

**Lucent Technologies**  
Bell Labs Innovations



# NavisCore NMS Getting Started Guide

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# About This Guide

The *NavisCore NMS Getting Started Guide* describes how to use NavisCore network management software to set up and manage a switch network. Specifically, this guide describes how to manage the Network Management Station (NMS), configure a gateway switch (the first switch in the network), and manage network maps and switches. This guide is intended for network administrators and operators.

This guide supports the following NMS and switch software releases:

- NavisCore™, Release 05.01.00.00 or greater
- B-STDXTM, Release 07.02.xx.xx or where indicated, Release 06.05.xx.xx
- CBX 500™, Release 04.02.xx.xx or where indicated, Release 03.05.xx.xx
- GX 550™, Release 02.02.xx.xx or where indicated, Release 01.05.xx.xx

## What You Need to Know

As a reader of this guide, you should be familiar with UNIX and HP OpenView. You should also know about relational databases to properly maintain Sybase, which is used by NavisCore.

This guide assumes that you have already installed the Lucent switch hardware, NMS and switch software. See the “**Related Documents**” section for a list of documents that describe these and other tasks.

Be sure to read the Software Release Notice (SRN) that accompanies each product. The SRN contains the most current feature information and requirements.

## Reading Path

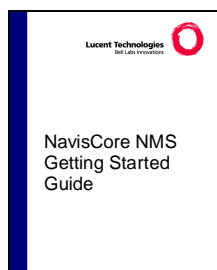
This section describes all of the documents that support the NavisCore NMS and switch software.

### NMS Documentation

Read the following documents to install and operate NavisCore Release 05.01.00.00 or greater. Be sure to review the NavisCore Software Release Notice for any changes not included in these guides.



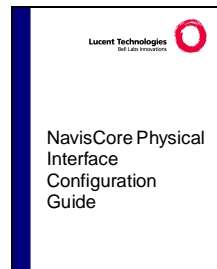
This guide describes prerequisite tasks, hardware and software requirements, and instructions for installing Solaris, HP OpenView, and NavisCore on the NMS.



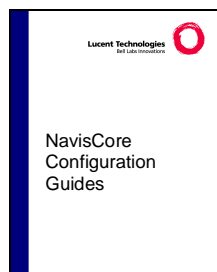
This guide describes how to configure and manage NavisCore, network maps, and Lucent switches. It also describes how to add third-party objects to the map and access them through NavisCore.

## Switch Software Documentation

Read the following documents to configure switch software for B-STDX Release 07.02.xx.xx or where indicated, Release 06.05.xx.xx, CBX Release 04.02.xx.xx or where indicated, Release 03.05.xx.xx, and GX Release 02.02.xx.xx or where indicated, Release 01.05.xx.xx.

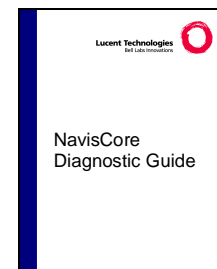


This guide describes the processor and I/O modules on each switch platform, and how to configure physical ports, timing, and other attributes through NavisCore.

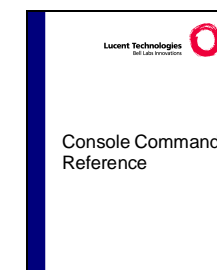


These guides describe how to configure WAN services on the B-STDX, CBX, and GX switch platforms:

- *NavisCore Frame Relay Configuration Guide*
- *NavisCore ATM Configuration Guide*
- *NavisCore IP Navigator Configuration Guide*



This guide describes how to monitor and diagnose problems in your NavisCore switch network.



This reference lists and describes the NavisCore switch console commands.

## How to Use This Guide

This guide contains the following information:

Read	To Learn About
Chapter 1	General features of the Network Management Station (NMS).
Chapter 2	The following NMS system administration tasks: <ul style="list-style-type: none"><li>• NMS startup and shutdown</li><li>• NavisCore security passwords</li><li>• Audit Trail utility</li></ul>
Chapter 3	Managing network maps, for example: <ul style="list-style-type: none"><li>• Creating and adding objects to a network map</li><li>• Assigning Class B IP addresses</li></ul>
Chapter 4	Configuring the NMS and gateway switch.
Chapter 5	Setting switch parameters.
Chapter 6	Setting GX 250 Multiservice Extender attributes.
Chapter 7	Broadband Access Integration tasks: <ul style="list-style-type: none"><li>• Installing the SA Integration Package</li><li>• Adding an SA device object to the network map</li><li>• Accessing WebXtend through NavisCore</li></ul>
Chapter 8	Downloading the configuration file to the switch and using the PRAM functions.
Chapter 9	Upgrading switch software.
Appendix A	The <code>cascadeview.cfg</code> configuration file.
Appendix B	Configuring the poll server product.
Appendix C	The NavisCore menu system.

## What's New in This Release?

This guide describes the following new product features.

### What's New in NavisCore Release 5.0.0.0 or Greater

New Features/Functions	Enables You to	See
Increased Telnet Limit ( <i>B-STDX, CBX, GX</i> )	Increase the limit for the number of simultaneous telnet sessions to a switch from a prior limit of two to a value of five. The default limit remains at two sessions. You can increase the limit to five from the Set Switch Attributes dialog box.	<a href="#">Chapter 5</a>
OSPF Enhancement (Inter-area Load Balancing) ( <i>B-STDX, CBX, GX</i> )	Reroute a circuit that spans multiple Open Shortest Path First (OSPF) areas to an inter-area path of a lesser cost. To avoid false reroute attempts, the current path is not released until a new path becomes available.	<a href="#">Chapter 5</a>
NavisCore Configuration of the GX 250 Multiservice Extender ( <i>GX 550/250</i> )	Set the GX 250 Multiservice Extender attributes through NavisCore.	<a href="#">Chapter 6</a>
Uplink Redundancy ( <i>GX 550/250</i> )	Support 1+1 redundancy on uplink modules. If an active uplink module or uplink phy module fails, the redundant uplink/uplink phy module pair becomes active, providing switchover with SONET equivalent protection (under 50 ms). Data traffic is handled by the redundant uplink/uplink phy module pair.	<a href="#">Chapter 6</a>
Broadband Access Integration	Add the following Broadband Access devices to a NavisCore map: PacketStar™ PSAX 100, 600, or 1200. Once you add the device, you can use NavisCore to access WebXtend, which is the Java Applet-based element manager that you use to configure and manage the PSAX 100, 600, or 1200 devices. Each device requires Release 3.1, 4.0, 4.0.1, or 4.0.2 of PSAX device software.  <i>Note: The PSAX 100, 600, and 1200 devices are also known as SA devices in the NavisCore interface.</i>	<a href="#">Chapter 7</a>

## About This Guide

### What's New in This Release?

---

New Features/Functions	Enables You to	See
Console Install with MPVC Support ( <i>B-STDX, CBX, GX</i> )	Establish initial connections to the NMS through a management PVC (MPVC) along with the following existing connection types: direct Ethernet, indirect Ethernet, Direct trunks, and OPTimum trunks.	Chapter 8
Non-service Affecting PRAM Sync with PMP Support ( <i>B-STDX, CBX, GX</i> )	Synchronize PMP circuits, along with partially provisioned PVCs (dangling PVCs) and logical ports, without PRAM Syncing an entire card and disrupting service.	Chapter 8
Dual Image/Dual Configuration ( <i>B-STDX, CBX, GX</i> )	Maintain two different switch code images and change the default switch code version that you are using as necessary. <i>Dual Configuration</i> enables the software to maintain two independent sets of configuration (PRAM) files.	Chapter 9

## What's New in NavisCore Release 5.0.5.0 or Greater

NavisCore Release 5.0.5.0 includes the following new feature and also includes the new features listed in [“What's New in NavisCore Release 5.0.0.0 or Greater.”](#)

New Features/Functions	Enables You to	See
GX 250 Multiservice Extender supports the Rapid Upgrade feature	Minimize service disruption when you download new software to the modules in the GX 250.	Chapter 9

## What's New in NavisCore Release 5.1.0.0 or Greater

NavisCore Release 5.1.0.0 includes the following new feature and also includes the new features listed in “[What's New in NavisCore Release 5.0.0.0 or Greater](#)” and “[What's New in NavisCore Release 5.0.5.0 or Greater](#)”.

New Features/Functions	Enables You to	See
Circuit count variable in <i>cascadeview.cfg</i>	Modify the circuit count in <i>cascadeview.cfg</i> to limit the count of circuits returned by the show all circuits query.	<a href="#">Chapter 2</a>
Switch and trunk attributes	Configure and view switch and trunk attributes. (example, Rapid Upgrade, Holdover Mode, ASE Advertise, TOS Zero Metric, and Hold Down Time)	<a href="#">Chapter 3, Chapter 4</a>
GX 550 Rapid Upgrade commands	Reboot a GX 250 uplink card or display the memory of a GX 250 downlink card.	<a href="#">Chapter 9</a>

## What's New in This Guide?

This guide includes the following changes and enhancements:

Changes/Enhancements to this Guide	See
New chapter about setting the GX 250 Multiservice Extender attributes through NavisCore.	Chapter 6
New chapter about adding broadband access devices to a NavisCore map.	Chapter 7
New chapter about upgrading switch software.	Chapter 9
New section that describes how to use console install to set up initial connections to the NMS through a Management PVC (MPVC).	Chapter 8
New section that describes how to use the Non-service Affecting PRAM Sync (Sync Tool) feature.	page 8-73
New section that describes how to add an external device object to the NavisCore map.	page 3-17
New section that describes how to modify text field colors in NavisCore.	page 2-4
New section that describes how to modify the circuit count in NavisCore.	page 2-5
Updated the power supplies requirements.	page 3-16
New description for Rapid Upgrade.	page 4-7
New description for Holdover Mode.	page 4-18
New description for ASE Advertise.	page 4-23
New description for TOS Zero Metric (End 1, End 2)	page 4-30
New description for Hold Down Time.	page 4-31
New section that describes how to reroute a circuit that spans multiple Open Shortest Path First (OSPF) areas to an inter-area path of a lesser cost.	page 5-20
New description for two new rapid upgrade commands.	page 9-2
Updated the NavisCore Configuration file ( <code>cascadeview.cfg</code> ) information.	Appendix A
Updated the NavisCore menu diagram.	Appendix C



## Conventions

This guide uses the following conventions, when applicable:

Convention	Indicates	Example
Courier Regular	System messages and output, prompts, pathnames, filenames, and command names.	Please wait...
<Courier Regular>	Variable text for which you supply a value. Use between angle brackets.	<cdrompath>/docs/atmcfg.pdf
<b>Courier Bold</b>	User input.	> <b>show ospf names</b>
Menu ⇒ Option	A selection from a menu.	NavisCore ⇒ Logon
<i>Italics</i>	Book titles, new terms, and emphasized text.	<i>Network Management Station Installation Guide</i>
Boxes around text	Notes, warnings, cautions.	See examples below.



Notes provide additional information or helpful suggestions that may apply to the subject text.



Cautions notify the reader to proceed carefully to avoid possible equipment damage or data loss.



Warnings notify the reader to proceed carefully to avoid possible personal injury.

## Related Documents

This section lists the related Lucent documentation that may be helpful to read.

- *B-STDX 8000/9000 Hardware Installation Guide* (Product Code: 80005)
- *CBX 500 Hardware Installation Guide* (Product Code: 80011)
- *GX 550 Multiservice WAN Switch Hardware Installation Guide* (Product Code: 80077)
- *GX 250 Multiservice Extender Hardware Installation Guide* (Product Code: 80086)
- *Network Management Station Installation Guide (for Solaris 2.6, Sybase 11.9.2, and HP OpenView 5.01)* (Product Code: 80097)
- *Network Management Station Upgrade Guide (for Solaris 2.6, Sybase 11.9.2, and HP OpenView 5.01)* (P/N 104-00099-00)
- *NavisCore Physical Interface Configuration Guide* (Product Code: 80099)
- *NavisCore Frame Relay Configuration Guide* (Product Code: 80100)
- *NavisCore ATM Configuration Guide* (Product Code: 80101)
- *NavisCore IP Navigator Configuration Guide for B-STDX 6.5.2.x, CBX 3.5.2.x, and GX 1.5.2.x* (Product Code: 80114)
- *NavisCore Diagnostics Guide* (Product Code: 80105)
- *NavisCore Troubleshooting Guide* (Product Code: 80104)
- *Console Command Reference for B-STDX 6.5.2.x, CBX 3.5.2.x, and GX 1.5.2.x* (Product Code: 80125)
- *Console Command Reference for B-STDX 7.2.2.x, CBX 4.2.2.x, and GX 2.2.2.x* (Product Code: 80103)

All manuals for Core Systems and the *Master Glossary* are available on the Core Systems Documentation Library CD-ROM (Product Code: 80025).

## Ordering Printed Manuals Online

You can order Core Switching manuals online. Use the following URL to access the Lucent INS Bookstore:

`http://www.lucent.com/ins/bookstore`

## Customer Comments

Customer comments are welcome. Please respond in one of the following ways:

- Fill out the Customer Comment Form located at the back of this guide and return it to us.
- E-mail your comments to [cspubs@ascend.com](mailto:cspubs@ascend.com)
- FAX your comments to 978-692-1510, attention Technical Publications.

## Customer Support

To obtain release notes, technical tips, or support, access the FTP Server or contact the Technical Assistance Center (TAC) in your region.

Country/Region	Telephone Number
United States and Canada	1-800-DIAL-WAN (1-800-342-5926) or 1-978-952-7299
United Kingdom	0-800-96-2229
Europe	+33-4-9296-5656
Australia	+61-3-9656-7000
Japan	+81-3-5325-7397

## Acronyms

This guide uses the following acronyms:

Acronym	Description
ATM	Asynchronous Transfer Mode
CDE	Common Desktop Environment
CIR	committed information rate
CLP	cell loss priority
CP	control processor
DCE	data communications equipment
DLCI	data link connection identifier
DTE	data terminal equipment
EFCI	explicit forward congestion indication
FCP	flow control processor
HSSI	High-Speed Serial Interface
IOM	input/output module
IP	Internet Protocol
LAN	local area network
MIB	Management Information Base
NMS	Network Management Station
NP	node processor
NTP	Network Timing Protocol
OSPF	Open Shortest Path First
PDU	protocol data unit
PRAM	parameter random access memory
PVC	permanent virtual circuit
QoS	Quality of Service
RADIUS	Remote Authentication Dial-In User Service
RIP	Routing Information Protocol
SLIP	Serial Line Internet Protocol

<b>Acronym</b>	<b>Description</b>
SMDS	Switched Multimegabit Data Service
SNMP	Simple Network Management Protocol
SP	switch processor
SVC	switched virtual circuit
TDM	time division multiplexing
UDP	User Datagram Protocol
UIO	Universal Input/Output
UNI	User-Network Interface
VC	virtual channel
VCI	virtual circuit identifier
VNN	Virtual Network Navigator™
VPI	virtual path identifier
VPN	virtual private network
WAN	wide area network

## About This Guide

### *Acronyms*

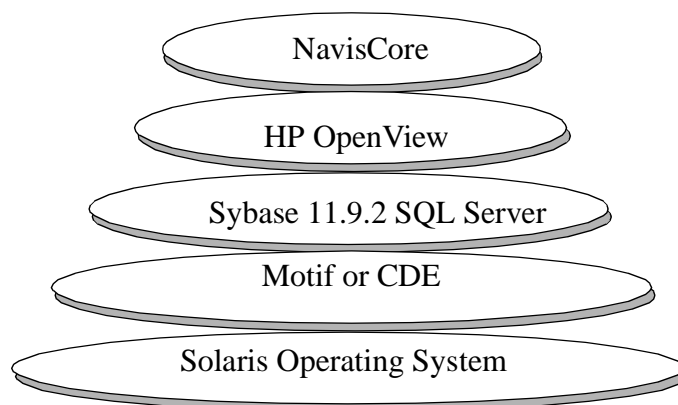
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# NavisCore Overview

NavisCore is an integrated network management software package that runs on a Network Management Station (NMS). NavisCore enables you to do the following:

- Create and edit network maps
- Configure Lucent switches
- Configure multiple networks from a single NMS
- Create trunks and circuits
- Monitor and troubleshoot the network

Figure 1-1 illustrates the various software packages that make up the NMS:



**Figure 1-1. NavisCore Network Management Station (NMS)**

Combined, these software programs present an easy-to-use graphical user interface that allows you to configure and maintain a Lucent network. These software programs include:

**Solaris Operating System** — The operating system you install on your SPARCstation. Solaris is a UNIX-based operating system used to design and develop complex networks.

**MOTIF and CDE** — Window managers that run client applications. MOTIF and CDE (Common Desktop Environment) enable you to customize your window's visual display.

**SYBASE 11.9.2 SQL Server** — SYBASE 11.9.2 SQL Server is a relational database software program used to store database information and provide backup and recovery of database files.

**HP OpenView** — HP OpenView provides the interface to add, modify, and delete nodes, trunks, and switch configurations from the network map and database.

**NavisCore** — NavisCore provides a graphical user interface for setting up and managing a switch network.

## About the Network Management Platform

NavisCore runs under the HP OpenView platform, which provides integrated network and systems management solutions on an industry-standard platform.

HP OpenView software enables you to create a graphical network map and use pull-down menus to configure, monitor, and diagnose equipment in the network.

NavisCore provides a logical network configuration interface for setting network-wide parameters, provisioning individual circuits, and configuring other switch functions. NavisCore provides defaults for all required parameters and prompts you for missing parameters, if necessary.

You download the initial network configuration and any updates from the NMS to the switch. The switch stores this configuration in parameter random access memory (PRAM).



## About Lucent Multiservice WAN Switches

Each Lucent multiservice WAN switch contains a Simple Network Management Protocol (SNMP) agent, which enables you to manage a Lucent switch from any SNMP management system that supports the Lucent Enterprise MIB extensions. When you configure an NMS with NavisCore, the NMS communicates with the switches through either the Internet Protocol (IP) for in-band management connections, or the Serial Line Internet Protocol (SLIP) for out-of-band management.

Running NavisCore, the NMS supports in-band management using an Ethernet connection to a local Lucent switch; alternately, you can configure the NMS and the switch on the same IP network.

## Monitoring Features

After you create your Lucent network, you can closely monitor network activity through the NavisCore monitoring features. NavisCore provides several options for obtaining status information from the network, including:

- A pop-up menu that enables you to obtain configuration information for a physical port, logical port, and circuit on a per-card or per-port basis.
- The Monitor Lucent Objects selection enables you to obtain status information for a switch, port, trunk, and circuit.
- You can also monitor the network by running diagnostics, collecting statistical data, generating reports, and reviewing the traps log.

See the *NavisCore Diagnostics Guide* for information on these NavisCore monitoring features.

## Troubleshooting Features

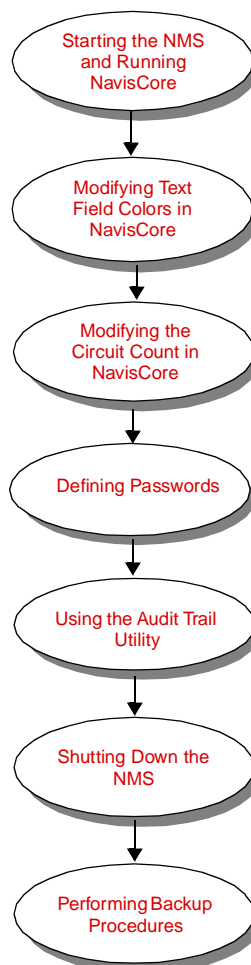
NavisCore uses a color scheme to identify network problems. When you open a network map, all nodes that are operating and communicating with the NMS appear green. Nodes that are either not operational or unable to communicate with the NMS appear red or wheat, respectively. An Input/Output (I/O) module in a switch that is out-of-sync appears yellow.

NavisCore also uses a color scheme to indicate the status of a configured trunk link between two Lucent switches, the status of I/O modules, processor modules, fans, power supplies, etc. For more information, see the *NavisCore Diagnostics Guide*.



# Administering NavisCore

This chapter describes the following administrative tasks:



This guide assumes you have already installed NavisCore and its supporting applications. If you have not installed all of these software products, see the *Network Management Station Installation Guide* for instructions.

## Starting the NMS and Running NavisCore

Before you can access NavisCore, you must start the Sybase Server and initiate an HP OpenView session as described in the following procedure. If you need to start a remote session to the Network Management Station (NMS), contact your UNIX system administrator to set up an Xterm session.

To start the NMS:

1. Log in as root user by entering `su - root`. At the prompt, enter the root password.
2. Start the Sybase Server by entering:

```
/etc/rc2.d/S97sybase &
```

You do not have to start the local Backup Server because it was never shut down. If you need to start it, enter:

```
/etc/rc2.d/S98sybase &
```

When the system displays the last line of text:

```
'iso)_1' (ID = 1).
```

Press Return.

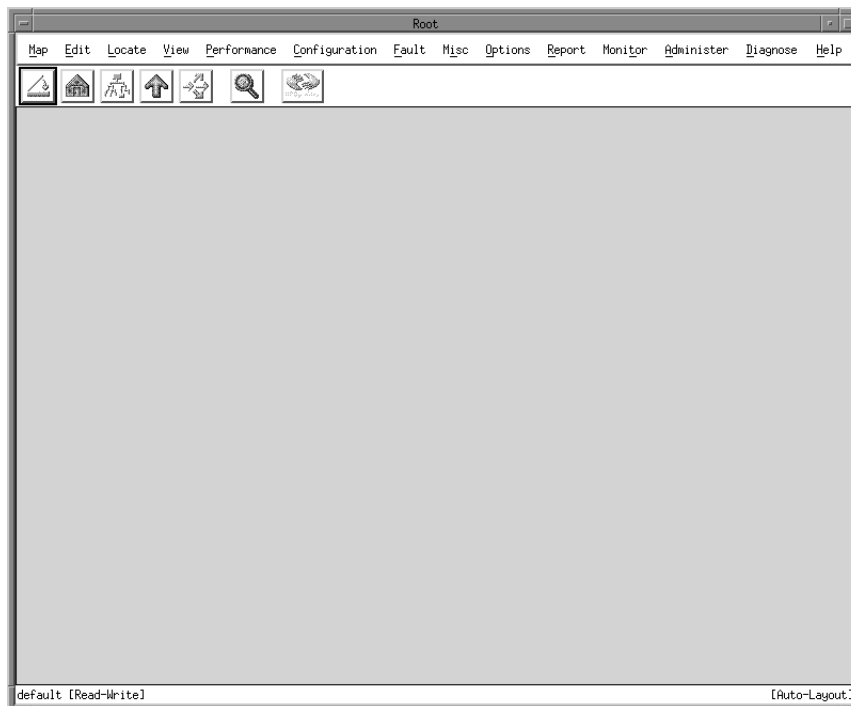
3. Start HP OpenView Services by entering:  

```
/opt/OV/bin/ovstart
```
4. Log in as the nms user by entering:  

```
su - nms
```
5. To execute HP OpenView and NavisCore, enter:  

```
/opt/OV/bin/ovw &
```

The default HP OpenView root window appears (see [Figure 2-1](#)).



**Figure 2-1. HP OpenView Window**



← NavisCore Icon



The NavisCore icon should appear on the window-manager desktop. The icon indicates that NavisCore is running. Do not invoke any NavisCore commands until this icon appears. Do not close this icon unless one of the supporting programs (such as HP OpenView) stops processing.

## Modifying Text Field Colors in NavisCore

In the NavisCore resource file, `CascadeView`, you can modify the read/write and read-only text field colors to enable NavisCore to operate more easily with other third-party applications. This file is located in `/opt/CascadeView/app-defaults`.



Whenever you modify this file, you must restart NavisCore for the changes to take effect.

To modify text field colors in NavisCore:

1. Log in as the root user by entering `su - root`. At the prompt, enter the root password.
2. In the command window, edit the `CascadeView` file by entering:

```
vi /opt/CascadeView/app-defaults/CascadeView
```

```
! Resources to disable drag and drop on dialogs
! Now screens pop up almost immediately

CascadeView*dragInitiatorProtocolStyle: XmDRAG_NONE
CascadeView*dragReceiverProtocolStyle: XmDRAG_NONE

! resource to set ReadOnly and ReadWrite Text field background
CascadeView*textReadWriteColor: #6187d9
CascadeView*textReadOnlyColor: #729fff
```
3. To change the text field colors, modify the RGB color setting in the last two lines:  
#6187d9 (Default RGB color setting)  
#729fff (Default RGB color setting)
4. Enter `:wq!` to exit the vi editor and save your changes.
5. You must now shut down and then restart NavisCore, as follows:
  - a. From the File menu, select File ⇒ Exit to exit NavisCore.
  - b. Enter `/opt/OV/bin/ovw &` to restart NavisCore.

