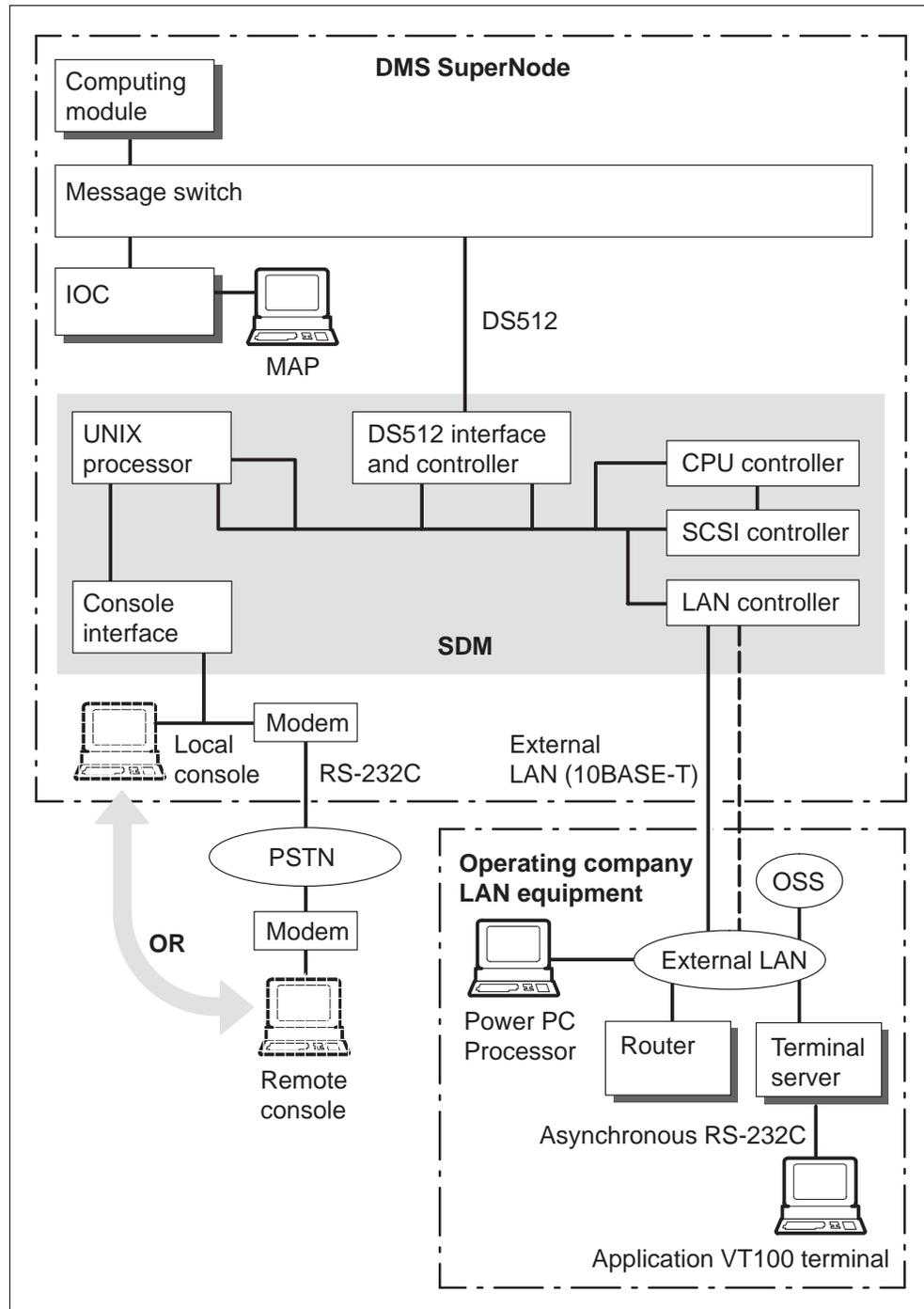
What hardware do I need and how does it work?

An SDM can be added to any existing DMS SuperNode switch. The SDM is equipped with redundant hardware components to prevent the loss of instructions or data in the event of a component failure. SDM is a *fault tolerant* system, which means that it can survive a single point of failure without any loss or outage of service. This level of reliability is achieved through the redundancy built into the design of the hardware components. Redundant hardware systems include the following:

- hard disk storage

- LAN connectivity hardware

- DS-512 connectivity hardware

- power supply

- cooling system fan modules

- DAT drives

- bus architecture

- Motorola[*]microprocessor-based computing core

- Motorola AIX 4.3.2 operating system

Hard disk storage

SDM has redundant hard disk storage in which two disks operate in a *mirrored* environment. That is, what is written on one disk is also written to, and is available from, a second disk. In normal operation (mirrored storage), all system data is written simultaneously to both disks. However, the disks are read in an alternate manor between the two disks. In the event of a disk failure, manual removal, or loss of power to one disk, all data is written to, and read from, the second disk. When the out-of-service disk is returned to service, all data is synchronized between the two disks and mirrored storage resumes.

LAN connectivity hardware

The hardware modules that connect to the operating company LAN are redundant. These modules operate in active and standby modes. If the active Ethernet link fails or is unavailable for any reason, Ethernet traffic is automatically switched to the standby link. This transition occurs without service interruption and without loss of data packets.

DS-512 connectivity hardware

There are four links that provide DS-512 connectivity to the DMS message switch (MS) and are fully duplicated on the MS and the SDM side. In normal operation, traffic is shared across the four DS-512 links. In the event of failed or unavailable hardware on the MS or the SDM side, full

computing module (CM) to SDM communication continues without service interruption or impact to application users. Connectivity redundancy is achieved with a minimum of one, in-service DS-512 link.

Power supply

The SDM is powered by two ±48V dc power feeds. The system is capable of full operation on a single feed. When operating on a single power feed, the computing core operates in duplex mode in which one input/output (I/O) domain remains fully operational in simplex mode. The transition from single-feed operation to dual-feed operation occurs without service interruption.

Cooling system fan modules

Each SDM chassis is cooled by two fan modules, which are active during normal operation (both fan modules consists of three fans). If one of the fan modules in a chassis fails, is removed, or is not operational due to loss of power, the system can operate on a single fan module.

DAT drives

Two digital audio tape (DAT) drives are provided for software, data loading, and backup. One DAT drive is located in each I/O domain (power feed) for reliability. Although both DAT drives are accessible by either CPU, one DAT drive is reserved for the system.

Dual-bus architecture

The SDM uses dual fault-tolerant maintenance, power, and I/O buses to provide service in the event of any single hardware failure on the system.

Additional required hardware

The SDM uses Nortel Networks[*] hardware and software components, along with Motorola communications technology including the following:

- Workstations: HP700/800 series or Sun SPARC
- Hubs: 10BASE-T or unshielded twisted pair (UTP) LANs only
- Routers: GUI communications and gateway functions

Additional hardware information specific to SDMC can be found in Appendix A.

What software and utilities do I need and what do they do?

The software and utilities are delivered by way of an NCL load. The SDM software and utilities have two distinct functions, which include the following:

- Platform software is the base and service layer and is similar to any operating system software. The SDM base layer has utilities for the operation and maintenance of the computing module (the server).

- Application software supports all of the various utilities and sub-programs that allow the SDM to collect, display, and report the OAM&P processes.

Software and application order codes

Table 1-1 lists the order codes for the SDMC13 software and applications.

Table 1-1
SDMC13 software and applications order codes

Order Code	Title
Standard Base Software:	
PLAT0005	SDM Fault-Tolerant Platform
PLAT0005	Enhanced Log Delivery
PLAT0005	Platform Enhancements
ENTA0001	Enhanced Terminal Access (ETA)
ATA00001	ASCII Terminal Access (ATA)
Optional Applications:	
SFT00001	Secure File Transfer
NMDC0001	EADAS over TCP-IP
Fault and Performance:	
SURV0003	Exception Reporting Application
CNOM0002	OM Delivery
ALRM0002	CM Alarms
LSCE0005	RT Works License for Exception Reporting

Table 1-1
SDMC13 software and applications order codes

Order Code	Title
Accounting:	
SBM00001	Billing Applications Base
SBM00003	EBAF in AMADNS
SBM00006	SMDR in AMADNS
CNCD0002	CDR Billing Application
CNCD0004	Real-Time Billing in DIRP
Configuration Management:	
DDMS0001	DMS Data Management System
LSCE0009	Objectstore License for DMS Data Management System

Table 1-2 breaks down the software groups and utilities into the respective components.

Table 1-2
System software and utilities

System	Name	Description
Platform	SDM platform software	SDM platform software is used to maintain the state of the SDM, its hardware, and its applications running on SDM.
	Software inventory manager (SWIM)	SWIM is used to install, maintain, and correct software on the SDM.
	SDM commissioning	SDM commissioning is used to configure the SDM. This includes configuring CM and LAN connectivity, DCE, and applications.
—continued—		

Table 1-2
System software and utilities (continued)

System	Name	Description
Application	High-speed log delivery	High-speed log delivery provides high-speed delivery of DMS logs to an output device (printer or screen). Logs are collected from the CM on the switch and sent over an Ethernet connection to the output device.
	Exception reporting	Exception reporting allows maintenance personnel to determine how often the CM log-exception reports are generated. The exception reports indicate how many specific logs have been received in a predetermined time period.
	Enhanced terminal access (ETA)	ETA provides secure remote access to the CM or the SDM using TCP/IP across a LAN or WAN. ETA uses the secure access mechanism of the Distributed Computing Environment (DCE). The operating company can use either a GUI terminal (ETA) or a command line interface (ATA).
	SDM AMA/CDR billing	SDM AMA/CDR billing provides AMA BAF (Bellcore AMA Format) and CDR billing records for downstream processing, either by the operating company or by a third-party contractor.
	SDM DMS data management system	SDM DMS data management system provides fast access to provisioning and translations data through graphical user interfaces or machine-machine interfaces.
	SDM secure file transfer	SDM secure file transfer allows the operating company to send and receive files using TCP/IP and DCE security servers. Data is transferred between the SDM and the DMS SuperNode computing module.
	OM Delivery	OM delivery collects, formats, and delivers OM data to an output device.
—end—		

Appendix B contains additional information on the software components.

SDM software releases

In general the SDMC product supports software streams up to three releases back from the latest release. In most cases, SDMC13 supports streams back to SDMC release 10.

When upgrading software on your SDM or CM, ensure that the computing load release on your DMS is not newer than the non-computing load on the SDM. For instance, while you can run SDMC12 with UCS11, you cannot run SDMC11 with UCS12. Upgrade DMS peripherals such as the SDM to the latest release of the NCL software before you upgrade the CM computing load. Upgrading your CM to a release ahead of your peripherals will create an unsupported configuration.

Table 1-3 provides a list of the available SDMC13 product computing-module software loads (PCLs):

Table 1-3
Software release product availability

Supported Products	Software Stream	CSP
DMS-100	NA10	CSP10
	NA11	CSP11
	NA12	CSP12
	NA13	CSP13
DMS 250/300	GCAR05	CSP11
DMS-300	GWY05	CSP11
DMS-500	NCS10	CSP10
	NCS11	CSP11
	NCS12	CSP12
	NCS13	CSP13
DMS-GSP	GSP06	CSP10
	GSP07	CSP11
—continued—		

Table 1-3
Software release product availability

Supported Products	Software Stream	CSP
	GSP08	CSP12
	GSP09	CSP13
MCI DMS-250	MCI15	CSP09
	MCI16	CSP10
	MCI18	CSP12
	MCI19	CSP13
UCS DMS-250	UCS09	CSP10
	UCS11	CSP11
	UCS12	CSP12
	UCS13	UCS13
—end—		

What applications are in SDMC?

SDMC applications include the following:

- call detail record (CDR) billing application
- computing module alarms
- operational measurements delivery (OMD)

CDR billing application

The CDR billing application is a distributed, high-capacity, scalable billing system. The primary purpose of the CDR billing application is to improve throughput of billing data to the operating company's downstream processor(s).

The CDR billing application provides an operating company with the following benefits:

- increases billing capacity
- provides high data transmission rates
- supports Bellcore AMA Format (BAF) and CDR billing record formats
- supports up to 16 streams of billing records

- provides real-time delivery of billing records (within 30 seconds of record generation)

For more information, including procedures to install and use the SDMC SuperNode Billing Application (SBA), refer to the *SDMC CDR Billing Application User Guide*, 297-2667-328.

Computing module alarms

SDMC alarm conduit acquires trunk and common channel signaling (CCS) alarm information from a DMS switch and exports this information to an operations support system (OSS) data browser, such as the Event Record Manager.

When a trunk or CCS resource changes its state, the CM sends a message to the SDM. The SDMC Alarm Conduit receives and processes the alarm message from the SDM. After the trunk or CCS alarm event notification is received, the SDMC Alarm Conduit builds the alarm message and sends it to the OSS.

The SDMC Alarm Conduit also provides utilities, using the Remote Maintenance Interface (RMI), to capture the current state of alarms and places this information into a file that is compatible with other analytical tools (spreadsheet software). For more information on SDMC Alarm Conduit, refer to the *SDMC Alarm Conduit Application User Guide*, 297-2667-325.

OMD

OM Delivery (OMD) delivers customer-selected operational measurements (OM) data that can be viewed through a data browser, such as a spreadsheet application that reads a standard CSV format. The SDMC OMD application consists of the following major components:

- data delivery—collects OM data at requested reporting intervals, on a per report element basis
- report scheduler—transfers OM data files to multiple downstream destinations at programmed times, on a per report element basis
- user interface—uses a text based interface to specify the OM groups to be monitored
- report files management—allows for report file naming and for file control

The SDMC OMD application allows the following to take place:

- groups related OMs together into report elements
- sets the reporting interval for report elements

- stores OM data to disk files, which are available for transfer by way of a secure file transfer (SFT) or file transfer protocol (FTP)

- views OM data through a data browser or a spreadsheet application that uses a comma separated value (CSV) format

- configures the SDM to automatically recover previously entered report element configurations without any manual intervention in the event of a shutdown

For more information, including procedures to install and use the SDMC OMD, refer to the *SDMC OM Delivery Application User Guide*, 297-2667-321 and the *SDM Fault-tolerant User Guide,* 297-5061-906.

Note: Previous releases of the SDMC NCL software and associated documentation referred to the OM Delivery application as OM Data Delivery (OMDD).

What are the features in this release?

SDMC13 is based on the SDM13 hardware platform and software load and the SDMN13 software load. The following features were introduced for the SDMC0013 release:

- Real-time Filtering (A60007686): allows customers to filter a billing stream using the same criteria used by AMADUMP that is also compatible with real time billing (RTB) and multi-destination billing.

- Scheduled OM File Transfer (A60008141): schedules the unattended push of OM log files to multiple downstream destinations on user-defined schedules.

Upgrading the SDM

This chapter provides information about upgrading your SDMC platform software to release 13 NCL. Read this chapter carefully before attempting any installation or upgrade of your operating system, service or application software.

To assist you with the upgrade of SDMC, Nortel Networks offers several Network Service Solution packages. The level of design, planning, configuring, and installation that Nortel Networks performs for you is dependent on the options your company purchased.

Installation service options

Initial installation and commissioning of SDM is performed by Nortel Networks. This includes

- installation of the SDM hardware

- testing to ensure connectivity between the switch and the SDM

- connection of the SDM to the hub of your LAN/WAN using your Ethernet cable

- bringing the SDM to an operational state, providing the ability to

  — monitor and alter the state of the SDM

  — determine the state of the DS-512 interface module and LAN connection

  — determine the status of the SDM system and application software

If your company has chosen not to purchase the Nortel Networks Service Solution packages, you will be responsible for integrating the SDM into your LAN/WAN network. Your responsibilities include:

- connecting the SDM to your LAN/WAN network (from the hub to the router and from the router to the network)

- implementing the distributed computing environment (DCE) within your SDM network

- implementing firewalls, security, surveillance, network backup, and disaster recovery procedures

- installing the SDMC application software

- installing the client software on the client workstations

SuperNode data manager (SDM) commissioning tool

This section describes how to use the SDMCONFIG commissioning tool. Root user and DCE cell-administration privileges are required to perform the commissioning procedures. You are required to use the SDMCONFIG commissioning tool when implementing the procedure "Upgrading the SDM Platform Software By Full Installation," located in this chapter.

ATTENTION

The information in this section is intended for SDMC system administrators who have root user privileges. Nortel Networks recommends that SDMC system administrators have specialized AIX operating system training before performing system administration procedures.

The SDMCONFIG commissioning tool is executed from the local SDM console. The commissioning tool cannot be used from the MAP display or by remote login to the SDM.

For more detailed information on use of the commissioning tool, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Tasks which can be performed using the SDM commissioning tool

Use the commissioning tool to do the following:

- configure connectivity between the computing module (CM) and the SDM

- configure connectivity to the operating company local area network (LAN)

- set remote nodes on the operating company LAN to be monitored by the SDM

- enable or disable telnet access to the SDM

- configure the distributed computing environment (DCE)

- set the console login prompt

- configure maintenance and root user IDs

- set the date, time, and time zone of the system

Connecting the SDM to the LAN/WAN

The following information is required to establish LAN/WAN connectivity for the first time:

- SDM hostname
- SDM LAN/WAN IP address
- SDM LAN/WAN netmask
- SDM LAN/WAN type
- SDM LAN/WAN gateway IP address

ATTENTION

The SDM gateway must be setup with an IP address for DCE and LAN/WAN connectivity to be established

---

Connecting LAN/WAN nodes

The following information is required to install LAN/WAN nodes for the first time:

- hostnames of the LAN/WAN nodes to be connected
- IP addresses of the LAN/WAN nodes to be connected

Note: A maximum of six LAN/WAN nodes can be established during one installation.

ATTENTION

LAN/WAN connectivity is required prior to the installation of LAN/WAN nodes.

For more detailed information on LAN/WAN Node installation, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Implementing DCE

The Distributed Computing Environment (DCE) allows remote workstations to communicate with the SDM. GUI-based applications control the operations running on the SDM and the DMS switch. The applications run as clients on application servers on the SDM and communicate securely with the SDM by remote procedure calls (RPCs).

The following steps are required before secure network communication between application workstations and SDMs can be established using the DCE:

- obtain the cell-administration password

- install and configure the DCE software

- configure a DCE cell

- create DCE accounts

- add each SDM to a DCE cell

- install the application-server software

- install applications on workstations

ATTENTION

The SDM gateway must be setup with an IP address for DCE and LAN/WAN connectivity to be established

---

For more detailed information on DCE and LAN/WAN installation, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

DCE cell configuration and maintenance

For an SDM to communicate securely with its remote workstations using the DCE, the SDM and the workstations must be configured within the same DCE cell. A DCE cell consists of all systems having a common DCE. In the SDM environment, a DCE cell must contain the following:

- one or more SDMs

- workstations running applications that will communicate with those SDMs

- DCE servers that provide DCE services to SDMs and workstations, including:

    — security servers that store security information and authenticate users of the applications

    — cell directory servers (CDSs) that store naming information from the application servers on the SDM and allow GUI application clients to locate the application servers

    — distributed time servers (DTSs) that allow all machines in the DCE cell to maintain synchronized clocks

---

For more detailed information on DCE cell configuration and maintenance, refer to *the SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Implementing backup procedures

During the full installation procedure, located in this chapter, you will be required to to perform a backup of the SDM base and application software as well as a backup of billing data stored on the SDM.

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 typing "sdmbkup"

- by logging onto the SDM and typing "sdmmtc" to access the RMI. Go to the administration menu by selecting option 3 at the top level of the RMI or by typing ADMIN at any level to of the RMI. Next, select option 5 or type BACKUP.

Nortel Networks recommends that tape drive DAT0 be used to perform software and data backups if your system includes the SuperNode billing application (SBA).

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

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

ATTENTION

To back up the SDM to tape, perform a full system (bootable image) backup after you install or upgrade the SDM software. Use the procedure "Creating SDM backup tapes – System image backup (S–tape)" in chapter 6 of the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

For more detailed information on implementing backup procedures, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Implementing logins and passwords

For detailed information on setting logins and passwords for LAN/WAN security for inbound telnet and FTP connections, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Implementing security logins and passwords

The DCE servers can be located on any workstation in the DCE cell. However, Nortel Networks recommends that all security servers and all CDS servers be located on dedicated and physically-secured workstations that are separate from all application workstations that use their services. Other configurations risk compromising the security arrangements offered by DCE. The primary security server, the CDS server, and the DTS time provider can be on the same or separate workstations. If a slave (second) security server is present, it must be on a separate workstation.

All application servers on SDMs within the DCE cell, as well as applications that communicate with an application server through DCE, must have accounts registered in the DCE security database. A DCE administrative account password is required to perform all registration activities.

Commands to perform registration activity are available from the UNIX prompts on the DCE cell machines. For security reasons, Nortel Networks does not recommend that telnet and Enhanced Terminal Access (ETA) be used when establishing a registration session because it passes the password in an unencrypted form across the network. Registration activities must be performed at the machine's own console.

Note: ETA is an optional SDM application that provides secure remote access to the SDM through an operating company TCP/IP-based wide area network. For more information on the ETA application refer to the *SuperNode Data Manager Enhanced Terminal Access User Guide*, 297-5051-904.

As part of the SDM application server software installation, a key table (keytab) file is created to store the application server DCE password. To preserve security, each application keytab file provides read-only file permissions to the application server and denies access to all other UNIX users.

For more detailed information regarding registering application services, creating user accounts, and LAN/WAN security, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Software installation and upgrade options

To install or upgrade individual SDM application software the SDM Software Inventory Manager (SWIM) is used. Refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906 and the *SuperNode Data Manger Upgrade Guide*, 297-5051-304 for detailed instructions on using SWIM.

To upgrade the SDM to a newer NCL software release there are three methods available in this document:

- For sites upgrading the SDMC12 to SDMC13, use Procedure A: *Upgrading the SDM software from SDMPL0012 using split-mode.*

- For sites upgrading from SDMC11 to SDMC13, use Procedure B: *Upgrading the SDM software using split-mode migration.*

- For sites that have a non-standard installation or special requirements when upgrading to SDMC13 from other releases, use Procedure C: *Full installation upgrade of the SDM*.

  Note: Use Procedure C only if specifically directed by your system administrator or other support personnel.

> **CAUTION**
> **Possible loss of service**
> The full installation method for installing the NCL 13 software release is a complete reinstallation of the operating system and SDM application software. It requires that the SDM be offline from the CM for at least 4 hours, while SBA billing is put into backup mode on the CM.

Installing SDMC application software for the first time

If your company has chosen not to purchase one of the Network Service Solution packages from Nortel Networks which includes the initial installation of the SDMC application software, you will be responsible for the installation of application software.

For more detailed information on installation of SDMC application software, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

Procedure A: Upgrading the SDM software from SDMPL0012 using split-mode

Before you begin this procedure, check that the SDM you are about to upgrade is in service. You must also connect a separate VT100 terminal to each of the SP0 (active) and SP1 (inactive) console ports of the SDM. One of the VT100 terminals represents the active side of the SDM and the other VT100 console represents the inactive side of the SDM. Unless otherwise indicated, enter all commands on the SP0 (active) console.

The root volume group (rootvg) re-integration period that follows the SWACT can take several hours. During rootvg re-integration, the progress indicator may fluctuate up and down. For example, the process indicator can move up to 80%, then down to 75%, and then up to 80% again. The process indicator fluctuations are an expected result because the applications currently running on the SDM are writing to the disk subsystem.

ATTENTION

If you are upgrading to SDMN0013, use the tapes labelled SDMN0013 NCL 13.x. If you're upgrading to SDMC0013, use the tapes labelled SDMC0013 NCL 13.x.

ATTENTION

You must upgrade the computing module (CM) to CSP10 or greater before you upgrade the SDM platform software.

ATTENTION

Nortel Networks recommends that you perform a system image backup before you upgrade the base software. The procedure to perform a system image backup exists in the *DMS-100 Family SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

ATTENTION

Use this procedure only for upgrades from SDMX0012 to SDMX0013 where CSP10 or greater is installed on the CM, and the SDM is equipped with a data volume group (datavg). The value X represents the value N or C.

ATTENTION

The split-mode procedure will interact with the configured DCE servers in order to complete the upgrade procedure. It is important that the DCE servers are operational and no DCE maintenance actions are performed during the entire upgrade procedure. If the DCE servers are not operational and you do perform DCE maintenance actions, the upgrade procedure may fail to complete (fall-back may be necessary) and a service interruption may be experienced.

ATTENTION

You upgrade the Exception Reporting (ER), Enhanced Terminal Access (ETA), ASCII Terminal Access (ATA), SDM Billing Application (SBA), and Secure File Transfer (SFT) applications during the split- mode portion of the upgrade. You do not upgrade the DMS Data Management System (DDMS) application until after you leave the split-mode portion of the upgrade. Refer to the latest MNCL release notes for instructions on upgrading the DDMS application.

ATTENTION

Before you begin the Split-mode upgrade, please read and familiarize yourself with the Recovering from an upgrade failure procedures in this document. If you experience a Split-mode upgrade failure, perform the recovery procedure "Recovering the SDM from an upgrade failure" located in the *SDM Upgrade Guide*, 297-5051-304.

Understanding the active and inactive console ports of the SDM

As stated earlier, you must connect a separate VT100 terminal to each of the SP0 (active) and SP1 (inactive) console ports of the SDM. Before you begin the split-mode upgrade, understand which side is the SP0 active console port and which side is the SP1 inactive console port. To help determine the active

and inactive console ports look at the value in the SDM field of the terminal. If the value in the SDM field is Active, then that is the active console port. If the value in the SDM field is Inactive, then that is the inactive console port. During the split-mode procedure, you are instructed when to use which console port. Figure 2-1 shows the SDM field and the Active value, while Figure 2-2 shows the inactive field and the Inactive value.

Figure 2-1
SDM screen for active console SP0

```
      SDM          CON     LAN     APPL     SYS      HW     CM: RTPT
       .            .       .       .        .        .     SDM: cpvey90a
                                                               Active Domain 0
 MTC
   0 Quit
   2 Con
   3 Lan
   4 Appl
   5 Sys
   6 Hw
   7 By
   8 Rts
   9 Offl
  10
  11
  12
  13
  14 QuerySDM
  15 Locate
  16
  17 Help
  18 Refresh

     root
  Time  19:05  >
```

Figure 2-2
SDM screen for inactive console SP1

```
      SDM       CON     LAN     APPL    SYS     HW     CM: RTPT
       .         .       .       .       .       .    SDM: cpvey90a
                                                      Inactive Domain 1
MTC
  0 Quit
  2 Con
  3 Lan
  4 Appl
  5 Sys
  6 Hw
  7 By
  8 Rts
  9 Offl
 10
 11
 12
 13
 14 QuerySDM
 15 Locate
 16
 17 Help
 18 Refresh

   root
Time  19:05  >
```

Flowchart procedure

The flowchart in Figure 2-3 summarizes the steps in Procedure A. Use the instructions in the step-action procedure that follows the flowchart.

Figure 2-3
Summary of upgrading SDM base software using split-mode

Log into SDM as root user

↓

Insert customer NCL tape

↓

Start split-mode upgrade

↓

Upgrade CPU modules?
N → 2
Y ↓ 1

1 ↓

Upgrade CPU module on domain 1

↓ 2

Continue split-mode upgrade

↓

Reboot domain 1

↓

Log into SDM as root user

↓

Wait for stabilization to complete

↓

Select and apply new filesets (except DDMS)

↓ 3

This flowchart summarizes the following procedure.

To complete the procedure, use the step-action procedure that follows the flowchart.

3 ↓

Insert MNCL tape

↓

Select and apply new filesets (except DDMS) from the MNCL tape

↓

Offline the DDMS filesets

↓

Begin SwACT

↓

Begin reintegration process

↓ 4

4 ↓

Replace CPU in domain 0 (as applicable)

↓

If present, upgrade DDMS application

↓

End

SDMC0012 to SDMC0013 split-mode upgrade procedure

This procedure provides instructions for upgrading your SDM to release 13 NCL software from release 12 NCL software.

At the VT100 console connected to SP0

1   Log into the SDM as the root user.

2   Use the following table to determine your next step.

If	Do
you have the OMD application installed	continue with step 3
you do not have the OMD application installaed	skip to step 8

3   Create the directory structure for the open OM Delivery report files by typing

   #mkdir –p /omdata/open
   and pressing the **Enter** key.

4   Create the directory structure for the closed-sent OM Delivery report files by typing

   #mkdir –p /omdata/closedSent
   and pressing the **Enter** key.

5   Create directory structure for the closed-not-sent OM Delivery report files by typing

   #mkdir –p /omdata/closedNotSent
   and pressing the **Enter** key.

6   Chance the ownership for all the directories you created to *maint* by typing

   #chown –R maint maint /omdata
   and pressing the **Enter** key.

7   Change the read/write permissions for all the directories you created by typing

   #chmod –R 777 /omdata
   and pressing the **Enter** key.

8   Issue the tape compression command by typing

   #/usr/sbin/chdev -l rmt1 -a compress='yes'
   and pressing the **Enter** key.

   > ***Note:*** The `-l` character is the letter L (in lower case), and the `1` character is the number one.

   The SDM responds with the following message:

```
rmt1 changed
```

9 Configure the system dump devices by typing

#sysdumpdev -P -q -s /dev/sysdumpnull
and pressing the **Enter** key.

Note: The first command option is in uppercase, the others are in lowercase.

10 Next type

#sysdumpdev -P -p /dev/sysdump0
and press the **Enter** key.

The SDM responds with the following message

```
primary                 /dev/sysdump0
secondary               /dev/sysdumpnull
copy directory          /var/adm/ras
forced copy flag        FALSE
always allow dump       FALSE
dump compression        OFF
```

Note: If the first two lines of the response are not exactly as shown, contact your next level of support before proceeding. Otherwise, continue with the next step.

11 Insert the tape labelled SDMX0013 13.x (tape 2 of 2) into slot 13.

Note: The lowercase x represents the latest version of the NCL.

Figure 2-4
Inserting a tape into the tape drive
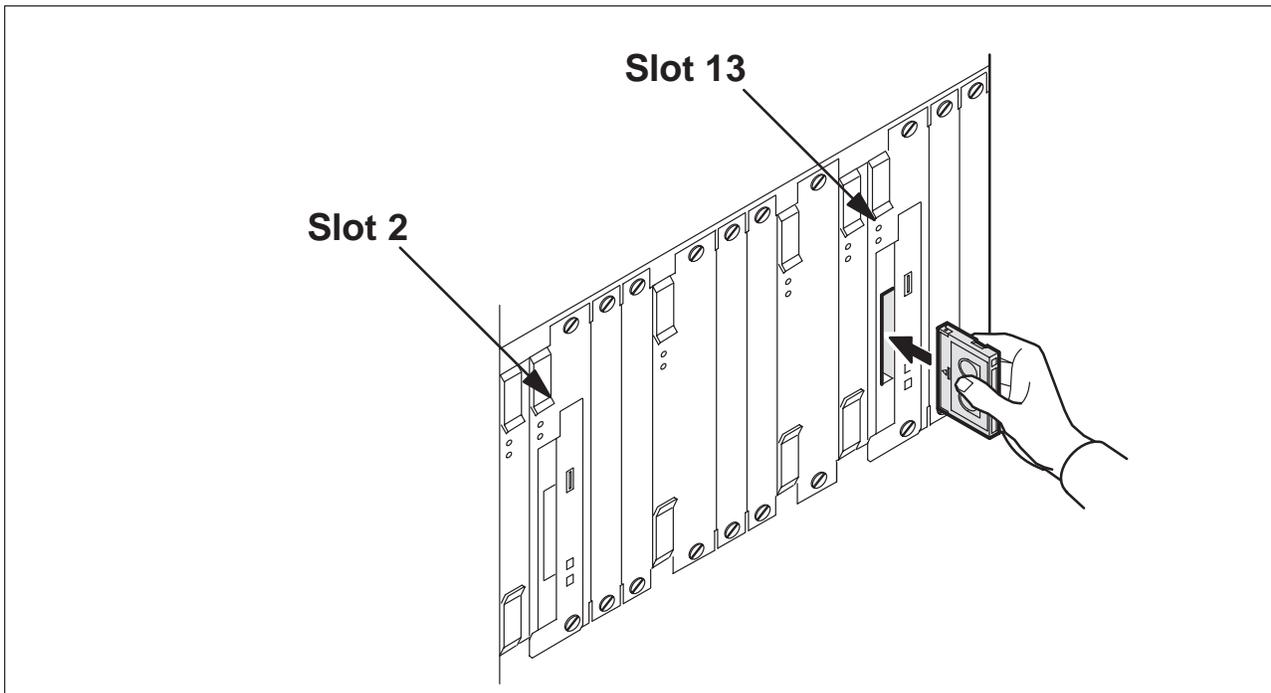
12 Change your current directory to the root directory by typing

>cd /
and pressing the **Enter** key.

![Caution triangle icon] **CAUTION**
Possible loss of service
Before you begin the SwAct, ensure that the root directory
is current directory on both the active and inactive sides of
the SDM. Failure to do so may cause the SwAct to fail,
possibly causing loss of service.

---

13 Start the SDM maintenance interface and access the split-mode screen by typing

#sdmmtc split
and pressing the **Enter** key.

14 Start the split-mode upgrade by typing

>start
and pressing the **Enter** key.

15 Verify that you want to perform an upgrade by typing

>y
and pressing the **Enter** key.

16 Verify that you do not want to upgrade the operating system by typing

>n
and pressing the **Enter** key.

17 Specify if you want to upgrade the CPU modules. Consult your site prime to determine whether or not you need to upgrade your CPUs. Once you have this information, use the following table to determine your next step.

> *Note:* It is recommended, but not required, that CPU upgrades be performed for SDMC platforms upgrading from release 12 to release 13. The NTRX50CG CPU card (with 256-Megabytes of memory) only meets the minimum requirements for NCL 13. The NTRX50CH CPU card (with 512 Megabytes memory) can also be used.

ATTENTION
You cannot upgrade to the NTRX50NB (Arther 750) CPU card during
this procedure. You must first complete this upgrade procedure, then
refer to the *SDM Upgrade Guide,* 297-5051-304, for instructions about
upgrading your SDM CPUs to the NTRX50NB CPU.

If	Do
you want to upgrade your CPU modules	type **y** and go to step 18
you do not want to upgrade your CPU modules	type **n** and skip to step 18

18   Confirm that you want to start the SDM upgrade by typing

>y
and pressing the **Enter** key.

> *Note:* During the upgrade the CM displays the state of the SDM as in-service trouble (ISTb).

> *Note:* The SDM disables all node state commands during the upgrade. You can only use the RebootSDM command on the inactive side.

19   Use the following table to determine your next step.

If	Do
you selected to upgrade the CPU modules in step 17	continue with step 20
you did not select to upgrade the CPU modules in step 17	skip to step 22

20   The SDM prompts you to replace the CPU in domain 1. For more information about replacing CPU modules, refer to the procedure "Upgrading the CPU controller module using split-mode" in the *SDM Upgrade Guide,* 297-5051-304. This procedure explains how to replace a CPU module. Once you have replaced the CPU module, return to this procedure and continue with step 21.

21   Continue the split-mode upgrade by typing

>continue
and pressing the **Enter** key.

The SDM now asks you to confirm that you want to start the split-mode upgrade.

22   Wait until the system is split and the FX-Bug prompt appears on the SP1 (inactive) console.

 At the VT100 console connected to SP1 (inactive)

23   At the FX-Bug prompt manually reboot domain 1 by typing

FX-Bug>pboot 6 0
and pressing the **Enter** key.

24   Log into the inactive side of the SDM as the root user.

25 Enter the SDM interface and access the split-mode screen by typing

#sdmmtc split
and pressing the **Enter** key.

26 Wait for the system stabilization to start and complete. This process will take at least six minutes to complete.

> **CAUTION**
> **Possible loss of service**
> The SDM begins the system stabilization process. Do not attempt to perform any maintenance activities while the SDM is stabilizing. Any maintenance activities may cause the upgrade to fail.

27 List the applications on the SDM platform and application tape (in the tape drive in slot 13) by typing

>apply 1
and pressing the **Enter** key.

> *Note:* You can upgrade most of the applications installed on the SDM.

28 Select all the new versions of installed software by typing

>select new
and pressing the **Enter** key.

29 Use the following table to determine your next step.

If	Go to
the DDMS application exists on your SDM	step 30
the DDMS application does not exist on your SDM	step 31

30 Deselect any highlighted DDMS filesets selected by typing

>select *n*
and pressing the Enter key.

where

n   is the number beside each DDMS fileset selected on the screen.
The collection of filesets are as follows:

- All filesets beginning with *DDMS Schema for...*
- DMS Data Mgmt Sys Phase1
- OSS and Application Svcs

- OSS Comms Svcs
- ObjectStore Database Svc

Note: You must deselect the DDMS filesets because the SDM cannot upgrade the DDMS application at this time. If you do not deselect the DDMS filesets, the SDM generates an error message.

31 Apply all the new software except for DDMS by typing

>apply
and pressing the **Enter** key.

32 Confirm the apply command by typing

>y
and pressing the **Enter** key.

33 Once the SDM has applied the selected filesets eject the tape that is currently in slot 13.

34 The SDM may ask you to perform a reboot. Use the following table to determine your next step.

If	Go to
the SDM asks you to perform a reboot	continue with step 35
the SDM does not ask you to perform a reboot	skip to step 40

35 Confirm the system reboot request by typing

>y
and pressing the **Enter** key.

36 Start the reboot of the inactive side by pressing the **Enter** key.

37 When the FX-Bug prompt appears reboot the SDM by typing

FX-Bug>pboot 6 0
and pressing the **Enter** key.

38 Log into the inactive side of the SDM as the root user.

39 Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

40   Access the Split-mode level by typing

#split
and pressing the **Enter** key.

41   Wait for the SDM to complete the stabilization process and then continue the upgrade by typing

>continue
and pressing the **Enter** key.

42   Use the following table to determine your next step.

If	Go to
the DDMS application exists on your SDM	continue with step 43
the DDMS application does not exist on your SDM	skip to step 47

43   Access the Appl level of the SDM maintenance interface by typing

>appl
and pressing the **Enter** key.

44   Take the following filesets offline:

- DMS Data Mgmt Sys Phase1
- OSS and Application Svcs
- OSS Comms Svcs
- ObjectStore Database Svc

45   Take each DDMS fileset offline by typing

>offl *n*
and pressing the **Enter** key.

where

n   is the number beside each fileset in the fileset list.

46   Access the Split-mode level of the SDM maintenance interface by typing

>split
and pressing the **Enter** key.

At the VT100 console connected to SP0 (active)

> **CAUTION**
> **Possible loss of service**
> Before you begin the SwAct, ensure that the root directory
> is current directory on both the active and inactive sides of
> the SDM. Failure to do so may cause the SwAct to fail,
> possibly causing loss of service.

47 Begin the SwAct by typing

>continue
and pressing the **Enter** key.

*When the SwAct completes a message appears indicating that the SDM is
ready to be unsplit.*

> **Note:** When the SwACT completes, the inactive console becomes
> domain 0. The active console SP1 shows domain 1 as the active side. If the
> SDM is not stable, you have the option of aborting the upgrade using the
> *fallback* command.

48 The SDM prompts you to begin the integration process. Make sure that the
SDM is operating, and the applications are providing service before you begin
the reintegration phase.

49 Begin the integration process by typing

>continue
and pressing the **Enter** key.

> **CAUTION**
> **Possible loss of service**
> When you begin the reintegration process, you cannot use
> the fallback command to return to the SDMPL012 release
> of the platform software. If you decide to return to the
> SDMPL012 release of the platform software after the
> reintegration process, you must take the SDM offline and
> restore the SDMPL012 software from an S-tape. There is
> a loss of service for several hours when you restore the
> previous platform software.

50 Use the following table to determine your next step.

If	Go to
you have selected to upgrade the CPU	continue with step 51
you have not selected to upgrade the CPU	skip to step 53

51 The SDM prompts you to replace the CPU in domain 0.

52 When you have replaced the CPU continue the split-mode upgrade by typing

>continue
and pressing the **Enter** key.

53 The reintegration process begins. Once rootvg has reintegrated datavg integration begins.

54 Use the following table to determine your next step.

If	Go to
the DDMS application exists on your SDM	Go to the latest MNCL release notes for information about upgrading DDMS applications.
the DDMS application does not exist on your SDM	No further action is required.

55 Use the following table to determine how to upgrade additional applications and services and to install new applications.

To upgrade	Refer to
Remote Registration System Application	Refer to the *SDMC Remote Registration System Application User Guide*, 297-2667-320
Alarm Conduit Application	Refer to the *SDMC Alarm Conduit Application User Guide*, 297-2667-325
Image Dump Application	Refer to the *SDMC Fault-tolerant User Guide*, 297-5061-906

56 Access the Appl level of the SDM maintenance interface by typing

>appl
and pressing the **Enter** key.

57 Refer to Figure 2-5 and determine whether there are applications or services that are busy (ManB or SysB) or Offline (OffL).

Figure 2-5
Determine whether any applications or services are not in service

```
    SDM         CON      LAN      APPL     SYS       HW      CM : 250
     .           .        .       IST       .        .      SDM: crchy08e
                                                                Fault tolerant
Appl
  0 Quit
  2               # Application                                         State
  3             1 SDM_SBA DMS500 Application                             .
  4 Logs        2 ObjectStore Database Svc                              .
  5             3 OSS Comms Svcs                                        .
  6             4 OSS and Application Svcs                              .
  7 Bsy         5 DMS Data Mgmt Sys Phase1                              .
  8 RTS         6 Remote Registration System                           .
  9 OffL        7 Alarm Conduit                                        .
 10             8 Generic Data Delivery                                .
 11             9 Table Access Service                                 .
 12 Up         10 OM Access Service                                    .
 13 Down       11 Log Delivery Service                                 .
 14 QuerySDM            Applications showing: 1 to 11 of 16
 15 Locate
 16
 17 Help
 18 Refresh
   root
Time  12:22  >
```

58 Use the following table to determine your next step.

If	Do
there are applications or services not inservice	step 59
all applications and services are in service	step 63

59 At the application (appl) level busy (ManB) each aplication that is offline (OffL) by typing

>bsy *n*
and pressing the **Enter** key.

where

n   is the number beside the each application fileset.
The SDM responds:

```
Application Busied – Command complete.
```

60 Repeat step 59 until all offlined applications and services are busied (ManB).

61   Return the applications to service (RTS) that are busy by typing

>rts n
and press the **Enter** key.

where

n   is the number beside each application.
The SDM responds:

```
Application RTS – Command complete.
```

62   Repeat step 61 until all offlined applications and services are busied (ManB).

63   Exit the SDM maintenance interface by typing

>quit all
and pressing the **Enter** key.

64   Use the following table to determine your next step.

If	Do
you have the OMD application installed	continue with step 65
you do not have the OMD application installaed	skip to step 66

65   Move the OM data report files to their new directory location by typing

#mv /omdata/rpt/*.CSV /omdata/closedNotSent
and pressing the **Enter** key.

66   You have completed this procedure.

Procedure B: Upgrading the SDM platform software using split-mode migration

Split-mode migration lets you upgrade the SDM from release 11 to release 13 with minimal downtime for applications including the SBA Billing Application. During a split-mode migration the SDM is divided from a redundant, fault-tolerant system into two simplex systems. While one side of the SDM upgrades, the other side continues to provide service to its installed applications. Split-mode also provides the fastest way to upgrade the two CPU cards residing within the SDM without offlining the SDM itself.

Each phase of the split-mode upgrade procedure includes a series of interactive steps. If you fail to respond to a step or if a step fails, an error message usually appears at the Spilt level of the SDM maintenance interface (MAP). You have the option of exiting the upgrade and reverting the SDM to an unsplit (fault-tolerant) state at any time during this procedure up to the point where the SwAct begins.

Before you begin the split-mode upgrade, please read and familiarize yourself with procedure Recovering from an Upgrade Failure in *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906. If you experience a Split-mode upgrade failure, perform the recovery procedure "Recovering the SDM from an upgrade failure".

ATTENTION

Ensure that the backup volumes on the DMS are configured before beginning the split-mode procedure.

ATTENTION

For this procedure it is important that the DCE servers are operational and no DCE maintenance actions are performed during the entire upgrade procedure. If the DCE servers are not operational and you do perform DCE maintenance actions, the upgrade procedure may fail to complete. In such a case, fallback may be necessary and a service interruption may be experienced.

> **ATTENTION**
>
> During the split-mode the upgrade process the Exception Reporting (ER), Enhanced Terminal Access (ETA), ASCII Terminal Access (ATA), and Secure File Transfer (SFT) applications are upgraded.
>
> You do not upgrade the DMS Data Management System (DDMS) application until after the split-mode procedure is complete.

To exit the split-mode upgrade

If you incorrectly perform one of the steps in this procedure or if an automatic part of the upgrade fails, the upgrade temporarily ceases. The SDM either prompts you to either continue with the upgrade (if possible) or to fall back using the *Fallback* command. When you choose fall back, the upgrade stops and the SDM reverts to its pre-upgraded, unsplit, fault-tolerant state; however, once reintegration begins after the SwAct, you cannot use the Fallback command.

> **ATTENTION**
>
> If you use the Fallback command at any time before the SwAct, no service interruption occurs. If you use the Fallback command after the SwAct, a service interruption will likely occur and some SBA Billing records may be unrecoverable.

An unrecoverable error generates an automatic fallback. If the SDM fails to fallback properly and does not recover to a fault-tolerant state, refer to the procedure "System recovery from a software failure during a split-mode upgrade" in the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906. Examples of errors which generate an automatic fallback include:

- the split-mode upgrade halts automatically
- the active console is not responding to keyboard input
- the FX–Bug prompt appears unexpectedly on the active console
- the SDM is not operating correctly, for instance, rootvg goes offline.

Pre-upgrade checklist for split-mode

Perform the actions in the following checklist prior to starting the split-mode upgrade procedure. Failure to implement these actions can result in an increased chance of an upgrade failure, resulting in a fallback, lost data and greater SDMC down time.

- The split-mode upgrade procedure is for a release 11 to 13 upgrade only. No other software releases or upgrade methods are supported by this upgrade procedure on the SDMC platform when upgrading to release 13.

- Check that the SDM you are about to upgrade is in service. You must also connect a separate VT100 terminal to each of the SP0 (active) and SP1 (inactive) console ports of the SDM. One of the VT100 terminals connects to the active site of the SDM and the other VT100 console connects to the inactive side of the SDM. Unless otherwise indicated, perform all commands on the SP0 (active) console. Use Figures 2-6 and 2-7 to help you determine the active and inactive console ports. Locate the status indicator of each console in the upper right-hand corner of the screen (circle).

- If you are upgrading your SDM processor cards to the Arther 750 CPUs, perform the CPU upgrade after you have completed the split-mode upgrade.

- When upgrading from release 11 to release 13 an upgrade of the SDMC CPU cards may be necessary. Ensure that these cards are available for installation during this procedure.

- During the split-mode upgrade procedure, you will verify that the amount of disk space allocated to the /sdm root volume group is adequate. If /sdm does not have adequate space available, you will be instructed to increase the size of rootvg. Make sure that you have at least 900 megabytes of unallocated disk space available to allocate to rootvg for this release.

- Ensure that you have performed a backup of the the root volume group and data volume group before beginning this procedure.

- Have the following manuals available to you during this procedure:

  — *SDMC Service Operation Support (SOS) Guide*, 297-2667-011

  — *SDM Platform Software Upgrade User Guide*, 297-5061-303

  — *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906

- You will also need the following manuals available to upgrade your applications after you have completed the split-mode upgrade of the SDM.

  — *SuperNode Data Manager DDMS and GUIDE Installation and Administration Reference Manual*, 297-5051-914

  — *SDMC Supernode Billing Application Guide*, 297-5051-328

Understanding the active and inactive console ports of the SDM

You must connect a separate VT100 terminal to each of the SP0 (active) and SP1 (inactive) console ports of the SDM. Before you begin the split-mode upgrade, understand which side is the SP0 active console port and which side is the SP1 inactive console port. To help determine the active and inactive console ports look at the value in the SDM field of the terminal. If the value in the SDM field is Active, then that is the active console port. If the value in the SDM field is Inactive, then that is the inactive console port. During the split-mode procedure, you are instructed when to use which console port. Figure 2-6 shows the SDM active field and the Active value, while Figure 2-7 shows the inactive field and the Inactive value.

Figure 2-6
SDM screen for active console SP0

```
      SDM          CON     LAN     APPL    SYS      HW      CM: RTPT
       •            •       •       •       •        •     SDM: epvey90a
                                                             Active Domain 0
MTC
  0 Quit
  2 Con
  3 Lan
  4 Appl
  5 Sys
  6 Hw
  7 By
  8 Rts
  9 Offl
 10
 11
 12
 13
 14 QuerySDM
 15 Locate
 16
 17 Help
 18 Refresh

   root
Time  19:05  >
```

Figure 2-7
SDM screen for inactive console SP1

```
     SDM        CON      LAN      APPL     SYS      HW      CM: RTPT
      .          .        .        .        .        .     SDM: cpvey90a
                                                           Inactive Domain 1
MTC
 0 Quit
 2 Con
 3 Lan
 4 Appl
 5 Sys
 6 Hw
 7 By
 8 Rts
 9 Offl
10
11
12
13
14 QuerySDM
15 Locate
16
17 Help
18 Refresh

   root
Time  19:05  >
```

Split-mode upgrade flowchart procedure

Figure 2-8 summarizes the SDM split-mode upgrade procedure. To complete the split-mode procedure, use the instructions in the step-action procedure that follows the flowchart.

Figure 2-8
Summary of SDMC base software upgrade using split-mode migration
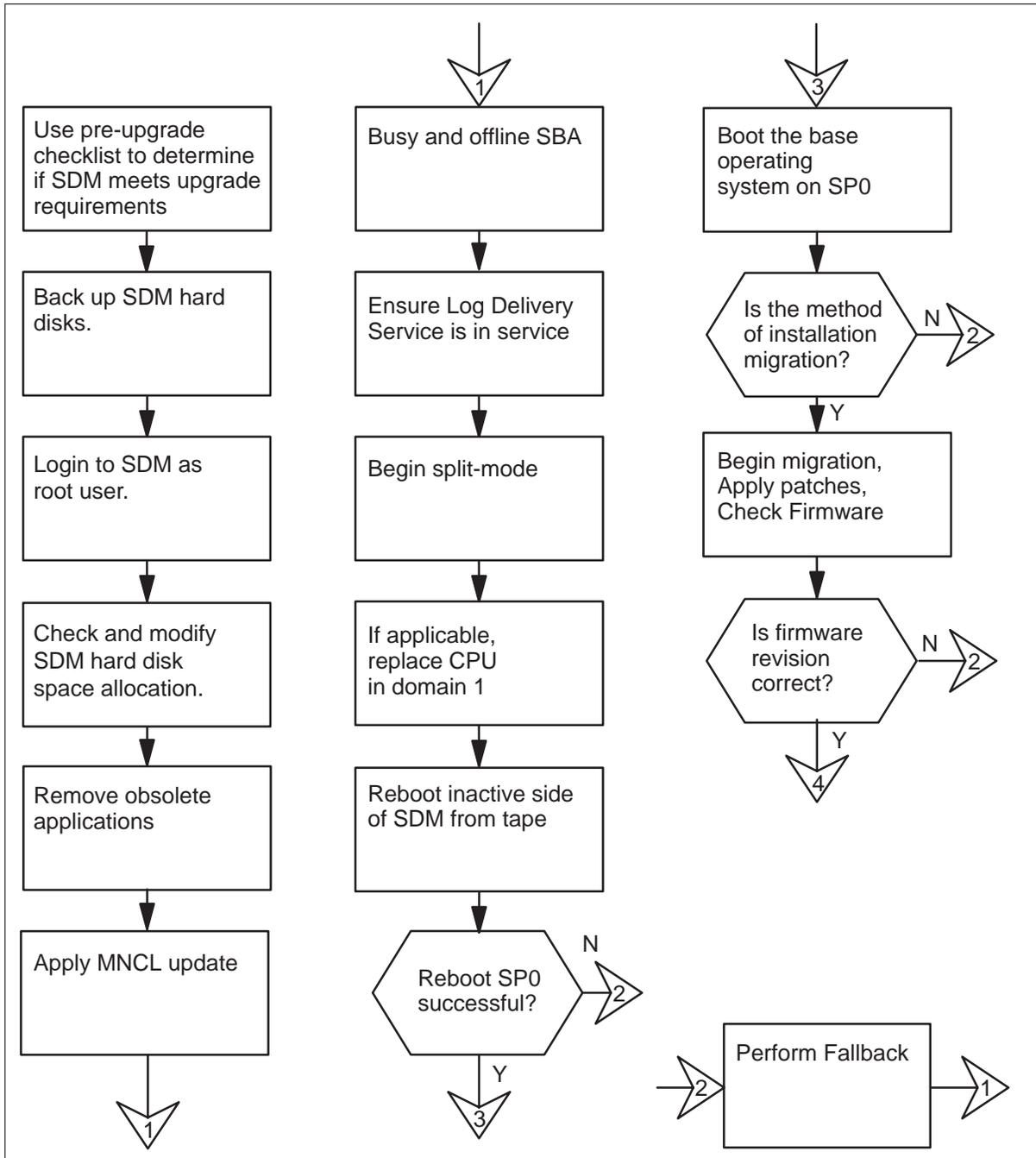
Figure 2-8
Summary of SDMC base software upgrade using split-mode migration (continued)

```
        ▼ 4                          ▼ 5

  ┌─────────────────┐          ┌─────────────────────┐
  │ Install Release 13│          │ Rootvg has fully    │
  │ platform software │          │ integrated and datavg│
  │                 │          │ begins integration  │
  └─────────────────┘          └─────────────────────┘
          │                              │
          ▼                              ▼
  ┌─────────────────┐          ┌─────────────────────┐
  │ Select and apply │          │ Upgrade SBA Billing │
  │ applications except│          │ Application         │
  │ DDMS and SBA    │          │                     │
  └─────────────────┘          └─────────────────────┘
          │                              │
          ▼                              ▼
  ┌─────────────────┐          ┌─────────────────────┐
  │ Busy and offline │          │ If applicable,      │
  │ current DDMS and │          │ upgrade DCE         │
  │ SBA applications on│          │                     │
  │ both sides of SDM│          └─────────────────────┘
  └─────────────────┘                    │
          │                              ▼
          ▼                     ┌─────────────────────┐
  ┌─────────────────┐          │                     │
  │ Begin SwACT     │          │        End          │
  │                 │          │                     │
  │                 │          └─────────────────────┘
  └─────────────────┘
          │
          ▼
  ┌─────────────────┐
  │ Begin integration│
  │ process         │
  │                 │
  └─────────────────┘
          │
          ▼
  ┌─────────────────┐
  │ If applicable,  │
  │ replace CPU     │
  │ in domain 0     │
  └─────────────────┘
          │
          ▼ 5
```

SDMC0011 to SDMC0013 split-mode migration procedure

This section provides instructions for migrating your SDM to the release 13 NCL software from the release 11 NCL software.

Log onto the SDM to check for adequate disk space for upgrade
At the SDM active console (SP0)

1 Log onto the SDM active console (SP0) as root user.

2 Use the following table to determine your next step.

If	Do
you have the OMD application installed	continue with step 3
you do not have the OMD application installaed	skip to step 8

3 Create the directory structure for the open OM Delivery report files by typing

#mkdir –p /omdata/open
and pressing the **Enter** key.

4 Create the directory structure for the closed-sent OM Delivery report files by typing

#mkdir –p /omdata/closedSent
and pressing the **Enter** key.

5 Create directory structure for the closed-not-sent OM Delivery report files by typing

#mkdir –p /omdata/closedNotSent
and pressing the **Enter** key.

6 Chance the ownership for all the directories you created to *maint* by typing

#chown –R maint maint /omdata
and pressing the **Enter** key.

7 Change the read/write permissions for all the directories you created by typing

#chmod –R 777 /omdata
and pressing the **Enter** key.

8 Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

9   Ensure that you have enough disk space allocated to the /sdm volume (root vg) by typing

>**storage**

and pressing the **Enter** key.

The SDM responds with the following screen shown in Figure 2-9.

Figure 2-9
Determine available space in root vg

```
Volume Groups         Status            Free(MB)
rootvg                Mirrored          648
datavg                Mirrored          128

Logical Volume        Location          Size(MB) % full/ threshold
1 /                   rootvg            88              20/ 80
2 /usr                rootvg            600             69/ 90
3 /var                rootvg            200             20/ 70
4 /tmp                rootvg            24              10/ 60
5 /home               rootvg            636             53/ 70
6 /sdm                rootvg            404             50/ 90
7 /swd/client         rootvg            96              43/ 80
8 /data               datavg            208              5/ 80
9 /ddms1              datavg            1008            14/ 80
                      Logical volumes showing: 1 to 9 of 21


#
```

10 Determine whether /sdm has at least 900 MB of space allocated. If it does not, increase the amount of disk space by typing

>**change lv /sdm nnn**

and pressing the **Enter** key.

where

nnn   is the amount of disk space you need to add to the existing /sdm volume, which is part of rootvg

Calculate this value by subtracting the amount of existing space from 900. In the example shown in the screen above, nnn would be 496; (900–404=496).

The SDM responds that it is expanding the /sdm volume. Once it has completed the expansion process the screen will update to indicate that the /sdm volume now has 900 megabytes of disk space, as in the following example:

```
6 /sdm        rootvg            900             20/ 90
```

Remove obsolete applications

11 Access the software installation menu by typing

>**swim**

and pressing the **Enter** key.

12 Determine whether you have the following applications installed on the SDM. If necessary, use the up (type 12, u or up) and down (type13, d or down) commands to scroll through the application list to locate the filesets.

- OM Delivery Proxy Access application

13 Remove the OM Delivery Proxy Access application by typing

>remove n
where

n   is the fileset number that appears next to the OM Delivery Proxy Access application.

The SDM responds:

```
WARNING: All versions of the following filesets will
be removed permanently.
OM Deliver Proxy Access
Do you wish to proceed?
Please confirm .....
```

14 Type

>y
and press the **Enter** key.

15 Exit the SDM interface by typing

>quit all
and pressing the **Enter** key.

16 Use the following table to determine your next step.

If	Do
you arrived at this step after performing a fallback	determine the solution to the problem that caused you to fallback, then restart this procedure
you arrived at this step from step 15	step 17

Prepare the SDM for an MNCL update

17 Set the tape drive that you will use to load your MNCL to drive rmt0 in domain 0 by typing

#/usr/sbin/chdev –l rmt0 –a compress='yes'
and pressing the **Enter** key.

> **Note:** In the command string shown above, the –l character is the letter L (in lower case), and the 1 character represents the number one.

The SDM responds:

```
rmt0 changed
```

18 Insert the tape with the latest MNCL (use release 11.4 or greater) into slot 2 as illustrated in Figure 2-10.

Figure 2-10
Insert tape into the SDM tape drive 0, slot 2
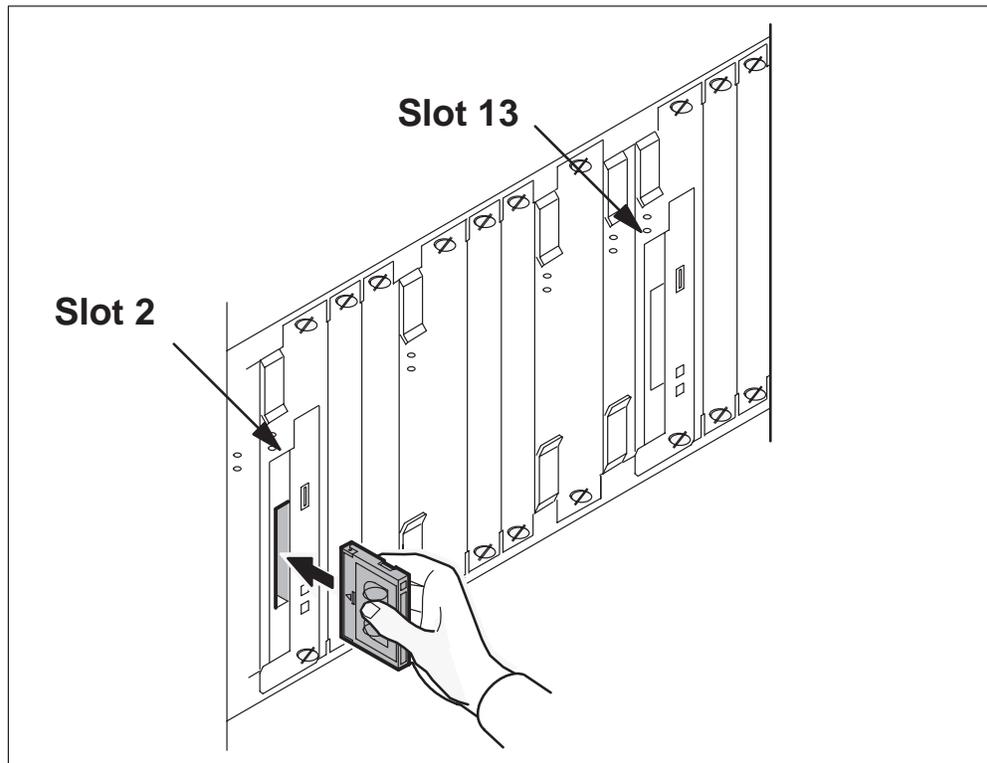
19 Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

20 Access the options level by typing

>options
and pressing the **Enter** key.

The SDM displays the default source location for the software upgrade.

```
Source: the tape drive in the main chassis slot x
```

where

x   will either be slot 2 or 13.

21 Continue the procedure according to the default source displayed on the SDM.

If	**Go to**
the default source shown is slot 13	step 22
the default source shown is slot 2	step 24

22   Change the default source location for the MNCL upgrade by typing

>change 1
and pressing the **Enter** key.

23   Select the tape drive in the main chassis slot 2 by typing

>0
and pressing the **Enter** key.

24   Access the Apply level of the SWIM screen by typing

>apply
and pressing the **Enter** key.

The SDM displays a screen similar to the following:

```
>Source: the tape drive in the main chassis slot 2
Filter: OFF
# Fileset Description       Current        Available
1 Alarm Conduit             NA             11.4.21.0
2 ASCII Terminal            11.0.20.0      11.4.21.
8 Platform Maintenance      11.0.22.0      11.4.24.0
```

25   Determine what current version of MNCL filesets you are running.

For SDMPL011, the following filesets must indicate the following revisions:

- Platform Maintenance (11.0.24.4 or greater)
- FT On-demand Reprogram Flash Run Time Environment (4.1.5.3 or greater)

ATTENTION

If you do not have the most recent versions of the filesets listed above, you must upgrade them now, otherwise the migration may fail, and you may be forced to perform a fallback and restart this procedure.

The fileset version is the fileset number that appears beside the fileset name. For example, the available fileset version for the SDMPL011 Platform Maintenance fileset is 11.4.24.0.

To select the correct version of a fileset, the first three numbers in the Current fileset version number must match the first three numbers in the Available fileset version listed below. The fourth number in the Available column must be the same as or greater than the fourth number in the Current column as shown below.

```
>Source: the tape drive in the main chassis slot 2.
Filter: OFF
# Fileset Description          Current         Available
1 Alarm Conduit               NA              11.0.21.0
2 ASCII Terminal              11.0.21.0       11.0.21.1
8 Platform Maintenance        11.0.24.0       11.0.24.2
```

These numbers must be the same.

This number in the Available column must be greater than the corresponding number in the Current column.

If	Go to
you do not have all the most recent versions of the filesets available installed on your SDM	step 26
you have all the most recent versions of the filesets available installed on your SDM	step 32

26 Select the Platform Maintenance and FT On-demand Reprogram Flash Run Time Environment application filesets by typing

>select n n
and pressing the **Enter** key.

where

n n is the fileset number that appears next to the Platform Maintenance and FT On-demand Reprogram Flash Run Time Environment application filesets respectively.

27 Apply the selected filesets by typing

>apply
and pressing the **Enter** key.

The SDM responds:

```
The platform maintenance software is being modified...
The other SDM maintenance interface programs currently..
Do you wish to proceed?
Please confirm (YES, Y, NO, N):
```

28   The SDM asks you to confirm the apply command, type

>y
and press the **Enter** key.

>   ***Note:*** Applying the maintenance filesets can take at least 30 minutes
>   depending on how many filesets must be updated.

After the maintenance filesets are applied the SDM responds:

```
Since the platform Maintenance fileset was upgraded
the SDM Maintenance Interface must be exited.
```

29   Press the **Enter** key to exit the maintenance interface back to the # prompt.

30   Access the SDM maintenance interface again by typing

#sdmmtc
and pressing the **Enter** key.

31   Access the Appl level of the SDM maintenance interface by typing

>appl
and pressing the **Enter** key.

Ensure that Log Delivery is in service

32   Refer to Figure 2-11 and locate the Log Delivery Service application and
determine its status.

If	Do
Log Delivery is not in service	step 33
Log Delivery is in service	step 35

33   Locate the application number for the Log Delivery Service and return it to
service by typing

>rts *n*
and pressing the **Enter** key.

where

n   is the application number that appears beside the Log Delivery Service
application.

Figure 2-11
Busy the Log Delivery Service

```
   SDM         CON     LAN     APPL    SYS     HW     CM : 250
    .           .       .      ISTb     .       .    SDM: crchy08e
                                                     Active Domain 0
Appl
 0 Quit
 2              # Application                                  State
 3            1 Log Delivery Service                            ManB
 4 Logs       2 SDM_SBA DMS500 Application                       .
 5            3 OM Access Service                                .
 6            4 ObjectStore Database Svc                         .
 7 Bsy        5 OSS Comms Svcs                                   .
 8 RTS        6 OSS and Application Svcs                         .
 9 OffL       7 DMS Data Mgmt Sys Phase1                         .
10            8 Generic Data Delivery                            .
11            9 Table Access Service                             .
12 Up
13 Down
14 QuerySDM            Applications showing: 1 to 9 of 16
15 Locate
16
17 Help
18 Refresh
  root
Time  12:22  >
```

Begin split-mode

34 Set the tape drive that you will use to load your MNCL to drive rmt1 in domain 1
by typing

#/usr/sbin/chdev –l rmt1 –a compress='yes'
and pressing the **Enter** key.