## Modifying the Circuit Count in NavisCore

In the NavisCore configuration file, *cascadeview.cfg*, you can modify the CV\_NUMBER\_OF\_CKT variable to limit the count of circuits returned by the show all circuits query. The number of displayed circuits will match the value configured in this file.



Whenever you modify this file, you must restart NavisCore for the changes to take effect.

To modify the circuit count:

1. Log in as the root user by entering `su - root`. At the prompt, enter the root password.
2. In a command window, edit the *cascadeview.cfg* file by entering:  

```
vi /opt/CascadeView/etc/cascadeview.cfg
```
3. Set the CV\_NUMBER\_OF\_CKT variable in *cascadeview.cfg* by entering a new value. The recommended range is any value between 10 and 400, the default is 100.  

```
CV_NUMBER_OF_CKT=<value>
```
4. Enter `:wq!` to exit the vi editor and save your changes.
5. You must now shut down and then restart NavisCore, as follows:
  - c. From the File menu, select File ⇒ Exit to exit NavisCore.
  - d. Enter `/opt/OV/bin/ovw &` to restart NavisCore.

## Defining Passwords

When you access HP OpenView, you can display network maps and use any of the monitoring functions without having to log in. However, you cannot perform any network management functions without logging in with the appropriate password.



When you install Sybase, the maximum number of users is set to 50. In a typical network operations center, you assign only one administrator password. You need at least one operator logon to use all network features.

You can define three levels of access for NavisCore:

**Administrator** — To create passwords. The default is *admin*. For security reasons, you should first create a new administrator password, then create operator and provisioning passwords.

**Operator** — To provision (configure) and manage all network features. The default is *cascade*. You must log in with this password to configure physical ports and download a switch configuration.

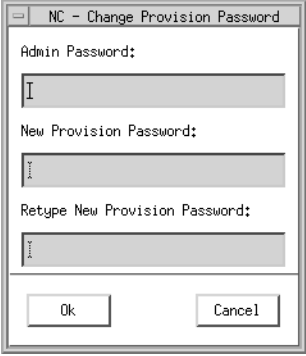
**Provisioning** — To configure and monitor logical ports, trunks, and circuits on the network. The default is *provision*. The provisioning password only allows you to perform the basic configuration tasks. You log in as *operator* to download software and configure switch and physical port parameters.



## Assigning Access Levels

To define access levels and modify the default passwords:

1. From the Administer menu, select NavisCore ⇒ Set Password and select one of three access levels: Administrator, Operator, or Provisioning. The Change Provision Password dialog box appears (see [Figure 2-2](#)).



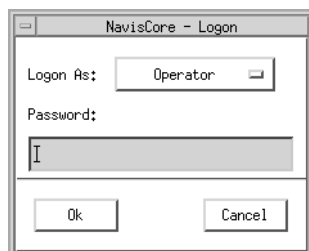
**Figure 2-2. Change Provision Password Dialog Box**

2. Enter the Admin Password.
3. Enter a new password.
4. Retype the password in the field provided.
5. Choose OK.
6. Repeat [step 1](#) through [step 5](#) to define additional passwords for each access level.

## Logging On

To log on to NavisCore:

1. From the Misc menu, select NavisCore ⇒ Logon. The NavisCore - Logon dialog box appears (see [Figure 2-3](#)).



**Figure 2-3. NavisCore Logon Dialog Box**

2. Enter the appropriate password.

You can now perform NavisCore administrative tasks.

## Using the Audit Trail Utility

The Audit Trail utility keeps a record of the changes you make to a network map. You can retrieve this information from the database whenever you need to review these changes.

The Audit Trail utility logs the following network activity:

- Switch status
- Invalid login attempts
- Logon or logoff actions
- Add, modify, or delete functions for a switch, module, logical port, trunk, or circuit
- Reboot functions for a switch or module
- Download activity for switch software, initialization-script files, or parameter random access memory synchronization (PRAM Sync) files
- Standby module activity when it takes over in a redundant pair
- Add, delete, or modify functions for a management path or NMS entry
- User session timeout

## Enabling/Disabling the Audit Trail

To enable the Audit Trail:

1. Log in as the root user by entering `su - root`. At the prompt, enter the root password.
2. In a command window, edit the `cascadeview.cfg` file by entering:  

```
vi /opt/CascadeView/etc/cascadeview.cfg
```
3. Set the `CV_AUDIT_TRAIL_ENABLE` environment variable in `cascadeview.cfg` by entering:  

```
CV_AUDIT_TRAIL_ENABLE=TRUE  
export CV_AUDIT_TRAIL_ENABLE
```



To disable Audit Trail, enter: `CV_AUDIT_TRAIL_ENABLE=FALSE`

4. Enter `:wq!` to exit the vi editor and save your changes.
5. You must now shut down and then restart NavisCore, as follows:
  - a. From the File menu, select File ⇒ Exit to exit NavisCore.
  - b. Enter `su - root`.
  - c. At the prompt, enter the root password.
  - d. Enter the following command lines to shut down HP OpenView services:  

```
cd /opt/OV/bin/ovstop
```
  - e. Enter `/opt/OV/bin/ovstart` to restart HP OpenView.
  - f. Enter `/opt/OV/bin/ovw &` to restart NavisCore.
6. The Audit Trail utility creates an ASCII log file in the directory `/opt/CascadeView.var/auditlog`. The directory and file permissions are set for the world, read/write (“rw”).

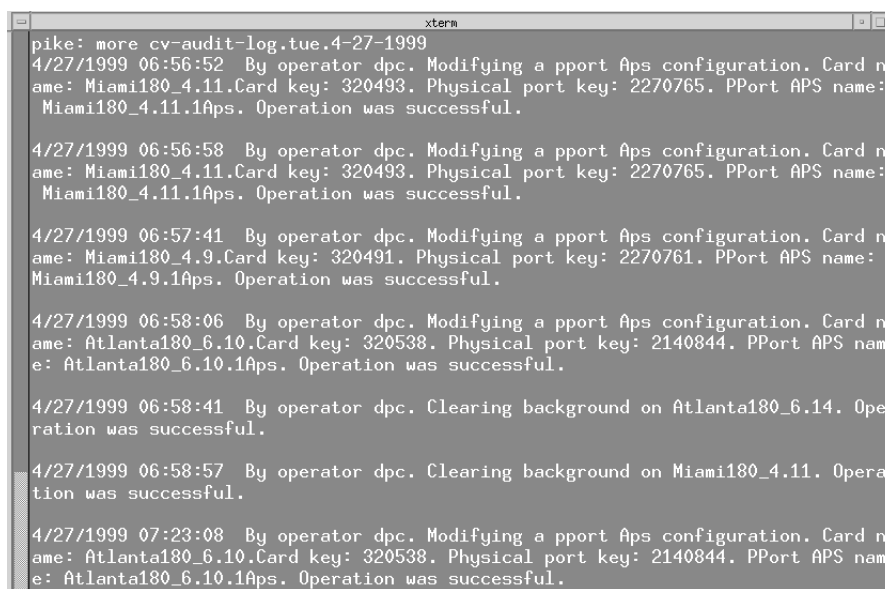
The filename format is `cv-audit-log.<day of the week>.<date>`. For example, the file `cv-audit-log.tue.4-27-1999` contains information for April 27, 1999.

The Audit Trail utility creates a different file for each day of operation (a file for Monday, a file for Tuesday, and so on).

7. To view the ASCII log file, enter:  

```
cd /opt/CascadeView.var/auditlog/  
more cv-audit-log.<day of the week>.<date>
```

Figure 2-4 shows the Audit Trail Window with an example log file, which you can display through the **more** command.



```
xterm
pike: more cv-audit-log.tue.4-27-1999
4/27/1999 06:56:52 By operator dpc. Modifying a pport Aps configuration. Card n
ame: Miami180_4.11.Card key: 320493. Physical port key: 2270765. PPort APS name:
Miami180_4.11.1Aps. Operation was successful.

4/27/1999 06:56:58 By operator dpc. Modifying a pport Aps configuration. Card n
ame: Miami180_4.11.Card key: 320493. Physical port key: 2270765. PPort APS name:
Miami180_4.11.1Aps. Operation was successful.

4/27/1999 06:57:41 By operator dpc. Modifying a pport Aps configuration. Card n
ame: Miami180_4.9.Card key: 320491. Physical port key: 2270761. PPort APS name:
Miami180_4.9.1Aps. Operation was successful.

4/27/1999 06:58:06 By operator dpc. Modifying a pport Aps configuration. Card n
ame: Atlanta180_6.10.Card key: 320538. Physical port key: 2140844. PPort APS nam
e: Atlanta180_6.10.1Aps. Operation was successful.

4/27/1999 06:58:41 By operator dpc. Clearing background on Atlanta180_6.14. Ope
ration was successful.

4/27/1999 06:58:57 By operator dpc. Clearing background on Miami180_4.11. Ope
ration was successful.

4/27/1999 07:23:08 By operator dpc. Modifying a pport Aps configuration. Card n
ame: Atlanta180_6.10.Card key: 320538. Physical port key: 2140844. PPort APS nam
e: Atlanta180_6.10.1Aps. Operation was successful.
```

Figure 2-4. Audit Trail Window

## Shutting Down the NMS

To shut down the NMS:

1. To exit NavisCore, select Map ⇒ Exit.
2. At the OpenView Windows WARNING dialog box, select OK.
3. Log in as root by entering **su - root**. At the prompt, enter the root password.
4. Shut down HP OpenView Services by entering:

```
/opt/OV/bin/ovstop
```

5. Shut down the Sybase server by entering:

```
/etc/rc0.d/K01sybase &
```

You do not have to shut down the local Backup Server.

6. At the # prompt, halt the system by entering:

```
init 0
```

Shut down time varies according to site.

7. At the ok prompt, power off the system.

## Performing Backup Procedures

As the NavisCore administrator, you should back up the NMS database on a regular basis. For more information on Sybase and HP OpenView backup procedures, see the *Network Management Station Installation Guide*.



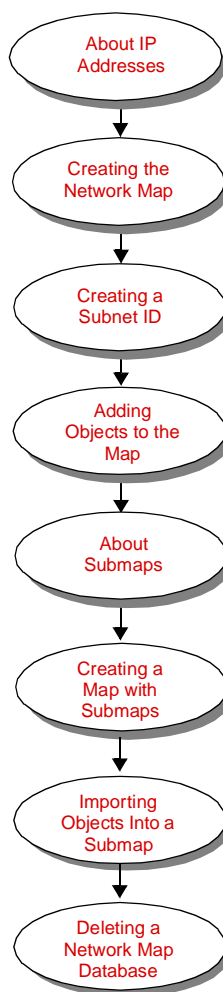
The Technical Assistance Center (TAC) recommends that you perform daily backups of the Sybase Server and the HP OpenView database. If you need to recover switch data in the database, contact the TAC for specific instructions. Do not attempt to restore this database without Lucent's help. For contact information, see **“Customer Support” on page xxvii**.



# Creating and Managing Network Maps

This chapter describes Internet Protocol (IP) addressing and subnet addressing concepts. It also describes how to create a network map and subnet ID and add the Lucent switch objects to the network map.

This chapter describes the following topics and tasks:



## About IP Addresses

This section provides an overview of IP addresses and describes the three primary classes of IP addresses (specifically, Class B IP). See the *NavisCore IP Navigator Configuration Guide* for a detailed description of the supported IP features.

IP addresses are 32-bit numbers represented by four sequential fields of decimal integers, separated by dots (.). For example, 152.148.225.10. The value of each field (referred to as an *octet* or *byte*) can range from 0 to 255.

The position of the first zero bit in the first four bits determines the class to which an address belongs. The remaining bits specify two subfields, a *network identifier (netid)* and a *host identifier (hostid)*. The netid defines what network the system belongs to, and the hostid represents the specific location on that network (see [Figure 3-1](#)).

Network ID 152.148	Host ID 225.10
-----------------------	-------------------

**Figure 3-1. Class B IP Address**

## Three Primary Classes of IP Addresses

There are three primary classes of IP addresses. Each class uses a different address format to accommodate different size networks. [Table 3-1](#) shows the network ID and host ID formats for each class. This guide does not discuss Class D addresses (used for multicasting).

**Table 3-1. IP-Address Classifications**

Class	Network ID	Host ID	Format			
A	7 bits	24 bits	<p>Class A addresses are used in large networks and allow 16 million host addresses.</p> <table border="1"><tr><td>0</td><td>Network (7)</td><td>Local Address (24)</td></tr></table>	0	Network (7)	Local Address (24)
0	Network (7)	Local Address (24)				
B	14 bits	16 bits	<p>Class B addresses are used in intermediate size networks and allow 65,534 host addresses.</p> <table border="1"><tr><td>10</td><td>Network (14)</td><td>Local Address (16)</td></tr></table>	10	Network (14)	Local Address (16)
10	Network (14)	Local Address (16)				



**Table 3-1. IP-Address Classifications (Continued)**

Class	Network ID	Host ID	Format			
C	21 bits	8 bits	<p>Class C addresses are used in smaller networks and allow 254 host addresses.</p> <table border="1"> <tr> <td>100</td> <td>Network (21)</td> <td>Local Address (8)</td> </tr> </table>	100	Network (21)	Local Address (8)
100	Network (21)	Local Address (8)				

## Class B IP Addresses

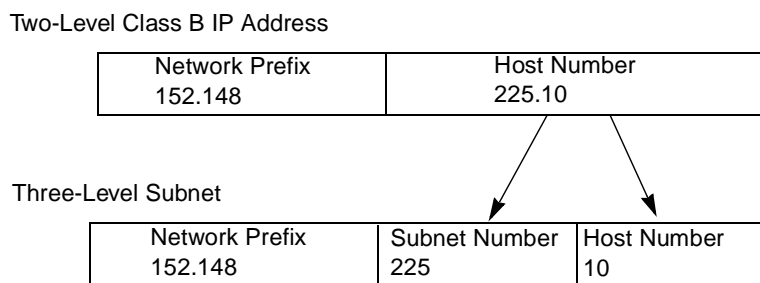
Lucent supports Class B IP addresses for internal routing (Open Shortest Path First), enabling you to expand your network to configure an unlimited number of switches and trunks (see the *NavisCore IP Navigator Configuration Guide*). Class B addresses use the first two bytes for the network address and the last two bytes for the host address. For example, if your Class B network number is 150.100.0.0, you can start numbering your hosts at 150.100.0.1 and go up to host number 150.100.255.254. Using this example, you would have a total of 65,534 host addresses in the Class B network. Using Class B IP addresses, you can group single addresses into subnets to create several smaller networks.



If you have a mixed network (for example, switches running two versions of switch code), you must configure all switches running the same version of switch code with circuits within the same subnet.

## About Subnets

A subnet divides a large network into smaller groups (subnets). Subnets support a three-level hierarchy (as opposed to a two-level hierarchy) in which the host number is divided into two parts, the subnet number and the host number on that subnet (see [Figure 3-2](#)).



**Figure 3-2. Subnet Example**

You can use a subnet to do the following:

- Connect different physical networks
- Distinguish between different network LANs
- Isolate parts of the network
- Delegate network administration by assigning administrators to different subnets

### Choosing a Subnet ID (Mask)

The subnet ID represents a smaller group to which individual addresses belong. When choosing a subnet mask, you must consider the following:

- Number of subnets in your network
- Number of hosts accessing each subnet

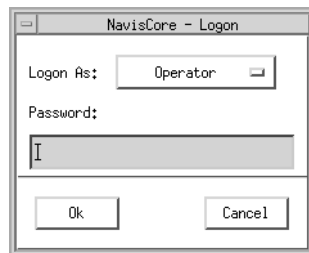
## Creating the Network Map

When you create a network map, you specify a unique name for the map and you configure network-wide parameters, such as the network number. These parameters enable the NavisCore application to manage the network map from within HP OpenView.

Use the following procedure to configure a new NavisCore map. This procedure assumes you have started NavisCore.

To create the network map:

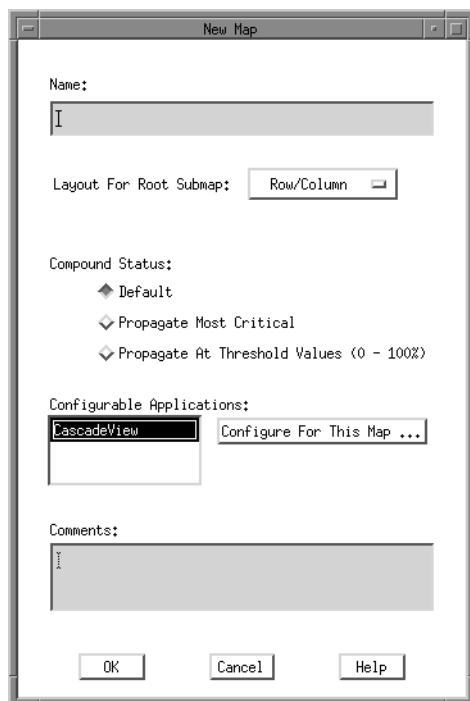
1. Access HP OpenView and start NavisCore as described in [“Starting the NMS and Running NavisCore”](#) on page 2-2.
2. To log on, select NavisCore ⇒ Logon from the Misc menu. The Logon dialog box appears (see [Figure 3-3](#)).



**Figure 3-3. NavisCore Logon Dialog Box**

3. Enter the Operator password.

4. From the Map menu, select Maps ⇒ New. The New Map dialog box appears (see [Figure 3-4](#)).



**Figure 3-4. New Map Dialog Box**



Once set, you cannot modify the map parameters. If you need to change the network number after it is set, you must delete the map and start over. Open Shortest Path First (OSPF) uses the network number for path selection. If you must change this setting, first check with the Technical Assistance Center (TAC) for recommended guidelines. For contact information, see [“Customer Support”](#) on page xxvii.

5. Complete the fields described in [Table 3-2](#).

**Table 3-2. New Map Fields**

Field	Action/Description
Name	Enter an alphanumeric name that identifies the map.
Layout For Root Submap	The Row/Column map layout is the default setting. This option affects how the objects are arranged on the map.
Compound Status	<p>Specify a status propagation. Compound status defines how HP OpenView propagates symbol status in a low-level submap up to parent submaps to warn you of a problem. For more information, see the <i>HP OpenView User's Guide</i>.</p> <p>Options include:</p> <p><i>Default</i> – Causes HP OpenView to propagate status according to a predefined algorithm.</p> <p><i>Propagate Most Critical</i> – Causes HP OpenView to propagate the status of the most critical symbol in the child submap, to the symbols of the parent object.</p> <p><i>Propagate At Threshold Values (0 - 100%)</i> – Displays four fields that enable you to set threshold values which determine when HP OpenView propagates status. The number shown for each field is the default value.</p> <ul style="list-style-type: none"> <li>– % warning 30</li> <li>– % minor 20</li> <li>– % major 10</li> <li>– % critical 5</li> </ul>
Comments	Enter any additional information for this map.
Configurable Applications	Select CascadeView. Choose Configure For This Map. The Configuration dialog box appears (see <a href="#">Figure 3-5</a> ).

Figure 3-5 displays the Configuration dialog box.

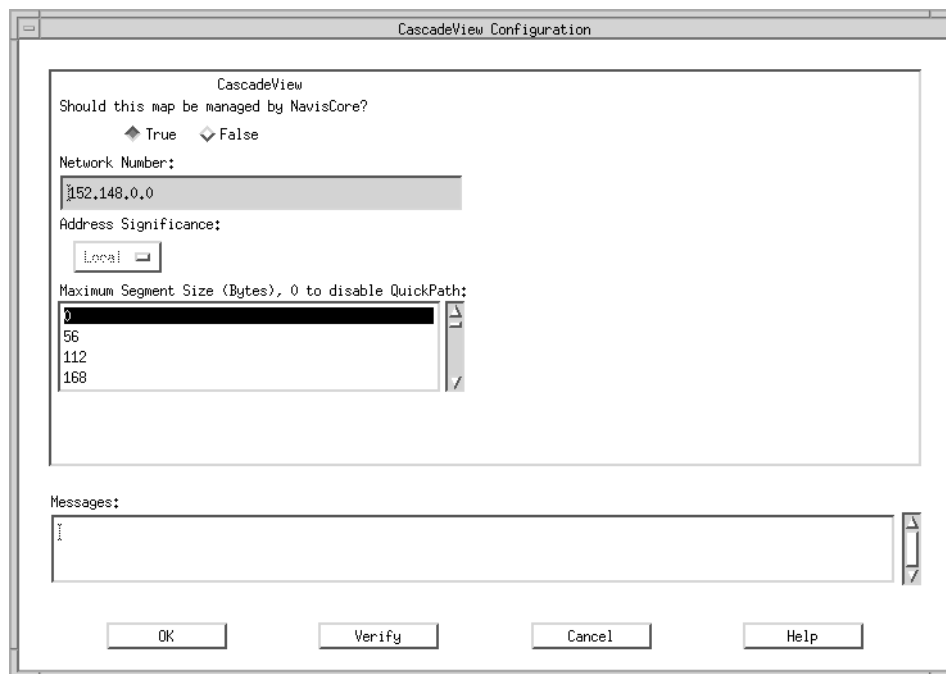


Figure 3-5. Configuration Dialog Box

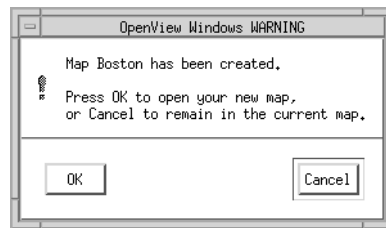
6. Complete the fields described in Table 3-3.

Table 3-3. Configuration Fields

Field	Action/Description
Should this map be managed by NavisCore?	Select True.
Network Number	Displays the switch IP network number you specified when you added a static route during the NavisCore installation. Contact the TAC if you must change this number.
Address Significance	Defaults to Local and cannot be changed.
Maximum Segment Size (Bytes), 0 to disable Quickpath	This option is not supported.

7. Choose Verify to confirm your settings, then choose OK. The New Map dialog box reappears.

8. Choose OK. The system displays the following confirmation message (see [Figure 3-6](#)).



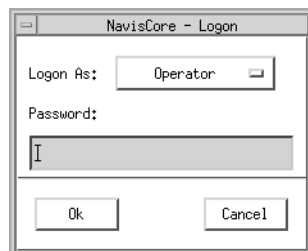
**Figure 3-6. OpenView Windows WARNING Dialog Box**

9. Choose OK to open the new network map.



If the IP Internet icon appears on the map, select the icon and from the Map menu, select Unmanage Objects. Then, from the Edit menu, select Hide ⇒ From All Submaps.

10. To log on to the network map, select NavisCore ⇒ Logon from the Misc menu and enter the logon password (*cascade* is the default). See [Figure 3-7](#).



**Figure 3-7. NavisCore Logon Dialog Box**

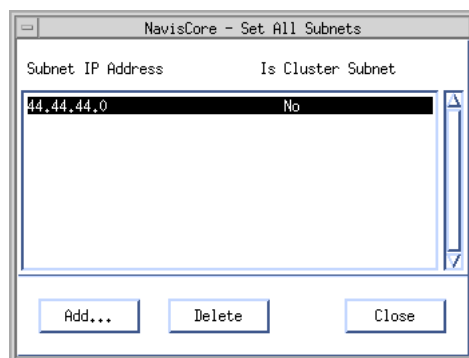
You are now logged in to the new map.

## Creating a Subnet ID

You must create at least one subnet ID between 1 and 255. The subnet ID becomes the third byte of the IP address and the switch ID becomes the last byte of the IP address. For example, an IP address of 152.148.225.10 has a subnet ID of 225 and a switch ID of 10.