> **Note:** In the command string shown above, the –l character is the letter L
> (in lower case), and the 1 character represents the number one.

The SDM responds:

rmt1 changed

35   Refer to Figure 2-12 and insert the base operating system tape labelled
SDMx0013 13.x (1 of 2) into slot 13 in the main chassis.

ATTENTION

Ensure that you insert the proper tape into the tape drive now. Once
split-mode begins you will not be allowed to remove the current tape
from the tape drive.

Figure 2-12
Insert the BOS tape into the SDM tape drive 1, slot 13
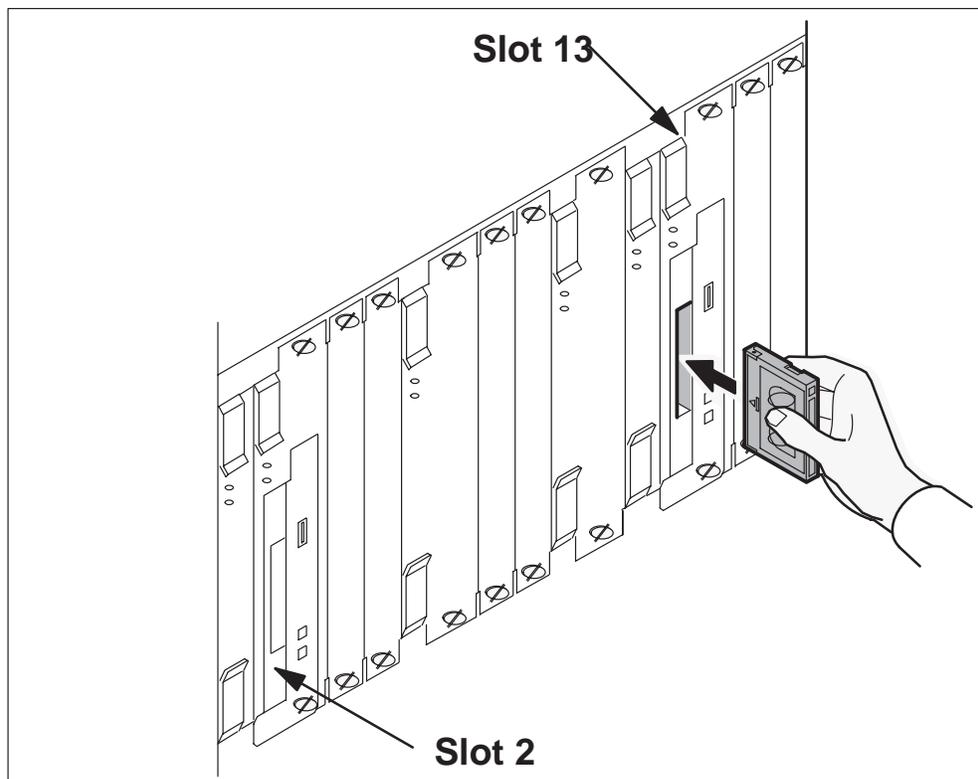
36   Access the split-mode screen by typing

>split
and pressing the **Enter** key.

> *Note:* The SDM must be in service to continue with this procedure.

37   Start the split-mode upgrade by typing

>start
and pressing the **Enter** key.

38 Verify that you want to perform an upgrade by typing

>y
and pressing the **Enter** key.

39 Specify that you want to upgrade the operating system by typing

>y
and pressing the **Enter** key.

40 Specify whether you want to upgrade the CPU modules. Consult your site prime or administrator to determine whether or not you need to upgrade your CPU.

> *Note:* It is recommended, but not required, that CPU upgrades be performed for SDMC platforms upgrading from release 11 to release 13. The NTRX50CG CPU card (with 256-Megabytes of memory) only meets the minimum requirements for NCL 13. The NTRX50CH CPU card (with 512 Megabytes memory) can also be used.

ATTENTION

You cannot upgrade to the NTRX50NB (Arther 750) CPU card during this procedure. You must first complete this migration procedure, then refer to the *SDM Upgrade Guide,* 297-5051-304, for instructions about upgrading your SDM CPUs to the NTRX50NB CPU.

If	Type
you want to upgrade the CPU	**y** and continue the procedure
you do not want to upgrade the CPU	**n** and continue the procedure

41 Confirm that you want to start the system upgrade by typing

>y
and pressing the **Enter** key.

> *Note:* During the upgrade, the CM displays the state of the SDM as in-service trouble (ISTb). This is a normal indication.

> *Note:* The SDM disables all node state commands during the upgrade. You can only use the RebootSDM command on the inactive system.

Figure 2-13 illustrates the SDM active console (SP0) to determine the progress of the SDM system split.

> *Note:* Splitting the SDM takes a minimum of 20 minutes.

Figure 2-13
Active domain console progress screen during a system split

```
    SDM       CON      LAN      APPL     SYS      HW       CM : 250
    ISTb       .        .       ISTb      .        .       SDM: crchy08e
                                                                Fault Tolerant
 Split                                                      ../Upgrade in Progress
   0 Quit
   2          Split    : [ 85%] Upgrading domain 1 CPU firmware
   3          Configure: [----]
   4          SwAct    : [----]
   5 Start    Integrate: [----]
   6 Continue
   7 Fallback  If necessary, domain 1 software should be upgraded now.
   8          When ready, type 'Continue' on the inactive console.
   9           Type 'fallback' to cancel the entire upgrade.
  10           'Continue' is only available from the inactive console.
  11
  12
  13
  14 QuerySDM
  15 Locate
  16
  17 Help
  18 Refresh
   root
 Time  09:58  >
```

Determine whether to replace the CPU in domain 1

42   While the SDM is in the process of splitting, use the table below to determine the next step.

If	Go to
you selected to upgrade the CPU in step 40	step 43
did not select to upgrade the CPU in step 40	step 45

43   The SDM prompts you to replace the CPU in domain 1, slot 10. For more information about replacing CPU modules, refer to the procedure "Upgrading the CPU controller module using split-mode" in the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906. This document provides the actual procedure for the physical replacement of CPU modules.

44   When you have replaced the CPU for domain 1, continue the split-mode upgrade by typing

   >continue
   and pressing the **Enter** key.

45 Wait until the system is 100% split, as indicated by the following message on the SP0 console:

```
Split    : [100%] Completed
Configure: [User] Waiting for user input
```

The FX–Bug prompt appears on the SP1 console.

At the VT100 console connected to SP1 (inactive side)

46 At the FX–Bug prompt manually reboot domain 1 by typing

FX–Bug>pboot 6 0

and pressing the **Enter** key.

ATTENTION

After about five minutes, the SDM displays the login prompt. Do not log in at this point. Wait until the SDM returns you to the FX–Bug prompt.

---

47 If it takes longer than 30 minutes to reach the FX–Bug on SP1, abort the upgrade at the active console (SP0) by typing

>fallback

and pressing the **Enter** key. Go to step 15 and contact your next level of support.

Boot the SDM from tape and begin migration

48 Boot the SDMC13 base operating system (BOS) tape drive in slot 13, on the inactive side of the SDM, by typing

FX–Bug>pboot 6 50

and pressing the **Enter** key.

49 Wait until the message " Please define system console Type 1 and press enter." appears on the SDM console with no prompt, then type

>1

and press the **Enter** key.

> *Note:* The SDM does not display the user input on the terminal.

50 Select the default language (English) for the procedure by pressing the **Enter** key.

*The system displays an error message about the c1–f2–00–00 disk. Ignore the error message and press the **Enter** key to continue the procedure.*

51 Start the migration of the base operating system (BOS) migration by selecting the Change/Show Installation Settings and Install menu. Type

>2

and press the **Enter** key.

52 Refer to Figure 2-14 and check that the default setting for the Method of Installation is Migration.

If	Do
the method of installation you are performing is a Migration	step 54
the method of installation you are performing is not a Migration	step 53

Figure 2-14
Active domain console progress screen during a system split

```
Installation and Settings

Either type 0 and press Enter to install with current settings, or type
the
 number of the setting you want to change and press Enter.

    1   System Settings:
         Method of Installation...........  .Migration
         Disk Where You Want to Install.....hdisk0

    2   Primary Language Environment Settings (AFTER Install):
         Cultural Convention................English (United States)
         Language ..........................English (United States)
         Keyboard ..........................English (United States)
         Keyboard Type......................Default

    3   Install Trusted Computing Base...... No

>>> 0   Install AIX with the current settings listed above.

  +-----------------------------------------------------
    88  Help ?            |  WARNING: Base Operating System Installation will
    99  Previous Menu     |    destroy or impair recovery of SOME data on the
                          |    destination disk hdisk0.
>>> Choice [0]:
```

At the VT100 console connected to the SP0 (active)

53 Abort the upgrade at the inactive console (SP0) by typing

>fallback
and pressing the **Enter** key. Go to step 15 and contact your next level of support.

> *Note:* If you do not know whether you are supposed to be performing a full install or a migration, contact your site prime.

At the VT100 console connected to the SP1 (inactive)

54 Start the base operating system (BOS) migration by pressing the **Enter** key. The installation software examines the current operating system configuration. This process takes at least 10 minutes.

55 The system displays a migration confirmation screen as shown in Figure 2-15. To continue the installation type

>0

and press the **Enter** key.

> *Note:* It takes at least 1 hour to migrate the base operating system. Once the migration is complete, the inactive side reboots automatically and brings you to the FX–Bug prompt.

Figure 2-15
SDM software migration confirmation screen

```
                        Migration Confirmation

  Either type 0 and press Enter to continue the installation, or type the
  number of your choice and press Enter.

    1   List the saved Base System configuration files which will not be
        merged into the system.  These files are saved in /tmp/bos.

    2   List the filesets which will be removed and not replaced.

    3   List directories which will have all current contents removed.

    4   Reboot without migrating.

>>> 0   Continue with the migration.

   88   Help ?

+------------------------------------------------------------------------
 WARNING: Selected files, directories, and filesets (installable options)
 from the Base System will be removed. Choose 2 or 3 for more information.


>>> Choice[0]:
```

56 Boot the new operating system on the inactive side of the SDM by typing

FX–Bug>pboot 6 0

and pressing the **Enter** key.

57 Wait for the SDM to ask you to define the console port, then type

>1

and press the **Enter** key.

> *Note:* The system does not display the user input on the terminal.

58 At the login prompt log onto the inactive side of the SDM as root user.

The SDM displays the following message:

```
Part 1 of 3: OS Tape Patch Apply

Some additional AIX operating system (OS) patches
must be applied from the SDM OS tape. The SDM OS tape
was used during the first steps of the OS software
upgrade, so the SDM OS tape should still be in a tape
drive.

The SDM OS tape has one of the following labels:

        SDMX0013 NCL R 13.X (1 of 2)
        SDMX0013 NCL V 13.X (1 of 2)

To start applying patches from the SDM OS tape,
select the tape drive where you
have inserted the SDM OS tape:

        1 – Tape drive in the main chassis slot 13.
```

59 Install the patches from the operating system on the tape by selecting the tape drive in slot 13. Type

>1

and press the **Enter** key.

60 After applying the operating system patches the SDM displays the following message:

```
The CPU in the main chassis slot 10 has firmware
version 15RM01.
Current firmware version: 15RM01
The CPU firmware is at the current version.
```

The SDM checks the version of the firmware and informs you if you have the correct version of the firmware. Continue the procedure according to the version of the firmware.

If	Go to
the version of the firmware is not correct	step 61
the version of the firmware is correct	step 62

At the VT100 console connected to the SP0 (active)

61 Abort the upgrade at the inactive console (SP0) by typing

>fallback

and pressing the **Enter** key. Go to step 15 and contact your next level of support.

At the VT100 console connected to the SP1 (inactive)

62 Press the **Enter** key to continue this procedure.

After applying the operating system patches the SDM displays the following message

```
Part 3 of 3: Platform Software

You are about to upgrade the SDM Platform software on
the SDM.

Tape 2, the SDM Platform and Application tape, has
one of the following labels:

        SDMX0013 NCL R 13.X (2 of 2)
        SDMX0013 NCL V 13.X (2 of 2)
                            ^

To start the upgrade of the SDM Platform software,
select the tape drive where
you have inserted the SDM Platform and Application
tape:

        1 – Tape drive in the main chassis slot 13.
```

63 Eject the base operating system tape labelled SDMx0013 13.x (1 of 2) from the tape drive in slot 13. Insert the tape labelled SDMx0013 13.x, 2 of 2 (the SDM platform and applications tape) into the same tape drive.

64 Start the upgrade of the SDM platform software by selecting the tape drive for slot 13 by typing

>1

and pressing the **Enter** key.

Upgrade of the platform software takes about 45 minutes to complete.

65 Press the **Enter** key to continue the procedure when the upgrade is complete.

The inactive side (SP1) of the SDM must reboot for the upgrade of the SDM platform software to take effect.

66 Press the **Enter** key to reboot the inactive side of the SDM.

67 Boot the SDM by typing

FX–Bug>pboot 6 0

and pressing the **Enter** key.

68 Log onto the inactive side of the SDM as the root user.

69   Access the SDM maintenance interface, and list the SDM platform and
application tape (tape in drive in slot 13) by typing

#sdmmtc apply 1
and pressing the **Enter** key.

70   You are now ready to upgrade all of the existing applications and services
installed on the SDM. Select all the new versions of installed software by typing

>select new
and pressing the **Enter** key.

> *Note:* This step does not install new applications such as Remote
> Registration or Image Dump. You must install these applications after this
> procedure is completed.

> *Note:* Selecting new will also install the Base Maintenance Interface (BMI).

71   Use the following table to determine the next step.

If	Go to
DDMS or SBA applications exist on your system	step 72
DDMS or SBA applications do not exist on your system	step 74

72   Refer to Figure 2-16 and, if necessary, use the up (type 12, u or up) and down
(type13, d or down) commands to scroll through the application list to locate
and deselect any highlighted DDMS filesets and the SDM SBA DMS500
Application fileset. Type

>select *n*
and pressing the **Enter** key.

where

n   is the number beside each of the the SBA and DDMS filesets and shown
on the screen.

73   Repeat step 72 for each fileset listed until all six filesets are deselected (not
highlighted).

The collection of SBA and DDMS filesets to deselect are as follows:

- SDM SBA DMS500 Application
- All filesets beginning with *DDMS Schema for*...
- DMS Data Mgmt Sys Phase1
- OSS and Application Svc

- OSS Comms Svcs
- ObjectStore Database Svc

ATTENTION

The DDMS and SBA filesets are deselected because the SDM cannot upgrade the applications at this time. If you do not deselect the DDMS and SBA filesets, the split-mode upgrade may fail and a fallback will be necessary.

---

74 Install the new application software except for DDMS and SBA by typing

>apply
and pressing the **Enter** key.

75 When the system asks you to confirm the apply command, type

>y
and press the **Enter** key.

The SDM responds that it is applying the selected filesets.

Figure 2-16
DDMS filesets and SDM SBA applications deselection

```
  SDM         CON      LAN      APPL     SYS      HW       CM : 250
  ISTb        .        .        ISTb     .        .        SDM: crchy08e
                                                             Inactive Domain 1
Split                                                      /Upgrade in Progress
Apply
 0 Quit       Source: the tape drive in the main chassis slot 13.
 2              Filter: OFF
 3 Source      # Fileset Description            Current        Available
 4 Reload      45 Installation & Upgrade Lists  13.0.25.0       13.0.25.0
 5             46 OM Delivery                    11.0.36.13      13.0.14.0
 6             47 OSS and Application Svcs        11.0.20.0       13.0.14.0
 7 Select      48 OSS Comms Svcs                 11.0.20.0       13.0.14.0
 8 Apply       49 ObjectStore Database Svc       11.0.20.0       13.0.14.0
 9 Upgrade     50 Remote Registration System        NA          13.0.20.0
10             51 SDM_SBA DMS500 Application     11.0.215.16     13.0.57.0
11             52 Secure File Transfer           11.0.24.0       13.0.25.0
12 Up          53 Secure File Transfer Client       NA          13.0.25.0
13 Down
14 Search
15 Filter
16 View
17 Help
18 Refresh
   root
Time 14:55  >
```

76   When the SDM has applied the selected filesets it may ask you to perform a reboot. Use the following table to determine your next step.

If	Do
the SDM asks you to perform a reboot	continue with step 77
the SDM does not ask you to perform a reboot	skip to step 82

77   Confirm the system reboot request by typing

>y
and pressing the **Enter** key.

78   Start the reboot of the inactive side by pressing the **Enter** key.

79   When the FX-Bug prompt appears reboot the SDM by typing

FX-Bug>pboot 6 0
and pressing the **Enter** key.

80   Log into the inactive side of the SDM as the root user.

81   Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

82   Access the Split-mode level of the SDM maintenance interface by typing

>split
and pressing the **Enter** key.

83   Continue the upgrade by typing

>continue
and pressing the **Enter** key.

84   Use the following table to determine the next step.

If	Do
the DDMS or SBA applications currently exist on your system	step 85
the DDMS or SBA applications do not currently exist on your system	step 105

At the VT100 console connected to the SP1 (inactive)

85 Access the Appl level of the SDM maintenance interface by typing

>appl
and pressing the **Enter** key.

If	Do
the applications are not in a manual busy (ManB) state	step 86
the applications are in a manual busy (ManB) state	step 88

86 Refer to Figure 2-17 and busy (ManB) the following filesets currently installed on your SDM:

- SDM SBA DMS500 Application
- DMS Data Mgmt Sys Phase1
- OSS and Application Svcs
- OSS Comms Svcs
- ObjectStore Database Svc

Busy each of the SBA fileset and DDMS filesets by typing

>bsy *n*
and pressing the **Enter** key.

where

n   is the number beside each DDMS fileset in the fileset list.
The SDM responds with the following message:

```
This command will cause a service interruption.
Please confirm ("YES", "Y", "NO", or "N"):
```

87 Confirm the command by typing

>y
and press the **Enter** key.

Repeat step 86 for each fileset until all filesets are busied.

Figure 2-17
SDM SBA application is busied

```
    SDM          CON      LAN       APPL      SYS       HW      CM : 250
     .            .        .        ISTb       .         .      SDM: crchy08e
                                                                 Inactive Domain 1
Appl                                                            .../Upgrade in Progress
  0 Quit
  2                     # Application                                    State
  3                   1 SDM_SBA DMS500 Application                        ManB
  4 Logs             2 ObjectStore Database Svc                          ManB
  5                   3 OSS Comms Svcs                                    ManB
  6                   4 OSS and Application Svcs                          ManB
  7 Bsy               5 DMS Data Mgmt Sys Phase1                          ManB
  8 RTS               6 Remote Registration System                        .
  9 OffL              7 Alarm Conduit                                      .
 10                   8 Generic Data Delivery                             .
 11                   9 Table Access Service                              .
 12 Up               10 OM Access Service                                 .
 13 Down             11 Log Delivery Service                              .
 14 QuerySDM                  Applications showing: 1 to 11 of 16
 15 Locate
 16
 17 Help
 18 Refresh    Application Manual Busied – Command complete.
   root
Time  12:22  >
```

88   Refer to Figure 2-18 and take the following filesets offline (OffL):

- SDM SBA DMS500 Application
- DMS Data Mgmt Sys Phase1
- OSS and Application Svcs
- OSS Comms Svcs
- ObjectStore Database Svc

Take each SBA and DDMS fileset offline by typing

>offl *n*
and pressing the **Enter** key.

where

n   is the number beside each DDMS fileset in the fileset list.
Repeat this step for each fileset until all filesets are offlined.

89   Exit the SDM maintenance interface by typing

>quit all
and pressing the **Enter** key.

Figure 2-18
DDMS filesets and SDM SBA are taken offlined

```
    SDM         CON      LAN      APPL     SYS      HW     CM : 250
     .           .        .       ISTb      .        .     SDM: crchy08e
                                                                 Inactive Domain 1
Appl                                                    .../Upgrade in Progress
 0 Quit
 2              # Application                                          State
 3             1 SDM_SBA DMS500 Application                            OffL
 4 Logs        2 ObjectStore Database Svc                              OffL
 5             3 OSS Comms Svcs                                        OffL
 6             4 OSS and Application Svcs                              OffL
 7 Bsy         5 DMS Data Mgmt Sys Phase1                              OffL
 8 RTS         6 Remote Registration System                             .
 9 OffL        7 Alarm Conduit                                          .
10             8 Generic Data Delivery                                  .
11             9 Table Access Service                                   .
12 Up         10 OM Access Service                                      .
13 Down       11 Log Delivery Service                                   .
14 QuerySDM             Applications showing: 1 to 11 of 16
15 Locate
16
17 Help
18 Refresh    Application Offline - Command complete.
  root
Time  12:22  >
```

Use billmtc to busy the RTB billing streams
At the VT100 console connected to the SP0 (active)

90 Access the Billing Maintenance interface by typing

#billmtc
and pressing the **Enter** key.

91 Display a list of billing streams currently active on the SDM by typing

>query
and pressing the **Enter** key.

The SDM displays a list of active streams similar to the following display showing an OCC stream:

```
OCC:
PrimarySubStream:                    InSv
Number of Records in Open Files:     0
ClosedNotSent Files Available:       4
Records within the ClosedNotSent files: 14852
Date of Last File Sent:
Date and time unavailable.
```

92 Access the Schedule level by typing

>schedule
and pressing the **Enter** key.

93 Access the RTB (Real Time Billing) menu of the SBA Schedule level by typing

>rtb
and pressing the **Enter** key.

94 Determine whether there are RTB streams in service on the SDM by referring to Figure 2-19 and typing

>query *streamName*
and press the **Enter** key.

where streamName is the name off the billing stream(s) determined in step 91.

> ***Note:*** Your SDM may have more than one stream configured to use RTB.

Figure 2-19
Use billmtc to identify and busy RTB billing streams

```
RTB              Stream : OCC                                      INSV
  0 Quit
  2 Set
  3
  4
  5
  6
  7 Rts
  8 Bsy
  9 Offl
 10 Query
 11 IPTest
 12 CONFRTB
 13
 14
 15
 16
 17 Help
 18 Refresh
   root         >bsy occ
 Time  13:40
```

If	Do
There are RTB steams in service (INSV)	step 95
There are no RTB streams in service (ManB, SysB or OffL).	step 99

95 For each stream name using an in service RTB stream refer to Figure 2-19 and busy each stream by typing

>**bsy** *streamName*
and pressing the **Enter** key.

where

streamName is the name of each RTB stream to be busied found in step 94.
The SDM responds with the message:

```
Bsying a RTB stream will stop current RTB open file
transferring.
Are you sure you want to BSY RTB? (Y/N):
```

96 Confirm that you wish to busy the RTB stream by typing

>**y**
and press the **Enter** key.

The SDM responds with the message:

```
RTB is Manb for RTB Instance: OCC DIRP
```

97 Repeat step 96 until all streams are busied.

98 For each RTB stream, ensure that the streams are busied (ManB) by typing

>**query** *streamName*
and press the **Enter** key.

where streamName is the name off the billing stream(s) determined in step 91.

99 Exit the Billing Maintenance interface by typing

>**quit all**
and pressing the **Enter** key.

100 Re-access the SDM maintenance interface by typing

#**sdmmtc**
and pressing the **Enter** key.

101 Access the Appl level of the SDM maintenance interface by typing

>**appl**
and pressing the **Enter** key.

102 Refer to Figure 2-17 and busy (ManB) the SDM SBA DMS500 Application fileset currently installed on your SDM by typing

>**bsy** *n*
and pressing the **Enter** key.

where

n   is the number beside the SBA application fileset.
The SDM responds:

```
This command will cause a service interruption.
Please confirm ("YES", "Y", "NO", or "N"):
```

103 Refer to Figure 2-18 and take the SDM SBA DMS500 Application fileset offline (OffL) by typing

>offl *n*
and pressing the **Enter** key.

where

n   is the number beside the SBA application fileset.

Begin SwACT
At the VT100 console connected to the SP0 (active)

104 Access the split-mode level of the SDM maintenance interface by typing

>split
and pressing the **Enter** key.

105 Begin the SwAct by typing

>continue
and pressing the **Enter** key.

106 The SwAct process takes several minutes. Wait at least 15 minutes for the SDM to stabilize.

107 Check for any fail (Fail) indications with the applications or the SDM itself. Refer to the top of the screen shown in Figure 2-20 to determine if any fails have occurred during the SwACT. If a fail does occur with any application, simply offline it. Refer to the *SuperNode Data Manager Fault-tolerant User Guide.* for instructions about offlining specific applications.

> *Note:* All applications should indicate that their status is either in-service (InSv) or in-service trouble (ISTb). The applications should not be in a fail (Fail) state. The only applications that should be in an offline (OffL) state are the SBA application and the DDMS applications.

During the SwACT process the inactive console becomes domain 0 while the active console becomes domain 1. After SwACT SP1 becomes deallocated and will be unavailable to log onto the SDM until after the upgrade is complete.

> *Note:* During SwACT one console will indicate that domain 1 is active, while the other will indicate domain 1 is inactive. This is a normal process.

108 When the SwAct completes, a message appears indicating that the system is ready to be integrated as illustrated in Figure 2-20. Ensure that the active side of the SDM (now domain 1) is operating, and the applications are providing service before you begin the reintegration phase.

Figure 2-20
SDM waiting to be unsplit (reintegrated)

```
    SDM          CON      LAN      APPL     SYS       HW        CM : 250
    ISTb          .        .       ISTb      .         .        SDM: crchy08e
                                                                    Active Domain 1
Split                                                           .../Upgrade in Progress
  0 Quit
  2          Split    : [100%] Completed
  3          Configure: [100%] Completed
  4          SwAct    : [100%] Completed
  5 Start    Integrate: [User] Waiting for continue to begin integration
  6 Continue
  7 Fallback   The system is ready to begin integration.
  8          WARNING: No fallback is possible once integration has started!
  9            Type 'continue' when ready to proceed
 10            or type 'fallback' to cancel the entire upgrade.
 11
 12
 13
 14 QuerySDM
 15 Locate
 16
 17 Help
 18 Refresh
   root
Time  12:38  >
```

109 Refer to the illustration in Figure 2-20. Review the status bar at the top of the SDM screen. Ensure that the status of the APPL indicator is either ISTb (In service–trouble), or the 'in service' dot.

110 Use the following table to determine the next step.

If	Do
the APPL indicator shows ISTb or a single dot	step 113
the APPL indicator shows Fail or SysB.	step 111

111 Access the Appl level of the SDM maintenance interface by typing

>appl
and pressing the **Enter** key.

112 Refer to Figure 2-18 and take any Application fileset(s) offline (OffL) that are in a FAIL, or SysB state.

Take each application offline by typing

>**offl** *n*

and pressing the **Enter** key.

where

n   is the number beside the application fileset in the fileset list.

Repeat this step for each application to be offlined.

113 To return to the split-mode progress screen type

>**split**

and press the **Enter** key.

Begin SDM integration

114 The SDM prompts you to begin the integration process as shown in Figure 2-20.

115 Begin the integration process by typing

>**continue**

and pressing the **Enter** key.

Determine whether to replace the CPU in domain 0

116 Use the following table to determine the next step.

If	Do
you upgraded the CPU in domain 1	step 117
you did not upgrade the CPU in domain 1	step 119

117 The system prompts you to replace the CPU in domain 0 now.

118 When you have replaced the CPU continue the split-mode upgrade by typing

>**continue**
and pressing the **Enter** key.

CAUTION
There can be a possible loss of service during the integration process. When you begin the integration process, you cannot invoke the fallback command to return to the SDMPL011 release of the platform software. If you decide to return to the SDMPL011 release of the platform software after the integration process, you must take the SDM offline and restore the SDMPL011 software from an S–tape. There is a loss of service for at least 8 hours when you restore the previous platform software.

ATTENTION
The integration process requires a minimum of 2 hours to complete, depending upon the size of the both the root and data volume groups and how much data resides on them.

---

119 Observe the SDM maintenance interface to determine when rootvg has integrated and datavg integration has begun

> *Note:* During datavg integration the SDM returns to fault-tolerant mode.

> *Note:* During rootvg integration, the progress indicator may fluctuate up and down. This behavior is considered normal.

Upgrade and start the SBA billing application

120 While datavg is integrating, install (apply) the SDM SBA DMS500 application. Refer to Figure 2-21 and list the SDM platform and application tape (tape in drive in slot 13) by typing

>**apply 1**
and pressing the **Enter** key.

The SDM responds by listing the filesets on the tape drive in slot 13.

121 Locate the SBA DMS500 fileset. If necessary, use the up (type 12, u or up) and down (type13, d or down) commands to scroll through the application fileset list to locate and the SDM SBA DMS500 Application fileset.

122 Select and install the new SDM SBA DMS500 Application fileset by typing

>**apply** *n*
and pressing the **Enter** key.

where

n   is the fileset number beside the the SBA DMS500 application.
The SDM responds:

```
You have selected to install the following new
filesets or fileset updates.
SDM_SBA DMS500 Application 13.0.57.0
Do you wish to proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

123 When the SDM asks you to confirm the apply command, type

>**y**
and press the **Enter** key.

The SDM responds that it is applying the selected filesets.

124 Ensure that the SDM SBA DMS500 Application is in service by typing

>**appl**
and press the **Enter** key.

Figure 2-21
Install the SDM SBA DMS500 application during datavg integration

```
   SDM          CON      LAN      APPL     SYS        HW       CM : 250
   ISTb          .        .       ISTb      .          .      SDM: crchy08e
                                                                  Fault Tolerant
 Split                                                        Maintenance in Progress
Apply
  0 Quit       Source: the tape drive in the main chassis slot 13.
  2              Filter: OFF
  3 Source      # Fileset Description           Current        Available
  4 Reload      45 Installation & Upgrade Lists 13.0.25.0       13.0.25.0
  5             46 OM Delivery                  11.0.36.13       13.0.14.0
  6             47 OSS and Application Svcs     11.0.20.0        13.0.14.0
  7 Select      48 OSS Comms Svcs              11.0.20.0        13.0.14.0
  8 Apply       49 ObjectStore Database Svc    11.0.20.0        13.0.14.0
  9 Upgrade     50 Remote Registration System    NA             13.0.20.0
 10             51 SDM_SBA DMS500 Application   11.0.215.16      13.0.57.0
 11             52 SDM Billing Appl. - NA100      NA             13.0.33.1
 12 Up          53 Secure File Transfer        11.0.24.0        13.0.25.0
 13 Down        54 Secure File Transfer Client   NA             13.0.25.0
 14 Search
 15 Filter
 16 View
 17 Help
 18 Refresh
   root
Time 14:55   >
```

125 Locate the SDM SBA DMS500 Application on the screen The screen should indicate that the state of the application is in service.

126 Refer to the following table to determine the next step.

If	Do
the SBA billing application is not in service	step 127
The SBA billing application is in service	step 128

127 At the application (appl) level return the SBA application to service (RTS) by typing

>rts n
and press the **Enter** key.

where

n   is the fileset number beside the the SBA DMS500 application.
The SDM responds:

```
Application RTS – Command complete.
```

128 Exit the SDM maintenance interface by typing

>quit all
and pressing the **Enter** key.

Use billmtc to return the RTB billing streams to service

129 Access the Billing Maintenance interface by typing

#billmtc

130 Access the Schedule level by typing

>schedule
and pressing the **Enter** key.

131 Access the RTB (Real Time Billing) menu of the SBA Schedule level by typing

>rtb
and pressing the **Enter** key.

132 Determine whether there are RTB streams in service on the SDM by referring to Figure 2-22 and typing

>query *streamName*
where streamName is the name off the billing stream(s) determined in step 91.

Figure 2-22
Use billmtc to identify and busy RTB billing streams

```
RTB            Stream : OCC
  0 Quit       Destination list :
  2 Set        ------------------------------------------------------
  3            DIRP DOWNSTREAM                                      INSV
  4
  5
  6
  7 Rts
  8 Bsy
  9 Offl
 10 Query
 11 IPTest
 12 CONFRTB
 13
 14
 15
 16
 17 Help
 18 Refresh
   root        >rts occ dirp downstream
 Time  13:40
```

133 For each stream name using an in service RTB stream refer to Figure 2-22 and return to service (RTS) each stream by typing

>rts *streamName fileformat destination*
and pressing the **Enter** key.

where

streamName is the name of each RTB stream to be returned to service.
fileformat is the format of each RTB stream (shown in Figure 2-22 as DIRP).
destination is where the files are sent (shown in Figure 2-22 as the default DOWNSTREAM)

The SDM responds with the following:

```
RTB is INSV for RTB Instance: OCC DIRP DOWNSTREAM
```

134 Repeat step 133 until all streams are returned to service (RTS).

135 Exit the Billing Maintenance interface by typing

>quit all
and pressing the **Enter** key.

Ensure that billing goes into recovery
At the local VT100 console connected to the MAPCI

136 Log onto the CM at the login prompt by typing

username
and pressing the **Enter** key.

where

username is the login ID you use to access the CM to perform billing maintenance.

The CM responds with the following:

```
Login: username
Password:
```

137 Enter the password by typing

password
and pressing the **Enter** key.

138 Start the CM maintenance interface go to the SDM level by typing

>mapci;mtc;appl;sdmbil
and pressing the **Enter** key.

139 Refer to Figure 2-23 and check the recovery status of the billing streams by typing

>status
and pressing the **Enter** key.

140 Determine whether the billing streams have gone into recovery or into service as shown by the messaged displayed:

```
status
AMA: InSv
OCC: Rcvy
OCCA: Rcvy
```

141 Use the following table to determine your next step.

If	Do
billing status is not in recovery (Rcvy) or in service (InSv):	go to step 142
billing status is in recovery (Rcvy) or in service (InSv):	go to step 143

142 Wait at least 5 minutes and check the MAPCI screen again by returning to step 139. If billing status is still not in recovery or in service (InSv) after rerunning the status command, contact your next level of support.

143 Exit the CM maintenance interface by typing

quit all
and press the **Enter** key.

Figure 2-23
Check the billing stream recovery status on the CM

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

SDMBIL                   OAMAP              SDM                SWMTC      SDMBIL
  0 Quit                   .                  .                  .          .
  2 Post_
  3
  4
  5
  6
  7
  8
  9 Conf_      status
 10           AMA: InSv
 11 DispAL    OCC: Rcvy
 12           OCCA: RcVy
 13 Status
 14
 15
 16
 17
 18
   A
Time  12:59  >
```

At the local VT100 console connected to the SDM

144 At the SDM system prompt display a list of files for any streamname recorded
on your SDM configuration information sheet by typing

 # listfile streamName
and press the **Enter** key.

where

streamName is the name of stream you have recorded.