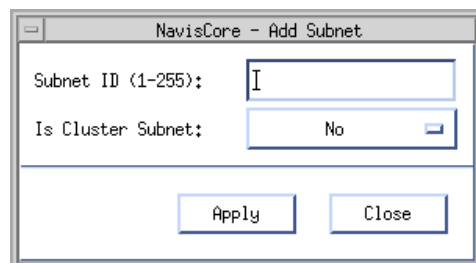
To add a subnet ID:

1. From the Administer menu, select Lucent Parameters ⇒ Set All Subnets. The Set All Subnets dialog box appears (see [Figure 3-8](#)).



**Figure 3-8. Set All Subnets Dialog Box**

2. Select Add. The Add Subnet dialog box appears (see [Figure 3-9](#)).



**Figure 3-9. Add Subnet Dialog Box**



- Complete the fields described in [Table 3-4](#).

**Table 3-4. Add Subnet Fields**

Field	Action/Description
Subnet ID (1-255)	Enter a subnet number between 1 and 255.
Is Cluster Subnet ( <i>optional</i> )	Select Yes to make this subnet a cluster subnet (See <a href="#">“Creating a Cluster”</a> on page 3-11 for instructions). The default is No. If you select No, proceed with <a href="#">“Adding Objects to the Map”</a> on page 3-13.

- Choose Apply to add the subnet ID.
- Choose Close to exit the Add Subnet dialog box.

## Creating a Cluster

A cluster defines a group of switches that operates in a single OSPF routing domain. The switch number in the IP address increments according to the cluster ID, as shown in [Table 3-5](#).

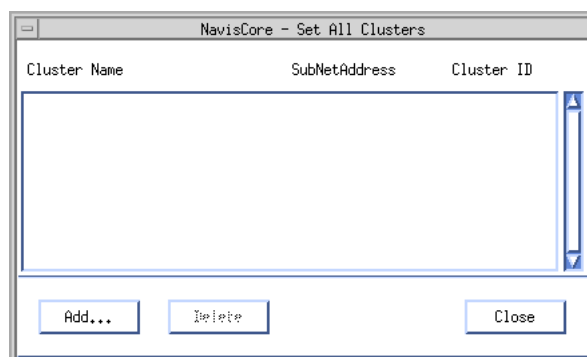
**Table 3-5. Cluster ID and IP-Address Range**

Cluster ID	IP-Address Range
0	152.148.x.1 - 152.148.x.30
1	152.148.x.33 - 152.148.x.62
2	152.148.x.65 - 152.148.x.94
3	152.148.x.97 - 152.148.x.126
4	152.148.x.129 - 152.148.x.158
5	152.148.x.161 - 152.148.x.190
6	152.148.x.193 - 152.148.x.222
7	152.148.x.225 - 152.148.x.254

See the *NavisCore IP Navigator Configuration Guide* for information about configuring OSPF parameters. If you selected Yes in the Is Cluster Subnet field (see [Table 3-4](#)), you must create a cluster.

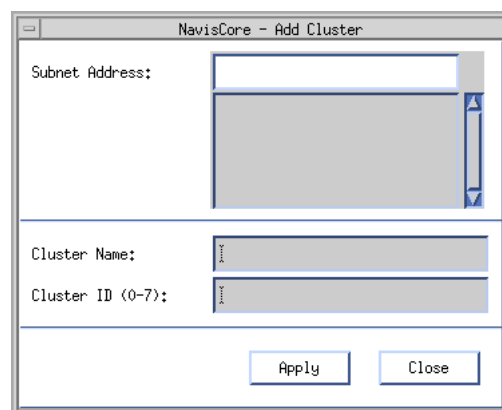
To create a cluster:

1. From the Administer menu, select Lucent Parameters ⇒ Set All Clusters. The Set All Clusters dialog box appears (see [Figure 3-10](#)).



**Figure 3-10. Set All Clusters Dialog Box**

2. Select Add. The Add Cluster dialog box appears (see [Figure 3-11](#)).



**Figure 3-11. Add Cluster Dialog Box**

3. Complete the fields described in [Table 3-6](#).

**Table 3-6. Add Cluster Fields**

Field	Action/Description
Subnet Address	Select the subnet address to which this cluster belongs.
Cluster Name	Select a name for this cluster.
Cluster ID (0-7)	Select an ID between 0-7 for this cluster.

## Adding Objects to the Map

The NavisCore network map provides a graphical representation of your network. As you design the network map, you add a variety of objects (such as a Lucent switch, an external device, or a PacketStar™ PSAX 100, 600, or 1200 [SA] device) to represent the various elements in your network.

This section describes the following:

- “Adding Switch Objects” on page 3-13
- “Adding an External Device Object” on page 3-17

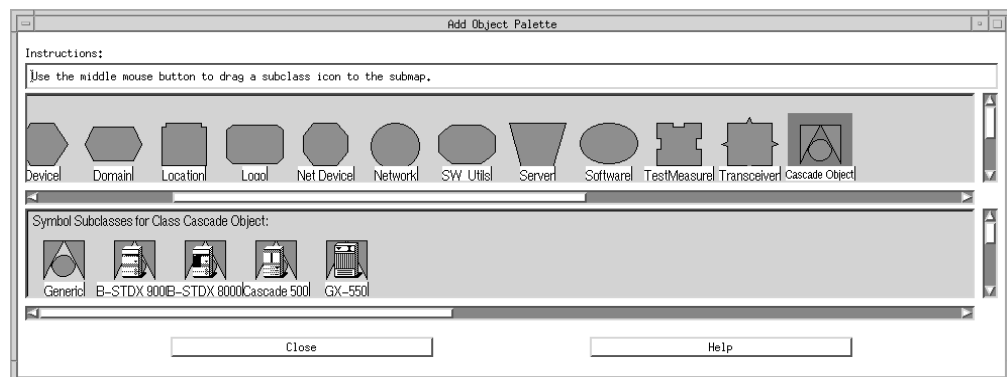
See [Chapter 7, “Integrating Broadband Access Devices”](#) for information on adding a PSAX 100, 600, and 1200 (SA) device to the NavisCore network map.

### Adding Switch Objects

When you add a switch object to the network map, you first select and drag the switch icon to the network map. You then define the object attributes that enable NavisCore to manage this switch through HP OpenView.

To add a switch object to the network map:

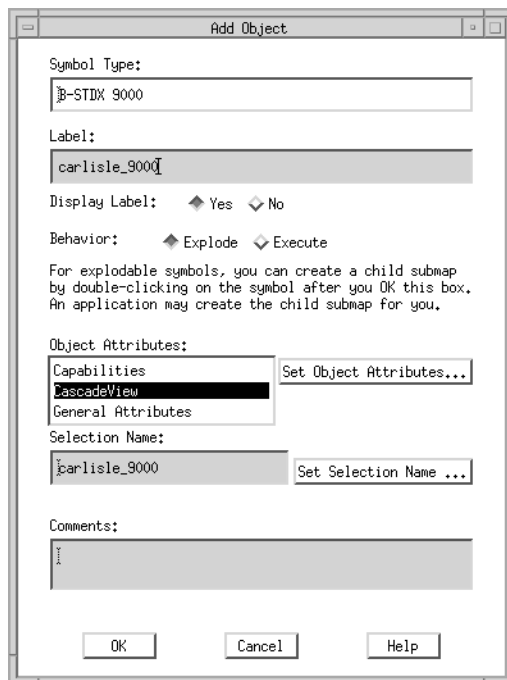
1. From the Edit menu, select Add Object. The Add Object: Palette dialog box appears (see [Figure 3-12](#)).



**Figure 3-12. Add Object: Palette Dialog Box**

2. Select the Cascade Object symbol from the Symbol Classes box. The switch types appear for this symbol.

- To add the desired switch(es) to the network map, select the desired switch icon. Using the middle mouse button, select, drag, and release the icon to the map. The Add Object dialog box appears (see [Figure 3-13](#)).



**Figure 3-13. Add Object Dialog Box**

- Complete the fields described in [Table 3-7](#).

**Table 3-7. Add Object Fields**

Field	Action/Description
Symbol Type	Displays the selected switch type (object) to add to the network map.
Label	Enter a name to identify the object.
Display Label	Select Yes to display the label beneath the object on the network map. Select No if you do not want the label to appear.
Behavior	Select Explode (default). See the <i>HP OpenView User's Guide</i> for more information about using the Execute function.
Object Attributes	Select CascadeView and then choose Set Object Attributes. The Add Object - Set Attributes dialog box appears (see <a href="#">Figure 3-14</a> ).

Figure 3-14 displays the Add Object - Set Attributes dialog box.

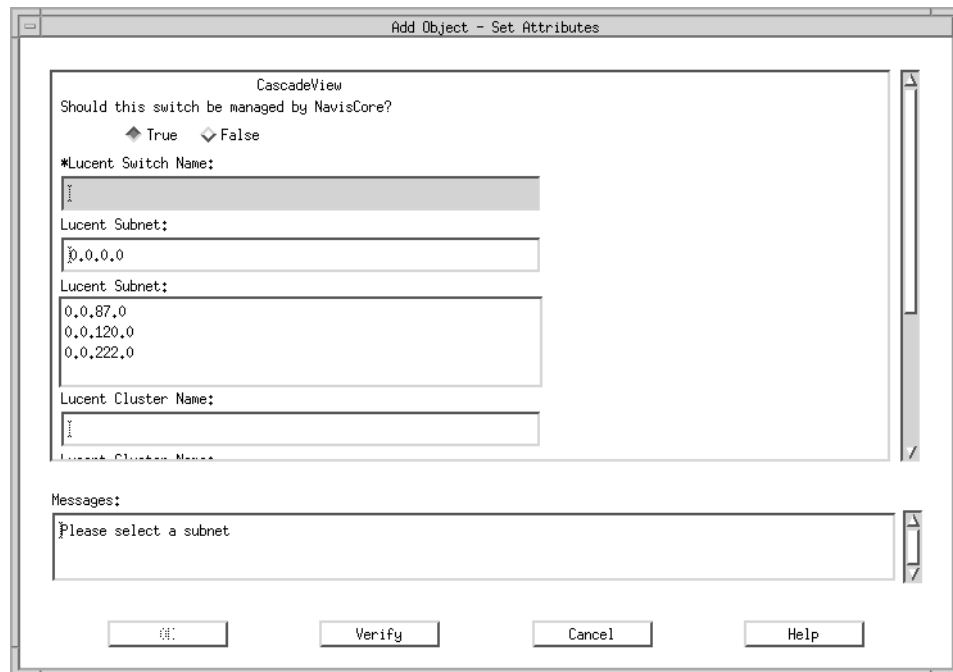


Figure 3-14. Add Object - Set Attributes Dialog Box

5. Complete the fields described in Table 3-8.

Table 3-8. Add Object - Set Attributes Fields

Field	Action/Description
Should this switch be managed by NavisCore?	Select True.
Lucent Switch Name	Enter a unique name for the switch.
Lucent Subnet	Highlight the Lucent subnet to which this switch belongs.
Lucent Cluster Name	Displays the name of the cluster to which this subnet belongs. See <a href="#">“Creating a Cluster”</a> on page 3-11 for more information.
Should this switch be a gateway switch of the selected cluster?	Select True to make this a gateway switch. Select False if you do not want this switch to be a gateway switch for the selected cluster.

**Table 3-8. Add Object - Set Attributes Fields (Continued)**

Field	Action/Description
Lucent Switch IP Address	NavisCore displays the switch's IP address. Every time you add an object to the map, NavisCore increments the last octet (host id) by 1. If the next host ID number is already in use in the network, NavisCore selects the next available number.  If you want a different IP address from the one displayed, you can manually change the last octet. If you created a cluster, the system displays the IP address range (shown in <a href="#">Table 3-5 on page 3-11</a> ).
Number of Power Supplies ( <i>CBX 500 only</i> )	The NMS must be configured for three power supplies although only two power supplies may be installed. Otherwise the switch will report a marginal state without providing an error message.  A chassis that supports three power supplies must have at least two power supplies installed at all times.

6. Choose Verify to confirm your settings. The following message appears in the Message field:

Verification has completed.



If the message "access denied" appears, you may not have logged on to the network map. Choose Cancel to return to the network map, then select Logon from the Misc menu. Enter the default operator password, *cascade*.

7. Choose OK to return to the Add Object dialog box.  
  
The Selection Name field automatically defaults to the value you entered for the Label field. The selection name must be unique throughout all HP OpenView objects. Lucent recommends that you leave the selection name as it appears. In the comments field, enter any additional information pertaining to this object.
8. Choose OK. The Add Object Palette dialog box reappears.
9. Choose OK. The network map displays an object icon representing the new switch. The object appears blue and quickly turns red, indicating that the NMS cannot access the switch.
10. Select the switch object and from the Map menu, select Unmanage Objects. The switch object turns to a wheat color, indicating that the object is in an unmanaged state.
11. Repeat [Step 1](#) through [Step 10](#) to add more Lucent switches to the network map.

When you finish adding switch objects to your network map, continue with [Chapter 5, “Setting Switch Parameters”](#) to configure switch parameters and define the path between the NMS and the Lucent switch(es).



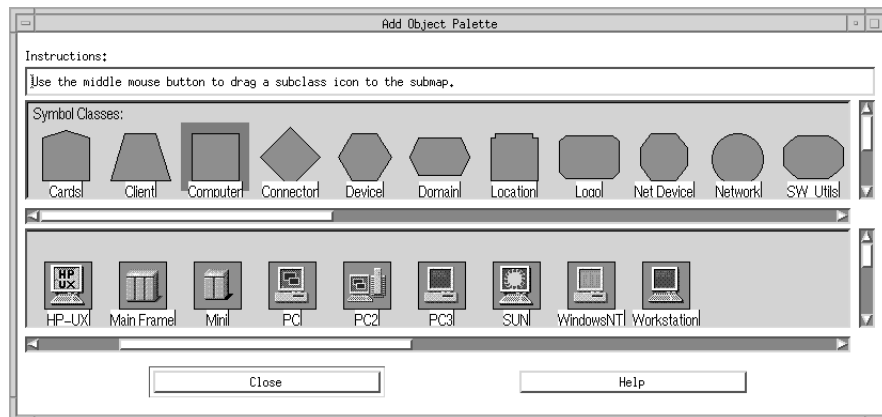
To turn off the automatic layout feature so you can move a switch object on the map, choose Automatic Layout ⇒ Off for All Submaps from the View menu.

## Adding an External Device Object

The external device object on the NavisCore network map represents a network device other than a Lucent switch (for example, a workstation). Once you add this device object to the network map, you must add an external trunk to connect the device to a Lucent switch. For information on adding an external trunk, see the *NavisCore Frame Relay Configuration Guide* or the *NavisCore ATM Configuration Guide*.

To add an external device to the NavisCore network map:

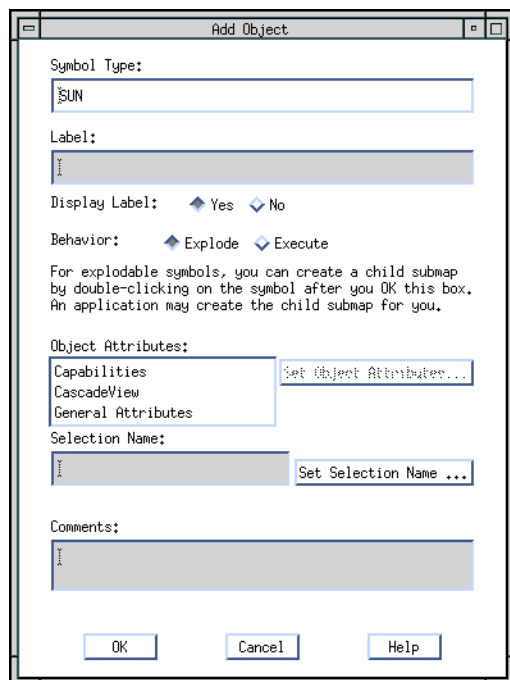
1. From the Edit menu, select Add Object. The Add Object Palette dialog box appears (see [Figure 3-15](#)).



**Figure 3-15. Add Object Palette Dialog Box**

2. Select the device object (for example, Computer) that you want to add. The valid symbol subclasses appear for this device type.

- To add the desired object (for example, Workstation) to the network map, select the desired switch icon. Using the middle mouse button, select, drag, and release the icon to the map. The Add Object dialog box appears (see [Figure 3-16](#)).



**Figure 3-16. Add Object Dialog Box**

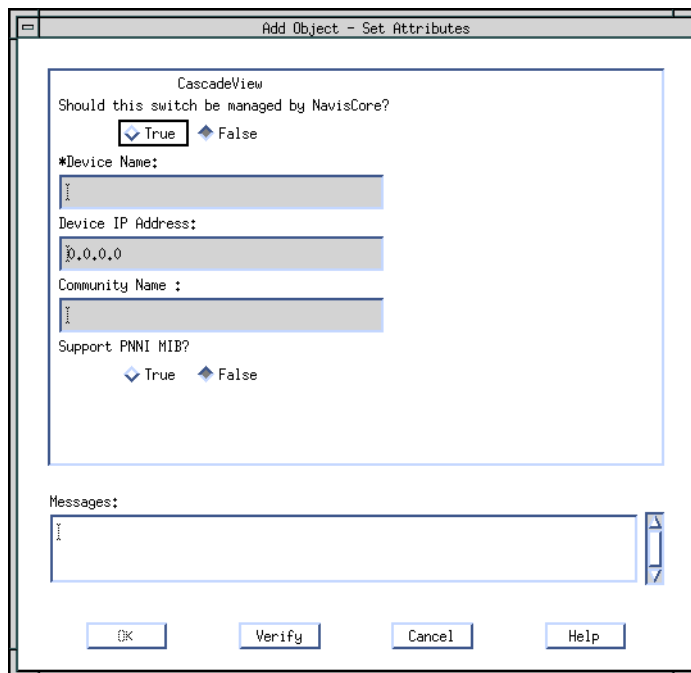
- Complete the fields described in [Table 3-9](#).

**Table 3-9. Add Object Fields**

Field	Action/Description
Symbol Type	Displays the selected object type to add to the network map.
Label	Enter a label to describe the object.
Display Label	Select Yes to display the label beneath the object on the network map. Select No if you do not want the label to appear.
Behavior	Displays the default (Explode). See the <i>HP OpenView User's Guide</i> for more information about using the Execute function.
Object Attributes	Select CascadeView and then choose Set Object Attributes. The Add Object - Set Attributes dialog box appears (see <a href="#">Figure 3-17</a> ).



Figure 3-17 displays the Add Object - Set Attributes dialog box.



**Figure 3-17. Add Object - Set Attributes Dialog Box**

5. Complete the fields described in Table 3-10.

**Table 3-10. Add Object - Set Attributes Fields**

Field	Description
Should this switch be managed by NavisCore?	Select True to enable NavisCore to manage this device.
* Device Name	Enter a unique name for the device.
Device IP Address	Enter the IP address for this device.
Community Name	Enter the name of the SNMP community to which this device belongs (for example, public).
Support PNNI MIB	Select Yes to enable this device to support the PNNI MIB (for PNNI services).

6. Choose Verify to configure your settings. The following message appears in the Message field:

Verification has completed



If the message “access denied” appears, you may not have logged on to the network map. Choose Cancel to return to the network map, then select Logon from the Misc menu. Enter the default operator password, *cascade*.

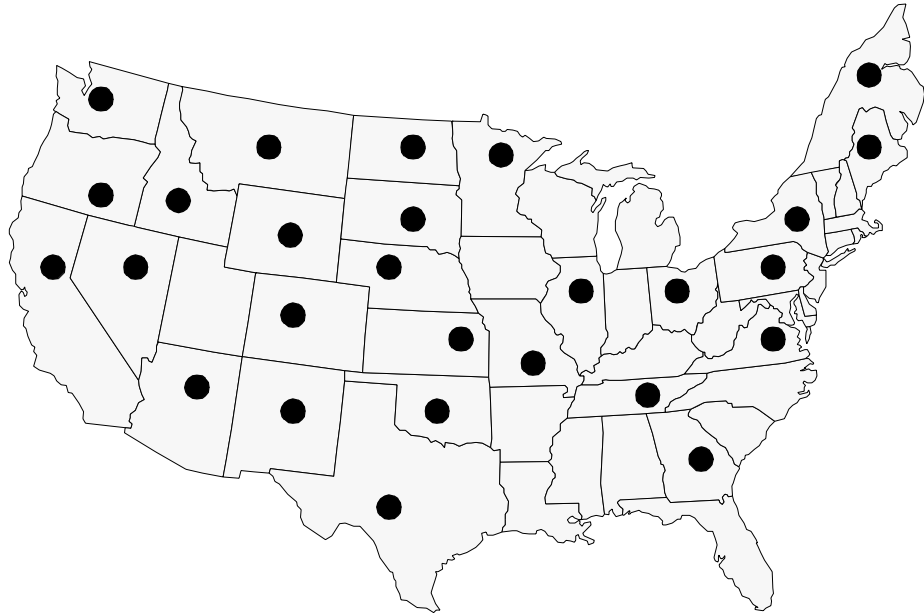
7. Choose OK to return to the Add Object dialog box.

The Selection Name field automatically defaults to the value you entered for the Label field. The selection name must be unique throughout all HP OpenView objects. Lucent recommends that you leave the selection name as it appears. In the comments field, enter any additional information pertaining to this object.

8. Choose OK. The Add Object Palette dialog box reappears.
9. Choose OK. The network map displays an object icon representing the new external device. The object appears blue and quickly turns red, indicating that the NMS cannot access the external object.
10. Select the device object and, from the Map menu, select Unmanage Objects. The device object turns to a wheat color, indicating that it is in an unmanaged state.

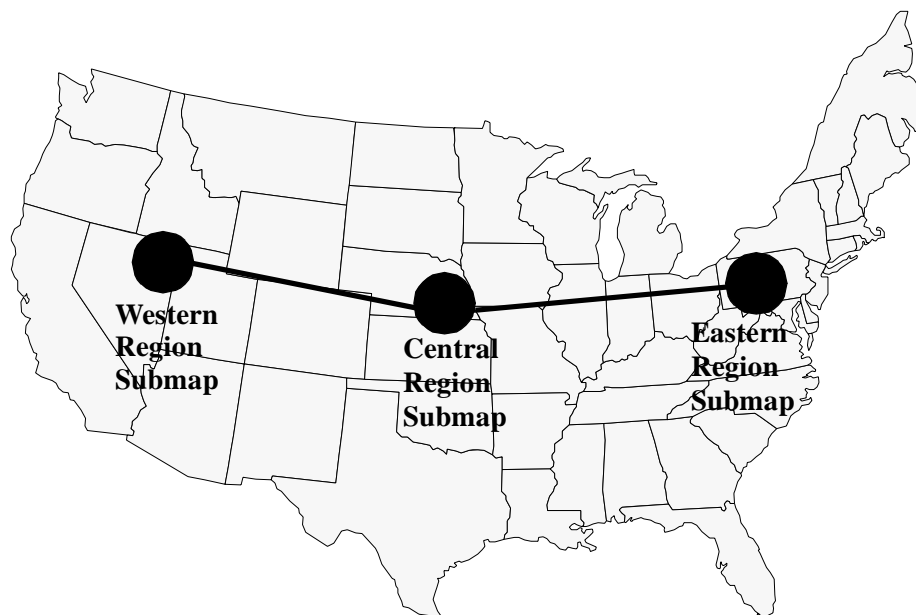
## About Submaps

Small to medium size WANs are easy to configure and manage from a single-level network map. As the WAN grows larger, the network often becomes difficult to manage because of its increased complexity (see **Figure 3-18**). A submap enables you to organize a growing network.



**Figure 3-18. Top-Level Map without Submaps**

A submap is a hierarchical approach to network management. With submaps, a network administrator can divide a map into multiple submaps, then view the overall organization of the network from the top-level map. **Figure 3-19** illustrates a top-level map with submaps.



**Figure 3-19. Top-Level Map with Submaps**

Submaps provide the following features:

- A high-level network view
- A top-level status summary
- Ease of use
- Scalability
- Enhanced map detail

These features are described in the following sections.

## High-Level Network View

Submaps enable you to view the overall organization of the network by viewing the top-level map. The top-level map summarizes the logical connectivity between submaps without cluttering the map with the details of each physical connection.

## Top-Level Status Summary

The status of individual network components propagates upward through the layers of submaps so that the top-layer map shows a status summary of the entire network that is easy to interpret.

## Ease of Use

Well-organized submaps make it easy to locate a particular piece of information (in much the same way that directories make it easy to find the correct file).

## Scalability

Submaps can be easily moved on a top-level map without the need to move multiple objects. All switches contained in the submap will automatically move with the submap with no further user interaction required.

## Enhanced Map Detail

With submaps, you can size individual icons large enough so that you can recognize them on the top-level map. Without submaps, you must reduce the icons to fit onto one map, making them impossible to identify.

## Creating a Map with Submaps

To create a map with submaps:

### ***Develop a Submap Plan***

The submap plan should cover the following areas:

- Number of submaps on the main map
- Submap names
- Submap division criteria (by geography, network operations center, etc.)
- List of switches in each submap
- Connectivity between switches within a submap
- Connectivity between submaps

### ***Create a New Map***

See “[Creating the Network Map](#)” on page 3-5 for information on how to create a new network map.

### ***Add Submap Icons to the Main Map***

1. From the Edit menu, select Add Object. The Add object Palette dialog box appears.
2. Select the Location symbol. A selection of icon types appears.
3. Position the pointer over the Generic symbol, press the middle mouse button, then drag the symbol onto the map. The Add Object dialog box appears.
4. Enter the submap name in the label field and choose OK.

### ***Arrange Submap Icons***

To disable automatic layout, from the View menu, choose Automatic Layout ⇒ Off for All Submaps.

Once automatic layout is disabled, you can arrange the submaps on the root map in any order.



It may be helpful to move all switch objects on the top-level map to the side of the map while you are positioning the submaps.

### ***(Optional) Disable User Plane Shadow***

To disable User Plane Shadow, from the View menu, select User Plane ⇒ Off for All Submaps.

Disabling User Plane Shadow will help to eliminate any confusion as to whether the submap can be managed.

### ***Create Submaps for Each Submap Icon***

1. Double-click on each submap icon.
2. Choose OK to create the submap.

### ***Create New Switches***

See [“Adding Objects to the Map” on page 3-13](#). Be sure to drag the switch icon to the submap, rather than the root-level map.

### ***Create an Intra-Submap Connection***

See [“Configuring a Trunk Connection” on page 4-25](#).

### ***Create an Inter-Submap Connection***

1. From the Edit menu, select Add Connection to draw a connection between Submap A and Submap B.
2. Enter an appropriate label for the inter-submap connection and choose OK.
3. Verify that the new connection is blue in color.
4. Select the blue line using the right mouse button; then select the Describe/Modify symbol.
5. Set the Status Source field to the Compound (Propagated) value; then choose OK to close this window.
6. Double-click on the blue connection line on the map and choose OK to open a submap for that line. Leave this connection submap open.
7. Double-click on the Submap A icon to open Submap A. Highlight all switches in Submap A that have connections into Submap B by holding down the <Ctrl> key and clicking on each switch.
8. From the Edit menu, select Copy ⇒ From This Submap; then close Submap A.
9. Click on the connection submap, and from the Edit menu, select Paste. A copy of the switches from Submap A will be pasted into the new object holding area of the connection submap.
10. Drag these switches to the desired location on the connection submap window.
11. Double-click on the Submap B icon (double-clicking opens).

12. Highlight any switches in Submap B that have connections into Submap A by holding down the <Ctrl> key and clicking on each switch.
13. From the Edit menu, select Copy ⇒ From This Submap; then close Submap B.
14. Click on the connection submap, and from the Edit menu, select Paste. A copy of the switches from Submap B is pasted into the new object holding area of the connection submap.
15. Drag these switches to the desired location on the connection submap window. The connected nodes from Submap A and Submap B are copied into the connection submap.
16. From the Edit menu, select Add Connection to add the trunks that connect switches inside the connection submap. See [“Configuring a Trunk Connection” on page 4-25](#) for a description of how to configure the trunks.



Only add the connections that go between Submap A and Submap B in this connection submap. The intra-submap connections already exist in the submaps themselves and do not need to be added.

17. Close the connection submap.
18. Verify that the connection line on the root map is no longer blue. The connection line will change colors to reflect the status of the underlying trunk connections.

#### ***Create Connections from Switches on the Root Map to Switches in Submaps***

1. From the Edit menu, select Add Connection to draw a connection between Submap A and Switch B.
2. Enter an appropriate label for the inter-submap connection and choose OK.
3. Verify that the new connection is blue.
4. Select the blue line and choose the Describe/Modify Symbol.
5. Select Status Source/Compound (Propagate) from the Describe/Modify Symbol menu.
6. Select the blue connection line on the map and choose OK to open the submap for that line. Leave this connection submap open.
7. Double-click on Submap A.
8. Select any switches in Submap A that have connections to Switch B. You can do this by holding down the <Ctrl> key and selecting each switch.
9. From the Edit menu, select Copy ⇒ From This Submap; then close Submap A.
10. Select the connection submap, and from the Edit menu, select Paste. A copy of the switches from Submap A is pasted into the new object holding area of the connection submap.



11. Drag these switches to the desired location in the connection submap window.
12. Select Switch B on the root-level submap, and from the Edit menu, select Copy ⇒ From This Submap.
13. Select the connection submap, and from the Edit menu, select Paste. A copy of Switch B is pasted into the new object holding area of the connection submap.
14. Drag this switch to the desired location in the connection submap window.
15. From the Edit menu, select Add Connection to add the trunks that connect Switch B and the switches from Submap A inside the connection submap. See [“Configuring a Trunk Connection” on page 4-25](#) for a description of how to add the trunks.



Only add the connections that go between Submap A and Switch B in this connection submap. The intra-submap connections already exist in the submaps themselves and do not need to be added to this connection submap.

16. Close the connection submap.
17. Verify that the connection line on the root map is no longer blue. The line will change colors to reflect the status of the underlying trunk connections.
18. Repeat [step 9](#) for each switch-to-submap connection on the root map.

## Importing Objects Into a Submap

You can import switch objects into your NavisCore submap from the NavisCore database using the Import and Selective Import functions. These functions offer you increased flexibility when designing your network map and are also useful in the event that you need to restore your network maps.

You can use the Import function to import *all* objects from the NavisCore database into a submap or you can use the Selective Import function to import *specific* objects from the NavisCore database into your submap.



When you import switch objects from the NavisCore database into a NavisCore submap, the imported object(s) and the original object use the same NavisCore database configuration information; therefore, any configuration changes you make to one object will also be made to the other object(s).

## Importing All Objects Into a Submap

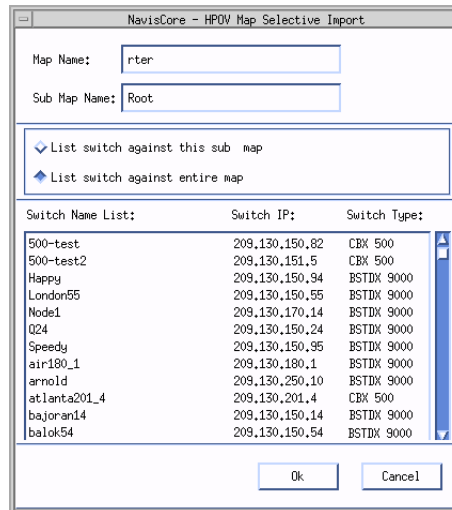
To import all objects into a submap from the NavisCore database:

1. Open the root map in your NavisCore network.
2. From the Administer menu, select NavisCore ⇒ Import. NavisCore automatically creates a new submap named IMPORT <network IP address> and imports all the switch objects currently in the NavisCore database into the new submap.

## Importing Specific Objects Into a Submap

To import specific objects into your submap map from the NavisCore database:

1. Open the submap or root map into which you want to import objects.
2. From the Administer menu, select NavisCore ⇒ Selective Import. The Map Selective Import dialog box appears (see [Figure 3-20](#)), displaying all the switches in the NavisCore database.



**Figure 3-20. NavisCore - HPOV Map Selective Import Dialog Box**

3. Perform the appropriate action shown in the following table:

Type of map you are in...	Action
A submap	Choose List switch against this submap
A root map	Choose List switch against entire map

4. Select the object that you want to import into the submap.
5. Choose OK. The object icon appears in your NavisCore submap.

## Deleting a Network Map Database

Deleting a network map removes the map information from the HP OpenView database, enabling you to create a new map. To delete a map:

1. From the Map menu, select Maps ⇒ Open/List Maps. Select the map you want to delete.
2. Delete each object from the map, and from the Edit menu, select Delete ⇒ From All Submaps. Use the Delete command, do not use Cut.
3. Delete the map from HP OpenView.
4. From the File menu, select Exit to close HP OpenView.
5. To log in as the root user, enter `su - root` and press Return.
6. Type the root password.
7. To shut down HP OpenView services, enter:

```
/opt/OV/bin/ovstop
```



**Step 8** completely removes the database. There is no database recovery process after you execute this command.

8. Enter the following command to completely remove the database:  

```
rm -rf /opt/OV/databases/openview/**
```
9. Enter the following commands to remove the events and trap alarm logs associated with the database:  

```
rm /opt/OV/log/xnmevents.<username>  
rm /opt/OV/log/trapd.log  
rm /opt/OV/log/trapd.log.old
```
10. Enter the following commands to run the HP OpenView database daemon, register the fields in the database, and start all other HP OpenView daemons:  

```
/opt/OV/bin/ovstart ovwdb  
  
/opt/OV/bin/ovw -fields  
  
/opt/OV/bin/ovstart
```
11. Log in as the root user by entering `su - root`.

- 12.** Enter the following command at the # prompt:

```
/opt/CascadeView/bin/cv-install.sh
```

The system displays the following message:

```
Verifying super user privileges...
```

```
Would you like to view (tail -f) the install log (default=y)?
```

(The tail window enables you to view the installation log.)

- 13.** Press Return to view the Tail window. The Tail window and NavisCore Installation menu appear. You can exit the script at any time by typing **<Ctrl>c**.

- 14.** At the NavisCore Installation menu, enter **3** to select HP OpenView Integration Only (NO DB Action).

The system displays the following message:

```
No Sybase Functionality will be altered.
```

- 15.** At the “Do you wish to extract CV/UX Installation media y/n” prompt, press Return.

- 16.** At the “Do you wish to continue y/n” prompt, press Return.

The system displays the following message:

```
Configuring NavisCore Environment.
```

```
Install NavisCore successful...
```

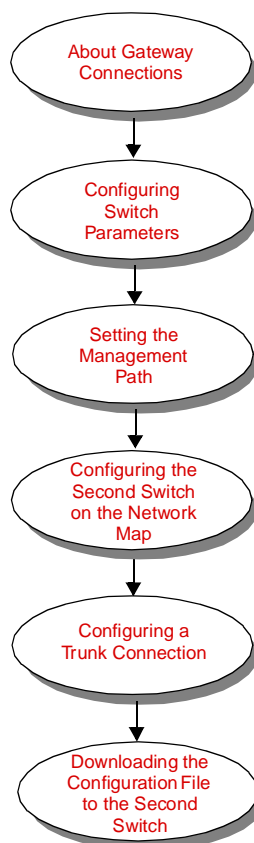
The system recreates the NavisCore environment. You now have a clean HP OpenView database.



# Configuring the Gateway Switch

This chapter describes how to configure the gateway switch — the first switch in your network — and add a second switch to enable Network Management Station (NMS) communications.

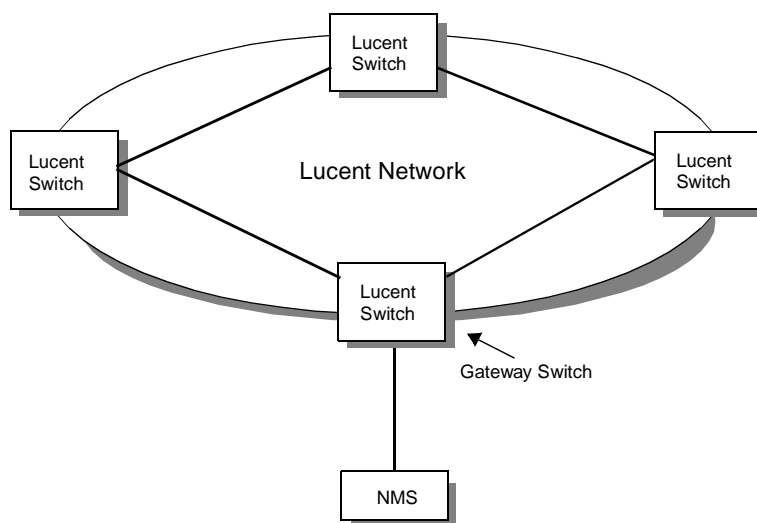
This chapter describes the following topics and tasks:



## About Gateway Connections

The gateway switch acts as a master switch and communicates the status of all switches on the Lucent network to the NMS. Once the NMS can communicate with the gateway switch, you can configure the second switch (and subsequent switches) on the network.

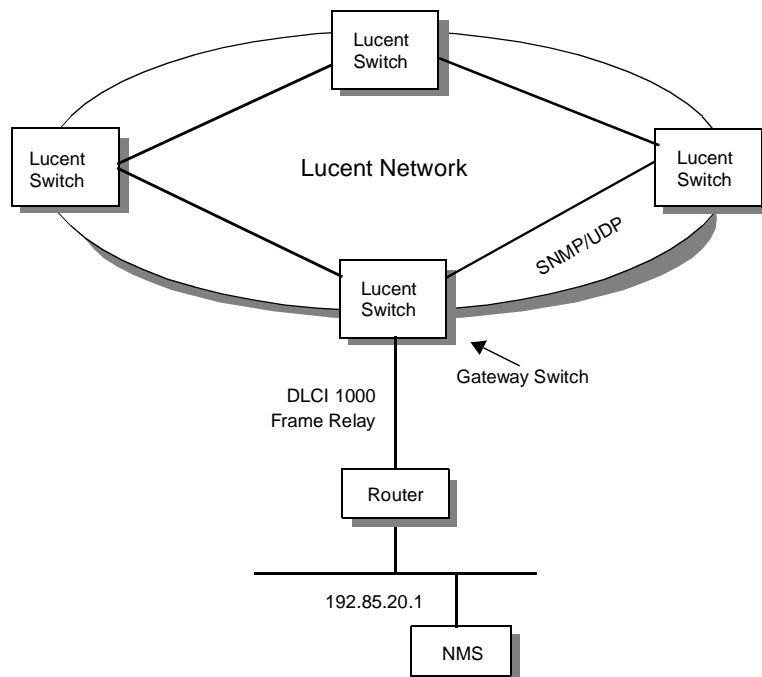
Figure 4-1 illustrates a Lucent switch network with a local Ethernet or Serial Line Internet Protocol (SLIP) connection to the gateway switch.



**Figure 4-1. NMS with a Local Connection to the Gateway Switch**



Figure 4-2 illustrates a Lucent switch network with a remote connection to the gateway switch.



**Figure 4-2. NMS with a Remote Connection to the Gateway Switch**

This chapter describes a typical configuration in which the switch has never been initialized and the NMS uses a local Ethernet or SLIP connection to access the switch (see Figure 4-1). See Chapter 5, “Setting Switch Parameters” for information about connecting if the NMS connects to the Lucent switch network via remote access (for example, the NMS and the switch are on separate LANs as in Figure 4-2) or through a management permanent virtual circuit (MPVC).

## Before You Begin

Before you set up the gateway switch and NMS, verify the following tasks are complete:

- Connect the NMS SPARCstation to the switch through one of the methods described in your switch hardware installation guide. Note whether the NMS is connected via direct Ethernet, indirect Ethernet (on a separate LAN segment), or through a SLIP connection (see [“About Gateway Connections” on page 4-2](#)).
- Connect the NMS SPARCstation (either directly or through modems) to the switch through its serial port. This task enables you to download the configuration file from the NMS to the switch. (If you choose not to download the configuration file from the NMS, you can copy the configuration file to any workstation that can access the switch. You can then run any terminal emulation package to download the configuration to the switch’s PRAM.)
- Clear switch PRAM if the switch has an existing configuration. See [Chapter 8, “Erasing PRAM”](#) for a description.
- Create the network map and add the first switch (gateway switch). See [“Creating the Network Map” on page 3-5](#) for instructions.

## Configuring Switch Parameters

To configure switch parameters:

1. Select the switch object and from the Misc menu, select NavisCore ⇒ Logon. Enter your operator password.
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears for your type of switch.
3. To configure switch parameters, choose Attrs. The Set Switch Attributes dialog box appears (see [Figure 4-3](#)).

NavisCore - Set Switch Attributes

Switch Name: Rowley83\_1

Switch Number: 83,1

Gateway Switch Attributes:

Ethernet IP Address: 152.148.85.47

Ethernet IP Mask: 255.255.255.0

Phone Number:

Telnet Session & Quantity: Enable 5

Console Idle Timeout (min): 0

LAN Idle Timeout (sec): 60

Switch Rev: 13.0.0.2.0

Contact:

Location:

Speeds Ctrl (Kbps): Rapid Upgrade: Enable

Bulk Stats Period (min): 60

Select:

Options: Set

Apply Close

**Figure 4-3. Set Switch Attributes Dialog Box**

4. Complete the Gateway Switch Attributes fields as described in [Table 4-1](#).

**Table 4-1. Set Switch Attributes Fields (Gateway Switch)**

Field	Action/Description
Ethernet IP Address	Enter the local Internet Protocol (IP) address of the switch. This address is the external Ethernet address of the switch. See your network administrator if you do not know this address.  <i>Note: You only need to enter the Ethernet IP address for the switch or switches that have an Ethernet connection and will communicate with the NMS via this connection.</i>
Ethernet IP Mask	Enter the in-band (Ethernet) IP mask for this switch. The default is 255.255.255.0.

5. Complete the required dialog box fields described in [Table 4-2](#).

**Table 4-2. Set Switch Attributes Fields**

Field	Action/Description
Phone Number	Enter the phone number of the contact person responsible for switch operations.
Telnet Session & Quantity	Specify Enable (default) to allow the switch to connect to a remote terminal for troubleshooting purposes. Lucent recommends that you do not disable this function.  Specify the limit for the number of simultaneous telnet sessions to a switch. The default limit is two, but you can increase the limit to five.
Console Idle Timeout (min)	Specify the time period (in minutes) that the console remains inactive before it is logged off. The default is 5 minutes.
LAN Idle Timeout (sec)	Specify the Idle Timeout interval, in seconds, for the Ethernet interface that connects the switch to the NMS. The default is 60 seconds. If the Ethernet interface receives no valid IP traffic during this period, the interface is marked as idle and will not be used for outbound traffic. Receipt of a valid IP packet restarts the Idle Timeout counter and reactivates the idle interface.
Switch Rev	Displays the current switch-software revision level.
Contact	Enter the name of the person responsible for switch operations.
Location	Enter the switch's physical location.

**Table 4-2. Set Switch Attributes Fields (Continued)**

Field	Action/Description
SMDS CIR (Kbps) (B-STDx only)	Enter the committed information rate (CIR), in Kbps, allocated to the Switched Multimegabit Data Service (SMDS) virtual paths originating at the switch. See the <i>NavisCore SMDS Configuration Guide</i> for additional information.
Rapid Upgrade	Select one of the following:  <i>Enable</i> – (default) Allows you to use the Rapid Upgrade feature to upgrade the software on this switch.  <i>Disable</i> – Prohibits you from using the Rapid Upgrade feature to upgrade the software on this switch.
Bulk Stats Period (min) (B-STDx only)	Select this option if you are using the NavisXtend Statistics Server. See the <i>NavisXtend Statistics Server User's Guide</i> for more information.
Number of Power Supplies (CBX 500 only)	The NMS must be configured for three power supplies although only two power supplies may be installed. Otherwise the switch will report a marginal state without providing an error message.  A chassis that supports three power supplies must have at least two power supplies installed at all times.
Lucent External Power Unit (GX 550 only)	Defaults to <i>Not In Use</i> . The GX 550 can use external power rectifiers as a power source. You can set switch attributes to detect a power failure in a remote power source, using traps and status information. If the GX 550 uses an external power source, select <i>In Use</i> .
Options (menu)	Lists additional attributes you can configure. See <a href="#">Table 5-10 on page 5-16</a> for information.

6. Choose Apply to set the parameters.
7. Choose Close to exit the dialog box.

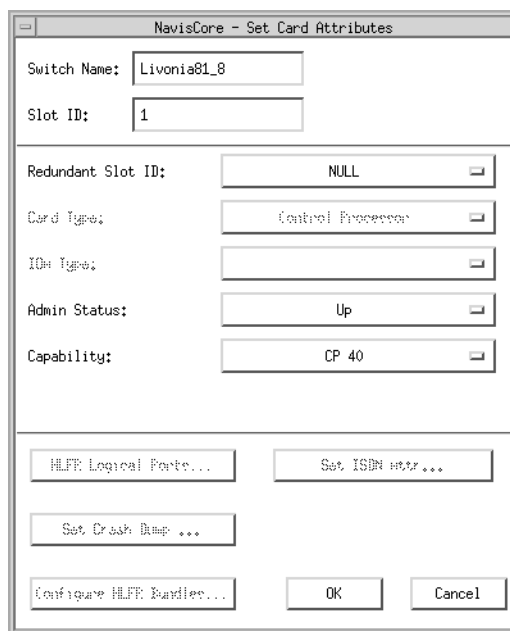
## Configuring the Processor Module

After configuring the gateway switch attributes, you need to configure the processor module, which provides system-level control and management functions for the gateway switch.

To configure the processor module:

1. Select the switch object and from the Misc menu, select NavisCore ⇒ Logon. Enter your operator password.
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears for your type of switch.
3. Point to the processor-module slot on the switch back panel and double-click the left mouse button. The Set Card Attributes dialog box appears. The exact appearance of the Set Card Attributes dialog box depends on the type of processor module you are configuring:
  - **Figure 4-4** displays the dialog box for a B-STDX control processor (CP).
  - **Figure 4-5** displays the dialog box for a CBX 500 switch processor (SP).
  - **Figure 4-6** displays the dialog box for a GX 550 node processor (NP).
4. Complete the fields described in the applicable table:
  - **Table 4-3** for a CP
  - **Table 4-4** for an SP
  - **Table 4-5** for an NP

Figure 4-4 displays the Set Card Attributes dialog box for a CP module.



**Figure 4-4. Set Card Attributes Dialog Box (CP Module)**

Table 4-3 describes the Set Card Attributes fields for a CP module.

**Table 4-3. Set Card Attributes Fields (CP Module)**

Field	Action/Description
Redundant Slot ID <i>(Optional)</i>	If you have a redundant CP, select 2 as the redundant Slot ID. You must always configure the main CP in Slot 1. The default, NULL, indicates there is no redundant CP module installed.
Card Type	This read-only field automatically defaults to control processor.
Admin Status	Set this field as follows:  <i>Up</i> – (default) This CP becomes fully operational when you start the switch.  <i>Down</i> – This CP does not come online when you start the switch. This setting saves the configuration in the database but does not download it to the switch. Use this option when you run foreground diagnostics.

**Table 4-3. Set Card Attributes Fields (CP Module) (Continued)**

Field	Action/Description
Capability	<p>Set this field as follows:</p> <p><i>CP Basic</i> – This CP module has a black dip switch located on the front panel. It is often used in both B-STDX models.</p> <p><i>CP Plus</i> – This CP module has a red dip switch located on the front panel. It has more memory than the CP Basic and can be used in both B-STDX models. This CP type is required for SMDS Billing.</p> <p><i>CP 30</i> – This CP module replaces the CP Basic and has 16 MB IRAM.</p> <p><i>CP 40</i> – This CP module replaces the CP Plus and has 64 MB memory for IP routing.</p> <p><i>CP 50</i> – This CP module replaces the CP Plus and has 128 MB memory for IP routing.</p> <p>The CP 30, 40, and 50 use a 260 or 520 MB internal disk and each CP supports a different amount of memory. These CP types are for switch code versions 4.2 and higher. For more information on installing these CP cards, see the <i>B-STDX 8000/9000 Hardware Installation Guide</i>.</p> <p><b>Note:</b> If you do not know the CP type and cannot physically view it, you can use the <code>show card</code> or <code>show system console</code> commands to retrieve this information. See the NavisCore Console Command Reference for a list of console commands.</p>



Figure 4-5 displays the Set Card Attributes dialog box for an SP module.