*The SDM responds with a list of stream files for the selected stream name as
shown in Figure 2-24.*

145 Review the list of stream files and determine the following:

- whether or not there is an open stream file as indicated by the "O" in the far
right column of the listed displayed
- whether or not the open file's date and time are current (the time displayed
should be within a few minutes of the current time)

Figure 2-24
Determine whether open billing files are increasing in size

```
#listfile <streamname>
020001.010000.00010.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:     285 Size:     49470 CNS
020001.010000.00011.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    5747 Size:    999858 CNS
020001.010000.00012.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    4421 Size:    769134 O
#listfile <streamname>

020001.010000.00010.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:     285 Size:     49470 CNS
020001.010000.00011.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    5747 Size:    999858 CNS
020001.010000.00012.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    4421 Size:    769134 O

#
```

The file size value   Open billing file
should increase   Indicator

146   Wait a few minutes and rerun the listfile command in step 144.

147   Reread the listfile screen output to determine if the file size value is increasing and refer to the following table

If	Do
if the file size is not increasing:	repeat step 144 once again. If the open file size still does not increase, contact your next level of support.
if the file size is increasing:	continue to step 148.

Upgrade the DCE and set passwords

148   Use the following table to determine your next step.

If	Do
you have DCE	step 149 and continue with the procedure.
you do not have DCE	continue with step 155.

149 Upgrade the DCE software by typing

#dceupgrade
and pressing the **Enter** key.

The SDM responds by displaying the status of each step during the DCE upgrade.

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

150 Use the following table to determine your next step.

If	Do
you have a DCE cell_admin User ID	step 151 and continue with the procedure.
you do not have a DCE cell_admin User ID	step 152 and continue with the procedure.

151 The SDM prompts you to enter a DCE cell_admin user ID. To accept the default user ID (cell_admin), press the **Enter** key. To enter a different user name, type

DCE administrator user ID [cell_admin]: *DCE_userID*
and press the **Enter** key.

where

DCE_userID   is the user ID for a DCE administrator account.

152 Accept the default user ID by pressing the **Enter** key.

The system displays the following response:

```
DCE administrator password:
```

153 Type the password for the DCE user ID entered in step 151 by typing

password
and pressing the **Enter** key.

where

password   is the password for the DCE user ID.
The SDM responds

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

154 Avoid entering the DCE cell_admin password by pressing the **Enter** key. The system displays the following response.

Example response:

`DCE login as cell_admin failed.`

> **Note:** This response indicates that the DCE login has failed. However, the DCE upgrade has completed correctly.

155 Review any release notes accompanying this new NCL.

ATTENTION

If you received a release 13.X MNCL tape along with this NCL, install it now. Refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906, for instructions on applying an MNCL.

Upgrade additional applications and services

156 Use the following table to determine how to upgrade additional applications and services and to install new applications.

To upgrade	Refer to
DMS Data Management System (DDMS) Application	Refer to the *SDM DDMS – GUIDE Installation and Administration Reference Manual*, 297-5051-914
Remote Registration System Application	Refer to the *SDMC Remote Registration System Application User Guide*, 297-2667-320
Alarm Conduit Application	Refer to the *SDMC Alarm Conduit Application User Guide*, 297-2667-325
Image Dump Application	Refer to the *SDMC Fault-tolerant User Guide*, 297-5061-906

Ensure that all applications are in service

157 Access the Appl level of the SDM maintenance interface by typing

>appl
and pressing the **Enter** key.

158 Refer to Figure 2-25 and determine whether there are applications or services that are busy (ManB or SysB) or Offline (OffL).

Figure 2-25
Determine whether any applications or services are not in service

```
    SDM        CON      LAN      APPL     SYS      HW      CM : 250
     .          .        .        .        .        .      SDM: crchy08e
                                                               Fault tolerant
Appl
 0 Quit
 2                    # Application                                  State
 3                  1 SDM_SBA DMS500 Application                        .
 4 Logs            2 ObjectStore Database Svc                          .
 5                  3 OSS Comms Svcs                                    .
 6                  4 OSS and Application Svcs                          .
 7 Bsy             5 DMS Data Mgmt Sys Phase1                          .
 8 RTS             6 Remote Registration System                       .
 9 OffL            7 Alarm Conduit                                     .
10                  8 Generic Data Delivery                            .
11                  9 Table Access Service                             .
12 Up              10 OM Access Service                                .
13 Down            11 Log Delivery Service                             .
14 QuerySDM              Applications showing: 1 to 11 of 16
15 Locate
16
17 Help
18 Refresh
  root
Time  12:22  >
```

159 Use the following table to determine your next step.

If	Do
there are applications or services not inservice	step 160
all applications and services are in service	step 164

160 At the application (appl) level busy (ManB) each aplication that is offline (OffL) by typing

>bsy *n*
and pressing the **Enter** key.

where

n   is the number beside the each application fileset.
The SDM responds:

```
Application Busied – Command complete.
```

161 Repeat step 160 until all offlined applications and services are busied (ManB).

162 Return the applications to service (RTS) that are busy by typing

>rts n
and press the **Enter** key.

where

n   is the number beside each application.
The SDM responds:

```
Application RTS – Command complete.
```

163 Repeat step 162 until all offlined applications and services are busied (ManB).

164 Exit the SDM maintenance interface by typing

>quit all
and pressing the **Enter** key.

165 Use the following table to determine your next step.

If	Do
you have the OMD application installed	continue with step 166
you do not have the OMD application installaed	skip to step 167

166 Move the OM data report files to their new directory location by typing

#mv /omdata/rpt/*.CSV /omdata/closedNotSent
and pressing the **Enter** key.

167 You have completed this procedure.

Procedure C: Full installation upgrade of the SDM

This full installation upgrade procedure lets you upgrade the SDM when using the split-mode upgrade is not an option to migrate your SDM to NCL 13 software release. Use the full installation procedure only if specifically directed by your system administrator or other support personnel.

Note: The full installation procedure for upgrading the SDM to NCL 13 software release is a complete reinstallation of the operating system and SDM application software. It requires that the SDM be offline from the CM for several hours, while SBA billing is in backup mode on the CM.

During the full installation procedure you will be required to fill out several information sheets located in the Appendix of this manual.

Before you begin the full installation procedure ensure that you have the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906 available.

ATTENTION

During this procedure the DMS billing streams will be put into backup when the SDM is taken offline. Ensure that both backup volumes on the DMS are configured before beginning this procedure.

ATTENTION

If your site has DCE, for this procedure it is important that the DCE servers are operational and no DCE maintenance actions are performed during the entire full installation procedure other than those indicated within this procedure. If the DCE servers are not operational and you do perform DCE maintenance actions, the full installation procedure may fail to complete.

Pre-upgrade checklist for a full installation

Perform the actions in the following checklist prior to starting the full installation procedure:

> **ATTENTION**
>
> Failure to implement the actions called out in the checklist can result in an increased chance of an upgrade failure, lost data, and greater SDM down time.

- You must ensure that the SDM you are about to migrate is in service and that a VT100 terminal is connected to the SP0 console ports on the SDM.

- You must ensure that the replacement cards are available for installation during the full installation procedure. when you upgrade the SDM, an upgrade of the CPU cards can be required.

- You must ensure that you have performed a backup of the the root volume group and the logical volumes residing within, or mounted to, the data volume group before beginning the full installation procedure. If needed, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

- You must have the following manuals available to you during the full installation procedure:

  — *SDMC Service Operation Support (SOS) Guide*, 297-2667-011

  — *SDM Platform Software Upgrade User Guide*, 297-5061-303

  — *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906

Note: You are required to perform procedures which are contained in the above manuals during the full installation procedure.

After you have completed the full installation procedure, the following manuals are available for your use to upgrade or configure your applications:

  — *SuperNode Data Manager DDMS and GUIDE Installation and Administration Reference Manual*, 297-5051-914

  — *SDMC Supernode Billing Application Guide*, 297-5051-328

Full installation flowchart procedure

Figure 2-26 summarizes the NCL 13 software release full installation upgrade procedure. To complete this procedure, use the instructions in the step-action procedure that follows the flowchart.

Figure 2-26
Summary of SDM base software upgrade using full install

START

| Determine current hardware configuration and record |
| Busy and Offline the SDM from the CM | 1 |
| Add logical volume for SBA data | 2 |

| Make S-tape backup of current platform and data |
| Close out billing and send down existing billing files |
| Set up MIB for CDR to BAF if applicable |

| Run query_sdm config command on SDM to pull SDM configuration data |
| If necessary, implement hardware upgrades. |
| RTS SBA from SDM |

| Pull list of SBA stream names from the SBA |
| Begin installation; boot new OS from tape |
| RTS SDM from CM |

| Pull SBA schedule tuples |
| Install OS and Patches |
| Go to billing maintenance and restore/reconfigure streams |

| FTP any other information from SDM such as log files or OMD files |
| Install billing application alone and configure |
| Log onto the CM and ensure that billing recovers |

1

2

3

```
           3

  ┌──────────────────┐
  │ Reconfigure      │
  │ schedule tuples  │
  │                  │
  └──────────────────┘
           │
           ▼
  ┌──────────────────┐
  │ Set up           │
  │ RTB if applicable│
  │                  │
  └──────────────────┘
           │
           ▼
  ┌──────────────────┐
  │ Install other apps│
  │                  │
  │                  │
  └──────────────────┘
           │
           ▼
  ┌──────────────────┐
  │ Configure DCE    │
  │ environment if   │
  │ applicable       │
  └──────────────────┘
           │
           ▼
  ┌──────────────────┐
  │ Configure all    │
  │ other installed  │
  │ applications     │
  └──────────────────┘
           │
           ▼
          END
```

Full installation upgrade procedure

This procedure lets you upgrade the SDM when using the split-mode upgrade is not an option to migrate your SDM to the NCL 13 software release. Use this procedure only if specifically directed by your system administrator or other support personnel.

Determine whether the SDM CPU cards must be upgraded

This section provides instructions for determining the need to upgrade the SDM CPUs prior to installing the the release 13 NCL software.

1 Log onto the SDM as the root user at the login prompt by typing

root
and pressing the **Enter** key.

The SDM responds with the following:

```
Login:root
Password:
```

2 Enter the root user password by typing

password
and pressing the **Enter** key.

3 Acquire a list of current CPU controller modules by typing

#locate
and press the **Enter** key.

The SDM responds the screen shown in Figure 2-27.

Figure 2-27
Use the locate command to determine CPU card revision

```
#locate
Site Flr RPos Bay_id Shf  Description         Slot EqPEC
HOST 00  C06  CSDM   SDMM 512(0)              01   NTRX50GA FRNT
HOST 00  C06  CSDM   SDMM                     01   NTRX50GH BACK
HOST 00  C06  CSDM   SDMM ETH(0),DSK1(0),DAT(0) 02 NTRX50GN FRNT
HOST 00  C06  CSDM   SDMM                     02   NTRX50FS BACK
HOST 00  C06  CSDM   SDMM DSK2(0),DSK3(0)     04   NTRX50FU FRNT
HOST 00  C06  CSDM   SDMM CPU(0)              06   NTRX50CG FRNT
HOST 00  C06  CSDM   SDMM                     06   NTRX50FD BACK
HOST 00  C06  CSDM   SDMM CPU(1)              10   NTRX50CG FRNT
HOST 00  C06  CSDM   SDMM 512(1)              12   NTRX50GA FRNT
HOST 00  C06  CSDM   SDMM                     12   NTRX50GH BACK
HOST 00  C06  CSDM   SDMM ETH(1),DSK1(1),DAT(1) 13 NTRX50GN FRNT
HOST 00  C06  CSDM   SDMM                     13   NTRX50FS BACK
HOST 00  C06  CSDM   SDMM DSK2(1),DSK3(1)     15   NTRX50FU FRNT
HOST 00  C06  CSDM   SDMM FAN(0)              --   NTRX50FE FRNT
HOST 00  C06  CSDM   SDMM FAN(1)              --   NTRX50FF FRNT
HOST 00  C06  CSDM   SDMM ICM(0)              --   NTRX50FG BACK
HOST 00  C06  CSDM   SDMM ICM(1)              --   NTRX50FH BACK
#
```

4 Locate your CPU cards in the list shown in *Figure 2-27.* Determine whether your CPU cards meet the minimum recommended specification for the SDMC release 13 software. Your CPU cards must either be NTRX50CG or NTRX50CH versions to meet the specification.

If	Do
If your CPU cards are not the NTRX50CG, NTRX50CH or NTRX50NB	refer to the Supernode Data Manager Upgrade Guide, 297-5051-304, and upgrade your CPUs before continuing with this procedure.
If your CPU cards are NTRX50CG, NTRX50CH or NTRX50NB	you do not need to upgrade your CPUs; no action is required. Continue with the next step in this procedure.

Full system backup to a system image tape (S-tape)

This section provides information needed to create a full system backup of all data on the SDM hard disks.

> *Note:* A system image backup takes at least 10 minutes to complete, depending on the size of the file systems on the SDM.

> *Note:* The backup procedure must be executed at the local VT100 console connected to the SDM (by way of the console port using a null modem cable).

1 Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

2 Access the Admin level by typing

>admin
and pressing the **Enter** key.

3 Access the System Image Backup and Restore menu by typing

>backup
and pressing the **Enter** key.

The SDM responds by displaying the screen shown in Figure 2-28.

4 Create a System Image on Tape (S-Tape) by typing

>2
and pressing the **Enter** key.

The SDM responds:

```
Select the tape drive you wish to use:

        Enter 0 to return to previous menu
        Enter 1 for tape drive DAT0 in Main Chassis-Slot 2
        Enter 2 for tape drive DAT1 in Main Chassis-Slot 13
        ( 0, 1 or 2 ) ==>
```

Figure 2-28
SDM system image backup and restore menu

```
 SuperNode Data Manager
  ***
  ***           System Image Backup and Restore Menu
  ***       *********************************************
  ***
  ***
  ***    0. Exit
  ***
  ***    1. Help
  ***
  ***    2. Create a System Image on Tape (S-tape)
  ***
  ***    3. List Contents of the System Image Tape (S-tape)
  ***
  ***    4. Restore Files from the System Image Tape (S-tape)
  ***
  ***
  ***    Please enter your selection (0 to 4) ? ==>
```

5   Ensure the tape's write protect tab is in the closed position, allowing tape to be written to.

6   Insert the DAT tape into the tape drive in slot 2.

   Note: The DAT tape drive in slot 2 is designated as the system image tape (S-tape) drive.

7   Select the tape drive in slot 2, DAT0, as the target drive by typing

   >1

   and pressing the **Enter** key.

   The SDM responds:

```
Please insert a 4mm DAT tape into the tape drive DAT0.

Caution:
This action will overwrite any content on the inserted tape.
Do you want to proceed ? ( y | n )
==>
```

8 Begin the system image backup to tape by typing

>y

and pressing the **Enter** key.

> *Note:* Ignore any error messages displayed on the SDM console during the backup.

9 Record the following information displayed on the SDM console screen onto the DAT tape label.

— System Image Tape (S-Tape).

— The Machine Node ID: <SDM hostname>

— Date: <Wed May 21 xx:xx:xx: EDT 2000>

10 Verify that the following information is displayed on the SDM console screen:

— Backup Completed Successfully

— time stamp (time backup was performed)

11 Proceed according to the following table.

If	Do
If you did not receive the Backup Completed Successfully message:	your backup was unsuccessful and must be repeated. Go to step 12.
If you did receive the Backup Completed Successfully message:	continue this procedure. Go to step 15.

12 Return to the System Image Backup and Restore Menu. If the SDM asks you to eject the tape from the tape drive, answer no by typing

>n

and press the **Enter** key.

The SDM responds:

```
Would you like to return to the previous menu? Y/N
```

13 Answer yes by typing

>y

and press the **Enter** key.

You are returned to the System Image Backup and Restore Menu.

14 Return to step 4 in this section and repeat your attempt to make an image tape.

15 After the backup is complete the SDM asks if you wish to eject the tape from the tape drive. Answer yes by typing

>y

and press the **Enter** key.

The SDM responds:

```
Would you like to return to the previous menu? Y/N
```

16 Answer yes by typing

>y
and press the **Enter** key.

You are returned to the System Image Backup and Restore Menu.

17 Exit the System Image Backup and Restore Menu by typing

>0
and press the **Enter** key.

18 Exit the SDM maintenance interface by typing

>quit all
and pressing the **Enter** key.

19 Remove the S-tape from the tape drive in slot 2.

20 Ensure the tape's write protect tab is in the open position, preventing the tape from being written to.

21 Apply the tape label to the DAT tape.

Determine current configuration of your SDM

This section provides instructions for determining the current configuration setting of your SDM, saving the configuration information to an output file and, if possible, printing a copy of the output file.

Note: Record this information using Appendix C, the SDM configuration information sheet, located at the back of this manual. The information you record will be used later in this procedure. Record all values and parameters exactly as they appear on the SDM or in the output file.

1 Generate an output file of the SDM's current configuration settings by typing

#querysdm config >querysdm.out
and pressing the **Enter** key.

2 View the output file of the SDM's current configuration settings by typing

#more <querysdm.out
and pressing the **Enter** key.

The SDM responds the screen shown in Figure 2-29.

Note: As an option, copy the querysdm.out file to another workstation on your network that has access to a printer and print a copy of the file.

Figure 2-29
View the contents of the querysdm.out file

```
SDM configuration

General
-------------------------------------------------------------------------
Platform:                      FT
Console Login Greeting:        Welcome to 250I SDM
Paging Space:                  256

CM Connectivity
-------------------------------------------------------------------------
Connectivity type:             DS512
CM IP address:                 47.96.192.170
SDM IP address:                47.96.192.173
CM-SDM netmask:                255.255.240.0
CM CLLI:                       250I

LAN Connectivity
-------------------------------------------------------------------------
Inbound Telnet:                Enabled
SDM LAN hostname:              crchy08e
SDM LAN gateway:               47.213.65.208
SDM LAN #1 IP address:         47.213.65.208
SDM LAN #1 netmask:            255.255.240.0
SDM LAN #1 type:               standard
Standard input
```

3   Scroll through the file by pressing the **Enter** key or page through the file by pressing the space bar.

4   Record the data from the querysdm.out file onto the SDM configuration Information Sheet.

5   If necessary, repeat step 2 to ensure that all data is recorded accurately.

6   Access the SDM maintenance interface by typing

   sdmmtc
   and press the **Enter** key.

7   Access the storage level of the SDM by typing

   storage
   and press the **Enter** key.

8   Locate the name of any logical volume which is used for storing the SBA stream data files (often they are in the format /sba/*streamname*, as shown in Figure 2-30). Record the name, location and size of the volume on the SDM configuration information sheet under the heading Logical Volume Information.

   Note: If you do not know which logical volumes on your SDM are allocated for your SBA streams, contact your site system administrator or next level of support.

9   Exit the SDM maintenance interface by typing

>**quit all**
and pressing the **Enter** key.

Figure 2-30
Access the SDM storage level and record the /sba logical volumes

```
 SDM          CON      LAN       APPL      SYS       HW        CM : 250W
  .            .         .         .         .         .        SDM: ccary4c1
                                                                     Fault Tolerant
Storage
 0 Quit
 2           Volume Groups           Status              Free(MB)
 3           rootvg                  Mirrored            4
 4           datavg                  Mirrored            0
 5
 6           Logical Volume          Location         Size(MB) % full/threshold
 7            13 /ossaps              datavg             112          5/ 80
 8            14 /ossapslog           datavg             112          7/ 80
 9            15 /idump               datavg             208          4/ 80
10            16 /ddms1               datavg            1008         19/ 80
11            17 /flt1                datavg             320          9/ 80
12 Up         18 /sba/occ             datavg             208         14/ 80
13 Down       19 /sba/occ1            datavg              32          4/ 80
14            20 /swd/mg4000          datavg             112          4/ 80
15            21 /crba                datavg              16          4/ 80
16                                 Logical volumes showing: 13 to 21 of 21
17 Help
18 Refresh
  root
Time  10:10  >
```

If using CDR to BAF conversion, obtain Mib values

This section provides information needed to acquire the Mib values when using CDR to BAF conversion. This activity is performed at the root level of the SDM.

Record this information using Appendix D, "SBA configuration information sheet," of this manual. The information you record will be used later in this procedure. Record the all values and parameters exactly as they appear on the SDM or in the output file.

1   Obtain and record the CDR2BAFActive variable by typing

#**mib cdr get cdr2bafactive n**
and press the **Enter** key.

2   Obtain and record the CurrentTmpltID Mib by typing

#**mib cdr get currenttmpltid n**
and press the **Enter** key.

3   Obtain and record the EnableAudit Mib by typing

#**mib cdr get enableaudit n**

and press the **Enter** key.

4   Obtain and record the BAFSuppression Mib by typing

#mib cdr get bafsuppression n
and press the **Enter** key.

5   If the BAFSuppression Mib is set to 1 (enabled), obtain and record the sensorID base Mib by typing

#mib cdr get sensortype n
and press the **Enter** key.

6   If the BAFSuppression Mib is set to 1 (enabled), obtain and record the recordSourceInfoType base Mib by typing

#mib cdr get recordsourceinfotype n
and press the **Enter** key.

7   If you have a DMS–GSP CDR stream recorded in Appendix D, obtain and record the typeOFCDR Mib by typing

#mib cdr get typeofcdr gsp
and press the **Enter** key.

Acquire SBA stream information

This section provides instructions for acquiring the necessary SBA billing stream configuration information needed to reconfigure SBA once the SDM software has been installed.

Record this information using Appendix D, "SBA configuration information sheet," of this manual. The information will be used later in this procedure. Make copies of these forms if you have more than one stream to record. Record the stream parameters exactly as they appear on the SDM.

1   Access the Billing Maintenance interface by typing

#billmtc
and pressing the **Enter** key.

2   Refer to Figure 2-31 and determine the SBA stream names by typing

>query
and pressing the **Enter** key.

3   Refer to Figure 2-32 and record the SBA stream names onto the SBA configuration information sheet. In the example shown in Figure 2-32, the streams are named AMA and OCC.

4   Refer to Figure 2-33 and go to the CONFSTRM (stream configuration) level by typing

>confstrm
and pressing the **Enter** key.

Figure 2-31
Main billing screen (billmtc)

```
BILLMTC
 0 Quit
 2 Set
 3
 4 CONFSTRM
 5
 6
 7
 8
 9 Query
10 Mib
11 DispAl
12 Displogs
13 FILESYS
14 SCHEDULE
15 TOOLS
16 Amabakup
17 Help
18 Refresh
   root        >
Time   09:05
```

Figure 2-32
Using the query command to acquire stream name

```
BILLMTC      AMA:
 0 Quit             PrimarySubStream:                       InSv
 2 Set              Number of Records in Open Files:        0
 3                  ClosedNotSent Files Available:          0
 4 CONFSTRM         Records within the ClosedNotSent files: 0
 5                  Date of Last File Sent:
 6                         Tue Dec  7 14:02:57 1999
 7
 8
 9 Query      OCC:
10 Mib              PrimarySubStream:                       InSv
11 DispAl           SecondarySubStream:                     InSv
12 Displogs         Number of Records in Open Files:        0
13 FILESYS          ClosedNotSent Files Available:          40
14 SCHEDULE         Records within the ClosedNotSent files: 1207704
15 TOOLS            Date of Last File Sent:
16 TAPE                    Mon Dec  6 11:21:53 1999
17 Help
18 Refresh
   root       MORE...
Time   09:18
```

Figure 2-33
Go to the confstream level to list stream parameters

```
CONFSTRM
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 List
11 Act
12 Deact
13 Update
14
15
16
17 Help
18 Refresh
  root       >list
Time  09:25
```

5   List each stream configuration for the stream names you identified in Figure 2-32 by typing

   >list
   and pressing the **Enter** key.

   The SDM respond with the following:

   ```
   Stream Name: []
   ```

6   Display the configuration for a stream name you identified in Figure 2-32 by typing

   >nnnn
   and pressing the **Enter** key.

   where

   nnnn   is AMA, OCC1, or a similar stream name.

7   Refer to Figure 2-34 and record the information displayed onto the SBA configuration information sheet.

8   Return to the CONFSRM menu screen by pressing the **Enter** key.

9   Repeat step 5 for each stream name you identified in step 3.

10   Quit back to the billmtc level of the billing maintenance screen by typing

   >quit
   and pressing the **Enter** key.

Figure 2-34
Display the stream parameters using List

```
Stream Name: [] ama
StreamName -> AMA
Stream Running status -> YES
Stream Record Format -> BC



File Format Type -> DIRP
Logical Volume Name -> /sba/occ1
File Transfer Mode -> OUTBOUND
Files Renamed With Close Date ? -> NO
Files closed on transfer or amaBakup ? -> NO
Files Closed On Time Valid -> YES
 -- Files Closed On Time -> 10
Max Number of Records to close file -> 500000
Max Num Bytes Before closing a file -> 20000000


Press Return to Continue...
```

Acquire SBA schedule tuple information

This section provides instructions for acquiring the necessary SBA billing schedule tuple configuration information needed to reconfigure SBA once the SDM software has been installed.

Record this information using Appendix D, the SBA configuration information sheet, located in this manual. The information will be used later in this procedure. Make copies of these forms if you have more than one stream to record. Record the stream parameters exactly as they appear on the SDM.

1   Go to the Schedule level of the billing maintenance screen by typing

   >schedule
   and pressing the **Enter** key.

2   Refer to Figure 2-35 and list each stream's schedule tuple configuration for the stream names you identified in Figure 2-32 by typing

   >list
   and pressing the **Enter** key.

   The SDM responds by displaying a list of schedule tuples for each stream as shown in Figure 2-36.

3   Record the information displayed onto the SBA configuration information sheet.

4   If there is more than one schedule tuple to be displayed, press **Enter** to display the next tuple.

> **5**   If necessary, repeat steps 2 through 4 to review the schedule tuples a second time.

Figure 2-35
Access the schedule level

```
SCHEDULE
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 List
11 RTB
12
13
14
15
16
17 Help
18 Refresh
  root         >
Time  09:30
```

Figure 2-36
List the schedule tuples

```
Stream                   : 'OCC'
File_Format_Type         : 'DIRP''
Protocol                 : 'RFTPW'
Primary_Destination      : '47.97.49.56'
Primary_Port             : '21'
Alternate_Destination    : '47.97.49.56'
Alternate_Port           : '21'
Start_Time               : '00:00'
Stop_Time                : '00:00'
Interval                 : '5'
Remote_Storage_Directory: '/opt/sdmc/home/eshwar/rtb_250w'
Remote_Login             : 'dvprog1'
Remote_Password          : '******'
Timeout                  : '30'
Maximum_Retries          : '3'
Retry_Wait_Time          : '1'
File_Extension           : ''
Field_Separator          : '.'
Active                   : 'No'

Press Enter to continue ('Abort' quits)...
```

Acquire billing stream RTB configuration information

This section provides instructions for acquiring the necessary SBA billing stream real time billing (RTB) configuration information needed to reconfigure the billing streams for RTB once the SDM software has been installed.

Record this information using Appendix D, the SBA configuration information sheet, located in this manual. The information will be used later in this procedure. Make copies of these forms if you have more than one stream to record. Record the stream parameters exactly as they appear on the SDM.

1 To determine if the billing streams are configured for real time billing (RTB), go to the RTB level of the schedule menu by typing

   >rtb
   and pressing the **Enter** key.

2 Refer to Figure 2-37 and query the SDM for the RTB stream parameters for each billing stream name by typing

   >query nnn
   and pressing the **Enter** key.

   where

   `nnn`   is AMA, OCC, or a similar stream name.

3 Proceed according to the response displayed on the SDM console.

If	Do
If the SDM responds that there are no RTB tuples configured for this stream:	record the stream name as not configured for RTB
If the SDM responds that there are RTB tuples configured for this stream:	record the stream name as configured for RTB and record the stream file format

4 Repeat step 5 for each stream name you identified in step 3.

Figure 2-37
Go To real time billing level and query for RTB configuration

```
RTB
 0  Quit
 2  Set
 3
 4
 5
 6
 7  Rts
 8  Bsy
 9  Offl
10  Query
11  IPTest
12  CONFRTB
13
14
15
16
17  Help
18  Refresh
  root         >query ama
Time  09:33
```

Manually send OMD files downstream

This section provides instructions for manually sending OMD log files downstream to a designated location. All OMD files are located in the /omdata/rpt directory on the SDM.

1 Exit the billing maintenance interface by typing

   >quit all
   and pressing the **Enter** key.

2 Change to the /omdata/rpt directory, where the closed OM report files are located, by typing

   #cd /omdata/rpt
   and pressing the **Enter** key.

3 Locate the closed OMD files you wish to send down by typing

   >ls –l
   and pressing the **Enter** key.

4 Record the entire name of the closed OMD files you wish to send down stream. The files are in the following format:

   all_day_1H.03_31_2000.1330.250A.FIVE.CSV

5   Change to the /sdm/omdd directory, where the open OM report files are located, by typing

   #cd /sdm/omdd
   and pressing the **Enter** key.

6   Locate the open OMD files you wish to send down by typing

   >ls –l
   and pressing the **Enter** key.

7   Record the entire name of the open OMD files you wish to send down stream. The files are in the following format:

   `all_day_1H.03_31_2000.1330.250A.FIVE.CSV`

8   Start the OMD file transfer program by typing

   #ftpomfile destination
   and pressing the **Enter** key.

   where

   destination   is the IP address of the computer you wish to send the files to in the format xxx.xxx.xxx.xxx.

   The SDM responds with the following:

   ```
   Connected to XX.XXX.XX.XXX.
   220 crchy08e SFTPD Server (Version 12.0.25.0 Aug  4 1999)
   ready.
   Name (XX.XXX.XX.XXX:root):
   331 Password required
   ```

9   Log onto the remote destination machine using a valid user id by typing

   userid
   and pressing the **Enter** key.

10   Enter the user password by typing

   password
   and pressing the **Enter** key.

11   To send all closed OMD files, at the rftp> prompt start the file transfer

   rftp>mput /omdata/rpt/filename.csv
   and pressing the **Enter** key.

   where

   filename   is the full name of the OM Report file.

   The SDM responds with the a message similar to the following:

   `mput /omdata/rpt/all_day_1h.03_31_2000.1330.250a.five.csv?`

12 Comfirm that you wish to send each file by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
200 PORT command successful.
150 Opening data connection for /omdata/rpt/filename.csv (ascii
mode).
226 Transfer complete.
6 bytes sent in 0.00037 seconds (16 Kbytes/s)
```

> ***Note:*** Your report file will be sent to the remote machine and placed in a directory called /omdata/rpt unless you specify otherwise.

13 Repeat this step for each closed file you wish to send downstream.

14 To send all closed OMD files, at the rftp> prompt start the file transfer

rftp>mput /sdm/omdd/filename.csv
and pressing the **Enter** key.

where

filename is the full name of the OM Report file.

The SDM responds with the a message similar to the following:

```
mput /sdm/omdd/all_day_1h.03_31_2000.1330.250a.five.csv?
```

15 Comfirm that you wish to send each file by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
200 PORT command successful.
150 Opening data connection for /sdm/omdd/filename.csv (ascii
mode).
226 Transfer complete.
6 bytes sent in 0.00037 seconds (16 Kbytes/s)
```

> ***Note:*** Your report file will be sent to the remote machine and placed in a directory called /sdm/omdd unless you specify otherwise.