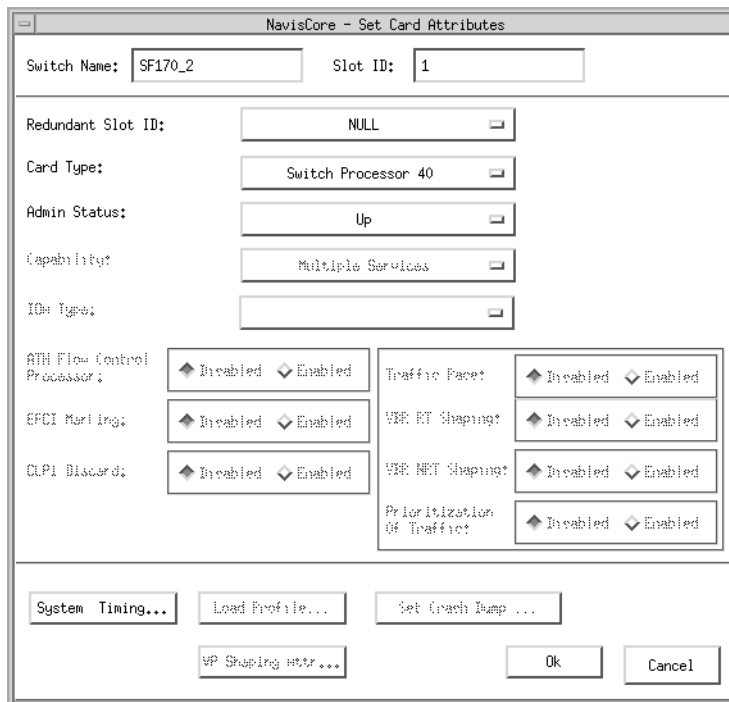


Figure 4-5. Set Card Attributes Dialog Box (SP Module)

Table 4-4 describes the Set Card Attributes fields for an SP module.

Table 4-4. Set Card Attributes Fields (SP Module)

Field	Action/Description
Redundant Slot ID <i>(Optional)</i>	If you have a redundant SP, select 2 as the redundant Slot ID. You must always configure the main SP in Slot 1. The default, NULL, indicates there is no redundant SP module installed.
Card Type	Select one of the following: <ul style="list-style-type: none"> <li>Switch Processor 10 – Model 10</li> <li>Switch Processor 20 – Model 20</li> <li>Switch Processor 30 – Model 30 (This model has Stratum 3 holdover capability.)</li> <li>Switch Processor 40 – Model 40 (This model has Stratum 3 holdover capability.)</li> </ul> <p><b>Note:</b> The Stratum 3 holdover capability enables the switch to continue to provide system timing even after a selected timing source fails.</p>

**Table 4-4. Set Card Attributes Fields (SP Module) (Continued)**

Field	Action/Description
Admin Status	<p>Select one of the following:</p> <p><i>Up</i> – (default) The SP module becomes fully operational when you start the switch. To become operational, the module gets its application code from the PCMCIA hard drive card, which resides in the Switch Processor Adapter (SPA) module.</p> <p><i>Down</i> – The SP module does not come online when you start the switch. The configuration is saved in the switch configuration table, but is not downloaded to the switch. Use this option when running foreground diagnostics.</p> <p><i>Maintenance</i> – The SP module does not receive the application code when you start the switch. A module in this state runs only from boot code. This setting enables you to reset PRAM for a module that is failing to boot due to invalid PRAM. You can also use this option to troubleshoot a possible hardware problem.</p>



To define the clock source for SP modules, see [“Defining System Timing for SP and NP Modules”](#) on page 4-15.

Figure 4-6 displays the Set Card Attributes Dialog Box for an NP module.

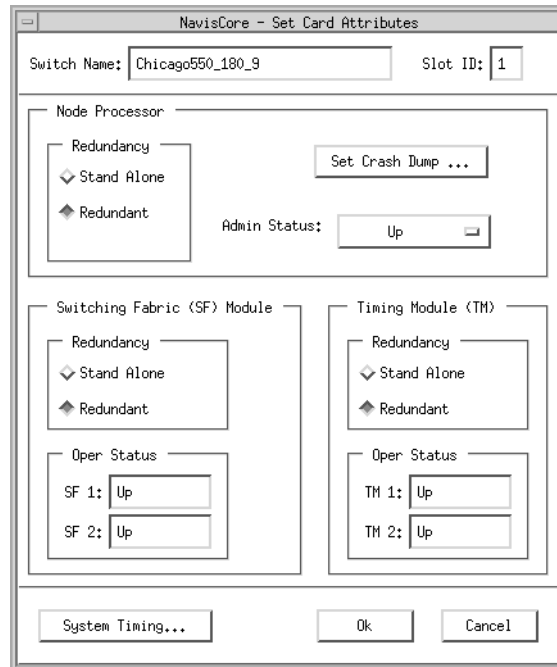


Figure 4-6. Set Card Attributes Dialog Box (NP Module)

Table 4-5 describes the Set Card Attributes fields for an NP module.

**Table 4-5. Set Card Attributes Fields (NP Module)**

Field	Action/Description
<b>Node Processor</b>	
Redundancy	Select Stand Alone if you have a non-redundant NP configuration. Select Redundant if you have a redundant NP installed in the switch.
Admin Status	Select one of the following:  <i>Up</i> – (default) The NP module becomes fully operational when you start the switch. To become operational, the module gets its application code from the NP disk drive.  <i>Down</i> – The NP module does not come online when you start the switch. The configuration is saved in the switch configuration table, but is not downloaded to the switch. Use this option when running foreground diagnostics.  <i>Maintenance</i> – The NP module does not receive the application code when you start the switch. A module in this state runs only from boot code. This setting enables you to reset PRAM for a module that is failing to boot due to invalid PRAM. You can also use this option to troubleshoot a possible hardware problem.
<b>Switching Fabric (SF) Module</b>	
Redundancy	Select Stand Alone if you have a non-redundant SF configuration. Select Redundant if you have a redundant SF installed in the switch.
Oper Status	Displays the operational status of each SF module (SF1 and SF2) installed in the GX switch.
<b>Timing Module (TM)</b>	
Redundancy	Select Stand Alone if you have a non-redundant TM configuration. Select Redundant if you have a redundant TM installed in the switch.
Oper Status	Displays the operational status of each TM module (TM1 and TM2) installed in the GX switch.

- Choose OK to save the attributes or choose Cancel to exit the dialog box. The Switch Back Panel dialog box reappears. If you selected OK, the Switch Back Panel dialog box displays the configured CP/SP/NP.

To continue, use one of the following methods to define the clock source for the SP/NP modules:

- To use either of the external clock sources or the internal clock as the switch clock source, define the switch clock sources and clock source priorities as described in [“Defining System Timing for SP and NP Modules.”](#)
- To use a BIO module’s clock source as the switch clock source, you must configure one of the BIO module’s physical ports as a clock source for the switch. Choose OK and see the *NavisCore Physical Interface Configuration Guide* for information regarding the physical port type you are using as the clock source.

## Defining System Timing for SP and NP Modules

The SP/NP system-timing function enables you to do the following:

- Specify the primary and secondary clock sources for the switch.
- Specify whether or not the switch clock source reverts from secondary back to primary after the primary clock comes back online after a failure.
- Enable or disable the external clock output.
- Specify the external line build-out of the external clock output.
- Manually select the active system-timing clock.
- Configure an SP/NP for international use.

To monitor the configured system-timing options, see the *NavisCore Diagnostics Guide*.

To define system-timing parameters:

1. Select the switch object on the network map.
2. If you are not logged on, select NavisCore ⇒ Logon from the Misc menu. Enter your operator password.
3. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears for your type of switch.
4. Select the SP/NP module and choose Attrs. The Set Card Attributes dialog box appears.
5. Choose the System Timing button. The Set System Timing dialog box appears (see [Figure 4-7](#)).

Switch Name	ID	Type
Asbury83_4	83.4	CBX-500

Primary Clock Source:	Internal	Port Ref 1:		Primary Clock Ref. Oper. State:	Ir
Secondary Clock Source:	Internal	Port Ref 2:			
Revertive Mode:	Disabled			Primary PLL Oper. State:	Ac
External Clock Out:	Tx AIS				
External Clock Out Line Build Out:	0 - 133 ft			External Clock 1 Oper. State:	LC
External Clock Interface Type:	T1 wire-wrap			External Clock 2 Oper. State:	LC
Preferred System Timing Clock:	Primary			Port Clock Ref. 1 Oper State:	Dc
Holdover Mode:	Enabled			Port Clock Ref. 2 Oper. State:	Dc
				Actual External Clock Interface Type:	T1

**Figure 4-7. Set System Timing Dialog Box**

6. Complete the fields described in Table 4-6.

**Table 4-6. Set System Timing Fields**

Field	Action/Description
Primary/Secondary Clock Source	<p>Select a different option for both the Primary and Secondary clock sources. If the Primary source becomes unavailable, the Secondary source automatically takes control of system timing.</p> <p>Options include:</p> <p><i>Internal</i> – (default) The switch uses the Stratum 3 clock on the SP/NP module as the primary (or secondary) clock source.</p> <p><i>External Clock 1</i> – To use this option, you must connect an external clock source to the <i>primary external clock</i> connection on the SPA/NPA module (see your switch hardware installation guide for connection instructions). This connection is labeled “In 1.” The switch uses this external clock as the primary (or secondary) system timing source.</p> <p><i>External Clock 2</i> – To use this option, you must connect an external clock source to the <i>secondary external clock</i> connection on the SPA/NPA module (see your switch hardware installation guide for connection instructions). This connection is labeled “In 2.” The switch uses this external clock as the primary (or secondary) system timing source.</p> <p><i>Port Reference 1</i> – To use this option, first configure one of the physical ports on the switch as the Primary System Clock Source. The switch uses the incoming clock signal on the selected physical port as the primary (or secondary) system timing source.</p> <p><i>Port Reference 2</i> – To use this option, first configure one of the physical ports on the switch as the Secondary System Clock Source. The switch uses the incoming clock signal on the selected physical port as the primary (or secondary) system timing source.</p>
Revertive Mode	<p>Select one of the following options:</p> <p><i>Disabled</i> – (default) If the switch loses the primary clock source, the secondary clock source takes over system timing. However, the system will not automatically revert back to the primary clock source once it is restored.</p> <p><i>Enabled</i> – If the switch loses the primary clock source, causing the secondary clock source to take over system timing, the system automatically reverts back to the primary clock source when it becomes available again.</p> <p><b>Note:</b> If you disable Revertive Mode, use the <i>Manual Restore</i> command on the <i>Set System Timing</i> dialog box to revert back to the primary clock source.</p>

**Table 4-6. Set System Timing Fields (Continued)**

Field	Action/Description
External Clock Out	<p>Select one of the following options:</p> <p><i>Tx AIS</i> – (default) In the event of system clock loss, the external clock output transmits an AIS signal.</p> <p><i>Primary</i> – The external clock output references the clock that the switch uses as the primary source.</p> <p><i>Secondary</i> – (SP 10 and SP 20 only) The external clock output references the clock that the switch uses as the secondary source.</p> <p><i>Loopback ext1</i> – The clock that is wired to the external clock input #1 on the SPA/NPA module is fed directly to the external clock output jack.</p>
External Clock Out Line Build Out	<p>If T1 wire-wrap is the the External Clock Interface Type, select a value that matches the distance from the external clocking device to the switch. The default is 0 – 133 ft.</p>
External Clock Interface Type	<p>Select one of the following options:</p> <p><i>T1 wire-wrap</i> – (default) The SP/NP accepts T1 timing inputs and provides T1 timing outputs. The signalling is D4 framed.</p> <p><i>E1 BNC</i> – The SP/NP accepts E1 timing inputs and provides E1 timing outputs.</p>
Preferred System Timing Clock	<p>Select one of the following options:</p> <p><i>Primary</i> – The switch uses the clock source specified in the Primary Clock Source field.</p> <p><i>Secondary</i> – (SP 10 and SP 20 only) The switch uses the clock source specified in the Secondary Clock Source field.</p> <p><b>Note:</b> <i>If the primary clock source becomes unavailable, the system automatically provides the secondary clock source to the I/O modules.</i></p>
Holdover Mode	<p>Select one of the following options:</p> <p><i>Enabled</i> – (default) Enables Stratum 3 system timing support (also known as Holdover Mode) for SP 30, SP 40, and GX timing modules. This feature provides an enhanced clock state controller for both primary and secondary clock recovery, allowing the system to synchronize from a failed clock until a valid clock can be re-established.</p> <p><i>Disabled</i> – Disables Stratum 3 system timing support (also known as Holdover Mode) for SP 30, SP 40, and GX timing modules.</p>





SP 30 and SP 40 modules have Stratum 3 system timing support. This feature provides an enhanced clock state controller for both primary and secondary clock recovery, allowing the system to synchronize from a failed clock until a valid clock can be re-established. This capability is also known as “holdover” mode.

7. Choose OK to save your settings. The Set Card Attributes dialog box reappears.

## Configuring Input/Output Modules

After you configure the processor module and define the system timing and clock source for SP/NP modules, you can configure the Input/Output (I/O) modules in your gateway switch.

To configure your I/O modules:

1. To configure the first I/O module, double-click on its slot. The Set Card Attributes dialog box appears.



You must configure each I/O module for the switch to be fully synchronized with the NMS. However, you do not have to configure all the physical and logical ports on each I/O module at this time.

2. See the *NavisCore Physical Interface Configuration Guide* for instructions on how to configure each supported I/O module.
3. Configure I/O module attributes (if necessary) for your module.
4. Choose OK. When you finish configuring the necessary I/O modules, choose Close to return to the network map.

## About Management Paths

The Set Management Path function enables you to configure the IP address and access attributes for the NMS workstations. If you do not specify the NMS IP address, the NMS cannot configure a switch or receive switch status information.

The Management Path configuration is node-specific and identifies each NMS that attaches via the gateway switch. You only need to define the Management Path for the switch that contains one of the following connections for sending management-protocol requests and responses:

**Serial (SLIP)** — (B-STDX only) The NMS workstation connects to the switch's serial Network Management port on the B-STDX CP module. The NMS IP address must be the same as the workstation IP address. Serial (SLIP) is not supported on a UNIX workstation.

**Direct Ethernet**— The NMS connects to the same LAN as the switch's Ethernet connection. You can use only direct Ethernet if the switch can reach the NMS (address) without going through a gateway router.

**Indirect Ethernet**— This connection indicates that the NMS and the switch's Ethernet IP address are on two separate LANs and communicate via a gateway router(s). For this connection method, you enter both the NMS IP address and the associated gateway router IP address. Also, when you installed NavisCore, you entered a “static route” in the gateway router to specify how the router reaches the internal IP network address. This is the network number you specified in the Configuration dialog box in **“Creating the Network Map” on page 3-5**.

**Management Data Link Connection Identifiers (DLCI)**— This connection is used when the NMS connects to a LAN that contains a router with a Frame Relay connection to the switch. The switch does not need an Ethernet module in the processor module for this type of NMS connection. Network traffic is tunneled through the attached Frame Relay user-to-network interface-data circuit-terminating equipment (UNI-DCE) connector as a permanent virtual circuit (PVC).

**Management Address (SMDS In-band Management)** — This connection indicates that the NMS is connected remotely to the Lucent network using SMDS services to transport the SNMP/UDP/IP protocol packets.

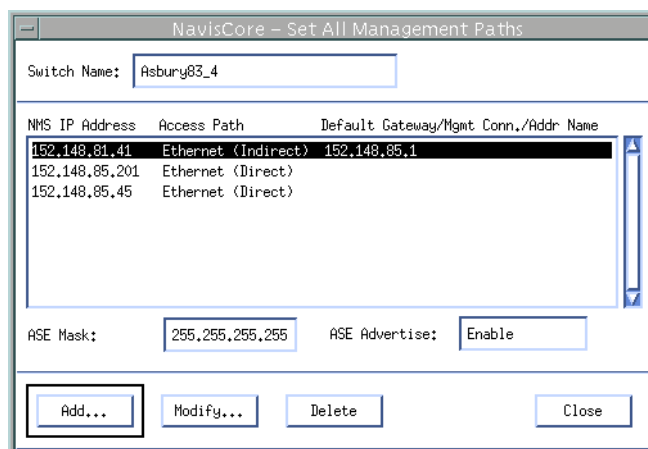
**Management PVC** — This connection is used when the NMS or IP host connects to the switch via an ATM router or network interface card (NIC). You can use this type of connection for all applications involving a switch and an attached NMS or IP host. Because the management PVC is an actual PVC between the UNI port to which the NMS or IP host connects and the remote switch processor module, the switch to which the NMS or IP host connects is not burdened by the traffic traversing the management PVC.

**Management VPI/VCI** — This connection is used when the NMS or IP host connects to the switch via an ATM router or network interface card (NIC). This is the preferred method if you only use the attached NMS or IP host to transfer information between the host and the local switch. You can use a management virtual path identifier/virtual channel identifier (VPI/VCI) connection to transfer information between the host and remote switch(es); however, using this method to transfer large amounts of information can negatively affect the local switch.

## Setting the Management Path

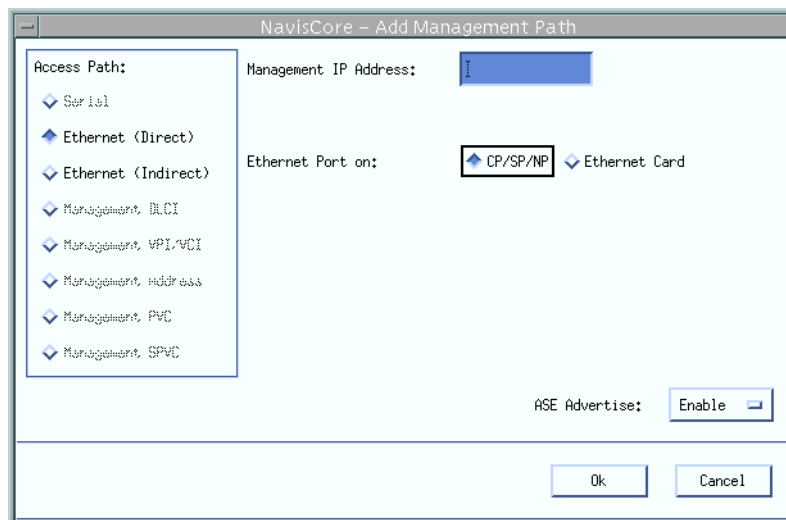
To set the Management Path:

1. On the network map, select the switch to connect to the NMS.
2. From the Administer menu, select Lucent Parameters ⇒ Set All Management Paths. The Set All Management Paths dialog box appears (see [Figure 4-8](#)).



**Figure 4-8. Set All Management Paths Dialog Box**

3. Choose Add to create a new management path. The Add Management Path dialog box appears (see [Figure 4-9](#)).



**Figure 4-9. Add Management Path Dialog Box (Direct Ethernet)**

4. Complete the Add Management Path dialog box fields, as follows:
  - a. In the Access Path field, select the connection type you used to connect the NMS to the switch.
  - b. In the Management IP Address field, enter the NMS IP address. This should be the IP address of the SPARCstation.
  - c. The fields that appear depend on the connection type you select.
  - d. Enable (default) or disable the ASE Advertise option to indicate whether or not to advertise the new NMS management path on the network.

Using ASE Advertise to select switches that function as gateway switches to the NMS can provide greater control of OSPF database size, network control traffic, and CPU usage.
  - e. Choose OK to save your changes or Cancel to exit.
5. Choose Close to return to the network map.



You now need to initialize the switch, which generates an ASCII text file. This text file contains the basic parameters needed to activate the switch. See [Chapter 8, "Downloading the Configuration"](#) for instructions.

## Configuring the Second Switch on the Network Map

Before you set up your next switch, verify the following tasks are complete:

- Set up the NMS SPARCstation and gateway switch as described in ["Adding Objects to the Map" on page 3-13](#). The gateway switch object should be green on the map.
- Install the physical connection for creating a trunk line between this switch and the gateway (or any active switch you can configure as a hop between this switch and the gateway). See the applicable switch hardware installation guide.

The following procedure describes the basic steps required to get your second switch (and any other switches) synchronized and communicating with each other and the NMS. To do this, you must add a second switch to the same map, configure the physical and logical port, and define a trunk connection between the two switches.

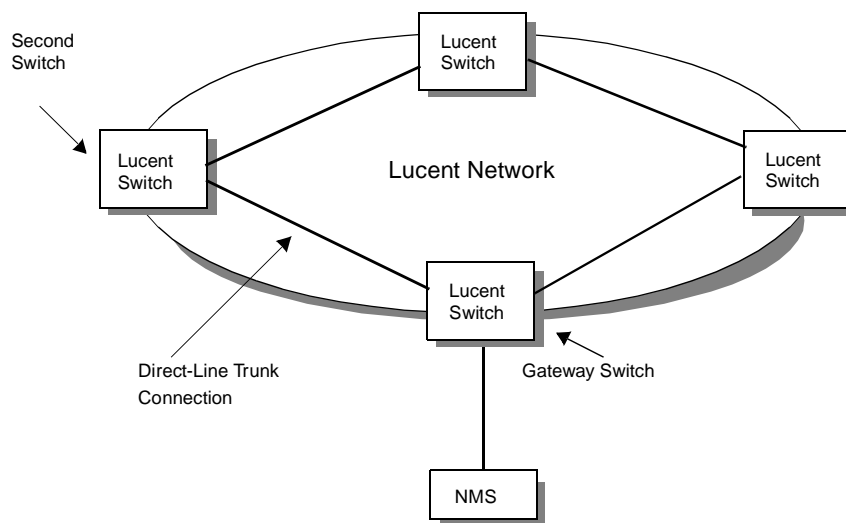
1. If necessary, start the NMS and access NavisCore.
2. From the Misc menu, select NavisCore ⇒ Logon.
3. From the Map menu, select Maps ⇒ Open/List Maps and select the desired map. Choose OK.
4. To add the second switch to the map, see [“Adding Objects to the Map” on page 3-13](#). When you finish, the network map should display the second switch, which is “unmanaged” (wheat color).
5. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears.
6. To configure the processor module, double-click the left mouse button on the module slot. Verify that the admin status is Up and configure the module as described in [“Configuring the Processor Module” on page 4-8](#).
7. Choose OK. The Switch Back Panel dialog box reappears.
8. To configure the first I/O module, double-click its slot. See the *NavisCore Physical Interface Configuration Guide* for a detailed description of how to configure each supported I/O module.
9. Choose OK. Repeat [step 8](#) for each I/O module in this switch. When you finish setting the card attributes, choose Close to return to the network map.



You must configure each I/O module for the switch to be fully synchronized with the NMS. However, you do not have to configure all the physical and logical ports on each I/O module at this time.

## Configuring a Trunk Connection

This section describes how to configure a direct-line trunk connection between the first switch (the gateway switch) and the second switch in a new Lucent network. To configure a direct-line trunk, you must first configure the physical port and logical port on the gateway switch and the second switch. **Figure 4-10** shows an example of a direct-line trunk connection.



**Figure 4-10. Direct-Line Trunk Connection**

## Configuring the Trunk's Physical Port

To configure the physical port:

1. On the network map, select the gateway switch and from the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears.
2. To configure a physical port, select the applicable I/O module. Double-click on the port to use for the trunk connection. The Set Physical Port Attributes dialog box appears.
3. Specify the trunk connection's physical port attributes as described in the *NavisCore Physical Interface Configuration Guide*.
4. Choose Apply to enter your selections.