16 Repeat this step for each open file you wish to send downstream.

17 Quit the transfer program by typing

rftp>quit
and pressing the **Enter** key.

Clean up the DCE client registration on the remote server

This section provides instructions for removing DCE client registration data from the remote server.

> *Note:* You must have your DCE administration password available to perform this procedure.

1 Initiate the DCE client registration removal by typing

>rmdce all_cl
and press the **Enter** key.

The SDM responds with the following:

```
password
```

2 At the prompt enter the password for the DCE account cell administrator by typing

>password
and press the **Enter** key.

where

password   is the password for the DCE account cell administrator.

The SDM responds with the following:

```
cleanup successful
```

> *Note:* If the SDM responds that the cleanup failed or was only partially successful, you must perform a manual cleanup of the remote server. This action should be performed before you configure the DCE on the SDM, otherwise the DCE configuration can fail.

Log onto the DMS MAPCI, busy and offline the SDM

This section provides instructions for logging onto the DMS, busying and offlining the SDM. This action forces the billing streams generated on the SDM into backup mode.

ATTENTION

Ensure that that the backup volumes on the DMS are configured, either on SLM or DDU, before continuing this procedure. Refer to the *DMS SDMC Billing Application Guide*, 297-2667-328, for assistance with this action.

At the local VT100 console connected to the MAPCI

1 Log onto the CM at the login prompt by typing

username
and pressing the **Enter** key.

where

username is the login ID you use to access the CM to perform billing maintenance.

The CM responds with the following:

```
Login:username
Password:
```

2 Enter the root user password by typing

password
and pressing the **Enter** key.

3 Refer to Figure 2-38, start the CM maintenance interface go to the SDM level by typing

>mapci;mtc;appl;sdm
and pressing the **Enter** key.

4 Busy (ManB) the SDM by typing

>bsy
and pressing the **Enter** key.

The CM responds with the following:

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

5 Verify that you want to busy the sdm. Type

>y
and press the **Enter** key.

The CM responds with the following:

```
SDM Bsy initiated
SDM Bsy Completed
The SDM is Bsy
```

6 Offline (OffL) the SDM by typing

>offl
and pressing the **Enter** key.

The CM responds with the following:

```
SDM OffL initiated
SDM OffL Completed
The SDM is OffL.
```

7 Exit the CM maintenance interface by typing

>quit all
and pressing the **Enter** key.

Figure 2-38
Busy and Offline the SDM from the MAPCI

```
   C        MS       IOD       Net       PM       CCS       Lns     Trks      Ext      APPL
   .         .         .         .        .         .         .        .        .      SDM

 SDM                      OAMAP             SDM               SWMTC    SDMBIL
   0  Quit                  .               ISTb                 .     SBACP
   2                                                                    *C*
   3                  SDM 0   INSv
   4
   5  Trnsl
   6
   7  Bsy            SDM:
   8  RTS
   9  OffL
  10
  11
  12
  13
  14  QuerySDM
  15  Locate
  16
  17
  18  Platform
   A
 Time  09:16  >
```

Close out SBA and send SBA billing files downstream

This section provides information needed to close currently open billing files and to send theses billing files to their default, downstream destinations.

Note: For additional information about using the sendfile command to send SBA billing files downstream refer to the SDMC SuperNode Billing Application Guide, 297-2667-328.

Note: Default downstream destinations are defined at the Schedule level of the billing maintenance.

1 Access the Billing Maintenance interface by typing

#billmtc
and pressing the **Enter** key.

2 Refer to Figure 2-40 and access the Filesys menu level by typing

>filesys
and pressing the **Enter** key.

3 Close out the billing file for each active stream by typing

>closec streamname
and pressing the **Enter** key.

where

streamname   is the name of an SBA billing stream found on your SBA
configuration information sheet.
After closing each the file the SDM responds:

```
Closed <filename>.
```

4 Repeat step 3 for each streamname recorded on your SBA configuration
information sheet.

5 Transfer all SBA billing files to their default downstream destinations by typing

>sendfile streamname state unprocessed
and pressing the **Enter** key.

where

streamname   is the name of an SBA billing stream found on your SBA
configuration information sheet.
After transferring the file the SDM responds:

```
Sendfile completed successfully.
```

6 Repeat step 5 for each streamname recorded on your SBA configuration
information sheet.

Figure 2-39
Access the billing maintenance interface

```
BILLMTC
  0 Quit
  2 Set
  3
  4 CONFSTRM
  5
  6
  7
  8
  9 Query
 10 Mib
 11 DispAl
 12 Displogs
 13 FILESYS
 14 SCHEDULE
 15 TOOLS
 16 Amabakup
 17 Help
 18 Refresh
   root        >
Time   09:05
```

Figure 2-40
Access the Filesys menu level

```
FILESYS
  0 Quit
  2 Set
  3
  4
  5
  6
  7 Sendfile
  8 Listfile
  9 Closec
 10
 11
 12
 13
 14
 15
 16
 17 Help
 18 Refresh
   root        >
Time   10:18
```

Execute AMABakUp to back up billing files to tape

This section provides information needed to execute the AMABakUp command to save SBA billing files to the tape drive 1 in slot 13. You must use one tape for each stream name you have recorded on your SBA configuration information sheet.

> *Note:* For additional information about using the AMABakUp command to send SBA billing files downstream refer to the SDMC SuperNode Billing Application Guide, 297-2667-328.

1   Quit back to the billmtc level of the billing maintenance screen by typing

    >quit
    and pressing the **Enter** key.

2   Remove any tape currently in drive 1, in slot 13 then insert a DAT tape used for backing up billing files. You will use one backup tape for each stream name you have running on your SDM.

ATTENTION
Ensure that that the backup does not have data you wish to keep. All data on the tape will be overwritten during this procedure.

---

3   Refer to Figure 2-39 and start the Amabakup tool by typing

    >amabakup streamname
    and pressing the **Enter** key.

    where

    streamname   is the name of an SBA billing stream found on your SBA configuration information sheet.

    The SDM responds

    ```
    *** WARNING: Any data previously written to the tape will
    be overwritten. ***
    Do you wish to continue (y/n)?
    ```

4   Begin backing up the billing streams by typing

    >y
    and pressing the **Enter** key.

    As each file is successfully written to tape the SDM responds:

    ```
    <number> blocks
    <filename> was successfully written to tape.
    ```

    After the billing stream file is written to tape the SDM responds:

    ```
    *** AMA backup done. Please remove tape from drive <device>.
    ```

5   Verify that the billing files were written to tape by typing

>**amabakup streamname list**
and pressing the **Enter** key.

where

streamname   is the name of an SBA billing stream found on your SBA configuration information sheet.
The SDM responds by displaying a list of all the billing files archived to tape for the given stream name.

6   Remove the DAT tape used for backing up billing files from drive 1 in slot 13. Ensure that the tape is labelled AMABAKUP STREAMNAME TODAY'S DATE.

7   Use the following table to determine your next step.

If	Do
you have more streams to backup to tape	return to step 2 in this section
you have no more streams to backup	continue with step 8

8   Return to the billmtc level of the billing maintenance screen by pressing the **Enter** key.

9   Exit the SDM billing maintenance interface by typing

>**quit all**
and pressing the **Enter** key.

Shut down the SDM and install new CPU cards

Refer to Section 8 of the SDM Fault-tolerant User Guide, 297-5061-906 to upgrade the CPU controller modules.

Note: Do not use the split-mode method of upgrading your CPUs.

Note: Remember that at this time your SDM is offline and can stay offline after the CPUs are upgraded. You do not need to bring your SDM back into service, as directed at the end of the CPU upgrade procedure.

Install the new base operating system

This section provides information needed to install the SDMC release 13 base operating system and patches, upgrade the CPU firmware and install the base platform software.

At the local VT100 console connected to the MAPCI

1   Start the CM maintenance interface and go to the SDM level by typing

>**mapci;mtc;appl;sdm**
and pressing the **Enter** key.

2   Refer to Figure 2-41 and determine if the SDM is in the INSv, ISTb, SysB or OFFL state and refer to the table below:

If	Do
the SDM is in the INSv or ISTb state	step 3
the SDM is in the Busy state	step 5
the SDM is in the OffL state	step 6

3   Busy (ManB) the SDM by typing

>bsy
and pressing the **Enter** key.

The CM responds with the following:

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

4   Verify that you want to busy the sdm. Type

>y
and press the **Enter** key.

The CM responds with the following:

```
SDM Bsy initiated
SDM Bsy Completed
The SDM is Bsy
```

5   Offline (OffL) the SDM by typing

>offl
and pressing the **Enter** key.

The CM responds with the following:

```
SDM OffL initiated
SDM OffL Completed
The SDM is OffL.
```

6   Exit the CM maintenance interface by typing

>quit all
and pressing the **Enter** key.

Figure 2-41
Determine the status of the SDM from the MAPCI

```
   C        MS       IOD       Net      PM       CCS      Lns     Trks     Ext      APPL
   .        .        .         .        .        .        .       .        .        SDM

 SDM                          OAMAP              SDM                SWMTC   SDMBIL
   0 Quit                       .                ISTb                 .     SBACP
   2                                                                        *C*
   3             SDM 0  INSv
   4
   5 Trnsl
   6
   7 Bsy       SDM:
   8 RTS
   9 OffL
  10
  11
  12
  13
  14 QuerySDM
  15 Locate
  16
  17
  18 Platform
   A
Time  09:16  >
```

At the local VT100 console connected to SP0 on the SDM

7   Shutdown the SDM at the # prompt by typing

#**shutdown –r** (to warn potential users of an SDM shut down)

or

#**shutdown –rF** (to shut down the SDM without warning)

> ***Note:*** Shutdown takes at least 5 minutes to execute. Wait for the shutdown procedure to end (after many messages scroll).

Toward the end of shutdown process the message is displayed:

```
Rebooting...
```

8   Wait 5 seconds after the *Rebooting...* message appears, then repeatedly press the <BREAK> key until the FX-Bug> prompt appears.

> ***Note:*** Some terminal types require the use of the <ESC> key instead of the <BREAK> key.

If the FX-Bug> prompt is *not* received (usually after a couple of minutes). Wait for the SDM to completely reboot and load uninterrupted, and for the login prompt to appear. This activity takes at least 5 minutes. Then repeat step 7.

Install the base operating system software

This section provides information needed to install the SDMC13 base operating software.

1 Display the SDM tape and disk resources. At the FX-Bug prompt type

FX–BUG>ioi

The SDM responds with a screen similar to that in Figure 42.

Figure 2-42
Display the SDM tape and disk resources

```
FX–Bug>IOI


I/O Inquiry Status:
CLUN  DLUN  CNTROL-TYPE    DADDR  DTYPE  RM   Inquiry-Data
1     0     IO             0      $00    N    SEAGATE ST12400N ST32430 0660
1     50    IO             5      $01    Y    ARCHIVE Python28388-XXX 5.45
6     0     IO             0      $00    N    SEAGATE ST12400N ST32430 0660
6     50    IO             5      $01    Y    ARCHIVE Python28388-XXX 5.45
```

2 Ensure that devices are listed at the following locations

- CLUN 1 DLUN 50
- CLUN 6 DLUN 50

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

If	Do
If only one or if neither of the locations are listed:	stop and contact your next level of support
If both locations are listed:	go to step 4

4 Refer to Figure 2-43 and insert the DAT tape, SDMX0013, Base OS, tape 1 of 2 into the drive 0 in slot 2, which is located on the left side of the SDM (domain 0).

5 Insert the DAT tape, SDMX0013, Base OS, tape 2 of 2 into the drive 1 in slot 13, which is located on the right side of the SDM (domain 1).

Figure 2-43
Insert tape into the SDM tape drive
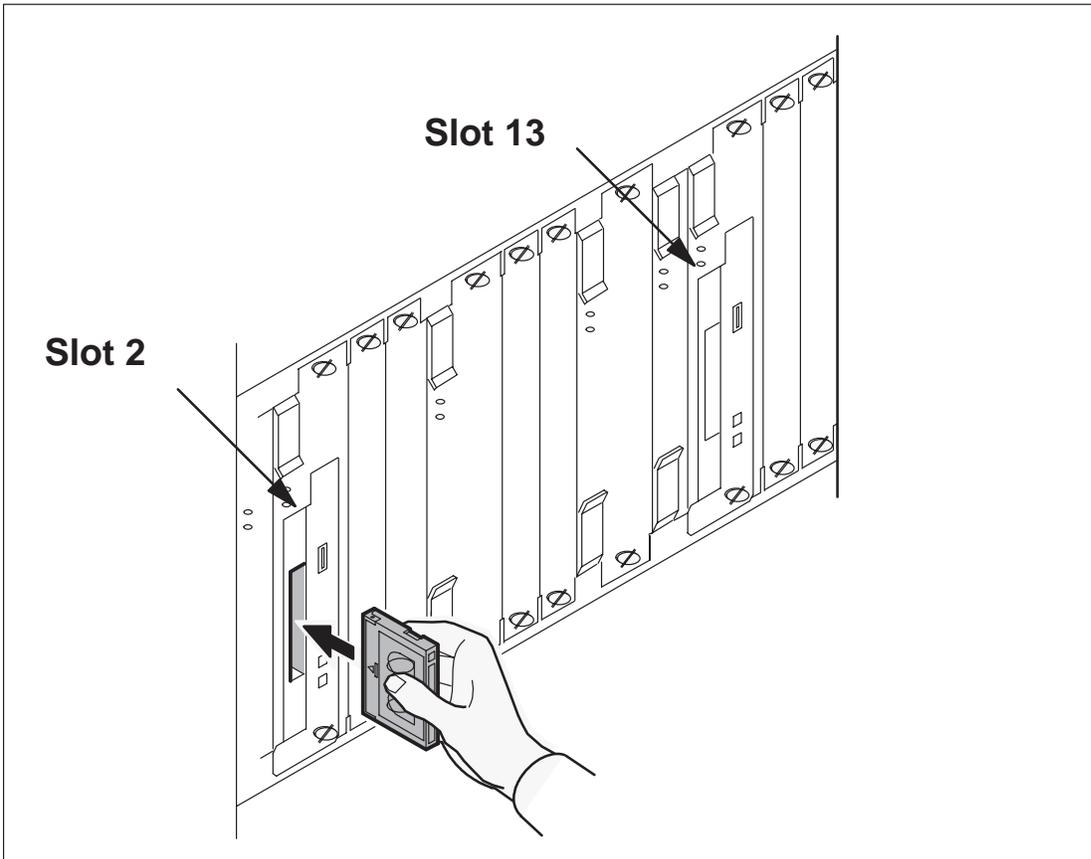
6   Boot the SDM from the DAT tape. At the FX-Bug prompt type

FX–BUG>pboot 1 50

7   The SDM asks you to define the system console. Type

>1
and press the **Enter** key.

> **Note:** The system does not echo this input back to the screen.

8   When prompted, select English as the language preference by typing

>1
and pressing the **Enter** key.

> **Note:** During this installation procedure, the SDM identifies default entries using brackets: [x], where x is the default if no entry is input. If the default is the desired value, simply press the **Enter** key to accept the default value.

2-100 Upgrading the SDM

> **9** The screen in Figure 2-44 is displayed. Change the installation settings by typing
>
> **>2**
>
> and pressing the **Enter** key.

Figure 2-44
Installation and maintenance main menu

```
      Welcome to Base Operating System Installation and Maintenance

 Type the number of your choice and press <Enter>. The choice is
 indicated after the >>> symbol.

 >>> 1 Start the Default Install Now with Default Settings

     2 Change/Show Installation Settings and Install

     3 Start Maintenance Mode for System Recovery

 ....blank lines....

 88  Help  ? 99  Previous Menu
                                        >>> Choice[1]:2
```

> **10** The screen in Figure 2-45 is displayed. Select the system settings of installation menu item by typing
>
> **>1**
>
> and pressing the **Enter** key.

Figure 2-45
Installation and settings menu

```
                    Installation and Settings
Either type 0 and press <Enter> to install with current settings, or type
the number of the setting you want to change and press <Enter>.

    1   System Settings:
        Method of Installation.............New and Complete Overwrite
        Disk Where You Want to Install....hdisk0...
    2   Primary Language Environment Settings (AFTER Install):
          Cultural Convention................English (United States)
          Language ..........................English (United States)
          Keyboard ..........................English (United States)
          Keyboard Type......................Default
    3   Install Trusted Computing Base...... No
>>> 0   Install AIX with the current settings listed above.
                +-------------------------------------------------
88  Help ?      | WARNING: The Base Operating System Installation
99  Previous Menu  | destroys or impairs the recovery of all data on the
                | destination disk: hdisk0.

                    >>> Choice [0]: 1
```

11   The screen in Figure 2-46 is displayed. Select a new and complete overwrite by typing

>1
and press the **Enter** key.

> *Note:* A new and complete overwrite is required for this procedure.

Figure 2-46
Change the method of installation

```
                  Change Method of Installation

 Type the number of the installation method and press <Enter>.

 >>> 1 New and Complete Overwrite
     Overwrites everything on the disk selected for installation.
     Warning: Only use this method if the disk is totally empty or if
     there is nothing on the disk you want to preserve.

   2 Preservation Install
     Preserves some of the existing data on the disk selected for
      installation.
     Warning: This method overwrites the usr (/usr),
     variable (/var), temporary (/tmp), and root (/) file systems.
     Other product (applications) files and configuration data are
     destroyed.

   3 Migration Install
     Upgrades the Base operating system to the current release
     other produce files and configuration data are saved.

     88  Help ?
     99  Previous Menu

>>> Choice [1]:1
```

12 The screen in Figure 2-47 is displayed. Ensure that two hard disk drives (hdisk) are partitioned for rootvg and that they are selected for installation.

If	Do
If only one disk is selected for rootvg and installation:	go to step 13
If two disks are already selected rootvg and installation:	go to step 14

13 To add a disk that is not currently selected type

>n
and press the **Enter** key.

where

n is the number to the left of hard disk.

Figure 2-47
Select target disk drives for installation

```
              Change Disk(s) Where You Want to Install

Type one or more numbers for the disk(s) to be used for installation and
press <Enter>. To cancel a choice, type the corresponding number and Press
<Enter>. At least one bootable disk must be selected. The current choice
is indicated by the >>> symbol.

        Name        Location Code    Size(MB)  VG Status    Bootable

>>>  1  hdisk0    c1-f2-00-0,0       4056    rootvg           Yes
>>>  2  hdisk1    c1-f13-00-0,0      4056    rootvg           Yes
     3  hdisk2    c1-f4-00-0,0       4056    other vg         Yes
     4  hdisk3    c1-f4-00-1,0       4056    other vg         Yes

>>>  0   Continue with choices as indicated above

     66  Disks not known to Base Operating System Installation
     77  Display More Disk Information
     88  Help ?
     99  Previous Menu

>>> Choice [0]: 0
```

14 Once both rootvg hard disks are selected for installation of the operating system continue the installation by typing

>0

and pressing the **Enter** key.

15 Refer to Figure 2-48 to continue installation with the current settings listed by typing

>0

and pressing the **Enter** key.

The screen in Figure 2-49 is displayed while the SDM loads the base operating system from tape. Loading the operating takes at least 50 minutes.

While the SDM is installing the base operating system, the status screen disappears to show copyright information for each of the software packages installing on the SDM.

> *Note:* Ignore all warning and error messages during this part of the installation process.

Figure 2-48
Final review of the installation settings

```
                        Installation and Settings
Either type 0 and press <Enter> to install with current settings, or type
the number of the setting you want to change and press <Enter>.

    1  System Settings:
       Method of Installation.............New and Complete Overwrite
       Disk Where You Want to Install....hdisk0, hdisk1
    2  Primary Language Environment Settings (AFTER Install):
         Cultural Convention................English (United States)
         Language ..........................English (United States)
         Keyboard ..........................English (United States)
         Keyboard Type......................Default
    3  Install Trusted Computing Base...... No
>>> 0  Install AIX with the current settings listed above.
                   +-------------------------------------------------
88  Help ?         | WARNING: The Base Operating System Installation
99  Previous Menu  | destroys or impairs the recovery of all data on the
                   | destination disk: hdisk0.

                         >>> Choice [0]: 0
```

Figure 2-49
The SDM loads the base operating system from tape

```
                     Installing Base Operating System

   Root volume group will be mirrored in opposite I/O domains.

       Please wait...

       Approximate                       Elapsed time
       percent of tasks complete         (in minutes)
       ##                                ##
```

16 After the base operating system has been loaded from the install tape to the hard disks the SDM reboots.

> ***Note:*** Allow at least 10 minutes to elapse for the SDM to reboot.

> ***Note:*** A few minutes elapse before the Fantray 0 component out-of-service LED extinguishes and the system-in-service LED flashes green.

> ***Note:*** Ignore all error messages displayed on the screen while the system is rebooting.

After rebooting the SDM displays the login prompt:

```
AIX Version 4 (C) Copyrights by IBM and by others 1982, 1996.
                  Console login: root
```

17 Log onto the SDM as root user at the console login prompt by typing

Console login: root
and pressing the **Enter** key.

> ***Note:*** A root password is not required at this time.

18 Refer to Figure 2-50 and select the tape drive in slot 2 by typing

>0
and pressing the **Enter** key.

The SDM applies the OS software patches.

Figure 2-50
OS tape patch application

```
                    Part 1 of 3: OS Tape Patch Apply

Some additional AIX operating system (OS) patches must be applied from the
SDM OS tape. The SDM OS tape was used during the first steps of the OS
software installation, so the SDM OS tape should still be in a tape drive.

The SDM OS tape has one of the following labels:

       SDMX0013 NCL R 13.X (1 of 2)
       SDMX0013 NCL V 13.X (1 of 2)
                         ^

To start applying patches from the SDM OS tape, select the tape drive
where you have inserted the SDM OS tape:

       0 - Tape drive in the main chassis slot 2.
       1 - Tape drive in the main chassis slot 13.


Select ("0", "1", or "ABORT"):
```

Upgrade the CPU Controller Firmware

This section provides information needed to upgrade the CPU controller firmware on both SDM CPUs.

1 The CPU firmware version is checked. Refer to Figure 2-51 and begin the firmware upgrade process by pressing the **Enter** key.

Figure 2-51
Checking the CPU firmware

```
                    Part 2 of 3: Firmware Check

The CPU in the main chassis slot 6 has firmware version 14RM01.

The CPU in the main chassis slot 10 has firmware version 14RM01.

Current firmware version: 15RM01

The CPU firmware is not at the current version for this version of the SDM
software. The CPU firmware will be upgraded to the latest version.

Press [Enter] to proceed, or type Abort to abort.
```

2 The SDM responds with the following message

```
Bringing the CPU in the main chassis slot 10 out of service...
Warning: This request makes the CPU subsystem not fault tolerant.
Writing the new firmware to the CPU in the main chassis slot 10.
Please wait at least 5 minutes...
```

3 After the firmware has been upgraded for the first CPU the screen in Figure 2-52 is displayed. Read the list of instructions displayed in Figure 2-52 carefully, then halt the SDM by pressing the **Enter** key.

4 Refer to Figure 2-53 and remove power from the SDM by moving the following MSP main power breakers to the off position: CB01-07-PWR and CB03-07-PWR 0 1.

5 Refer to Figure 2-54 and unseat and pull the CPU in slot 6 out from the SDM main chassis backplane about 2 inches.

6 Apply power to the SDM by moving the following MSP main power breakers to the on position: CB01-07-PWR and CB03-07-PWR 0 1.

Figure 2-52
Upgrading the CPU firmware

```
                    SDM SOFTWARE INSTALLATION

To allow the firmware change to take effect, the SDM must be halted.

You will press [Enter] to start the system halt process. After the halt
has completed:
    - turn OFF the SDM,
    - pull the CPU card in the main chassis slot x,
    - turn ON the SDM,
    - wait for the SDM to start booting (you will see messages on the
      console terminal),
    - push the CPU card that you pulled back into its slot,
    - wait for the login prompt,
    - login as the root user.

WARNING: These instructions will scroll off of the screen while the system
halt is executing so it is recommended that you write them down.

Press [Enter] to halt the SDM.
```

7 Wait at least 30 seconds after power has been restored and the SDM begins to reboot, then re-insert the CPU into slot 6 of the main chassis.

  Note: Ignore all error messages displayed on the screen while the SDM reboots.

  Note: Allow at least 10 minutes to elapse for the SDM to reboot.

8 Wait for the login prompt to appear as shown below.

```
AIX Version 4 (C) Copyrights by IBM and by others 1982, 1996.
                             login:
```

Figure 2-53
Locating the SDM main power breakers
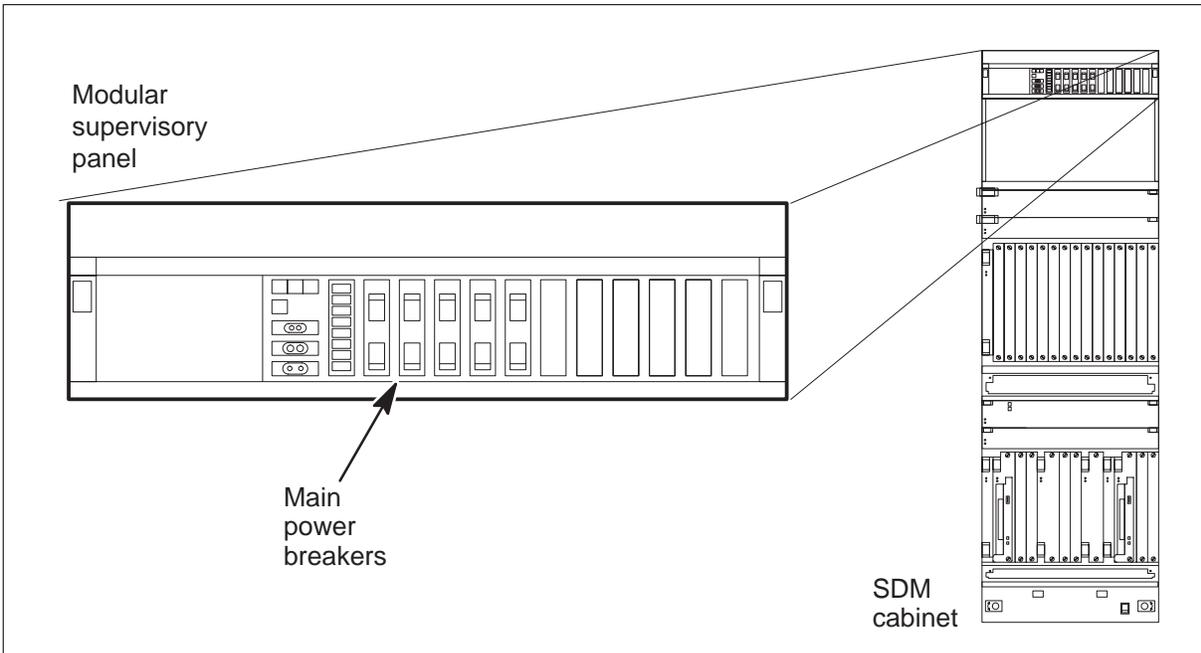
Figure 2-54
Unseat the CPU from the main cabinet backplane
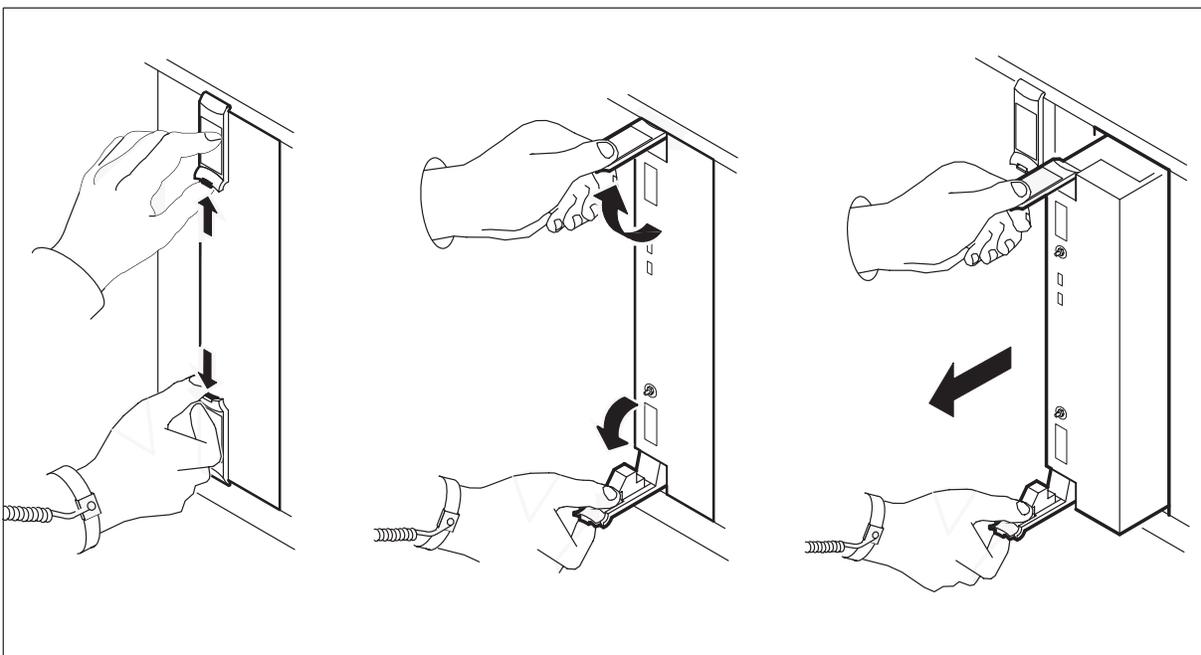
9   After the SDM reboots, log in to the SDM as root user at the login prompt by typing

login: root
and pressing the **Enter** key.

10   The SDM prompts you to enter a new root password.

> *Note:* You may use a any password you wish; however, you will be required to enter a new root password again later in this procedure.

11   The SDM checks the new firmware as shown in Figure 2-55. Press the **Enter** key to continue the software installation.

> *Note:* If you do not see the screen in Figure 2-55, your firmware has not been upgrade properly and you may have a faulty CPU card. Stop here and contact your next level of support.

Install the Platform Software

This section provides information needed to install the SDMC 13 platform software.

1   Start the installation of the SDM platform software by referring Figure 2-56 and select the tape drive for slot 13 by typing

>1
and press the **Enter** key.

The SDM begins to install the application software from the platform application software tape as shown in Figure 2-57.

> *Note:* Application software installation requires at least 30 minutes.

Figure 2-55
Checking the CPU firmware after a firmware upgrade

```
                    Part 2 of 3: Firmware Check

The CPU in the main chassis slot 10 has firmware version 15RM01.

The CPU in the main chassis slot 6 has firmware version 15RM01.

Current firmware version: 15RM01

The CPU firmware is at the current version.

Making sure that the CPUs are online and integrated...

Bringing the CPU in the main chassis slot 10 into service...

Please wait at least 10 minutes for the CPU in the main chassis slot 6 to
start integrating.

Writing the new CPU firmware...
The CPU is 0% integrated...
The CPU in the main chassis slot 6 is integrated with the master CPU.

Press [Enter] to continue...
```

Figure 2-56
Checking the CPU firmware after a firmware upgrade

```
                    SDM SOFTWARE INSTALLATION

Part 3 of 3: Platform Software

You are about to install the SDM Platform software on the SDM.

Tape 2, the SDM Platform and Application tape, has one of the following
labels:

        SDMX0013 NCL R 13.X (2 of 2)
        SDMX0013 NCL V 13.X (2 of 2)
                          ^
To start the install of the SDM Platform software, select the tape drive
where you have inserted the SDM Platform and Application tape:

        0 - Tape drive in the main chassis slot 2.
        1 - Tape drive in the main chassis slot 13.

Select ("0", "1", or "ABORT"): 1
```

Figure 2-57
Installing the platform application software

```
                    SDM SOFTWARE INSTALLATION

Reading from the tape drive in the main chassis slot 13 to install the SDM
Platform software.

Rewinding the tape...
Verifying the tape contents...

Installing sdminstall control files...
Completed

Searching for patches in the tape drive in the main chassis slot 13...
No patches to apply: all software is at the correct version.

Installing the SDM Platform filesets...
Preparing...Applying software... 25% done.
Executing the SDM Commissioning Tool...
<other various messages appear>
```

Commission the platform software

To complete this part of the software installation refer to Appendix C,"SDM
configuration Information sheet," that you completed earlier in this procedure. If
necessary, consult with your LAN Network Administrator for assistance with
completing the steps in this section.

> *Note:* If, at any time you enter an incorrect value, you will have an opportunity
> to correct it. When confirming the values you entered you will be asked to
> answer Yes or No.

> *Note:* If no value is entered at the prompt before entering a carriage return, the
> system uses a default value. It is important to enter all values as you recorded
> them on the SDM configuration information sheet.

1   Use the following table to determine your next step.

If	Go to
the console displays the SDM Commissioning screen	skip to step 3
the console does not display the SDM Commissioning screen	continue with step 2

2   At the root prompt begin SDM commissioning by tying

#/sdm/mtce/sct/sdmconfig
and pressing the **Enter** key.

> *The SDM responds with the screen shown in Figure 2-58.*

Figure 2-58
SDM commissioning

```
                      SDM COMMISSIONING

You are about to commission this system as a Supernode Data Manager (SDM).
If you choose to proceed, a series of commissioning tasks will be
performed automatically.
Once the automated commissioning tasks have completed successfully, the
following tasks can be completed manually:
   - CM-SDM connectivity
   - LAN connectivity
   - SDM hostname and gateway
   - LAN nodes
   - LAN security
   - DCE configuration
   - Miscellaneous
     - Login greeting
     - Root and maint user passwords
     - Date, time and time zone

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

3 Proceed with SDM commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
                      SDM COMMISSIONING

CM-SDM CONNECTIVITY

You will be prompted for the following information:
- CM IP address
- SDM IP address
- CM-SDM netmask
- CM CLLI

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

4 Continue with CM–SDM connectivity commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Please enter the CM IP address:<CM IP address>
```

5   Type the CM IP address as shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the SDM IP address: <SDM IP address>
```

6   Type the SDM IP address as shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the CM-SDM netmask: <CM-SDM netmask>
```

7   Type the CM–SDM subnet mask shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the CM CLLI: <CM CLLI>
```

8   Type the CM CLLI shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
                       SDM COMMISSIONING

CM-SDM CONNECTIVITY

The following values have been entered:

CM IP address:        <CM IP address>
SDM IP address:       <SDM IP address>
CM-SDM netmask:       <CM-SDM LAN netmask>
CM CLLI:               <CM CLLI>

Are these values correct?
Please confirm ("YES", "Y", "NO", or "N")
```

9   Review the values you entered for CM–SDM Connectivity.

If	Do
If the values you entered are all correct	continue with step 10
If the values you entered are not all correct	type no and return to step 5

10   Finish CM–SDM connectivity commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Commissioning CM-SDM connectivity – PASSED

HIT ENTER TO CONTINUE
```

11 Press the **Enter** key to continue commissioning the SDM.

The SDM responds with the following:

```
                      SDM COMMISSIONING

LAN CONNECTIVITY
You will be prompted for the following information:

– LAN IP address
– LAN netmask
– LAN type

Please confirm (“YES”, “Y”, “NO”, or “N”)
```

12 Continue with LAN connectivity commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Please enter the LAN IP address:<LAN IP address>
```

13 Type the LAN IP address shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the LAN netmask: <LAN netmask>
```

14 Type the LAN netmask shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the LAN type: <LAN type>
```

15 Type the LAN type shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
                      SDM COMMISSIONING

The following values have been entered:

– LAN IP address
– LAN netmask
– LAN type

Are these values correct?
Please confirm (“YES”, “Y”, “NO”, or “N”)
```

16   Review the values you entered for LAN Connectivity.

If	Do
If the values you entered are all correct	continue with step 17
If the values you entered are not all correct	type no and return to step 11

17   Finish LAN connectivity commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Commissioning LAN connectivity - PASSED

HIT ENTER TO CONTINUE
```

18   Press the **Enter** key to continue commissioning the SDM.

The SDM responds with the following:

```
SDM HOSTNAME AND GATEWAY

You will be prompted for the following information:

- SDM hostname
- SDM LAN gateway

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

19   Continue with Hostname and Gateway connectivity commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
SDM HOSTNAME AND GATEWAY

Please enter the SDM hostname:
```

20   Type the SDM Hostname shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the gateway IP address:(<IP address>/[S]elf/[N]one)[Self]
```

21   Type the gateway IP address shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
SDM HOSTNAME AND GATEWAY
```

```
The following values have been entered:

SDM Hostname:          <Hostname>
LAN Gateway:           <Gateway IP address>

Are these values correct?
Please confirm ("YES", "Y", "NO", or "N")
```

22   Review the values you entered for the SDM Hostname and Gateway.

If	Do
If the values you entered are all correct:	continue with step 23
If the values you entered are not all correct:	type no and return to step 19

23   Finish SDM Hostname and Gateway commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Commissioning hostname and gateway – PASSED

HIT ENTER TO CONTINUE
```

24   Press the **Enter** key to continue commissioning the SDM.

The SDM responds with the following:

```
                SDM COMMISSIONING

LAN NODES

You will be prompted for the following information:

– The description for 1–6 LAN nodes
– The hostname for 1–6 LAN nodes
– The IP address for 1–6 LAN nodes

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

25   Continue with LAN Node commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
LAN NODES

The current LAN node values are:
```

```
                  NODE DESCRIPTION      HOSTNAME       IP ADDRESS
              -------------------------------------------------
0 Exit
1 LAN node 1       Uncommissioned  Uncommissioned  Uncommissioned
2 LAN node 2       Uncommissioned  Uncommissioned  Uncommissioned
3 LAN node 3       Uncommissioned  Uncommissioned  Uncommissioned
4 LAN node 4       Uncommissioned  Uncommissioned  Uncommissioned
5 LAN node 5       Uncommissioned  Uncommissioned  Uncommissioned
6 LAN node 6       Uncommissioned  Uncommissioned  Uncommissioned

Please select the number of the LAN node you wish to commission (1-6):
```

26 Continue with LAN Node commissioning by typing the LAN Node number that you wish to commission and press the **Enter** key.

>n
and press the **Enter** key.

where

n　　　　is the number of the LAN Node you wish to commission from 1–6. Commission each LAN Node in order from 1 to 6.

The SDM responds with the following:

```
                      SDM COMMISSIONING
Please enter the description for LAN node #:
```

> **Note:** Your LAN may contain as few as 1 and as many as 6 nodes depending on your configuration. You must configure all the LAN Nodes that are shown on your information sheet. Each LAN Node number will have a description, hostname and IP address shown on your information sheet.

27 Type the LAN Node Description shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the hostname for LAN node #:
```

28 Type the LAN Node hostname shown on your information sheet for the LAN Node you are commissioning and press the **Enter** key.

The SDM responds with the following:

```
Please enter the IP address for LAN node #:
```

29 Type the LAN Node IP address shown on your information sheet for the LAN Node you are commissioning and press the **Enter** key.

The SDM responds with the following:

```
LAN NODES
```

```
The following values have been entered:
```

```
LAN node # description: <Description>
LAN node # hostname:    <Hostname>
LAN node # IP address:  <IP address>

Are these values correct?
Please confirm ("YES", "Y", "NO", or "N")
```

30 Finish commissioning this LAN Node by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Commissioning LAN node # – PASSED
```

```
HIT ENTER TO CONTINUE
```

31 Press the **Enter** key to continue commissioning the LAN Nodes.

The SDM responds with the following:

```
LAN NODES

The current LAN node values are:

                NODE DESCRIPTION        HOSTNAME       IP ADDRESS
                ------------------------------------------------
0 Exit
1 LAN node 1         Description         Hostname       IP Address
2 LAN node 2      Uncommissioned  Uncommissioned  Uncommissioned
3 LAN node 3      Uncommissioned  Uncommissioned  Uncommissioned
4 LAN node 4      Uncommissioned  Uncommissioned  Uncommissioned
5 LAN node 5      Uncommissioned  Uncommissioned  Uncommissioned
6 LAN node 6      Uncommissioned  Uncommissioned  Uncommissioned

Please select the number of the LAN node you wish to commission (1–6):
```

32 Use the following table to determine your next step.

If	Do
If you have other LAN nodes to commission or if you want to make changes to a commissioned LAN node:	return to step 26
If you do not have other LAN nodes to commission and are satisfied with the values entered for the commissioned LAN nodes:	continue with step 33

34 Exit LAN Node commissioning by typing

0
and pressing the **Enter** key.

The SDM responds with the following:

```
                                SDM COMMISSIONING

LAN SECURITY

You will be prompted for the following information:

- the security setting for inbound Telnet (enabled or disabled)

HIT ENTER TO CONTINUE
```

35 Press the **Enter** key to continue commissioning the SDM for Inbound Telnet.

The SDM responds with the following:

```
Please select to (E)nable or (D)isable inbound Telnet:
```

36 Refer to your information sheet and type E to enable or D to disable inbound telnet capability on the SDM then press the **Enter** key.

The SDM responds with the following:

```
The following values have been entered for LAN security:

        Inbound Telnet: Enabled

Are these values correct?
Please confirm ("YES", "Y", "NO", or "N")
```

37 Finish commissioning LAN Security by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Commissioning LAN Security - PASSED

HIT ENTER TO CONTINUE
```

38 Press the **Enter** key to continue commissioning the SDM.

The SDM responds with the following:

```
                                SDM COMMISSIONING

DCE CONFIGURATION

You will be prompted for the following information:
- the DCE administrator name
- the DCE cell name
- the IP address and hostname of the master security server
- the IP address and hostname of the CDS server
- the LAN profile name for the SDM
- the DCE administrator (or equivalent) password

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

39   Use the following table to determine your next step.

If	Do
If you have a DCE:	continue with step 40
If you do not have a DCE:	type **No** and press **Enter**, then skip to step 49 in this section

40   Continue with DCE configuration by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Please enter the DCE principal name:
```

41   Type the DCE administrator principal name shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the DCE cell name:
```

42   Type the DCE cell name shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the IP address of the master security server:
```

43   Type the IP address of the security server shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the hostname of the master security server:
```

44   Type the hostname of the security server shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the IP address of the CDS server:
```

45   Type the IP address of the CDS server shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
Please enter the LAN profile name for the SDM:
```

46   Type the LAN profile name for the SDM shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
DCE CONFIGURATION
```

```
The following values have been entered:

DCE administrator principal name:  <sdm_admin>
DCE cell name:                     <DCE Cell Name>
Master security server IP address: <IP Address>
Master security server hostname:   <Security Server Hostname>
CDS server IP address:             <IP Address>
CDS server hostname:               <CDS Server Hostname>
LAN profile name:                  <LAN Profile Name>

Are these values correct?
Please confirm ("YES", "Y", "NO", or "N")
```

47 Review the values you entered for the DCE configuration.

If	Do
If the values you entered are all correct:	continue with step 48
If the values you entered are not all correct:	type no and return to step 41

48 Finish the DCE commissioning by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
DCE CONFIGURATION

Starting DCE commissioning...

Commissioning DCE Security – PASSED
```

49 If necessary, press the **Enter** key to continue commissioning the SDM.

The SDM responds with the following:

```
LOGIN GREETING

Please enter the SDM login greeting: [SDM Console]
```

50 Type the SDM login greeting shown on your information sheet and press the **Enter** key.

The SDM responds with the following:

```
The following value has been entered:

SDM login greeting: SDM Console

Is this value correct?
Please confirm ("YES", "Y", "NO", or "N")
```

51   Review the login greeting you entered.

If	Do
If what you entered is not correct:	type no and return to step 49
If what you entered is correct:	continue with step 52

52   Finish the SDM login greeting by typing

y
and pressing the **Enter** key.

The SDM responds with the following:

```
Commissioning SDM login greeting - PASSED

HIT ENTER TO CONTINUE
```

> ***Note:*** If the commissioning SDM login greeting fails, determine if the values entered are correct. To do this, consult with your LAN Network Administrator and enter the corrected values. If the values are determined to be correct, then continue with the commissioning procedure.

> ***Note:*** You can troubleshoot the commissioning SDM login greeting later by entering the command **sdmconfig** at the # prompt. This action will allow you to return to the unfinished SDM commissioning. In the event you encounter further difficulty, contact your next level of support.

ATTENTION

Be prepared to provide passwords for the root and maint users. You are limited to 60 seconds to enter a password for each account.

---

53   Continue with SDM commissioning by pressing the **Enter** key.

The SDM responds with the following:

```
                    SDM COMMISSIONING

PASSWORDS

You will be prompted for the passwords for the 'root' and
'maint' users.  You will have ONE minute to change each
password.

IMPORTANT: Do not lose the password for the 'root' user!

HIT ENTER TO CONTINUE
```

54   Continue with password setup by pressing the **Enter** key.

The SDM responds with the following:

```
Changing password for "root"
root's New password: <root password>
```

55   Type the root user password and press **Enter**. The SDM does not echo the input back to the screen.

> *Note:* You can enter any password unless specified otherwise. If the entered passwords are not accepted by the operating system, a list of rules are displayed.

> *Note:* You can also change the root password at this point; however, ensure that you record the new root password and do not lose it.

> *Note:* If the screen changes to the next screen before you enter the passwords, continue with this procedure. You can change the passwords after the software has been installed.

The SDM responds with the following:

```
Enter the new password again: <root password>
```

56   Verify the root user password by typing it again and pressing the **Enter** key.

The SDM responds with the following:

```
Changing password for "maint"

maint's New password: <maint password>
```

57   Type the new maint password and press the **Enter** key.

The SDM responds with the following:

```
Enter the new password again: <maint password>
```

58   Verify the maint user password by typing it again and pressing the **Enter** key.

The SDM responds with the following:

```
HIT ENTER TO CONTINUE
```

59   Continue with SDM commissioning by pressing the **Enter** key.

The SDM responds with the following:

```
                    SDM COMMISSIONING

DATE, TIME, AND TIME ZONE

You are prompted for time and date information. Once you
have entered the information, you need to reboot the SDM
for the changes to take effect.

HIT ENTER TO CONTINUE
```

60   Continue with password setup by pressing the **Enter** key.

61   Refer to Figure 2-59 and, using the up or down arrow keys, select the Change Time Zone Using System Defined Values option and press the **Enter** key.

Figure 2-59
Change time zone using system defined values

```
                     Change / Show Date and Time

 Move cursor to desired item and press Enter.

   Change / Show Date & Time
   Change Time Zone Using System Defined Values
   Change Time Zone Using User Inputted Values












 F1=Help        F2=Refresh       F3=Cancel          Esc+8=Image
 Esc+9=Shell    Esc+0=Exit       Enter=Do
```

62 Refer to Figure 2-60 and, using the up or down arrow keys, select YES to the question "Does this time zone go on DAYLIGHT SAVINGS TIME?" if at some time during the year daylight savings time is to be applied.

Figure 2-60
Select daylight savings time

```
                  Use DAYLIGHT SAVINGS TIME?

 Move cursor to desired item and press Enter.
    # Does this time zone go on
    # DAYLIGHT SAVINGS TIME?
    #
   1  yes
   2  no






 F1=Help        F2=Refresh       F3=Cancel          Esc+8=Image
 Esc+9=Shell    Esc+0=Exit       Enter=Do
```

63 Refer to Figure 2-61 and, using the up or down arrow keys, select the appropriate time zone for your SDM site and press the **Enter** key.

Note: In the event the installation takes place outside of North America, refer to section 7 in the *SDM-Fault-tolerant User Guide*, 297-5061-906 for assistance with this step.

64 Refer to Figure 2-62 and make the necessary changes to the Change Time Zone settings and press the **Enter** key.

Note: The default setting for daylight savings uses the North American rules.

Note: In the event the installation takes place outside of North America, refer to Section 7 in the *SDM-Fault-tolerant User Guide*, 297-5061-906 for assistance with this step.

65 Refer to Figure 2-63 and press the F3, Esc 3, or PF3 key to return to the Change/Show Date and Time screen from the Command Status screen.

66 Refer to Figure 2-64 and, using the up or down arrow keys, select the Change/Show Date and Time option and press the **Enter** key.

67 Refer to Figure 2-65 and, using the up or down arrow keys, select and change any date or time fields as necessary, then press the **Enter** key.

Figure 2-61
Select a time zone

```
              CUT (Coordinated Universal Time) Time Zone

Move cursor to desired item and press Enter.

[TOP]
      (CUT0GDT)                   Coordinated Universal Time      (CUT)
      (GMT0BST)                   United Kingdom                  (CUT)
      (AZOREST1AZOREDT)           Azores: Cape Verde              (CUT -1)
      (FALKST2FALKDT)             Falkland Islands                (CUT -2)
      (GRNLNDST3GRNLNDDT)         Greenland; East Brazil          (CUT -3)
      (AST4ADT)                   Central Brazil                  (CUT -4)
      (EST5EDT)                   Eastern U.S.;Colombia           (CUT -5)
      (CST6CDT)                   Central U.S.;Honduras           (CUT -6)
      (MST7MDT)                   Mountain U.S.                   (CUT -7)
      (PST8PDT)                   Pacific U.S.; Yukon             (CUT -8)
[MORE...19]


F1=Help                     F2=Refresh                  F3=Cancel
Esc+8=Image                 F10=Exit                    Enter=Do
/=Find                      n=Find Next
```

Figure 2-62
Make daylight savings adjustments

```
                        Change Time Zone

Type or select values in entry fields.
Press Enter AFTER making all desired changes.


                                                    [Entry Fields]
  Time zone                                          EST5EDT
  Day Light Savings Time Offset from CUT([+|-]HH:MM:SS)     []
  Start Daylight Savings Day([Mmm.ww.dd|Jn])              []
  Start Daylight Savings Time(HH:MM:SS)                   []
  Stop Daylight Savings Day([Mmm.ww.dd|Jn])              []
  Stop Daylight Savings Time(HH:MM:SS)                   []




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

Figure 2-63
Approve time zone changes

```
                        COMMAND STATUS

Command: OK             stdout: yes           stderr: no
Before command completion, additional instructions may appear below.












F1=Help       F2=Refresh      F3=Cancel       Esc+6=Command
Esc+8=Image   Esc+9=Shell     Esc+0=Exit      /=Find
n=Find Next
```

Figure 2-64
Change the current date and time

```
                  Change / Show Date and Time

 Move cursor to desired item and press Enter.

   Change / Show Date & Time
   Change Time Zone Using System Defined Values
   Change Time Zone Using User Inputted Values












 F1=Help        F2=Refresh       F3=Cancel          Esc+8=Image
 Esc+9=Shell    Esc+0=Exit       Enter=Do
```

Figure 2-65
Installing the platform application software

```
                  Change / Show Day and Time

 Type or select values in entry fields.
 Press Enter AFTER making all desired changes.

                                              [Entry Fields]
   YEAR (00-99)                     [00]                    #
   MONTH (01-12)                    [01]                    #
   DAY (1-31)                       [10]                    #
   HOUR (00-23)                     [12]                    #
   MINUTES (00-59)                  [43]                    #
   SECONDS (00-59)                  [39]                    #




 F1=Help           F2=Refresh       F3=Cancel        F4=List
 Esc+5=Reset       Esc+6=Command    Esc+7=Edit       Esc+8=Image
 Esc+9=Shell       Esc+0=Exit       Enter=Do
```

68 To exit out of the Command Status screen shown in Figure 2-65 press the **Esc** key, then press **0**.

The SDM responds with the following:

```
DATE , TIME AND TIME ZONE

Your time and date information has been entered.  For this
information to take effect, you will need to reboot the SDM.

Do you wish to reboot the SDM now?

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

69 Confirm that you wish to reboot the SDM by typing

y
and pressing the **Enter** key.

> *Note:* Rebooting the SDM takes at least 5 minutes. Ignore any messages displayed during the reboot.

70 Use the following table to determine your next step.

If	Do
you did not receive the reboot confirmation screen shown in step 68 or your SDM will not reboot	continue with step 71
you did receive the reboot confirmation screen shown in step 68 and your SDM rebooted	skip to step 73

71 Refer to Figure 2-53 and remove power from the SDM by moving the following MSP main power breakers to the off position: CB01-07-PWR and CB03-07-PWR 0 1.

72 Apply power to the SDM by moving the following MSP main power breakers to the on position: CB01-07-PWR and CB03-07-PWR 0 1.

> *Note:* Rebooting the SDM takes at least 5 minutes. Ignore any messages displayed during the reboot.

73 At the SDM Login Greeting log onto the SDM as root user by typing

Login: root
and pressing the **Enter** key.

The SDM responds with the following:

```
root's Password:
```

74 Enter the root user password by typing

password
and pressing the **Enter** key.

Figure 2-66
Installing the platform application software

```
<SDM Login Greeting>
Login:  root
root's Password: <root password>

********************************************************************
**                                                                **
**               This is a private database.                      **
**           All activity is subject to monitoring.              **
**      Any UNAUTHORIZED access or use is PROHIBITED.            **
**                                                                **
********************************************************************

Last login: Wed May 21 19:26:58 EDT 1997 on /dev/tty0 from
localhost



TERM = (vt100)
```

75 Refer to Figure 2-66 and define the terminal type by and press **Enter** or type vt100 and press <Enter>

76 Verify that the date and time setting are correct. At the prompt type

#date
and pressing the Enter key.

The SDM responds with the time and date similar to the following

Example response: Wed Jan 12 11:20:07 EDT 2000

If	Do
the date and time are correct	continue with this procedure
either the date or time are not correct	refer to Section 7 in the *SDM Fault-tolerant User Guide*, 297-5061-906.

Configure the Distributed Computing Environment (DCE)

If you have DCE, refer to Chapter 6 in the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906, for instructions on how to configure the SDM in a DCE cell. After you have configured the DCE, continue with this procedure.

Note: You must have your DCE cell administrator password available to perform this procedure.

Upgrade and start the SBA billing application

This sections provides instructions for installing and configuring the SDM SBA 500 Application software.

Note: Ensure that the SDM platform and application tape (2 of 2) is inserted into the tape drive in slot 13.

You must have available another workstation capable of a VT100 terminal emulation and able to connect to the SDM through a the DCE network using a telnet connection.

1 Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

2 Refer to Figure 2-67 and list the contents of the SDM platform and application tape (tape in drive in slot 13) by typing

>apply 1
and pressing the **Enter** key.

The SDM responds by listing the filesets on the tape drive in slot 13.

3 Locate the SBA DMS500 fileset. If necessary, use the up (type 12, u or up) and down (type13, d or down) commands to scroll through the application fileset list to locate the SDM SBA DMS500 Application fileset.

Figure 2-67
Locate the SBA DMS500 application fileset on the tape

```
   SDM         CON      LAN      APPL     SYS      HW      CM : 250W
   ISTb         .        .       ISTb     ISTb      .      SDM: ccary4c1
    M                                      M                Fault Tolerant
Apply
 0 Quit     Source: the tape drive in the main chassis slot 13.
 2          Filter: OFF
 3 Source     # Fileset Description            Current        Available
 4 Reload    34 OM Delivery                    11.0.17.0       13.0.14.0
 5           35 OSS and Application Svcs        11.0.14.0       13.0.14.0
 6           36 OSS Comms Svcs                  11.0.14.0       13.0.14.0
 7 Select    37 ObjectStore Database Svc        11.0.14.0       13.0.14.0
 8 Apply     38 Remote Registration System      11.0.13.0       13.0.20.0
 9 Upgrade   39 SDM_SBA DMS500 Application      11.0.46.0       13.0.57.0
10           40 Secure File Transfer Client     11.0.25.0       13.0.25.0
11           41 Secure File Transfer            11.0.25.0       13.0.25.0
12 Up        42 Succession Network Mgr Client 11.0.48.0        13.0.46.0
13 Down      43 Succession Network Manager      11.0.48.0       13.0.46.0
14 Search    44 SNMP Access Gateway            11.0.21.0       13.0.20.0
15 Filter                        Filesets on the source: 34 to 44 of 47
16 View
17 Help
18 Refresh
  root
Time  13:16  >
```

4   Select and install the new SDM SBA DMS500 Application fileset by typing

>apply *n*
and pressing the **Enter** key.

where

n   is the fileset number beside the the SBA DMS500 application.
The SDM responds:

```
You have selected to install the following new
filesets or fileset updates.
SDM_SBA DMS500 Application 13.0.XX.0
Do you wish to proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

5   When the SDM asks you to confirm the apply command, type

>y
and press the **Enter** key.

The SDM responds that it is applying the selected filesets.

>   ***Note:*** Applying the SBA fileset takes at least 10 minutes.

Add logical volumes for SBA streams
At a local workstation connected to the SDM
This sections provides instructions for adding extra space to the disk drive partitions
supporting the SBA billing streams.

1   Log onto the workstation.

2   Telnet to the SDM from the workstation.

3   Log onto the SDM as the root user using the root user password you created
when commissioning the SDM and network.

4   Access the SDM maintenance interface by typing

sdmmtc
and press the **Enter** key.

5   Access the Sys level by typing

sys
and press the **Enter** key.

6   At the Sys level type

storage
and press the **Enter** key.

7   Add your logical volumes based on

add lv xxx Mbytes
and press the **Enter** key.

where

xxx   is the logical volume where your billing files are stored for each stream type you had recorded in Appendix C, the SDM configuration information sheet.

Mbytes   is the amount of space allocated to each logical volume that you recorded on the form in Appendix C, the SDM configuration information sheet.

8   Repeat step 7 for each SBA stream you have recorded on your information sheet.

9   Log out from the workstation.

At the VT100 terminal connected to the SDM

10   To configure the SBA application refer to Figure 2-68 and access the config level is in service by typing

>config
and press the **Enter** key.

Figure 2-68
Configuring SBA

```
  SDM         CON     LAN     APPL    SYS      HW      CM : 250W
  ISTb         .       .       .      ISTb     .       SDM: ccary4c1
   M                                   M
Config
 0 Quit      Filter: OFF
 2              # Fileset Description            Status
 3              1 SDM Corba Framework            Configured
 4              2 DDMS Schema for LET13 ENET     Not Configured
 5              3 DDMS Schema for UCS13 ENET     Configured
 6              4 Enhanced Terminal Access       Configured
 7 Select      5 GR740 Pass Through             Non secure mode
 8 Config      6 OSS and Application Svcs        Configured
 9             7 OSS Comms Svcs                  Configured
10             8 Remote Registration System     Not Configured
11             9 SDM_SBA DMS500 Application      Not Configured
12 Up         10 Secure File Transfer        Secure and Normal FTP Access
13 Down                              configuration programs: 1 to 10 of 11
14 Search
15 Filter
16 View
17 Help
18 Refresh
  root
Time  14:56  >
```

11 Locate the SDM SBA DMS500 Application fileset number and type

>config n
and press the **Enter** key.

where

n   is the fileset number beside the the SBA DMS500 application.
The SDM responds:

```
The configuration script for the SDM_SBA DMS500
Application fileset is ready to execute (it is currently
in the UNCONFIGURED state). The Config level will
disappear during execution of the script.

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

12 Confirm the config command by typing

>y
and press the **Enter** key.

The SDM responds:

```
Warnings produced from installing SBA, if any, are shown
below.

Press ENTER to continue.
```

13 Make note of any warnings then press the **Enter** key.

The SDM responds:

```
# Fileset Description                            Status
1 SDM_SBA DMS500 Application                  CONFIGURED
```

14 Access the swim level of the maintenance interface by typing

>swim
and press the **Enter** key.

15 Confirm that the SBA application has been applied. Locate the SBA DMS500
application fileset. If necessary, use the up (type 12, u or up) and down (type13,
d or down) commands to scroll through the application fileset list to locate the
SDM SBA DMS500 Application fileset.

The SDM swim screen shows

```
Fileset Description              Version          Status
SDM_SBA DMS500 Application       13.0.XX.0        APPLIED
```

16 Exit the SDM maintenance interface by typing

>quit all
and pressing the **Enter** key.

If using CDR to BAF conversion, reset Mib

This section provides information needed to reset the Mib values to their previous settings. This activity is performed at the root level of the SDM. Skip this section if you are using CDR to BAF conversion in your billing stream.

> *Note:* If you change the CDR2BAFActive, CurrentTmpltID, EnableAudit, or BAFSuppression Mib values after the stream is turned on, you must busy (Bsy), then RTS the SBA application on the SDM to make the Mib changes active.

1 Set the CDR2BAFActive variable by typing

#mib cdr set cdr2bafactive n
and press the **Enter** key.

where

n   is the value you recorded in the Mib section of Appendix D, the SDM SBA billing information sheet.

2 Set the CurrentTmpltID Mib by typing

#mib cdr set currenttmpltid n
and press the **Enter** key.

where

n   is the value you recorded in the Mib section of Appendix D, the SDM SBA billing information sheet.

3 Set the EnableAudit Mib by typing

#mib cdr set enableaudit n
and press the **Enter** key.

where

n   is the value you recorded in the Mib section of Appendix D, "SDM SBA billing information sheet"

4 Set the BAFSuppression Mib by typing

#mib cdr set bafsuppression n
and press the **Enter** key.

where

n   is the value you recorded in the Mib section of Appendix D, the SDM SBA billing information sheet.

5 If the BAFSuppression Mib is set to 1 (enabled), set the sensorID base Mib by typing

#mib cdr set sensortype n
and press the **Enter** key.

where

n   is the value you recorded in the Mib section of Appendix D, the SBA configuration information sheet.

6   If the BAFSuppression Mib is set to 1 (enabled), set the recordSourceInfoType base Mib by typing

#mib cdr set recordsourceinfotype n
and press the **Enter** key.

where

n   is the value you recorded in the Mib section of Appendix D, the SDM SBA billing information sheet.

7   If you have a DMS–GSP CDR stream recorded in Appendix D, set the typeOFCDR Mib by typing

#mib cdr set typeofcdr gsp
and press the **Enter** key.

Log onto the DMS MAPCI, busy and return the SDM to service

This section provides instructions for logging on to the CM and returning the SDM to service.

At the local VT100 console connected to the MAPCI

1   Log onto the CM at the login prompt by typing

username
and pressing the **Enter** key.

where

username   is the login ID you use to access the CM to perform billing maintenance.

The CM responds with the following:

```
Login:username
Password:
```

2   Enter the root user password by typing

password
and pressing the **Enter** key.

3   Refer to Figure 2-69, start the CM maintenance interface (MAPCI) and go to the SDM level by typing

>mapci;mtc;appl;sdm
and pressing the **Enter** key.

4   Busy (ManB) the SDM by typing

>bsy
and pressing the **Enter** key.

The CM responds with the following:

```
SDM Bsy initiated
SDM Bsy Completed
The SDM is Bsy
```

5 Return the SDM to service by typing

>rts
and pressing the **Enter** key.

The CM responds with the following:

```
SDM Rts initiated
SDM Rts Completed
```

6 Exit the CM maintenance interface by typing

>quit all
and pressing the **Enter** key.

Figure 2-69
Return the SDM to service from the MAPCI

```
   C        MS      IOD      Net       PM       CCS      Lns     Trks      Ext      APPL
   .        .        .        .        .        .        .        .        .        SDM

 SDM                         OAMAP              SDM               SWMTC   SDMBIL
  0 Quit                       .               ISTb                .      SBACP
  2                                                                        *C*
  3                  SDM 0  INSv
  4
  5 Trnsl
  6
  7 Bsy             SDM:
  8 RTS
  9 OffL
 10
 11
 12
 13
 14 QuerySDM
 15 Locate
 16
 17
 18 Platform
   A
 Time   09:16  >
```

At the local VT100 console connected to the SDM

7 Access the SDM maintenance interface by typing

#sdmmtc
and pressing the **Enter** key.

8 Access the Application level and verify the installation by typing

>appl
and press the **Enter** key.

The SDM responds

```
# Application                              State
 1 Enhanced Terminal Access                  .
 2 Log Delivery Service                      .
 3 OM Access Service                         .
 4 Table Access Service                      .
 5 Exception Reporting                       .
 6 Secure File Transfer                      .
 7 OM_Data_Delivery                          .
 8 SDM_SBA DMS500 Application              OffL
```

9   Busy the SDM SBA DMS500 Application by typing

>bsy n
and press the **Enter** key.

where

n   is the fileset number listed beside the SDM SBA DMS500 application
The SDM responds

```
# Application                              State
 1 Enhanced Terminal Access                  .
 2 Log Delivery Service                      .
 3 OM Access Service                         .
 4 Table Access Service                      .
 5 Exception Reporting                       .
 6 Secure File Transfer                      .
 7 OM_Data_Delivery                          .
 8 SDM_SBA DMS500 Application              ManB

   Application Bsy– Command submitted.
   Application Bsy – Command complete.
```

10   Return the SDM SBA DMS500 Application to service by typing

>rts n
and press the **Enter** key.

where

n   is the fileset number listed beside the SDM SBA DMS500 application
The SDM responds

```
# Application                              State
 1 Enhanced Terminal Access                  .
 2 Log Delivery Service                      .
 3 OM Access Service                         .
 4 Table Access Service                      .
 5 Exception Reporting                       .
 6 Secure File Transfer                      .
 7 OM_Data_Delivery                          .
 8 SDM_SBA DMS500 Application                .