## Configuring the Trunk's Logical Ports

To configure the logical port settings for the trunk:

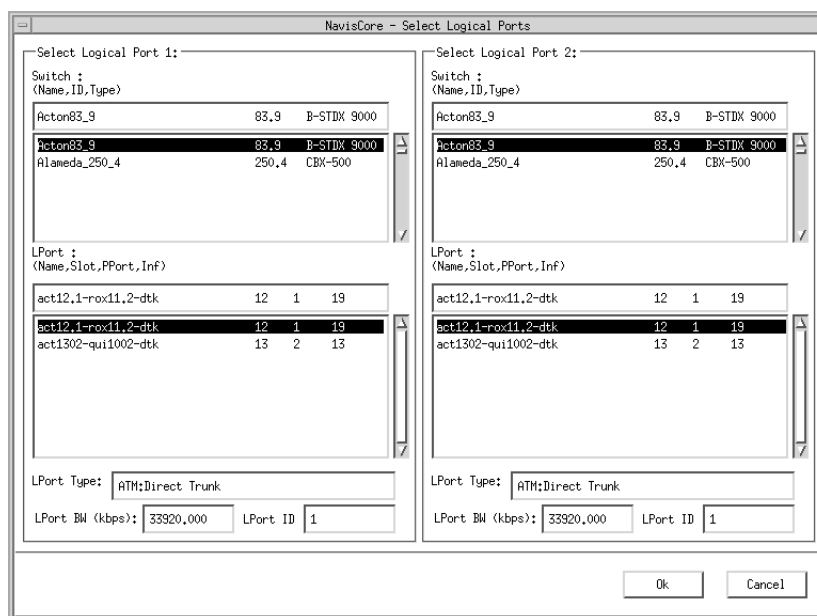
1. On the network map, select the gateway switch and from the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears.
2. Select the applicable I/O module. Double-click on the port to use for the trunk connection. The Set Physical Port Attributes dialog box appears.
3. Choose the Logical Port button on the Set Physical Port Attributes dialog box. The Set All Logical Ports dialog box appears.
4. Choose Add. The Add Logical Port dialog box appears.
5. Configure the logical port as described in one of the following NavisCore configuration guides:
  - *NavisCore Frame Relay Configuration Guide*
  - *NavisCore ATM Configuration Guide*
  - *NavisCore IP Navigator Configuration Guide*
  - *NavisCore SMDS Configuration Guide*
6. Choose Close, then Cancel to return to the network map.
7. Repeat the steps in “**Configuring the Trunk's Physical Port**” and “**Configuring the Trunk's Logical Ports**” to configure a physical and logical port for the switch (second switch) at the other end of the trunk connection.



## Defining the Trunk Configuration

To configure the trunk between the gateway switch and the second switch:

1. From the Administer menu, select Lucent Parameters ⇒ Set All Trunks. The Set All Trunks dialog box appears.
2. Choose Add. The Select Logical Ports dialog box appears (see [Figure 4-11](#)).



**Figure 4-11. Select Logical Ports Dialog Box**

3. Complete the required fields described in [Table 4-7](#) for both Logical Port 1 and Logical Port 2.

**Table 4-7. Select Logical Port Dialog Box Fields**

Field	Action/Description
Switch (Name, ID, Type)	Select a switch for each endpoint. The dialog box displays the parameters for the selected switch.
LPort (Name, Slot, PPort, Inf)	Select the same trunk logical port type for each endpoint. This field also displays the physical port number and I/O slot (number) in which the module resides. <i>Note: Review the LPort Bandwidth field for each endpoint to make sure the bandwidth is the same.</i>
LPort Type	Displays the configured logical port type.

**Table 4-7. Select Logical Port Dialog Box Fields (Continued)**

Field	Action/Description
LPort BW (kbps)	Displays the bandwidth configured for the logical port. This value must be the same for both endpoints.
LPort ID	Displays the logical port number.

- Choose OK. The Add Trunk dialog box appears, displaying the trunk's parameters for both Logical Port 1 and Logical Port 2 (see [Figure 4-12](#)).

**Figure 4-12. Add Trunk Dialog Box**

5. Complete the fields described in [Table 4-8](#).

**Table 4-8. Add Trunk Fields Dialog Box**

Field	Action/Description
Trunk Name	Enter a unique alphanumeric name to identify the trunk. You use this same name when you create the trunk connection (see the NavisCore configuration guide for your network service).
Subscription Factor (%)	<p>The trunk oversubscription factor percentage enables you to optimize the aggregate CIR you can configure on the trunk, by allowing you to oversubscribe bandwidth on the trunk. The oversubscription factor represents the V value for this trunk. The bandwidth on a trunk is reserved at runtime, based on the configured CIR value of the PVCs that traverse that trunk.</p> <p>For details on this parameter, see the NavisCore configuration guide for your network services.</p> <p><i>Note: You cannot oversubscribe an ATM Direct Trunk.</i></p>
Area ID	Displays the ID of the Open Shortest Path First (OSPF) area to which the trunk belongs.
Admin Cost (1-65534)	<p>Assign an administrative cost value of 1 to 65534. The lower the admin cost of the path, the more likely OSPF will select it for circuit traffic. The default admin cost value is 100. For details on this parameter, see the NavisCore configuration guide for your network service.</p> <p><i>Note: When you increase or decrease the administrative cost of a trunk, the reroute-tuning parameters control the rate at which the switch adds or removes circuits from the trunk. See “<a href="#">Defining Circuit Reroute-Tuning Parameters</a>” on page 5-21 for information about reroute tuning. You cannot use trunk admin cost to disable a trunk.</i></p>
Keep Alive Error Threshold (3-255)	<p>Configure the keep-alive threshold for a value between 3 and 255 seconds. The default is 5 seconds. For details on this parameter, see the NavisCore configuration guide for your network service.</p> <p><i>Note: Service is disrupted if you change this value after the trunk is online.</i></p>

**Table 4-8. Add Trunk Fields Dialog Box**

Field	Action/Description
Traffic Allowed	<p>Specify one of the following options to designate the type of traffic allowed on this trunk:</p> <p><i>All</i> – (default) The trunk can carry network management traffic, user traffic, and OSPF address distribution.</p> <p><i>Mgmt Only</i> – The trunk can carry <i>only</i> network management traffic, such as Simple Network Management Protocol (SNMP) communication between a switch and the NMS.</p> <p><i>Mgmt &amp; User</i> – The trunk can carry network management traffic and user traffic.</p> <p><b>Note:</b> <i>To calculate the most efficient route for network management traffic, OSPF uses Trunk Admin Cost. OSPF ignores trunk bandwidth when it selects a route for management traffic; management traffic can use a negative bandwidth trunk.</i></p>
Trunk IP Routing	<p>Enable or disable IP routing for the trunk. If disabled, the trunk is reserved for use by Virtual Network Navigator (VNN). For more information about IP routing, see the <i>NavisCore IP Navigator Configuration Guide</i>.</p>
Trunk IP Area ID	<p>Enter the OSPF Area ID used by the IP Navigator. For more information about IP Navigator, see the <i>NavisCore IP Navigator Configuration Guide</i>.</p>
TOS Zero Metric (End 1)	<p>Displays the type of service cost for Endpoint 1 of the trunk. The lowest TOS 0 has the highest priority for routing. Any value between 1 and 65535 is valid.</p>
TOS Zero Metric (End 2)	<p>Displays the type of service cost for Endpoint 2 of the trunk. The lowest TOS 0 has the highest priority for routing. Any value between 1 and 65535 is valid.</p>
VNN VPN Name	<p>Select a VNN Virtual Private Network (VPN) name if applicable. The default is Public.</p>
Trunk Type	<p>Select one of the following:</p> <p><i>Normal</i> – (default) Indicates a common trunk with no backup service.</p> <p><i>Primary</i> – Indicates that the trunk has a backup for fault tolerance. If you select Primary, go to <b>step 6</b>.</p> <p><i>Backup</i> – Indicates that it is the backup trunk (when failure occurs on the primary trunk). If you select Backup, go to <b>step 8</b>.</p>

**Table 4-8. Add Trunk Fields Dialog Box**

<b>Field</b>	<b>Action/Description</b>
Hold Down Time	Accept the default value (0), or enter a value between 0 and 65535 (seconds).  Hold down time allows you to configure the time delay (in seconds) before link-state advertisements (LSAs) are generated when a trunk recovery takes effect on the network. The time delay is not used when a trunk is brought up for the first time, when a trunk's Open Shortest Path First (OSPF) area ID changes, and when a trunk goes down. This setting can reduce the number of LSAs caused by rapid changes in trunk status.

6. (Optional) If you selected *Primary* as the Trunk Type, the system displays the fields shown in **Figure 4-13**.

The screenshot shows a dialog box with the following fields and values:

- Trunk Type: Primary
- Call setup retry Interval (sec): 15
- Backup on Trunk Failure: Enabled
- No. of retries/setup cycle : 20
- Trunk failure thresh. (sec): 5
- Retry cycle Interval (min.): 10
- Trunk restoration thresh. (sec): 15
- Initiate Backup Call Setup: Yes

**Figure 4-13. Add Trunk Dialog Box (Primary Trunk)**

7. Complete the fields described in **Table 4-9**, or accept the default parameters.

**Table 4-9. Add Primary Trunk Fields**

Field	Action/Description
Call setup retry Interval (sec)	Specify the number of seconds between initiating a call. The default is 15 seconds.
No. of retries/setup cycle	Specify the number of retries per interval. The default is 20 retries.
Retry cycle Interval (min)	Specify a retry interval in minutes. The default is 10 minutes.
Initiate Backup Call Setup	Choose Yes (default) to initiate a backup call.
Backup on Trunk Failure	Enable (default) or disable trunk backup. If you enable trunk backup, the system automatically uses the backup trunk if the primary trunk fails. If you choose Disabled, the automatic trunk backup option is not used.
Trunk Failure thresh. (sec)	Specify the number of seconds (the default is 5). If you enabled trunk backup, this field specifies the number of seconds the system will wait before switching over to the backup trunk.
Trunk Restoration thresh. (sec)	Specify the number of seconds that the system will wait for the primary trunk to become functional before resuming use of the primary trunk. The default is 15 seconds. If the primary trunk is out of service and the backup trunk is in use, the system will not resume use of the primary trunk until it has been restored for the period of time you specify. The purpose of this field is to prevent a switch-over to a primary trunk that has only been temporarily restored.

8. (Optional) If you selected *Backup* as the trunk type, complete the additional parameters that appear on the Add Trunk dialog box:

*Primary Trunk of the backup* – Select the name of the trunk to back up to this configuration.

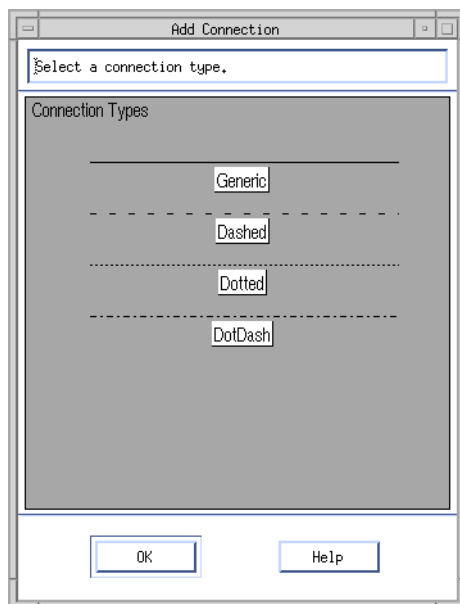
9. Choose Close to return to the network map.

The next step is to create a trunk-line connection

## Adding a Trunk-Line Connection

To add the trunk-line graphic to the network map:

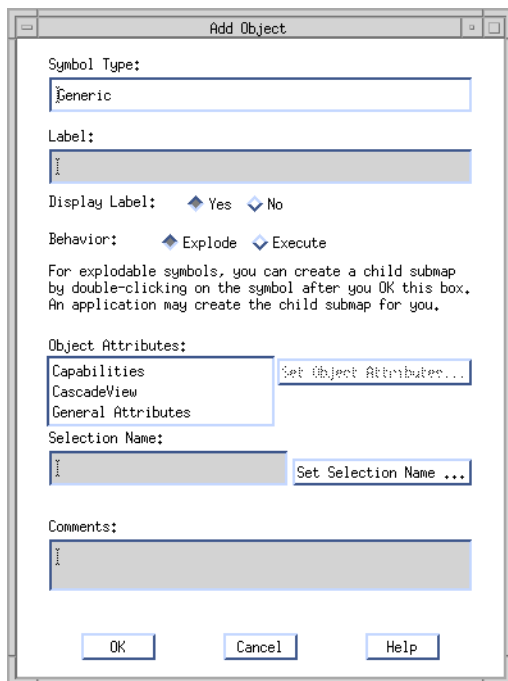
1. From the Edit menu, select Add Connection. The Add Connection dialog box appears (see [Figure 4-14](#)).



**Figure 4-14. Add Connection Dialog Box**

2. Select a connection type.
3. To create a trunk-line connection between the two switches on the network map, click on the first switch object (source symbol) and then the second switch object (destination symbol).

The Add Object dialog box appears (see [Figure 4-15](#)).



**Figure 4-15. Add Object Dialog Box**

- Complete the fields described in [Table 4-10](#).

**Table 4-10. Add Object Fields**

Field	Action/Description
Symbol Type	Displays the type of connection you are adding to the map.
Label	Enter the trunk name you specified on the Add Trunk dialog box (see <a href="#">page 4-29</a> ).
Display Label	Select Yes to have the label appear below the object on the network map. Select No if you do not want the label displayed.
Behavior	Select Explode (default) to create the basic NavisCore network configuration. See the <i>HP OpenView User's Guide</i> for more information about using the Execute function.
Object Attributes	Select CascadeView, then choose Set Object Attributes. The Add Object - Set Attributes dialog box appears (see <a href="#">Figure 4-16</a> ).



Figure 4-16 displays the Add Object - Set Attributes dialog box.

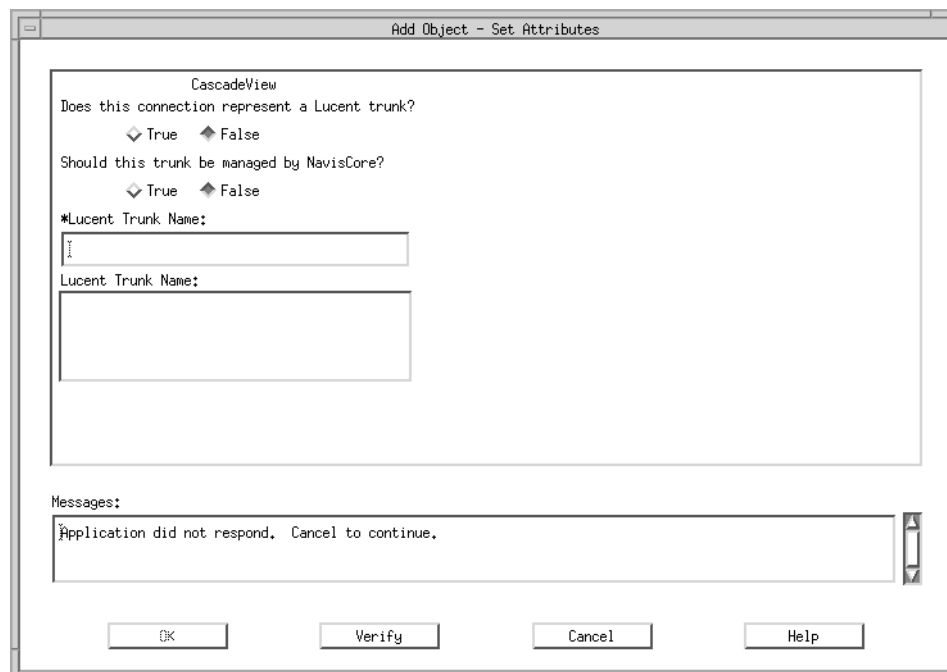


Figure 4-16. Add Object - Set Attributes Dialog Box

5. Complete the fields described in Table 4-11.

Table 4-11. Add Object - Set Attributes Fields

Field	Action/Description
Does this connection represent a Lucent Trunk?	Select True.
Should this trunk be managed by NavisCore?	Select True.
*Lucent Trunk Name	Enter the name you assigned to the trunk. This should be the same name you entered for the label in the Add Object dialog box on page 4-34.

6. Choose Verify to confirm your selections.
7. Choose OK to return to the Add Object dialog box.
8. Choose OK to return to the network map. The trunk line appears between the two switches on the network map.

## Downloading the Configuration File to the Second Switch

To download the configuration file and synchronize the second switch, see [Chapter 8, “Downloading the Configuration”](#) for instructions.

After you download the configuration file and synchronize the switch, the trunk-line graphic and switch objects should appear green on the map, indicating a successful configuration.



If the trunk graphic is black, make sure the following environment variable is specified in each NMS user's `.profile`:

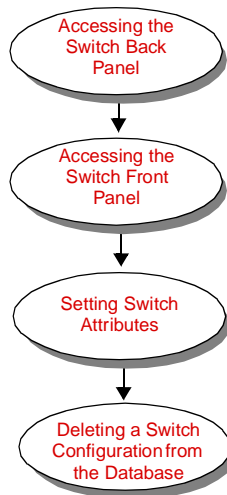
```
$ XUSERFILESEARCHPATH =/opt/CascadeView/app-defaults/%N  
$ export XUSERFILESEARCHPATH
```

If necessary, log in as root and modify the `.profile` or `.cshrc` file. Then log out of NavisCore and log in again to restart the system.

## Setting Switch Parameters

Once you have created a network map and defined the first switch in NavisCore, you can set the switch parameters. This chapter describes the front and back panels of a switch and how to access and set switch attributes. These steps are the same for all switch platforms. See [Chapter 6, “Setting GX 250 Multiservice Extender Attributes”](#) for information on configuring the GX 250 Multiservice Extender.

This chapter describes the following topics and tasks:



Before you configure switch parameters, verify that the following tasks are complete:

- Create a network map ([page 3-5](#))
- Create a subnet ID ([page 3-10](#))
- Add a Lucent switch to the network map ([page 3-13](#))

## Accessing the Switch Back Panel

From the switch back panel, you can configure each Input/Output (I/O) module in the switch. After configuring the modules, you can then select each physical port on the module to configure both physical and logical port attributes.

See the *NavisCore Physical Interface Configuration Guide* for physical port configuration information. See “[Related Documents](#)” on [page xxvi](#) for a list of the NavisCore service configuration guides, which contain logical port configuration information.

To display the switch back panel:

1. Select the applicable switch object (B-STDX, CBX, or GX) on the network map.
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears for the selected switch. The exact appearance of the switch back panel depends on the type of switch you are accessing:
  - [Figure 5-1](#) displays the switch back panel for a B-STDX switch.
  - [Figure 5-2](#) displays the switch back panel for a CBX switch.
  - [Figure 5-3](#) displays the switch back panel for a GX switch.

See [Table 5-1 on page 5-6](#) for a description of the buttons on the Switch Back Panel dialog box.

Figure 5-1 displays the Switch Back Panel dialog box for a B-STDx 9000 switch.

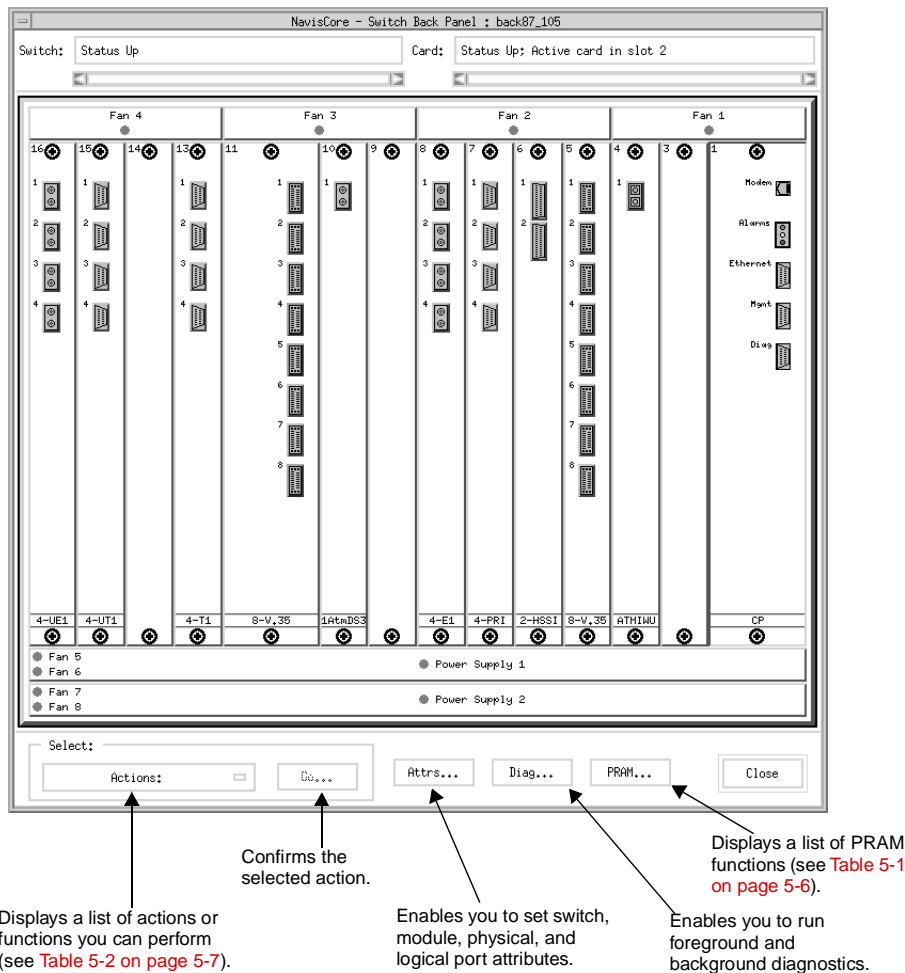


Figure 5-1. Switch Back Panel Dialog Box (B-STDx 9000)

Figure 5-2 displays the Switch Back Panel dialog box for a CBX 500 switch.

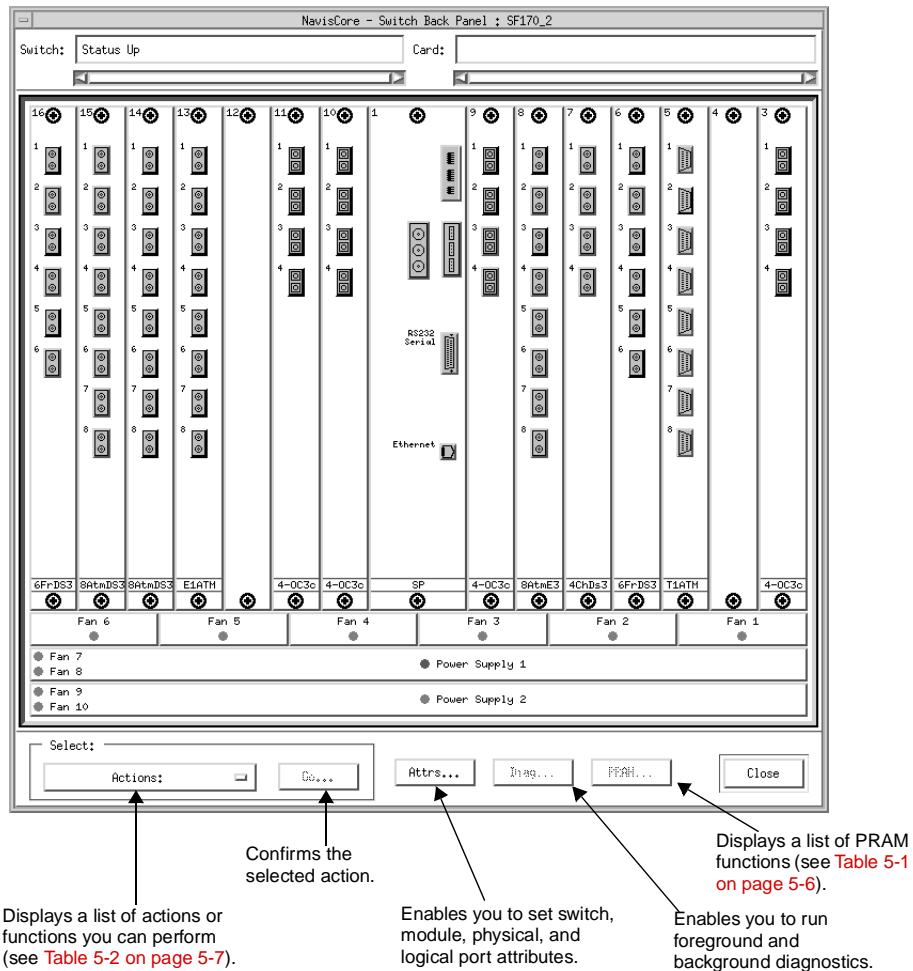


Figure 5-2. Switch Back Panel Dialog Box (CBX 500)

Figure 5-3 displays the Switch Back Panel dialog box for a GX 550 switch.