   Application RTS – Command submitted.
   Application RTS – Command complete.
```

Note: The "." value for the State column indicates that the application is in service (InSv).

Note: If the SDMC SBA state does not change to InSv (changes to SysB), contact your next level of support.

11 Exit the SDM Maintenance interface by typing

>quit all
and pressing the **Enter** key.

Reconfigure SBA streams

This section provides information needed to reconfigure the SBA billing streams and to reconfigure the the SBA schedule tuples for outbound file transfers of billing files. This activity is performed within the billing maintenance interface on the SDM.

1 Access the Billing Maintenance interface by typing

#billmtc
and pressing the **Enter** key.

2 Refer to Figure 2-70 and go to the CONFSTRM (stream configuration) level by typing

>confstrm
and pressing the **Enter** key.

3 For each billing stream you must reconfigure select Add from the CONFSTRM menu by typing

add
and press the **Enter** key.

4 The SDM will ask you to input configuration data for each parameter. Enter the configuration value or string you recorded in Appendix D, "SBA configuration information sheet," as prompted by the SDM.

Note: For detailed information about the Confstrm:Add command, refer to Chapter 6 in the SDMC SBA Billing Application Guide, 297-2667-328.

Note: For SDMC13 the COMFSTRM filter stream parameter is new. When prompted, type a value of **N** for No for this parameter.

Figure 2-70
Go to the confstrm level to add stream parameters

```
CONFSTRM
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 List
11 Act
12 Deact
13 Update
14
15
16
17 Help
18 Refresh
  root        >add
Time  09:25
```

5   After all of the values are entered the SDM will display all of the values you provided, as shown in the following example. Verify that the values you entered match the values you have recorded in Appendix D.

The following is an example of the parameters displayed by the SDM for the DNS file format (your values may be different):

```
Stream Name -> AMA2
Filter Stream -> N
Stream Record Format -> BC
File Format Type -> DNS
Logical Volume Name -> /sba/ama2
File Transfer Mode -> OUTBOUND
Destination Component Id -> 2
Destination Component Type -> 3
Source Component Id -> 1
Source Component Type -> 2
Customer Standard Header File Type -> 1
Customer Error Header File Type -> 2
File Closed On Time Valid -> NO
File Closed On Time -> 10080
Maximum number of records -> 10000
Maximum number of bytes -> 1000000

Commit? [Save] {Save Edit Abort}:
```

The following is an example of the parameters displayed by the SDM for the DIRP file format (your values may be different):

```
Stream Name -> OCC4
Filter Stream -> N
Stream Record Format -> CDR250
File Format Type -> DIRP
Logical Volume Name -> /sba/occ4
File Transfer Mode -> OUTBOUND
Files Renamed With Close Date -> NO
Do you want the files closed for file transfer and writetape-> NO
File Closed On Time Valid -> NO
File Closed On Time -> 10080
Maximum number of records -> 10000
Maximum number of bytes -> 1000000

Commit? [Save] {Save Edit Abort}:
```

6 Determine whether the values displayed on the SDM match the values you have recorded in Appendix D for the appropriate file format.

If	Do
the values displayed match:	go to step 8
the values displayed do not match:	go to step 7

7 Edit the stream parameters to correct the values by typing

edit
and pressing the **Enter** key.

8 Save the stream parameters by typing

save
and pressing the **Enter** key.

The SDM responds:

```
Saving stream
Press Retrun to continue.
```

9 For each additional stream you must reconfigure return to step 3, otherwise continue to step 10 in this next section.

10 Exit the billing maintenance interface by typing

>quit all
and pressing the **Enter** key.

Ensure that billing goes into recovery

This section provides information needed to log onto the CM and determine whether the SBA billing streams are in recovery from backup mode.

At the local VT100 console connected to the MAPCI

1 Log onto the CM at the login prompt by typing

username
and pressing the **Enter** key.

where

username   is the login ID you use to access the CM to perform billing maintenance.

The CM responds with the following:

```
Login: username
Password:
```

2 Enter the password by typing

password
and pressing the **Enter** key.

3 Start the CM maintenance interface go to the SDM level by typing

>mapci;mtc;appl;sdmbil
and pressing the **Enter** key.

4 Refer to Figure 2-71 and check the recovery status of the billing streams by typing

>status
and pressing the **Enter** key.

5 Determine whether the billing streams have gone into recovery or into service as shown by the messaged displayed:

```
status
AMA: InSv
OCC: Rcvy
OCCA: Rcvy
```

If	Do
billing status is not in recovery (Rcvy) or in service (InSv):	go to step 6
billing status is in recovery (Rcvy) or in service (InSv):	go to step 7

6 Wait at least 5 minutes and check the MAPCI screen again by returning to step 4. If billing status is still not in recovery or in service (InSv) after rerunning the status command, contact your next level of support.

7 Exit the CM maintenance interface by typing

quit all
and press the **Enter** key.

Figure 2-71
Check the billing stream recovery status on the CM

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

SDMBIL                        OAMAP               SDM                 SWMTC   SDMBIL
  0 Quit                        .                   .                   .       .
  2 Post_
  3
  4
  5
  6
  7
  8
  9 Conf_      status
 10            AMA:  InSv
 11 DispAL    OCC:  Rcvy
 12            OCCA: RcVy
 13 Status
 14
 15
 16
 17
 18
   A
Time  12:59  >
```

At the local VT100 console connected to the SDM

8 At the SDM system prompt display a list of files for any streamname recorded on your SDM configuration information sheet by typing

 # listfile streamName
and press the **Enter** key.

where

streamName is the name of stream you have recorded.

The SDM responds with a list of stream files for the selected stream name as shown in Figure 2-72.

9 Review the list of stream files and determine the following:

- whether or not there is an open stream file as indicated by the "O" in the far right column of the listed displayed
- whether or not the open file's date and time are current (the time displayed should be within a few minutes of the current time)

Figure 2-72
Determine whether open billing files are increasing in size

```
#listfile <streamname>
020001.010000.00010.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:     285 Size:     49470 CNS
020001.010000.00011.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    5747 Size:    999858 CNS
020001.010000.00012.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    4421 Size:    769134 O
#listfile <streamname>

020001.010000.00010.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:     285 Size:     49470 CNS
020001.010000.00011.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    5747 Size:    999858 CNS
020001.010000.00012.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    4421 Size:    769134 O

#
```

The file size value
should increase

Open billing file
Indicator

10 Wait a few minutes and rerun the command listfile command in step 8.

11 Reread the listfile screen output to determine if the file size value is increasing
and refer to the following table

If	Do
if the file size is not increasing:	repeat step 8 once again. If the open file size still does not increase, contact your next level of support.
if the file size is increasing:	continue with step 1 in the following section

Reconfigure the outbound file transfer schedule tuple and RTB

This section provides information needed to reconfigure the SBA application
outbound file transfer schedule and the RTB streams.

At the local VT100 console connected to the SDM

1 Access the Billing Maintenance interface by typing

#billmtc
and pressing the **Enter** key.

2 Go to the Schedule level by typing

schedule
and press the **Enter** key.

3 Refer to Figure 2-73 and select Add from the Schedule menu by typing

add
and press the **Enter** key.

4 Enter the configuration value or string you recorded in Appendix D, "SBA configuration information sheet," as prompted by the SDM for each schedule parameter.

> *Note:* The Destination parameter is a parameter introduced for the SDMC12 release and higher. See Appendix D, "SBA configuration information sheet," to determine the default value of this parameter.

> *Note:* For detailed information about the CONFSTRM: Add command, refer to Chapter 6 in the SDMC SBA Billing Application Guide, 297-2667-328.

Figure 2-73
Go to the schedule level to reconfigure schedule tuples

```
 SCHEDULE
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 List
11 RTB
12
13
14
15
16
17 Help
18 Refresh
  root        >add
Time   09:30
```

5 Verify that the values you entered match the values you have recorded in Appendix D.

After all of the values are entered, the SDM displays all of the values you provided. The following is an example of the schedule parameters displayed by the SDM:

```
Stream: 'AMA'
File_Format_Type: 'DNS'
Destination: 'downstream'
Protocol: 'FTPW'
Primary_Destination: '47.32.45.67'
Primary_Port: '21'
Alternate_Destination: '47.32.67.86'
Alternate_Port: '21'
Start_Time: '00:00'
Stop_Time: '00:00'
Interval: '120'
Remote_Storage_Directory:'/home/amabilling/billingfiles'
Remote_Login: 'amabilling'
Remote_Password: '******'
Timeout: '30'
Maximum_Retries: '3'
Retry_Wait_Time: '1'
File_Extension: ''
Field_Separator: '.'
Active: 'Yes'

Valid actions are {'Save', 'Edit', 'Abort'}.
Press Enter to accept 'Edit'.
Enter Action:
```

6   Determine whether the values displayed on the SDM match the values you have recorded in Appendix D for the appropriate file format.

If	Do
If the values displayed to match:	go to step 9
If the values displayed do not match	go to step 7

7   Edit the stream parameters to correct any values by typing

edit
and pressing the **Enter** key.

8   At the Field Name prompt type the name of the field to change or type all (the SDM will prompt for all parameters, then complete the corrections.

9   Save the stream parameters by typing

save
and pressing the **Enter** key.

The SDM responds:

```
Schedule tuple saved

Press Return to Continue
```

10 Press the **Enter** key to return to the Schedule screen.

11 For each additional stream you must reconfigure return to step 3, otherwise continue with this procedure

Return the RTB billing streams to service

This section provides information needed to the RTB streams to service.

1 Access the RTB (Real Time Billing) menu of the SBA Schedule level by typing

>rtb
and pressing the **Enter** key.

Figure 2-74
Use billmtc to identify and busy RTB billing streams

```
 RTB            Stream : OCC
   0 Quit       Destination list :
   2 Set        -----------------------------------------------------
   3            DIRP DOWNSTREAM                                    INSV
   4
   5
   6
   7 Rts
   8 Bsy
   9 Offl
  10 Query
  11 IPTest
  12 CONFRTB
  13
  14
  15
  16
  17 Help
  18 Refresh
    root        >rts occ dirp downstream
  Time  13:40
```

2 Go to the CONFRTB level by typing

confrtb
and press the **Enter** key.

3 For each stream name that you have scheduled that uses RTB refer to Figure 2-74 and add the stream to RTB by typing

>add *streamName fileformat destination*
and pressing the **Enter** key.

where

streamName is the name of each RTB stream to be added.

fileformat is the format of each RTB stream (shown in Figure 2-74 as DIRP).
destination is where the files are sent (shown in Figure 2-74 as the default DOWNSTREAM)
The SDM responds with the following:

```
RTB configuration has been completed successfully. If aborting
at this point, user will accept the default value in RTB MIB.
Please enter a value for RTB MaxConsecutiveFailures (0..10)[3].
```

4 Press **Enter** to accept the default value for RTB MaxConsecutiveFailures.

The SDM responds with the following:

```
User accepts default value of RTBMaxConsecutiveFailures = 3

Streamname added for RTB Instance: OCC DIRP DOWNSTREAM
```

5 Repeat steps 3 and 4 until all RTB streams are added.

6 Busy (Bsy) each RTB stream by typing

>bsy *streamName fileformat destination*
and pressing the **Enter** key.

where

streamName is the name of each RTB stream to be busied.
fileformat is the format of each RTB stream (shown in Figure 2-74 as DIRP).
destination is where the files are sent (shown in Figure 2-74 as the default DOWNSTREAM)
The SDM responds with the following:

```
RTB is BSY for RTB Instance: OCC DIRP DOWNSTREAM
```

7 Repeat step 6 until all RTB streams are busied.

8 Return each stream to service (RTS) by typing

>rts *streamName fileformat destination*
and pressing the **Enter** key.

where

streamName is the name of each RTB stream to be returned to service.
fileformat is the format of each RTB stream (shown in Figure 2-74 as DIRP).
destination is where the files are sent (shown in Figure 2-74 as the default DOWNSTREAM)
The SDM responds with the following:

```
RTB is INSV for RTB Instance: OCC DIRP DOWNSTREAM
```

9 Repeat step 8 until all RTB streams are returned to service.

Install additional applications

This section provides instructions for installing additional application software onto your SDM. For detailed instructions about installing applications, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5061-906.

1   Ensure that the SDM platform and application tape (2 of 2) is inserted into the tape drive in slot 13.

2   Use the table below for additional information about installing these applications.

To install	Refer to
DMS Data Management System (DDMS) Application	Refer to the *SDM DDMS – GUIDE Installation and Administration Reference Manual*, 297-5051-914
Remote Registration System Application	Refer to the *SDMC Remote Registration System Application User Guide*, 297-2667-320
Alarm Conduit Application	Refer to the *SDMC Alarm Conduit Application User Guide*, 297-2667-325
OM Delivery Application	Refer to the *SDMC OM Delivery Application User Guide*, 297-2667-321

3   Review any release notes accompanying this new NCL and ensure that you perform a final System Image backup after you have installed addition applications.

You have completed this procedure.

Cross reference information

Introduction

SuperNode Data Manager Carrier (SDMC) is an application software that consists of a suite of application software, software utilities, tools, and user interfaces designed to run on the SuperNode Data Manager (SDM) to enhance the usability of SDM. Because SDMC is an enhancement of SDM and contains all the functional pieces of the SDM, it is helpful for the operating company to reference information specific to SDM. Table 3-1 provides cross-reference information to use a guide for information regarding SDM and SDMC.

Table 3-1
SDM and SDMC cross reference information

If you need information on . . .	See . . .	Document Number
Alarms	SDMC Alarm Conduit Application User Guide	297-2667-325
Application software installation and upgrade	Specific Application Guide listed in this table	
	SDM Platform Software Upgrade	297-5061-303
Back-up procedures	SDM Fault-tolerant User Guide	297-5061-906
—continued—		

Table 3-1
SDM and SDMC cross reference information (continued)

If you need information on . . .	See . . .	Document Number
Billing	SDM SuperNode Billing Application Guide	297-5051-300
	Log Report Reference Manual	297-5051-840
	DMS-100 Family SuperNode Data ManagerTranslations Guide	297-5051-350
	SDMC SuperNode Billing Application User Guide	297-2667-328
	DMS-100 SuperNode Data Manager Alarm Clearance, Performance, and Monitoring Procedure	297-5051-543
Commissioning	SuperNode Data Manager SDM Fault-tolerant User Guide	297-5061-906
Distributed Computing Environment (DCE)	SuperNode Data Manager SDM Fault-tolerant User Guide	297-5061-906
—continued—		

Table 3-1
SDM and SDMC cross reference information (continued)

If you need information on . . .	See . . .	Document Number
DDMS	SDM DDMS and Guide Installation & Administration Reference Manual	297-5051-914
	SuperNode Data Manager SDM OSSDI Technical Reference Manual	297-5051-915
	SuperNode Data Manager SDM GUI for Data Engineering User Guide	297-5051-916
	SuperNode Data Manager Guide Programmer Manual	297-5051-920
	SDM DDMS ASCII Command Interpreter Gateway User Manual	297-5051-921
	SuperNode Data Manager SDM DDMS Scripting Tool User Guide	297-5051-922
Exception reporting	SuperNode Data Manager Exception Reporting User Guide	297-5051-912
File transfer, secure	SuperNode Data Manager Secure File Transfer User Guide	297-5051-913
Hardware replacement	SDM Fault-tolerant User Guide	297-5061-906
Hardware upgrade	SDM Upgrade Guide	297-5051-906
LAN/WAN	SDM Fault-tolerant User Guide	297-5061-906
Connection		
Nodes		
Security		
—continued—		

Table 3-1
SDM and SDMC cross reference information (continued)

If you need information on . . .	See . . .	Document Number
Maintenance and support services	SDMC Service Operation Support Guide	297-2667-011
Maintenance	SDM Fault-tolerant User Guide	297-5061-906
OM data delivery	SDMC OM Delivery Application User Guide	297-2667-321
Remote registration	SDMC Remote Registration System Application User Guide	297-2667-320
Software implementation and upgrade	SDM DDMS Guide, Installation, and Administration Reference Manual	297-5051-914
	SDM Fault-tolerant User Guide	297-5061-906
	SDM Implementation Platform Software Guide	297-5051-303
Software inventory manager (SWIM)	SDM Fault-tolerant User Guide	297-5061-906
System administration	SDM Fault-tolerant User Guide	297-5061-906
Terminal access	SuperNode Data Manager Enhanced Terminal Access and ASCII Terminal Access User Guide	297-5051-909
Software upgrade	SDMC User Guide	297-2667-900
	SDM Upgrade Guide	297-5051-906
Split-mode	SDMC User Guide	297-2667-900
—end—		

Appendix A
SDMC Hardware

The fault-tolerant SDMC is a high-performance UNIX-based processing platform configured to support DMS SuperNode operations, administration, maintenance, and provisioning applications.

The SDMC configuration is made up of the SDM base hardware, operating system base and application software along with the DMS hardware components all connected to a larger external distributed computing environment (DCE).

Figure 4-1 illustrates the position of the SDM within the DMS SuperNode system. The fault-tolerant SDM is connected to the message switch (MS) using four DS-512 fiber links from two DS-512 controller modules. Each DS-512 controller module is equipped with two ports that connect over separate links to the two MS backplanes.

In the event that a link fails or one side of the MS or SDM is not available, redundant links maintain communication between the SDM and the MS. Other external DCE hardware is connected to the SDM using serial port modems or through the LAN/WAN connections.

Figure 4-1
SDM position in the DMS SuperNode system
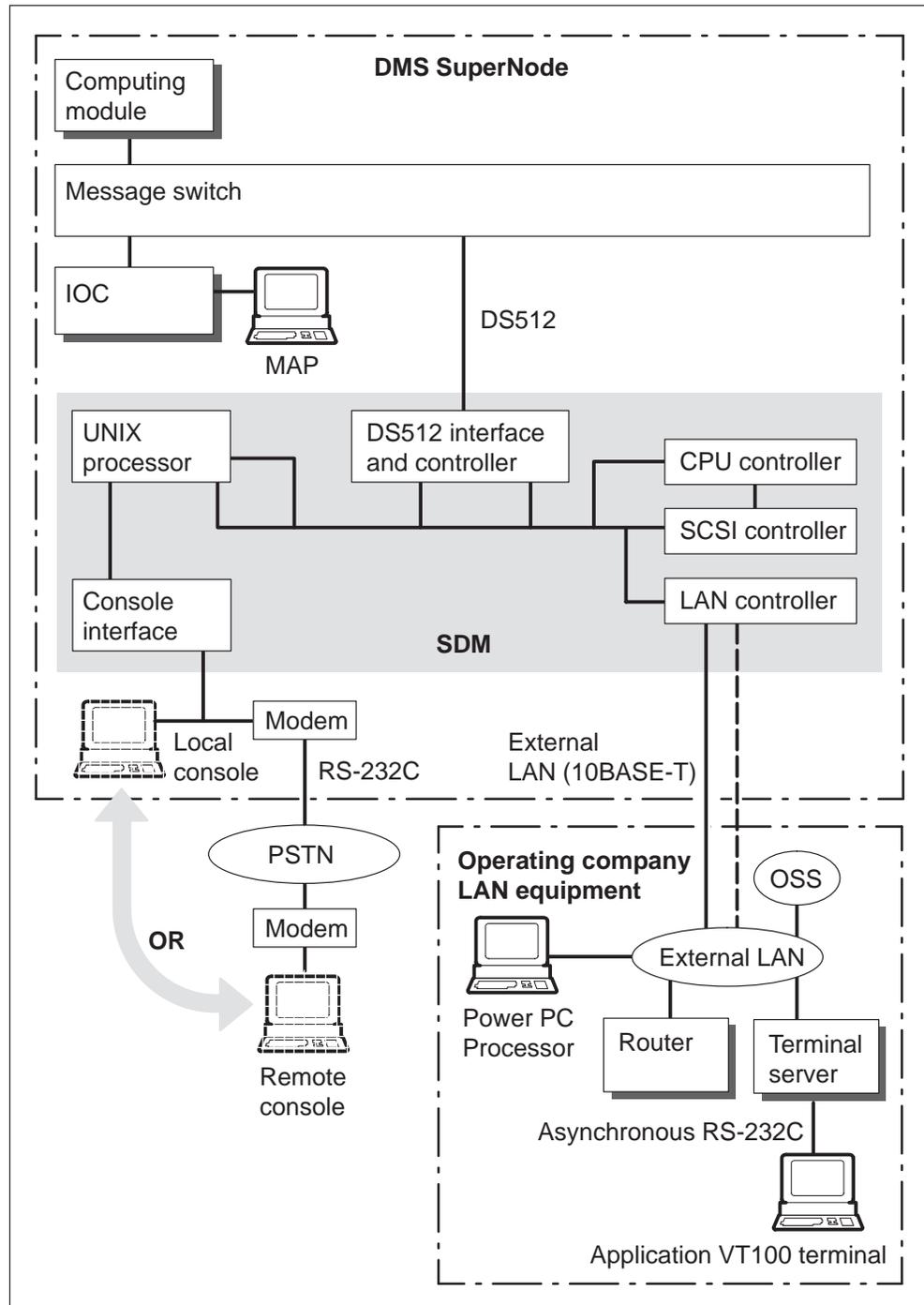
SDM hardware

The SDM chassis mounts in a Nortel Networks 28-inch C28 Model B (C28B) DMS streamlined cabinet as illustrated in Figure 4-2. In addition, the I/O expansion chassis illustrated in Figure 4-2 is optional.

Figure 4-2
Front view of SDMC C28B cabinet
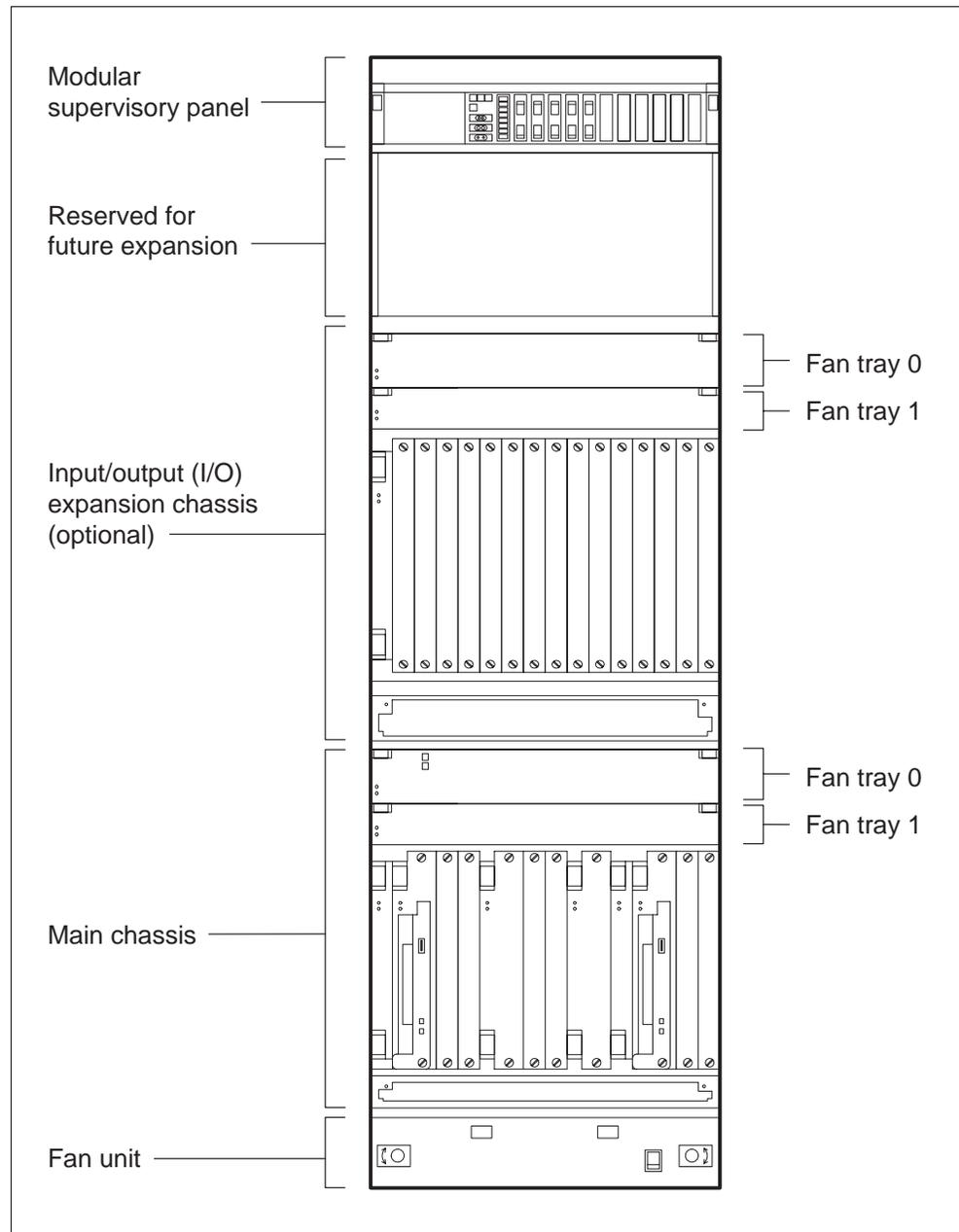
SDM cabinet

The SDM cabinet contains the following components:

- modular supervisor panel (MSP)
- optional I/O (input/output) expansion chassis
- main chassis
- fan unit

The I/O expansion chassis is located above the main chassis and can be used for future expansion. Both the input/output expansion and main chassis have 16 slots, each slot with front and rear sections.

Controller modules are located at the front of the main and I/O expansion chassis. Each controller module has a P1 and a P2 connector. All controller modules, except for the CPU controller module, use the P1 connector to plug directly into a mid-mounted backplane. The P2 connector bypasses the backplane and plugs directly into the corresponding module located at the back of the SDM.

The main and I/O expansion chassis are each divided into two separate domains interconnected by a central core in the main chassis, housing the two CPU modules:

- domain 0 uses slots 1 to 5 (main chassis) and slots 1 to 8 (expansion chassis)
- domain 1 uses slots 12 to 16 (main chassis) and slots 9 to 16 (expansion chassis)
- central core uses slots 6 to 11 in the main chassis only

The two domains mirror each others functionality to achieve fault-tolerant operation. The modules in each chassis must be provisioned in pairs and occupy the corresponding slot in each domain. If a module in domain 0 malfunctions, the corresponding module in domain 1 takes over operations, avoiding a service interruption. The same is true if domain 1 malfunctions, then domain 0 takes over operations.

Modular supervisory panel

The modular supervisory panel (MSP) provides power and alarm monitoring capabilities for the C28B cabinet. The SDM fault-tolerant platform is powered by A and B battery feeds (–48V dc). Each battery feed is supplied from a separate breaker in the MSP into interconnect modules (ICMs), which are located in the main and I/O expansion chassis.

The SDM computing hardware provides failure indications through volt-free relay contacts in the ICM. These contacts provide an interface to the MSP

and to the central office alarm system. The status of the SDM is monitored at the remote maintenance interface (RMI) alarm banner and the MAP alarm banner. If a fan within the fan unit fails or a power alarm occurs, the MSP also activates end-of-aisle lamps on the DMS switching equipment and frame-fail lamps on the SDM cabinet.

Fan unit

The fan unit provides cooling in the SDM cabinet, in addition to the fan trays in the main and I/O expansion chassis. The fan unit provides vertical cooling, forcing hot air up and out the top of the SDM. The fan trays provide horizontal cooling from the front to the rear of the SDM.

Front-mounted SDM main chassis hardware

Figure 4-3 illustrates a front view of the main chassis of the SDM fault-tolerant platform. The front of the chassis is equipped with upper and lower fan trays and controller modules that can be provisioned. The front of the main chassis must contain the following controller modules:

- two Ethernet LAN personality modules (NTRX50FS) mount in slots 4 and 15

- two I/O controller modules (NTRX50GN or ND) that house the SDM's disk drivesm, which are mounted in slots 2 or 3 and 13 or 14

- two CPU controller modules (either NTRX50CG, NTRX50CH or NTRX50NB), which are mounted in slots 6 and 10.

Figure 4-3
Front view of the main chassis
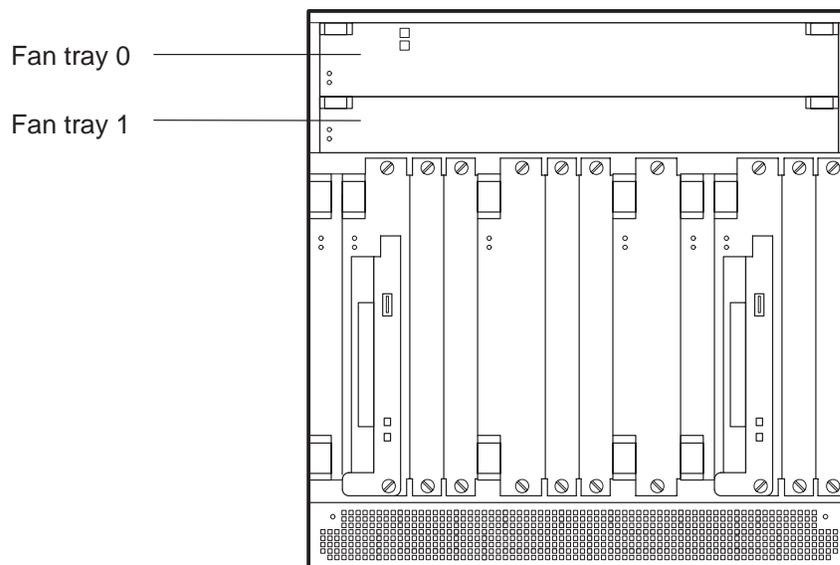
Figure 4-4 illustrates the slot numbers contained in domain 0, domain 1, and the CPU core. It also identifies the required controller modules that can be provisioned as illustrated in the main chassis in Figure 4-3. All other slots, except slots 8 and 9, are available to provision as optional controller modules.

Figure 4-4
Front view of the main chassis by slot number
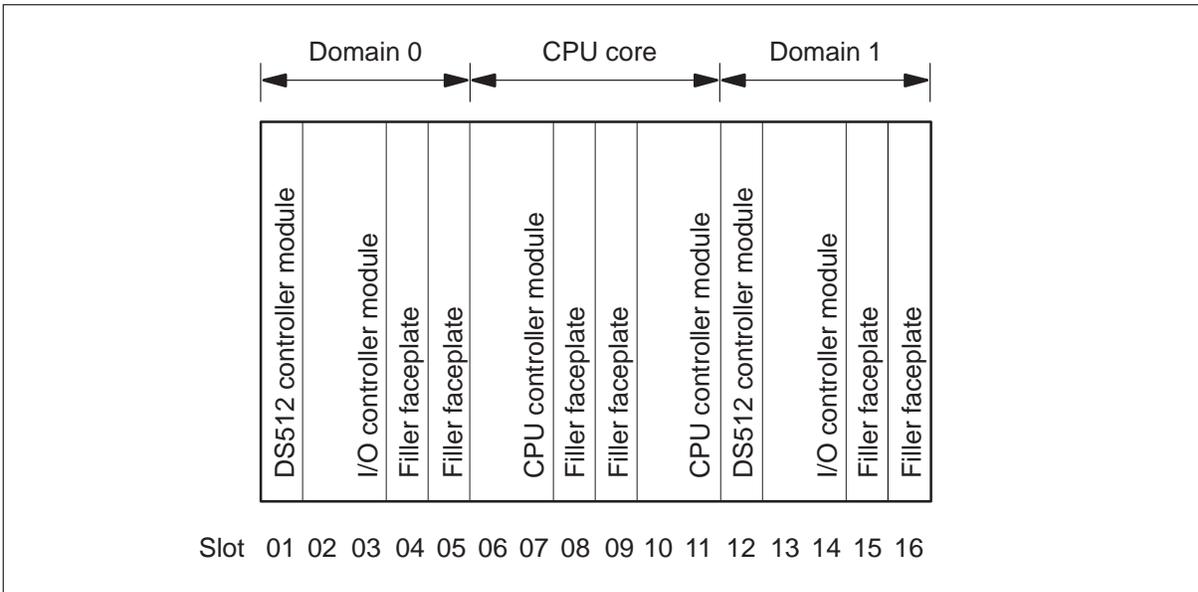
## Rear-mounted SDM main chassis hardware

Figure 4-5 illustrates a rear view of the main chassis of the SDM fault-tolerant platform. The rear of the main chassis is equipped with the following:

- two DS512 modules (NTRX50GH) mounted in slots 1 and 12
- two interconnect modules (ICMs) (NTRX50FG and NTRX50FH) that supply power to the SDM
- two LAN personality modules (NTRX50FS) that mount in slots 2 and 13
- a CPU personality module (NTRX50FD) that mounts in slot 6

Figure 4-5
Rear view of the main chassis

Interconnect module 1

Interconnect module 0
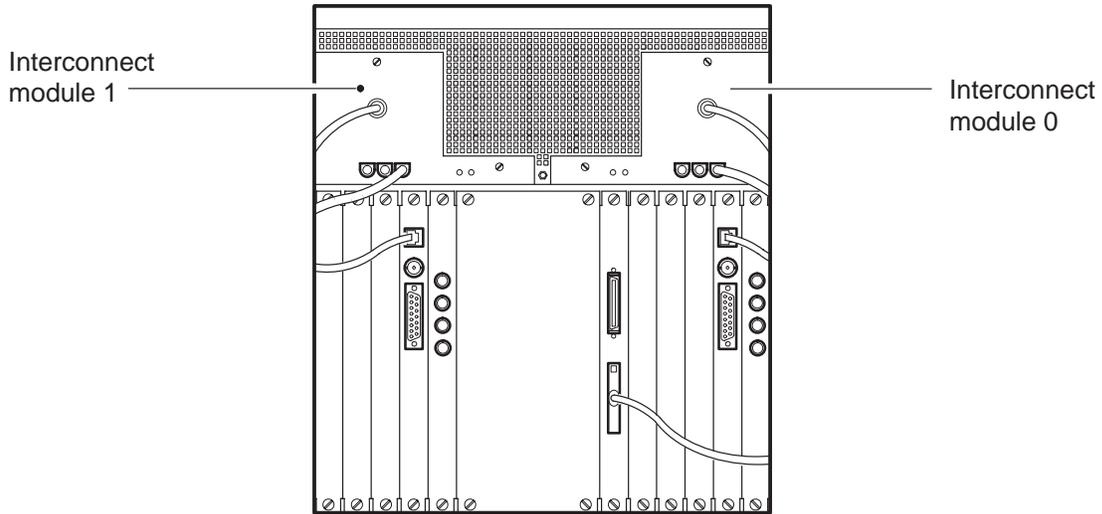
Figure 4-6 illustrates the slot numbers contained in domain 0, domain 1, and the CPU core. It also identifies the required modules that can be provisioned in each slot number as illustrated in Figure 4-5. All other slots are available to provision as optional controller modules.