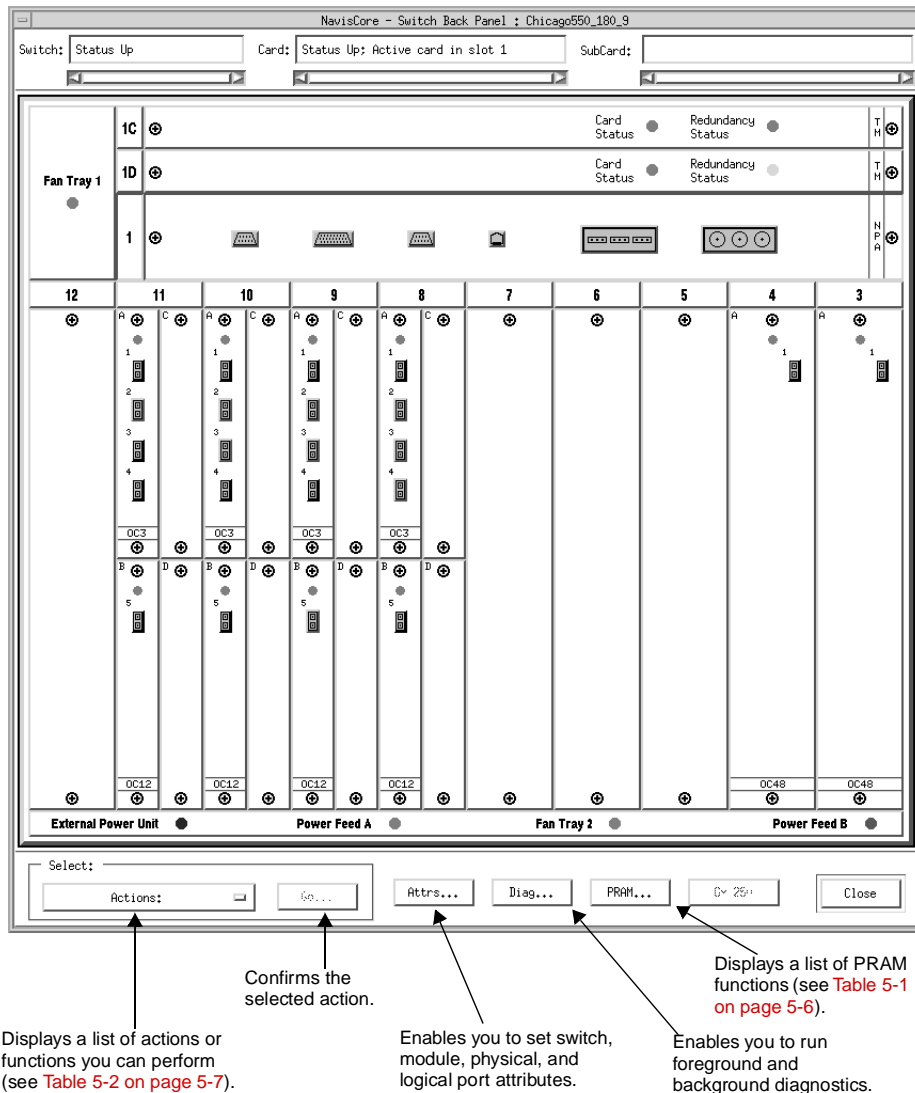


Figure 5-3. Switch Back Panel Dialog Box (GX 550)

Table 5-1 describes the buttons on the switch back panel dialog box.

**Table 5-1. Switch Back Panel Buttons**

Button	Description
Actions option menu	Displays a list of actions or functions you can perform (see <a href="#">Table 5-2 on page 5-7</a> ).
Go	Confirms the selected action.
Attrs	Enables you to set switch, module, physical, and logical port attributes.
Diag	Enables you to run foreground and background diagnostics.
PRAM	<p>Lucent switches use battery backed-up parameter random access memory (PRAM) to store switch configuration files. When you download a configuration file from the NMS to the switch, the NMS generates an initialization-script file. This file contains the Simple Network Management Protocol (SNMP) SET commands that control the switch's configuration. Use the PRAM button to access one of the following functions:</p> <p><i>Synchronize PRAM</i> – If the switch already contains a configuration file, an updated binary image of the configuration is sent to the selected I/O module.</p> <p><i>Erase PRAM</i> – Clears a configuration file from PRAM. Use Erase PRAM before you replace an existing configuration file.</p> <p><i>Upload PRAM</i> – Uploads the switch configuration file stored in PRAM to the NMS. This feature is supported for physical ports, logical ports, and Switched Multimegabit Data Service (SMDS) services.</p> <p><i>Generate PRAM</i> – Generates SET commands to configure PRAM but does not upload the switch configuration file to the NMS. This option enables you to view the file before uploading it.</p>



The Actions option menu provides a list of functions that you can select and access using the Go button. Although the Actions option menu is similar from platform to platform, some functions vary.

**Table 5-2. Actions Option Menu Selections**

Function	Description
Set Switch Attributes	Enables you to set the switch attributes, including the local Internet Protocol (IP) address of the switch. See <a href="#">“Accessing the Switch Back Panel” on page 5-2.</a>
View Front Panel	Displays the front panel of the switch. See <a href="#">“Accessing the Switch Front Panel” on page 5-9.</a>
Coldboot	Restarts the switch as if it were powered off, then on.
Warmboot	Resets the selected module. As it reboots, all physical ports, logical ports, and permanent virtual circuits (PVCs) on the module stall for approximately 20-30 seconds.
Switch to Redundant Unit	Passes operation changes from an active I/O module to a redundant standby module. See the <i>NavisCore Physical Interface Configuration Guide</i> for more information.
View Port Redundancy	Displays physical port redundancy pairings.
Erase Standby	Erase a standby CP, SP, or NP module.
Enable Pop-up Help	Enables the back panel Help/Info pop-up menu for module and port statistics.
Disable Pop-up Help	Disables the back panel module and port pop-up Help.

## Switch Back Panel Status LEDs

[Table 5-3](#) describes the operating status indicators of fans and power supply units.

**Table 5-3. Back Panel Status LEDs**

LED Color	Indicates
Green	Fan or power supply unit is operational.
Red	Fan or power supply unit is not operational.
Blue	NMS cannot access a fan or power supply unit for status.

## Switch Back Panel Port Colors

Table 5-4 describes the physical port colors, which indicate port operational status.

**Table 5-4. Back Panel Port Colors**

Port Color	Indicates
Gray	Port is unknown. This condition usually occurs if the configuration has not been downloaded or if the NMS and PRAM configurations do not match.
Green	Port is accurately configured and operational.
Red	Port is configured but has an admin status and/or an operational status of Down. Red could also indicate that no logical port has been configured.
Cyan	Port is configured but one or more (but not all) logical ports have an admin status or an operational status of Down.

## Switch Back Panel Module Colors

Table 5-5 describes the I/O module colors, which indicate operational status.

**Table 5-5. Back Panel Module Colors**

Module Color	Indicates
Red	Module is bad or not present.
Yellow	Module may be in a marginal state or out-of-sync.
Gray	Module is operational.



Figure 5-5 displays the Switch Front Panel dialog box for a CBX 500 switch.

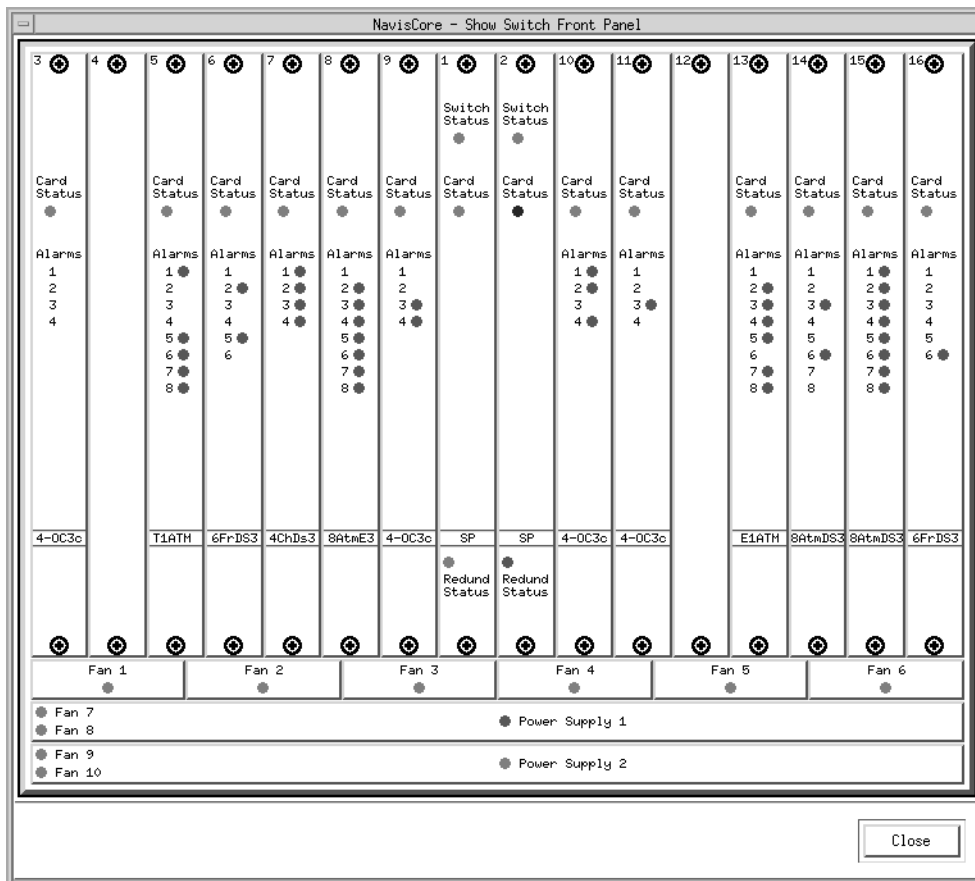
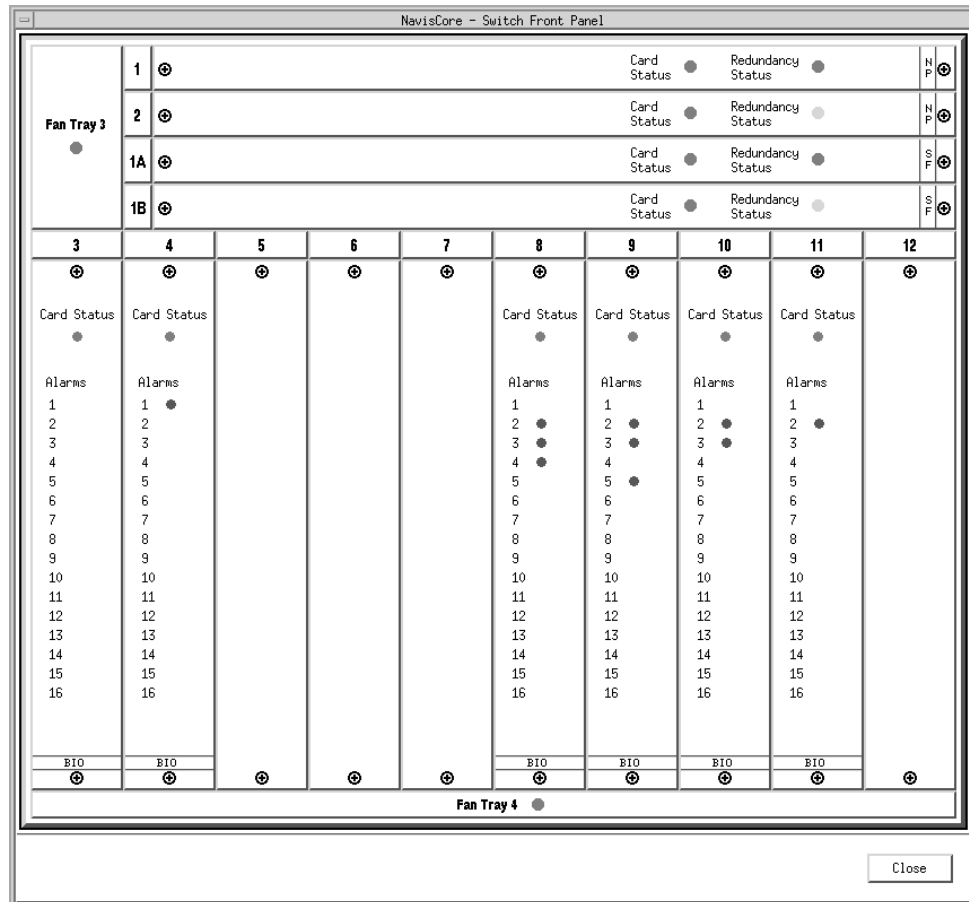


Figure 5-5. Switch Front Panel Dialog Box (CBX 500)

**Figure 5-6** displays the Switch Front Panel dialog box for a GX 550 switch.



**Figure 5-6. Switch Front Panel Dialog Box (GX 550)**

## Switch Front Panel Status LEDs

As with the back panel, status LEDs indicate the operational status of components. [Table 5-6](#) describes the front panel status LED indicators.

**Table 5-6. Switch and Module Status LEDs**

LED Color	Indicates
Green	Module is operational.
Red	Module is not operational.
Blue	NMS cannot access the unit for status. Blue LEDs are used on all processor modules, fans, and power supply units.
Yellow	Switch is out-of-sync or the switch reports a module-type mismatch or marginal state.

## Switch Front Panel Alarm Status LEDs

The number and type of alarms differ depending on the type of module. [Table 5-7](#) lists alarm LED descriptions.

**Table 5-7. Alarm Status LEDs**

LED Color	Indicates
No LED	No alarm conditions
Red	Red alarm condition
Yellow	Yellow alarm condition

## Before You Begin

Before you configure the switch, you need to know the following information:

- The local IP address of the gateway switch.
- The SNMP community name specified in `cascadeview.cfg` in `/opt/CascadeView/etc`. To view the contents of this file enter:  

```
more /opt/CascadeView/etc/cascadeview.cfg
```
- The IP address of the SPARCstation (for serial connections).
- The IP address of the router that connects the NMS to the switch (if applicable).

Use the following sequence to configure and manage a switch:

- Step 1.* (Optional) Set up an authentication domain (see [page 5-23](#)).
- Step 2.* Set the switch attributes (see [page 5-14](#)).
- Step 3.* Define an additional NMS, if necessary (see [page 5-18](#)).
- Step 4.* Define the circuit reroute-tuning parameters (see [page 5-21](#)).
- Step 5.* Define the console authentication parameters (see [page 5-22](#)).
- Step 6.* Configure the IP address and access attributes for the NMS or IP host (see [page 5-28](#)).
- Step 7.* Configure the processor module (see the *NavisCore Physical Interface Configuration Guide*).

## Setting Switch Attributes

To set the switch attributes:

1. Start NavisCore and access the network map.
2. Select the switch object and from the Misc menu, select NavisCore ⇒ Logon. Enter your operator password.
3. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears for the selected switch (see [Figure 5-1 on page 5](#)).
4. To configure switch parameters, choose Attrs. The Set Switch Attributes dialog box appears (see [Figure 5-7](#)).

NavisCore - Set Switch Attributes

Switch Name: back87\_105

Switch Number: 87.105

Gateway Switch Attributes:

Ethernet IP Address: 152.148.85.37

Ethernet IP Mask: 255.255.255.0

Phone Number:

Telnet Session & Quantity: Enable 2

Console Idle Timeout (min): 30

LAN Idle Timeout (sec): 30

Switch Rev:

Contact:

Location:

Snds Cir (Kbps): 0

Bulk Stats Period (min): 5

Select:

Options: Set

Apply Close

**Figure 5-7. Set Switch Attributes Dialog Box**



This dialog box displays the switch name (assigned to the switch when you added the object to the map) and the unique number of the switch (switch number). If this switch belongs to a cluster subnet, the switch number increments according to the Cluster ID. See **“Creating a Cluster” on page 3-11** for more information.

5. Do one of the following:
  - *If this is a gateway switch*, complete the fields described in **Table 5-8**.
  - *If this is not a gateway switch*, complete the fields described in **Table 5-9**.

**Table 5-8. Set (Gateway) Switch Attributes Fields**

Field	Action/Description
Ethernet IP Address	Enter the local IP address of the switch. This address is the external Ethernet address of the switch. See your network administrator if you do not know this address.  <i>Note: You only need to enter the Ethernet IP address for the switch or switches that have an Ethernet connection and will communicate with the NMS via this connection.</i>
Ethernet IP Mask	Enter the in-band (Ethernet) IP mask for this switch. The default is 255.255.255.0.

6. Complete the fields described in **Table 5-9**.

**Table 5-9. Set Switch Attributes Fields**

Field	Action/Description
Phone Number	Enter the phone number of the contact person responsible for switch operations.
Telnet Session & Quantity	Specify Enable (default) to allow the switch to connect to a remote terminal connection for troubleshooting purposes. Lucent recommends that you do not disable this function.  Specify the limit for the number of simultaneous telnet sessions to a switch. The default limit is two, but you can increase the limit to five.
Console Idle Timeout (min)	Specify the time period (in minutes) that the console remains inactive before it is logged off. The default is 5 minutes.
LAN Idle Timeout (min)	Specify the Idle Timeout interval, in seconds, for the Ethernet interface that connects the switch to the NMS. If the Ethernet interface receives no valid IP traffic during this period, the interface is marked as idle and will not be used for outbound traffic. Receipt of a valid IP packet restarts the Idle Timeout counter and reactivates the idle interface.

**Table 5-9. Set Switch Attributes Fields (Continued)**

Field	Action/Description
Switch Rev	Displays the current switch-software revision level.
Contact	Enter the name of the person responsible for switch operations.
Location	Enter the switch's physical location.
SMDS Cir (Kbps) (B-STDx only)	Enter the committed information rate (CIR), in Kbps, allocated to the SMDS virtual paths originating at the switch. See the <i>NavisCore SMDS Configuration Guide</i> for additional information.
Bulk Stats Period (min) (B-STDx only)	Select this option if you are using the NavisXtend Statistics Server. See the <i>NavisXtend Statistics Server User's Guide</i> for more information.
Number of Power Supplies (CBX 500 only)	Select the number of power supplies that this switch supports: either two (2) or three (3).  <i>Note: A chassis that supports three power supplies must have at least two power supplies installed at all times.</i>
Lucent External Power Unit (GX 550 only)	Defaults to Not In Use. The GX 550 can use external power rectifiers as a power source. You can set switch attributes to detect a power failure in a remote power source, using traps and status information. If the GX 550 uses an external power source, select In Use.
Options (menu)	Lists additional attributes you can configure. See <a href="#">Table 5-10</a> for information.

[Table 5-10](#) describes the additional switch attributes that you can access and optionally set through the Options menu.

**Table 5-10. Switch Attributes Option - Menu Selections**

Option	Action/Description
NMS Entries	Select this option to define an additional NMS and continue with <a href="#">"Defining Additional Network Management Stations"</a> on page 5-18.
Tuning	Select this option to define parameters that enable the NMS to balance circuits between switches. See <a href="#">"Defining Circuit Reroute-Tuning Parameters"</a> on page 5-21 for more information.

**Table 5-10. Switch Attributes Option - Menu Selections (Continued)**

Option	Action/Description
Accounting	Select this option to define parameters that enable, disable, and calculate PVC and switched virtual circuit (SVC) accounting. See the <i>NavisXtend Accounting Server Administrator's Guide</i> for information.
SMDS Billing (B-STDx only)	Select this option if you are using the Billing feature. See the <i>SMDS Billing System Administrator's Guide</i> for more information.
Clock Sources	Select this option to define the clock source on an ATM CS, ATM IWU, or ATM T1/E1 module. You must first configure an ATM CS, ATM IWU, or ATM T1/E1 module in the switch before you set the clock source (see the <i>NavisCore Physical Interface Configuration Guide</i> for more information).
Console Authen	Select this option to set password protection for the switch, and continue with <b>"About Console Authentication"</b> on <a href="#">page 5-22</a> . Console authentication allows you to assign a password (other than "cascade") to each switch.
Bulk Stats	Select this option to access switch attributes for ATM bulk statistics. See the <i>NavisXtend Bulk Statistics Collector User's Guide</i> .
RIP Configuration	Select this option to configure Routing Information Protocol (RIP) parameters for a switch running IP Navigator. See the <i>NavisCore IP Navigator Configuration Guide</i> for more information.
Trap Config	Select this option to clear contact alarm relays that are used to notify you of switch malfunctions. You can also use this function to disable the dry contact alarm relay function for this switch. See the <i>NavisCore Diagnostics Guide</i> for information about these alarms.
Time Server	Select this option to specify a reference-time server(s) to be used as a clock synchronization source for the switches in your network. See <b>"Configuring Time Servers"</b> on <a href="#">page 5-26</a> for more information.
Set Switch Time	Select this option to configure the switch's time.

7. When you are done setting switch attributes, choose Apply to set the parameters and Close to exit the dialog box.

## Defining Additional Network Management Stations

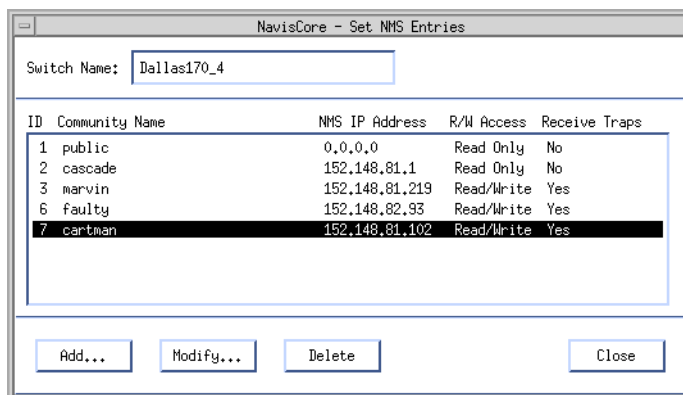
Lucent switches support a maximum of 256 NMS entries and 256 NMS paths per node. Through the NMS Entries option, you can configure additional NMS workstations for read/write or read-only access to the same switch. Through NMS workstations, you can communicate with switches on the network via SNMP commands.

As you configure additional switches on your network map, use the Set Switch Attributes option to enter an Ethernet IP address, if applicable. Always leave the Telnet Session parameter enabled, so that each switch can accept remote terminal connections for troubleshooting purposes.

To define an NMS entry, enter the IP address of each workstation and use the same community name for each NMS you define. The file, `cascadeview.cfg` (in `/opt/CascadeView/etc`) provides the default read/write community name.

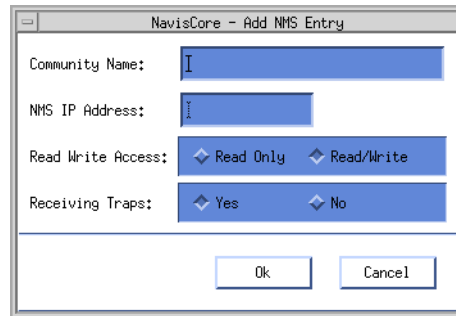
To define an additional NMS:

1. From the Set Switch Attributes dialog box (see [Figure 5-7 on page 5](#)), choose Options ⇒ NMS Entries. The Set NMS Entries dialog box appears, displaying the current NMS entries as shown in [Figure 5-8](#).



**Figure 5-8. Set NMS Entries Dialog Box**

2. Choose Add. The Add NMS Entry dialog box appears (see [Figure 5-9](#)).



**Figure 5-9. Add NMS Entry Dialog Box**

3. Complete the fields described in [Table 5-11](#).

**Table 5-11. Add NMS Entry Fields**

Field	Action/Description
Community Name	Enter the community name.
NMS IP Address	Enter the NMS IP address for the target NMS workstation.
Read Write Access	Select the access rights for this NMS. <i>Read/Write</i> – (default) Enables you to monitor and configure network maps from this NMS. <i>Read Only</i> – Enables you to monitor network functions from this NMS.
Receiving Traps	Defaults to Yes. Trap-alarm conditions notify the operator of events taking place on the switch. Select No to prevent the NMS from receiving traps.

4. Choose OK to set the parameters. Repeat [step 1](#) through [step 3](#) for each NMS you want to add. The Set NMS Entries dialog box reappears with the new NMS confirmation.
5. (Optional) Choose Modify to modify an NMS entry or Delete to delete an NMS entry.



If you need to modify the community name, you must first change it on this dialog box and then edit the value `CV_SNMP_READ_WRITE_ COMMUNITY`, in `cascadeview.cfg`.