Figure 4-6
Rear view of the main chassis by slot number

Domain 1					CPU core						Domain 0				
Filler faceplate	Filler faceplate	Filler faceplate	LAN personality module	DS512 personality module	Filler faceplate	Filler faceplate	Filler faceplate	Filler faceplate	Filler faceplate	CPU personality module	Filler faceplate	Filler faceplate	Filler faceplate	LAN personality module	DS512 personality module
16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01

Slot

Interconnect modules (NTRX50FG, NTRX50FH)

Two interconnect modules (ICMs) are located at the rear of the main chassis and the I/O expansion chassis of the SDM. These modules are plugged directly into the backplane. Both of the ICMs supply –48V dc to the corresponding domain through separate battery feeds. In addition, both ICMs have two LEDs that indicate when the respective ICM is in-service or out-of-service.

Power supply

The fault-tolerant hardware on the SDM is powered by –48 V dc A and B battery feeds. Hardware in domain 0 is powered by battery feed A. Hardware in domain 1 is powered by battery feed B. Both battery feeds are active at the same time. During a single feed failure, the domain that is properly functioning continues to provide all services. The A and B battery feeds from the MSP connect the ICMs at the back of both chassis.

Front-mounted SDM I/O expansion chassis hardware

Figure 4-7 illustrates a front view of the I/O expansion chassis of the SDM fault-tolerant platform. This chassis is used for optional controller modules that are not restricted to a designated slot number on the main chassis. As illustrated in Figure 4-7, the I/O expansion chassis is equipped with an I/O controller module (NTRX50GP or NTRX50NC) to expand disk capacity.

Figure 4-7
Front view of the I/O expansion chassis
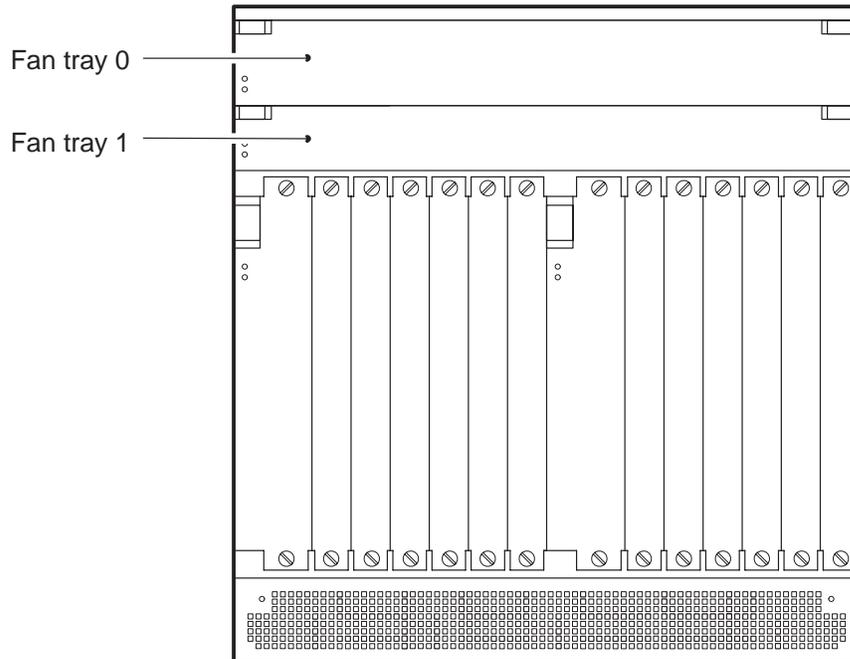
Rear-mounted SDM I/O expansion chassis hardware

Figure 4-8 illustrates a rear view of the I/O expansion chassis of the SDM fault-tolerant platform. This chassis also contains two ICMs that supply power to the SDM through separate battery feeds. The I/O expansion chassis is used for equipment that can be provisioned and is not restricted to a designated slot number on the main chassis.

As illustrated in Figure 4-8, the I/O expansion chassis is equipped with a LAN module (NTRX50FS) in slot 9. This module is used in conjunction with the I/O controller module (NTRX50GP or NTRX50NC) that mounts at the front of the I/O expansion chassis.

Note: There is no alarm cable for the ICMs located in the I/O expansion chassis. The ICMs located in the main chassis each have an alarm cable.

Figure 4-8
Rear view of the I/O expansion chassis
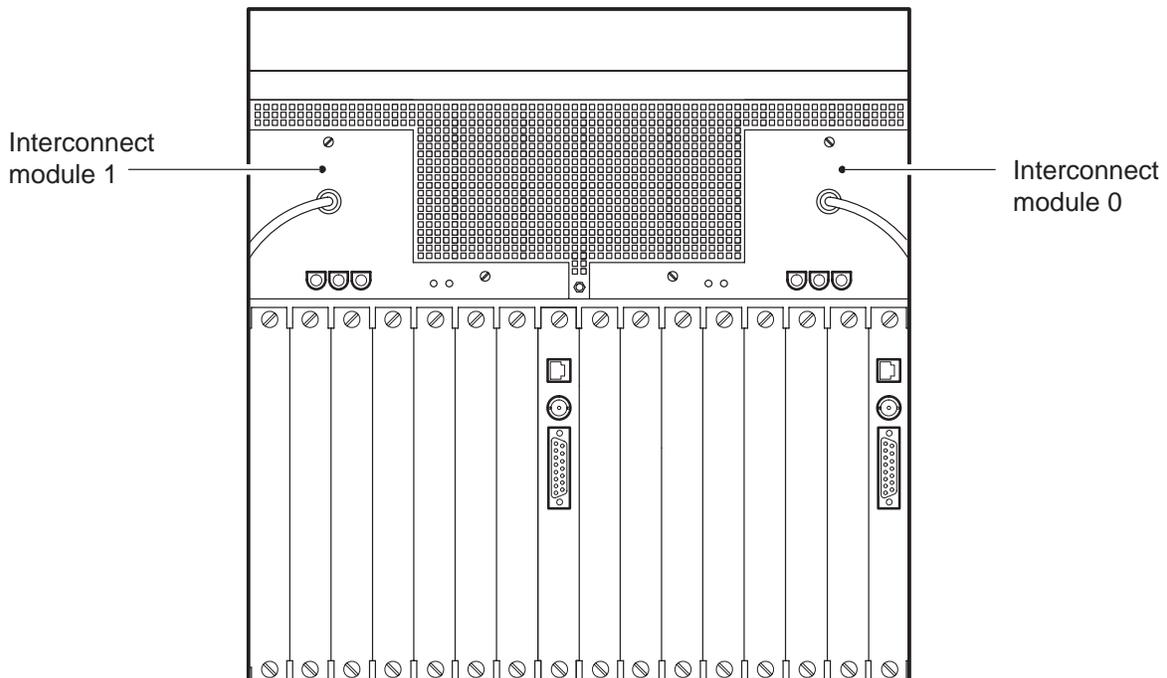
LAN-based I/O interface capabilities

LAN-based I/O interfaces are supported on the SDMC for the following types of equipment:

- workstations

- hubs

- routers

- terminal servers

Each of these interface types are discussed in the sections that follow.

Workstations

The operating company can configure Solaris or UNIX workstations as remote user interface (UI) clients to provide the UI for SDMC applications. The following workstations with the appropriate DCE client software (OSF DCE version 1.1) support UI clients for product releases prior to SDMC10:

- HP 700/800 series workstations running the HP-UX 9.05 operating system (or later)

- Sun SPARC workstations running Solaris 2.4 (or later)

The following workstations with the appropriate DCE client software (OSF DCE version 1.1) support UI clients for product release SDMC12:

- HP 700/800 series workstations running the HP-UX 10.20 operating system (or later) with year 2000 enhancements

- Sun SPARC workstations running the Solaris 2.4 operating system (or later) with year 2000 enhancements

- Sun SPARC workstations running the year 2000-compliant Solaris 2.6 operating system (or later)

Note: UI client performance depends on network workstation 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 as follows:

- 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 SDMC graphical user interfaces (GUIs) over other networks and also provide gateway (or protocol translator) functions.

The minimum requirements for a customer-supplied router used in a configuration connected to the SDM include the following:

- 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 (asynchronous transfer mode [ATM], and channel service unit [CSU] or data service unit [DSU])
- visual indicators of the LAN, port status, and connectivity

Terminal servers

A terminal server can be used to provide asynchronous access to the SDM. Terminal server ports can either be used instead of integrated asynchronous application 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.

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

- compliance with IEEE 802.3/Ethernet 10BASE-T specifications
- telnet and 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
- point-to-point protocol availability

Appendix B
SDMC Software

SDM software has a three-layer architecture composed of separate base, service, and application layers (see Figure 5-1). This architectural design permits parallel development in each stream, allowing independent delivery of new services and applications as well as interim delivery of any maintenance release software.

The SDM base software layer handles 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 switch operations, administration, maintenance, and provisioning.

Figure 5-1
Software architecture
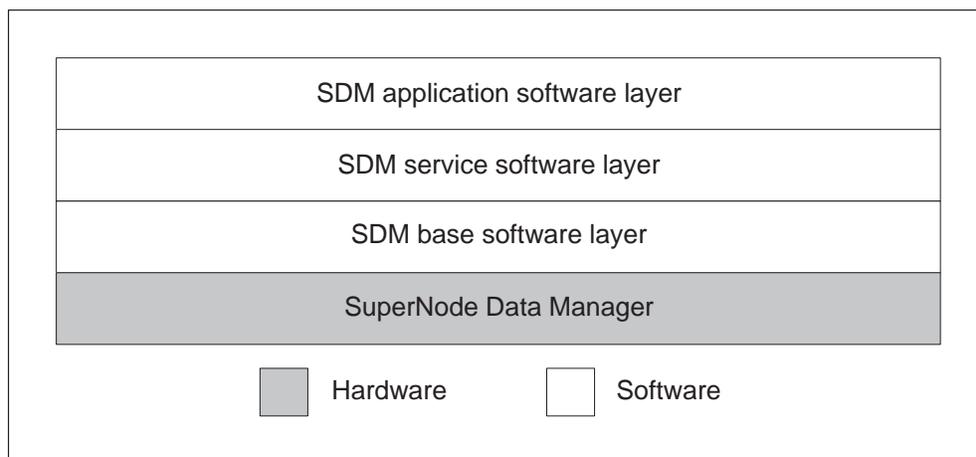
SDM base software layer

The SDM base software layer consists of the following:

- the AIX 4.3.2 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 SDM application packages. The service software layer consists of the following:

- table access utilities allows SDM applications to manipulate tables maintained on the CM

- remote procedure calls allows CM software to raise remote procedure calls to SDM software. Remote procedure calls allow a program that runs on one host to request and receive a message that contains the results of a service on another host.

- Open Software Foundation (OSF) Distributed Computing Environment (DCE) provides authentication and authorization mechanisms to ensure network security

- operational measurement (OM) collection and application programming interface allows SDM applications to receive OM data from the CM

SDM application software layer

The application software layer contains operations, administration, and maintenance software application packages. In addition, this layer contains all SDM application software installed on the operating company's system, which include the following:

- Log Delivery

- Exception Reporting (optional)

- enhanced terminal access (ETA)

- SDMC OM Delivery (OMD)

- SDMC SuperNode Billing Application (SBA)

For information on the Log Delivery application, see the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5051-906

For information on optional SDM applications, refer to the following Nortel Networks Technical Publications (NTPs):

- *SuperNode Data Manager Exception Reporting User Guide*, 297-5051-912

- *SuperNode Data Manager Enhanced Terminal Access and ASCII Terminal Access User Guide*, 297-5051-909

- *SDMC OM Delivery Application User Guide*, 297-2667-321

- *SDMC SuperNode Billing Application User Guide*, 297-2667-328

For information on the SDMC SBA application, see Chapter 1.

Maintenance interfaces

There are two maintenance interfaces for the SDM, which include the following:

- MAP, which is accessed from the CM

- remote maintenance interface (RMI), which is accessed from the SDM

The MAP is the primary access point for maintenance activities. The RMI is the secondary access point for maintenance activities. Maintenance activities must be initially performed at the MAP interface. When connectivity to the CM is not available, the RMI provides access to all maintenance activities that are normally performed at the MAP interface.

MAP-based SDM maintenance

A dedicated SDM maintenance subsystem is provided at the MTC PM level of the MAP display. This dedicated subsystem allows the operating company to conduct 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 or halt the SDM

- determine the status of SDM applications, which includes any faults that are currently affecting applications, by using the QuerySDM command

- determine the status of the SDM operating system, which includes any faults currently affecting system software resources, by using the QuerySDM command

The MAP display is used to maintain the SDM when the CM successfully communicates with the SDM. If the SDM and the CM are unable to communicate due to a fault on the SDM, the RMI is used to diagnose and clear the problem.

RMI-based SDM maintenance

The RMI is the secondary maintenance, administrative, and diagnostic tool for the SDM and is an ASCII-based display. The RMI provides maintenance functions in regard to the following:

- SDM state

- alarms state

- SDM and CM connectivity

- application software

- operating system resources

- hardware

System administration functions include the following:

- administering user accounts

- software updates

- backup and restore

A restricted shell provides maintenance users with additional diagnostic tools that are useful to monitor and maintain the system. In addition, 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 properly. Otherwise, state changes must be performed at the MTC APPL level of the MAP.

Access to the RMI

There are several methods to choose from in which to access RMI through SDM, which include the following:

- dial into the console port (SP0) on the SDM from a VT100-compatible terminal, using a modem connection

- connect a VT100-compatible terminal directly to SP0 on the CPU controller module, using a null modem cable

- use a telnet connection from a workstation on the operating company LAN if telnet is enabled on the SDM *or* if telnet is disabled, use the ETA application (optional)

- use ETA from a remote workstation to log into the SDM in a secure environment (ETA is an optional SDM application)

- use a VT100-compatible terminal that is connected to a terminal server on the operating company LAN if telnet is enabled on the SDM *or* if telnet is disabled, use the ETA application (optional)

Once connected to the SDM, type `sdmmtc` to access the RMI.

Note: SDMRLogin cannot be used to access the SDM RMI.

For information on the SDM application software maintenance interfaces, refer to the *SuperNode Data Manager Fault-tolerant User Guide*, 297-5051-906.

Administration functions

SDM administration is performed by root and maintenance users, primarily using Solaris or UNIX-based utilities at a local or remote VT100 console and tools available at the RMI. Administration supported through either of these interfaces include the following capabilities:

- commission the SDM fault-tolerant platform
- commission the Log Delivery application
- set up of user groups (root and maintenance) and passwords
- monitor system resources
- perform software backup and restore functions

Disk partitioning

The AIX operating system provides for partitioning hard disks into logical volumes. Logical volume partitioning provide protection against disk occupancy errors (full disk), allowing the system to read from, and write to, the remaining disks without interruption.

On the SDM, logical volumes are equivalent to file systems. The SDM file system structure is provisioned by Nortel Networks. The root user can only monitor file system partitioning and usage by using the RMI or the MAP display at the local or remote VT100 terminal.

Appendix C
SDM configuration information sheet

Use this table to record information from the querysdm.out file created during the full install procedure in Chapter 3. Make copies of this information sheet as needed.

	Values displayed from querysdm.out file.	Record values here.
General		
1.	Console Login Greeting	
CM Connectivity		
2.	CM IP address	
3.	SDM IP address	
4.	CM–SDM netmask	
5.	CM CLLI	
LAN Connectivity		
6.	Inbound Telnet	
7.	SDM LAN hostname	
8.	SDM LAN gateway	
9.	SDM LAN #1 IP address	
10.	SDM LAN #1 netmask	
11.	SDM LAN #1 type	
12.	LAN Node #1 description	
13.	LAN Node #1 hostname	
14.	LAN Node #1 IP	
DCE Configuration (if installed)		
15.	DCE administrator	
16.	DCE cell name	
17.	DCE CDS server hostname	
18.	DCE CDS server IP address	

19.	DCE security server hostname	
20.	DCE security server IP address	

Logical Volume Used for SBA streams			
	Logical Volume Name	**Location**	**Size**
21.			
22.			
23.			
24.			
25.			

Appendix D
SBA configuration information sheet

Use this table to record billing stream information displayed within the billing maintenance interface when using the full install procedure found in Chapter 3. Make copies of this information sheet as needed.

	Values displayed at Query level	Record values here
1.	Stream Name	
	Values displayed at the Confstrm level	**Record values here**
2.	Filter Stream (applicable for SBA 13+ only)	When prompted, type No.
3.	Stream Record Format	
4.	File Format Type (DNS/DIRP)	
5.	Logical Volume Name	
6.	File Transfer Mode	
7.	Destination Component Id (not applicable if file format is DIRP)	
8.	Destination Component Type (not applicable if file format is DIRP)	
9.	Source Component Id (not applicable if file format is DIRP)	
10.	Source Component Type (not applicable if file format is DIRP)	
11.	Customer Standard Header File Type (not applicable if file format is DIRP)	
12.	Customer Error Header File Type (not applicable if file format is DIRP)	
13.	Files Renamed With Close Date? (not applicable if file format is DNS)	
14.	Files Closed On Transfer or amabakup? (not applicable if file format is DNS) **Note:** For SBA13 this message has changed to: "Do you want files closed for file transfer and writetape"	

15.	Files Closed On Time Valid (Y/N)	
16.	Files Closed On Time (not applicable if you do not want files closed based on time)	
17.	Maximum Number of Records to close a file	
18.	Maximum Num Bytes Before closing a file	
	Mib values displayed at the # prompt	**Record values here**
19.	cdr2bafactive	
20.	currenttmpltid	
21.	enableaudit	
22.	bafsuppression	
23.	sensortype (applicable if bafsuppression Mib =1)	
24.	recordsourceinfotype (applicable if bafsuppression Mib =1)	
25.	typeofcdr (applicable if you have a DMS-GSP CDR stream**)**	

	Values displayed at the Schedule; List level	Record values here
26.	Stream (name)	
27.	File Format Type (DNS/DIRP)	
28.	Destination (applicable for SBA 12+ only)	DOWNSTREAM (default)
29.	Protocol	
30.	Primary Destination	
31.	Primary Port	
32.	Alternate Destination	
33.	Alternate Port	
34.	Start Time	
35.	Stop Time	
36.	Interval	
37.	Remote Storage Directory	
38.	Remote Login	
39.	Remote Password	
40.	Timeout	
41.	Maximum Retries	
42.	Retry Wait Time	
43.	File Extension	
44.	Field Separator	
45.	Active	
	Values displayed at the RTB level	**Record values here**
46.	Stream Name	
47.	File Format Type (DNS/DIRP)	

Appendix E
FP to SDM transition information

Purpose

This chapter provides information for transitioning the UCS–250 Billing Server (FP) billing application to the SuperNode Data Manager Carrier (SDMC) SuperNode Billing Application (SBA) without decommissioning the FP.

Constraints

The following constraints apply to performing this procedure:

- Personnel responsible for performing any of the steps in this procedure must be thoroughly familiar with the complete process before starting it. Please read through this procedure completely.

- SDM installation and configuration must be completed by Nortel Networks or an authorized installer and the SDM and the Supernode Billing Application (SBA) application must be in-service before starting this procedure.

- It is assumed in this process that the Supernode Billing Application billing streams have been defined, are set to "ON" mode, and are in-service.

Procedure

The following procedure provides steps to transition billing streams from the UCS–250 Billing Server Application to the SuperNode Data Manager Carrier SuperNode Billing Application. Be sure to read any Notes and "if" statements in the procedure steps carefully.

Note: This procedure will not decommission the FP billing server, which may continue to process OMs or provide other services not covered in this document. For more information about the FP billing server functionality refer to the *UCS DMS–250 Billing Server Application Guide*, 297–2621–320,

At the local console connected to the MAPCI

1 Start the MAP by typing

>mapci
and press the **Enter** key.

2 Ensure that the billing server shadow sets are in sync before continuing. Start the Shadow set utility by typing

>shadowut <fp_num> (typically the FP_num number is 0)
and press the **Enter** key.

The CM responds:

```
FP0 is now node of reference
Disk shadowing utility is now active.
```

3 Display the parameters of the shadow sets by typing

>dis all
and press the **Enter** key.

An example response follows showing a synchronized shadow set for set 0:

```
Information about the shadow set #0:

Node name:                        FP0
Shadow set name:                  SS0
Set definition state:             RUNNING
Set operational state:            IN SERVICE
Synchronization status:           SYNCHRONIZED
Multi-Writes:                     Serial
Capacity (blocks):                1244655
Transfer Length:                  Optimal
Interval:                         0
```

An example response follows showing an unsynchronized shadow set for set 1:

```
Information about the shadow set #1:

Node name:                        FP1
Shadow set name:                  SS1
Set definition state:             RUNNING
Set operational state:            IN SERVICE
Synchronization status:           SYNCHRONIZING 50%
Multi-Writes:                     Serial
Capacity (blocks):                1244655
Transfer Length:                  Optimal
Interval:                         0
```

Note: A billing server can have up to 3 shadow sets.

4   Refer to the table below to determine your next step

If	Do
If the shadow sets are *not* in sync and are *not* syncing:	continue with step 5
If the shadow sets are *not* in sync but *are* syncing, as shown by the Synchronization status	repeat step 3 until synchronization is complete then skip to step 7
If the shadow sets are fully synchronized:	skip to with step 7

> **Note:** Synchronization can take anywhere from 45 minutes to 2 hours depending up on the disk size of the shadow set.

5   Start synchronizing each shadow set that is out of sync by typing

>startshadow <set_name> insvsync (typically the FP_num number is 0) and press the **Enter** key.

where

<set_name>   is shadow set name obtained from step 3.

The CM responds:

```
The shadow set is started with the following
parameter settings:
Node name      : FP0
Shadow set name: SS0
New Master     :
Transfer length: Optimal
Interval       : 0
Synchronization: Default
Force          : NO
Only members that are in a Manual Busy state can be
started.
Estimated maximum time of any required syncing:
       600 Mbyte set -  45 minutes
      2000 Mbyte set - 120 minutes
Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

6   Repeat step 3 until all shadow sets are fully synchronized.

7 Quit the shadow set utility back to the MAP by typing

>quit
and press the **Enter** key.

8 Determine the status of the billing stream to ensure that the billing server is active by typing

>mtc;appl;oamap;sbs;strmstat
and press the **Enter** key.

An example response follows:

```
STREAM BS STATUS ALARM FP0
  OCC  S
```

> *Note:* The area under BS indicates which billing system is currently assigned to the stream. S means billing is going to SBS; while D means the billing is being handled by DIRP.

9 Display and record the name of the billing files on the billing server. The name of the billing file becomes necessary later in this procedure. Type

>drm;monitor occ
and press the **Enter** key.

The CM responds:

```
Valid DRM stream names:
AYYMMDDHHMM.OCC
```
where

YYMMDDHHMM represents the date and time that the billing file was last written and .OCC or .OCCA is the billing type.

10 To prevent loss of billing data contained in a large active billing file, close and rotate the open (active) billing file on the Billing Server by typing the following command.

>rotate occ
and press the **Enter** key.

> *Note:* Closing the active billing files will ensure that the data in them is saved properly. At the same time a new active billing file will be opened, but will have very little data written to it. This file will be closed later in this procedure.

11 Reroute the billing streams to the SDM from the FP by typing

>sbs;routecm dirp occ
and press the **Enter** key.

Note: You can have more than one stream active. For example you can have an OCC and an OCCA stream as determined in step 9.

12 Verify that you want to route billing to the SDM (DIRP) by typing

>**y**
and press the **Enter** key.

The CM responds with the following:

13 Log onto the SDM by typing

sdmrlogin
and pressing the **Enter** key.

14 Log onto the SDM as root user by typing

root
and pressing the **Enter** key.

The SDM responds with the following:

```
Login: root
Password:
```

15 Enter the root user password by typing

password
and pressing the **Enter** key.

16 At the SDM system prompt display a list of files for any streamname recorded on your SDM configuration information sheet by typing

 # listfile streamName
and press the **Enter** key.

where

streamName is the name of stream you have recorded in step 9.

The SDM responds with a list of stream files for the selected stream name as shown in the following:

```
#listfile streamname
020001.010000.00010.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:     285 Size:     49470 CNS
020001.010000.00011.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    5747 Size:    999858 CNS
020001.010000.00012.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    4421 Size:    769134 O
#listfile streamname

020001.010000.00010.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:     285 Size:     49470 CNS
020001.010000.00011.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    5747 Size:    999858 CNS
020001.010000.00012.01.2
  Date: Wed Feb 16 15:51:00 2000 Recs:    4421 Size:    769134 O

#
```

The file size value should increase

Open billing file Indicator
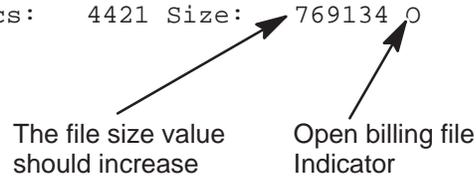
17 Review the list of stream files and determine the following:

- Determine whether there is an open stream file as indicated by the "O" in the far right column of the listed displayed.
- that the open file's date and time are current (the time displayed should be within a few minutes of the current time).

18 Wait a few minutes and rerun the command listfile command in step 16.

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

If	Do
If the file size is not increasing:	repeat step 16 once again. If the open file size still does not increase, stop and contact your next level of support and prepare to route billing back to the SBS
If the file size is increasing:	continue to step 20 in the following section

20   Log out from the SDM back to the CM by typing

#logout
and press the **Enter** key.

21   Display and record the name of the billing files on the billing server again. Type

>mapci;mtc;appl;oamap;drm;monitor occ
and press the **Enter** key.

The CM responds:

```
Valid DRM stream names:
AYYMMDDHHMM.OCC
```
where

YYMMDDHHMM represents the date and time that the billing file was last written.

22   Close and rotate the open (active) billing file on the Billing Server by typing the following command.

>rotate occ
and press the **Enter** key.

> **Note:** Closing the active billing files will ensure that the data in them is saved properly.

23   Ensure the currently transferring file has completed transferring before continuing. Watch for an FTAM701 log indicating file transfer completed successfully.

>logutil
>context EIU<*n*>
>open ftam 701

24   Decommission the Billing server according to procedures found in the *UCS DMS–250 Billing Server Application Guide*, 297–2621–320.

25   The procedure is complete.

List of terms

10BASE-T

An Ethernet LAN that works on twisted-pair wiring similar to telephone cabling.

802.3 10BASE-T

An IEEE standard for operating Ethernet LANs on twisted-pair cable with a transmission rate of 10Mbit/s.

Access Contol List (ACL)

A set of entries associated with a file that specifies permissions for all possible user ID and group ID combinations.

Advanced interactive executor (AIX)

The IBM implementation of UNIX. AIX is the base operating system in the SDM.

alarm

A signal that is visual, audible, or both, used to alert operating company personnel to a condition requiring attention.

AMA

automatic message accounting

AMADNS

automatic message accounting data networking system

API

application program interface

backplane

Connector blocks and special wiring on the rear of a shelf. Printed circuit board modules normally mount in front of the backplane.

BAF
Bellcore automatic message accounting (AMA) format; the Bellcore format for billing data

boot
The process of loading, initializing, and running the operating system.

C28 model B DMS streamlined cabinet (C28B)
A cabinet used to house customer-specified equipment

CATV
cable TV

CCS
common channel signaling

CDR
call detail record

cell
In the DCE (Distributed Computing Environment), a collection of objects that are controlled by a registry database.

channel service unit (CSU)
Line-bridging devices that allow several devices to share one output device. 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, and data-activated electronic switches.

CLEC
competitive local exchange carrier

client
A computer or program that requests one or more services from a server.

common language location identifier (CLLI)
A standard identification method for trunk groups in the form of
aaaa bb xx yyyy

- aaaa = city code

- bb = province or state code

- xx = trunk group identifier

- yyyy = trunk number

computing module (CM)

The central processor and memory element of the DMS SuperNode switch. The CM consists of a pair of CPUs with associated memory that operates 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.

correlated log

An incoming log report that has been processed (correlated) by the knowledge base. A problem instance is associated with the log.

CPU

central processing unit

CSV

comma separated values

DAT

digital audio tape

data service unit (DSU)

Also called *digital service unit*, it converts the RS-232-C or other terminal interface to a DSX-1 interface.

data volume group (datavg)

A logical volume on the SDM used to store application data. If datavg is not present on the system, application data is stored in the root volume group.

DDMS

DMS Data Management System

DDS

digital data storage

DIRP

device independent recording package

disk mirroring

A storage method where the SDM stores a mirror copy of all data written to a logical volume. In the event of a failure of one disk, the system is able to read from and write to the remaining disk without service interruption.

Distributed Computing Environment (DCE)
An architecture consisting of standard programming, interfaces, conventions and server functionalities (remote procedure call) for distributing applications across networks.

DMS
Digital Multiplex System

DMS SuperNode
The central control and messaging component of the DMS switch. DMS SuperNode has two major elements: the computing module (CM), and the message switch (MS). The CM is the central processing unit and memory element. The MS is the messaging hub for the switch.

DRAM
Dynamic random–access memory. A random access memory system that requires electronic refresh cycles every few milliseconds to preserve data.

DTS
distributed time server; a requirement for DCE

dynamic information
Information that is either displayed or updated automatically, or both. An alarm banner, for example, displayed without typing a command. Dynamic information that requires a command input does not require the command to be repeated; updates are displayed automatically.

electromagnetic interference (EMI)
The radiated and conducted energy from digital electronic equipment that can interfere with the intended operation of electronic equipment.

enhanced terminal access (ETA) application
An application that provides secure access to the SDM and the CM from a GUI running on a remote workstation.

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 cannot be changed after initialization, EPROM 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

exception report

A report that indicates the number of logs that have been generated in a certain time period. All exception reports are log type EXC900, by default.

exception reporting (ER) application

An application that performs event correlation and generates exception reports.

ESP

extended service plan

FPA

Fault, Performance, and Accounting

fault tolerant

On the SDM, a hardware platform that can survive a single point of failure without an associated loss of service.

file transfer protocol (FTP)

A service that supports file transfer between local and remote consoles over a TCP/IP network.

graphical user interface (GUI)

A generic name for any computer interface that substitutes graphics for characters.

halting

Bringing the system to a complete stop so that no processes are running.

inference engine

A software module that generates exception log reports.

I/O controller (IOC)

An equipment shelf that provides an interface between up to 36 input/output (I/O) devices and the central message controller (CMC). The IOC contains a peripheral processor (PP) which independently performs local tasks, thus offloading on the CPU.

IP

internet protocol

IPC

inter-process communication

IXC/IEC

interexchange carrier

LAT

logs, alarms, and traps

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. 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)*.

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.

log category

A common group of log types that the knowledge base handles in a generic fashion.

log delivery application

An application that delivers computing module (CM) and SDM log reports to an operations support system by way of a TCP/IP connection.

log report

A message sent from the DMS switch whenever a significant event has occurred in the switch or one of its peripherals.

MAP workstation
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.

MIB
management information base

MNCL
Maintenance Noncomputing Module Load

MS
message switch

MTC
An abbreviation for maintenance. MTC is the first-level maintenance subsystem of the MAP. See also *MAP workstation*.

NCL
noncomputing module load

OAM&P
operation, administration, maintenance, and provisioning

OM
operational measurements

OMDD
operational measurements data delivery

OSF
open software foundation

OSS
operations support system

PC
personal computer

RBOC
Regional Bell Operating Company

remote procedure call (RPC)
A protocol which allows a service running on one host to cause code to be executed on another host. RPC is used to implement the client server model of distributed computing. An RPC is implemented by sending request messages to a remote system (the server) to execute a designated procedure, and a result message is returned to the caller (the client).

SBA
SuperNode billing application

SDM
SuperNode data manager

SDMC
SuperNode data manager for carrier

SDMN
SuperNode Data Manager for North American, DMS-100 specific

Secure File Transfer
An SDM application that provides secure file transfers to the computing module (CM) and/or the SuperNode Data Manager (SDM) from a remote node across an operating company's TCP/IP wide area network (WAN).

SWIM
software installation and inventory management

TCP
transmission control protocol

TCP/IP
transmission control protocol/internet protocol

UI
user interface

UNIX
A computer operating system.

unshielded twisted pair (UTP)
A cable medium with one or more pairs of twisted insulated copper conductors bound in a single plastic sheath.

WAN
wide area network

Digital Switching Systems
SuperNode Data Manager Carrier
User Guide

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