## About Reroute Tuning

*Reroute Tuning* enables the switch to rapidly redistribute PVCs across trunks, based on Open Shortest Path First (OSPF) updates and cost metrics. In large networks with thousands of PVCs, rerouting circuits while re-establishing a trunk is very time-consuming.

The Tuning option enables you to tune the rate of reroute requests per switch by defining the number of reroute requests during a single reroute batch request. You can also set the time delay (in seconds) that the switch waits between each batch request.



When you define individual circuits, you must enable the Reroute Balance parameter for circuits to benefit from the tuning parameters you define for a switch.

Reroute tuning enables you to perform both intra-area and inter-area load balancing.

*Intra-area Load balancing* enables the switch to reroute a circuit, restricted to a single OSPF area, to a path that provides more bandwidth than the current path. You can select a load-balancing algorithm that configures the switch to aggressively search for an alternate path with greater bandwidth.

*Inter-area (end-to-end) load balancing* enables the switch to reroute a circuit that spans multiple OSPF areas to an inter-area path of a lesser cost. To avoid false reroute attempts, the current path will not be released until a new path becomes available. The maximum number of inter-area reroute attempts per time period is 1 circuit (per module) every 3 minutes. See [“Defining Circuit Reroute-Tuning Parameters” on page 5-21](#) for information on how to enable and disable inter-area load balancing.

### **Load Balancing Example**

If a switch has four modules, each with 50 intra-area PVCs and 1 inter-area PVC, and you set the reroute count to 5 circuits and the reroute delay to 50 seconds, the switch performs a batch reroute consisting of the first 5 intra-area circuits on each module (for a total of 20 circuits). The switch then waits 50 seconds before it begins to reroute the next batch of 20 intra-area circuits. Every 180 seconds (3 minutes), the switch attempts a reroute for 1 inter-area circuit from each module (for a total of 4 inter-area circuits).

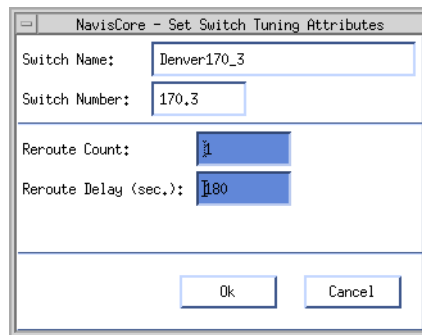


Under normal circumstances, the reroute ratio should be no greater than one circuit (reroute count) in 10 seconds (reroute delay). A higher reroute ratio (e.g., two circuits in 10 seconds) can cause network instability, and circuits may bounce from one trunk to the next indefinitely. To balance a set of circuits after a trunk failure, use the above example to set the reroute count to 5 circuits, and the reroute delay to 50 seconds.

## Defining Circuit Reroute-Tuning Parameters

To set the tuning parameters:

1. From the Set Switch Attributes dialog box (see [Figure 5-7 on page 5](#)), choose Options ⇒ Tuning and then choose Set. The Set Switch Tuning Attributes dialog box appears (see [Figure 5-10](#)).



**Figure 5-10. Set Switch Tuning Attributes Dialog Box**

2. Complete the fields described in [Table 5-12](#).

**Table 5-12. Set Switch Tuning Attributes Fields**

Field	Action/Description
Reroute Count	Enter a value between 0 and 64. The reroute count specifies the number of intra-area circuits from each module that can issue reroute requests in a single batch. The default is 1 circuit.  <i>Note: This value applies to intra-area load balancing only. The reroute count for inter-area load balancing is always set to 1.</i>
Reroute Delay	Enter a value between 1 and 32767 (in seconds). Choose an even value to enable inter-area load balancing or choose an odd value to disable it.  The reroute delay represents the time delay (in seconds) that each module in the switch waits between reroute batch requests. This parameter controls the rate at which each module polls the virtual circuits for a better route. The default value of 180 seconds is a very conservative setting for normal operation.

3. Choose OK to return to the Set Switch Attributes dialog box.
4. Choose Apply to set the parameters and Close to exit the dialog box.

## About Console Authentication

Console authentication is a domain security feature that is handled by the Remote Access Dial-in User Service (RADIUS) protocol. It is used to authenticate users connecting to a Lucent-switch console port through remote dial-up and Telnet access.

### Setting Up a RADIUS Server

To enable RADIUS authentication, you must have an active RADIUS Server that the switch can reach through the user datagram protocol (UDP) or IP. If you cannot reach the RADIUS Server when you log in to the switch console port, use the shared-secret password for the login name and login password. (You also use the shared-secret password for console debug mode.)

The RADIUS server's database must contain the following information:

- User authentication information (for example, username and password)
- Switch information for all switches initiating authentication requests (for example, IP address or host name)
- Shared secret (password) for each switch that initiates authentication requests



### Adding an Authentication Domain

You can add an authentication domain and shared secret for each switch in the network. You set the RADIUS server parameters, such as the server’s domain IP address, for each authentication domain server. You can also designate backup servers (Server 2 and Server 3) in the event that Server 1 becomes unreachable or inactive.

To add the authentication domain and configure the RADIUS server parameters:

- 1. Select a switch and from the Administer menu, select Lucent Parameters => Set All Authentication Domains. The Set All Authentication Domains dialog box appears (see Figure 5-11).

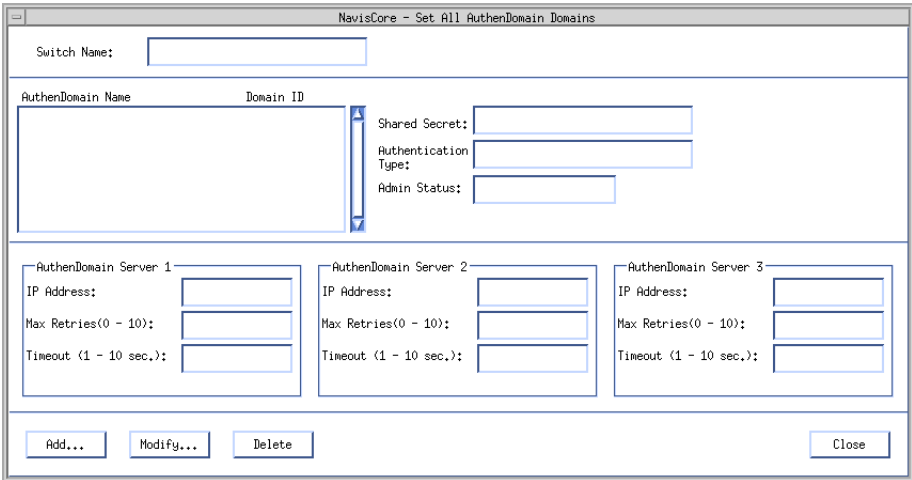


Figure 5-11. Set All Authentication Domains Dialog Box

- 2. Choose Add. The Add Authentication Domain dialog box appears (see Figure 5-12).

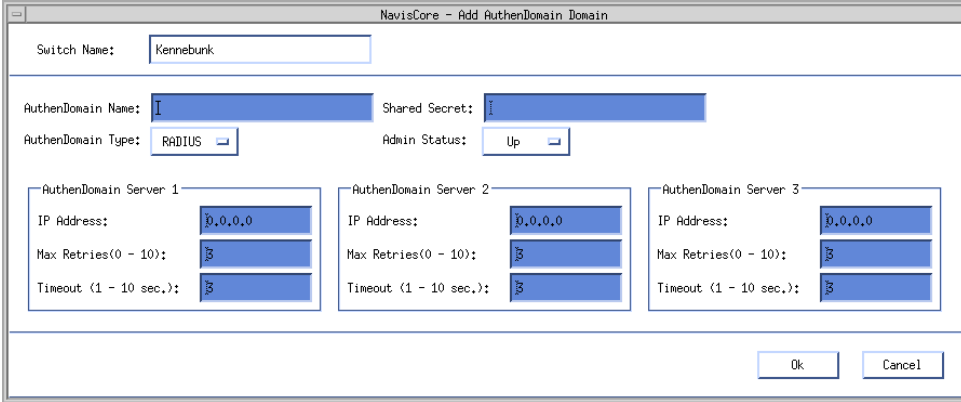


Figure 5-12. Add AuthenDomain Dialog Box

3. Complete the fields described in [Table 5-13](#).

**Table 5-13. Add AuthenDomain Fields**

Field	Action/Description
AuthenDomain Name	Enter an alphanumeric name (up to 32 characters) for this domain.
AuthenDomain Type	Defaults to RADIUS and cannot be changed.
Shared Secret	Enter an alphanumeric shared secret (password) for this switch and all RADIUS Servers in this domain.
Admin Status	Set the admin status to Up (default) to allow immediate access.  Set the admin status to Down to disable the server. This does not disable console authentication.

4. Complete the AuthenDomain Server fields for Server 1, 2, and 3 as described in [Table 5-14](#).

**Table 5-14. AuthenDomain Server Fields**

Field	Action/Description
IP Address	Enter the IP address for this server.
Max Retries (0-10)	Enter the maximum number of attempts (retries) the server makes to authenticate this user. The default is 3.
Timeout (1-10 sec)	Specify the time period (in seconds) of inactivity before the switch retries the authentication request or sends the request to the next server. The default is 3.  Indicates the number of seconds the server waits before sending an authentication request if there was no response from the previous request. If a single server is used, it will retry the request. If multiple servers are defined, the request is sent to the next server.

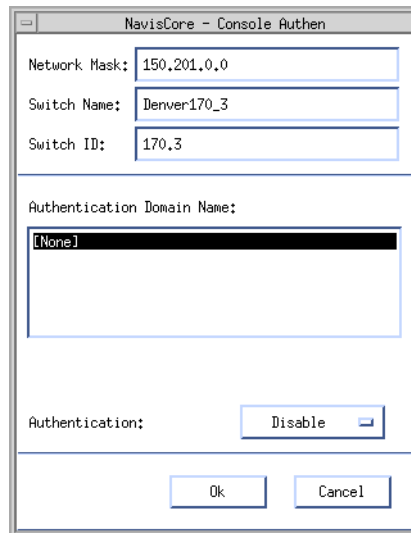
5. Choose OK to set the authentication parameters. The Set All AuthenDomain dialog box reappears.
6. Choose Close to return to the network map.
7. Enable the authentication parameter described in [“Configuring Console Authentication”](#) on page 5-25.

## Configuring Console Authentication

From the Switch Attributes Options menu (see [Table 5-10](#)), you can access the Console Authentication option to enable and disable authentication on the selected switch.

To enable the authentication parameters:

1. From the Set Switch Attributes dialog box (see [Figure 5-7 on page 5](#)), choose Options ⇒ Console Authen and then choose Set. The Console Authen dialog box appears (see [Figure 5-9](#)).



**Figure 5-13. Console Authen Dialog Box**

The dialog box lists all configured authentication domain names for this switch.

2. Select a domain from the list.
3. Choose Disable (default) or Enable to set the authentication parameter.
4. Choose OK. The Set Switch Attributes dialog box reappears.

## Configuring Time Servers

NavisCore and the Network Timing Protocol (NTP) enable you to specify from 1 to 3 reference-time servers. A reference-time server is used as a clock-synchronization source for the switches in your network.

Since a reference-time server is not required and not all switches have configured reference-time servers, you should continue to use a nightly `cron` job to set all the switch clocks. When modifying or adding a reference-time server, the time sent to the server will be the time on the NMS workstation.

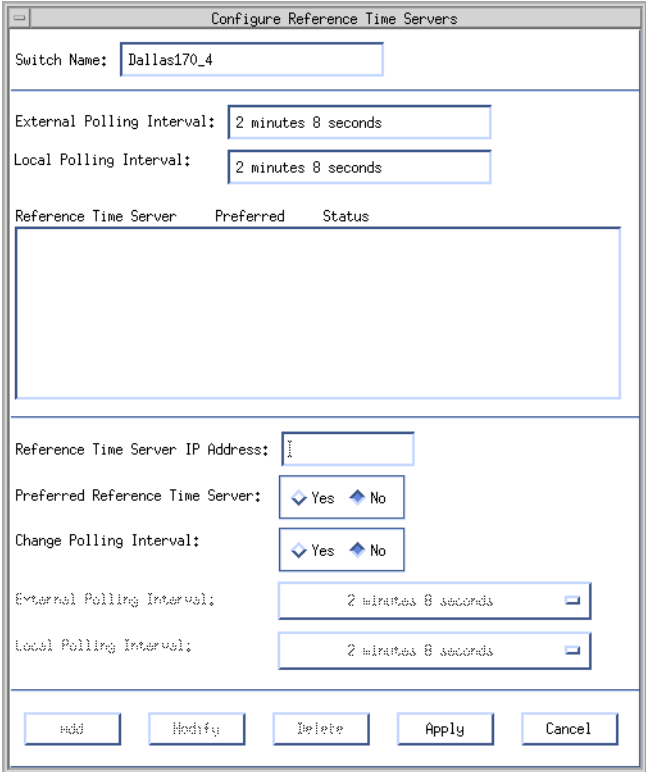
To configure reference-time servers:

1. From the Set Switch Attributes dialog box (see [Figure 5-7 on page 5](#)), choose Options ⇒ Time Server. The Configure Reference Time Servers dialog box appears (see [Figure 5-14](#)).

The screenshot shows a dialog box titled "Configure Reference Time Servers". At the top, there is a "Switch Name" field containing "Dallas170\_4". Below this are two fields for "External Polling Interval" and "Local Polling Interval", both set to "2 minutes 8 seconds". A table with columns "Reference Time Server", "Preferred", and "Status" is present but empty. Below the table are fields for "Reference Time Server IP address" (containing "1"), "Preferred Reference Time Server" (a Yes/No toggle), and "Change Polling Interval" (another Yes/No toggle). At the bottom of the table area are two more "External Polling Interval" and "Local Polling Interval" fields, both set to "2 minutes 8 seconds". The dialog box concludes with a row of five buttons: "Add", "Modify", "Delete", "Apply", and "Close".

**Figure 5-14. Configure Reference Time Servers Dialog Box**

- Choose Add. The Add Reference Time Server dialog box appears (see [Figure 5-15](#)).



**Figure 5-15. Add Reference Time Server Dialog Box**

- Complete the fields described in [Table 5-15](#).

**Table 5-15. Reference Time Server Fields**

Field	Action/Description
Reference Time Server IP Address	Enter the IP address of the reference-time server.
Preferred Reference Time Server	Select Yes to make this server the preferred reference-time server. If you do not select a preferred reference-time server, the switch will select one for you.
Change Polling Interval	Select Yes to change the polling interval. Doing so will enable the external and local polling intervals.
External Polling Interval	Select the rate (in seconds) at which each individual reference-time server will be polled. This setting applies to all reference-time servers.

**Table 5-15. Reference Time Server Fields (Continued)**

Field	Action/Description
Local Polling Interval	Select the rate (in seconds) at which each I/O module and redundant CP/SP module polls the active CP/SP for time. This setting applies to one switch.

4. Choose Apply. Repeat **step 1** through **step 4** for each reference-time server.
5. (*Optional*) Choose Modify to modify a reference-time server entry or Delete to delete a reference-time server entry.

## Deleting a Switch Configuration from the Database

To delete a switch configuration from the database, you must first delete the entire configuration associated with the switch, for example, its logical ports, trunks, and circuits. For assistance, contact the Technical Assistance Center (TAC). For contact information, see **“Customer Support” on page xxvii**.

Use the following sequence to delete a switch configuration from the database.

- Step 1.** Delete all PVCs defined for the switch.
- Step 2.** Delete all trunk connections for the switch.
- Step 3.** Delete all logical ports and physical ports on the switch.
- Step 4.** Delete all I/O module configurations on the switch.
- Step 5.** Delete the switch icon from the map.

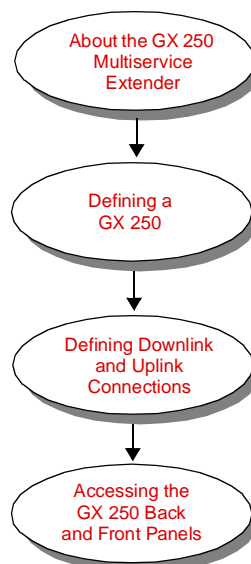
## Configuring Processor and I/O Modules

After you set the switch attributes, you must configure the processor module and I/O modules in NavisCore. You can also configure a *redundant standby module*. See the *NavisCore Physical Interface Configuration Guide* for instructions.

# Setting GX 250 Multiservice Extender Attributes

This chapter describes how to set GX 250 Multiservice Extender attributes. The GX 250 Multiservice Extender is a service and physical-port extension for the GX 550 switch. The GX 250 allows the high-speed GX 550 to support high-density, lower-speed ATM and time division multiplexing (TDM) interfaces.

This chapter describes the following tasks:



## About the GX 250 Multiservice Extender

The GX 250 extender is managed as an extension of the GX 550 switch via a standard multimode fiber cable that connects a GX 250 downlink phy module (installed in the GX 550 switch) to an uplink phy module (installed in the GX 250 extender).

Therefore, there is no direct NMS connection for the GX 250. Instead, you can view the GX 250 in NavisCore as an extended GX 550 phy module, displaying the ports within the extender and allowing for card and port configuration.

The GX 250 consists of two half shelves, half shelf A and half shelf B. Each half shelf:

- Supports up to three active transport modules plus one redundant transport module and two uplink modules
- Has the same card capacity
- Operates independently of the other shelf

The extender can be configured as fully redundant, providing continued operation after other equipment failures.

This chapter assumes you have already installed and connected the GX 250 to the associated GX 550. See the *GX 250 Multiservice Extender Hardware Installation Guide* for information. The following sequence outlines the steps for installing and configuring the GX 250 extender.



## GX 250 Installation and Configuration Sequence

### Installing a GX 250 Extender

To install a GX 250 extender:

- Step 1.** Install the uplink and uplink phy (physical interface) module pair into the GX 250 extender.
- Step 2.** Install the downlink and downlink phy module pair into the GX 550.
- Step 3.** Install up to three active ATM DS3 CE transport modules and one redundant ATM DS3 CE transport module into the GX 250 extender.
- Step 4.** Connect the GX 250 to the GX 550 switch.

### Configuring a GX 250 Extender in NavisCore

To configure a GX 250 extender in NavisCore:

- Step 1.** Configure the card and physical port attributes for the downlink module in the GX 550. See the *NavisCore Physical Interface Configuration Guide* for information.
- Step 2.** Define the GX 250 and the downlink and uplink connections as described in “[Defining a GX 250](#)” on page 6-4 and “[Defining Downlink and Uplink Connections](#)” on page 6-6.
- Step 3.** Access the GX 250 back and front panels as described in “[Accessing the GX 250 Back and Front Panels](#)” on page 6-8.
- Step 4.** Configure the card and physical port attributes for the GX 250 ATM DS3 CE transport module. See the *NavisCore Physical Interface Configuration Guide* for information.
- Step 5.** Configure the logical port attributes for the GX 250 ATM DS3 CE transport module. See the *NavisCore ATM Configuration Guide* for information.
- Step 6.** Configure circuits as necessary. See the *NavisCore ATM Configuration Guide* for information.

## Defining a GX 250

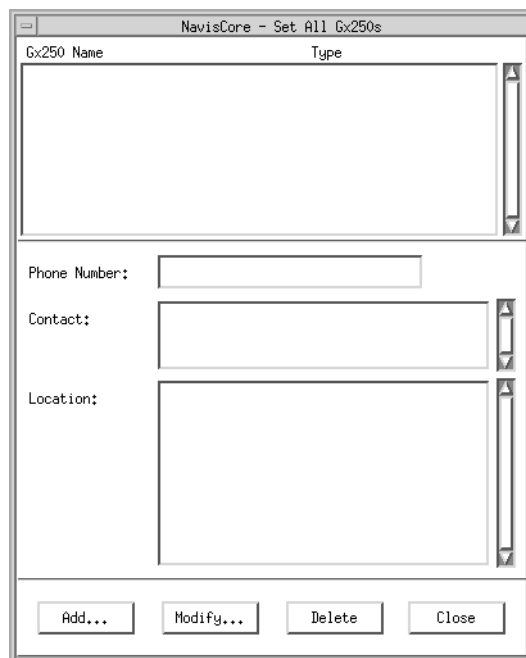
Before you configure the ATM DS3 CE transport modules on the GX 250 extender, you must define the GX 250 and then define the connection between the uplink module in the GX 250 extender and the downlink module in the GX 550 switch.

To define a GX 250:

1. From the Administer menu, select Lucent Parameters ⇒ Set GX 250 Parameters ⇒ Set All GX 250s. The Set All GX 250s dialog box appears (see [Figure 6-1](#)).

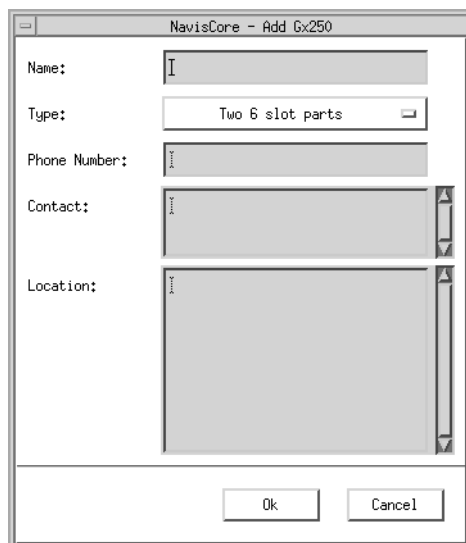


If you are not logged on, select NavisCore ⇒ Logon from the Misc menu. Enter your operator password.



**Figure 6-1. Set All GX 250s Dialog Box**

- Choose Add. The Add GX 250 dialog box appears (see [Figure 6-2](#)).



**Figure 6-2. Add GX 250 Dialog Box**

- Complete the fields described in [Table 6-1](#).

**Table 6-1. Add GX 250 Fields**

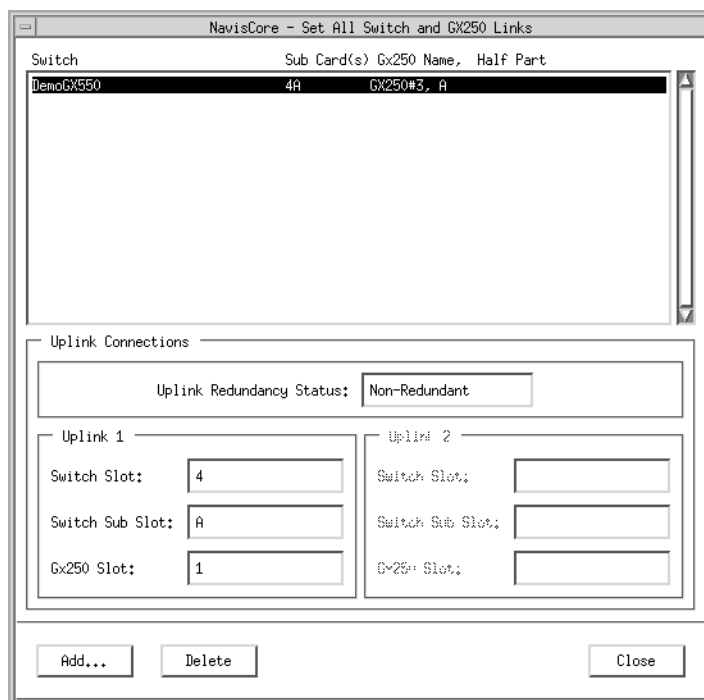
Field	Action
Name	Enter a unique name for the GX 250 extender.
Type	Select the type of GX 250. Currently, the only option is: <i>Two 6 slot parts</i> .
Phone Number	Enter the phone number of the person responsible for extender operations.
Contact	Enter the name of the person responsible for extender operations.
Location	Enter the extender's physical location.

- Choose OK to enter the GX 250 information.
- Choose Close to exit.

## Defining Downlink and Uplink Connections

To configure the connection between the downlink and uplink modules:

1. From the Administer menu, select Lucent Parameters ⇒ Set GX 250 Parameters ⇒ Set All Uplink Connections. The Set All Switch and GX 250 Links dialog box appears (see [Figure 6-3](#)).



**Figure 6-3. Set All Switch and GX 250 Links Dialog Box**

2. Choose Add. The Add a Switch and GX 250 Link dialog box appears (see Figure 6-4).

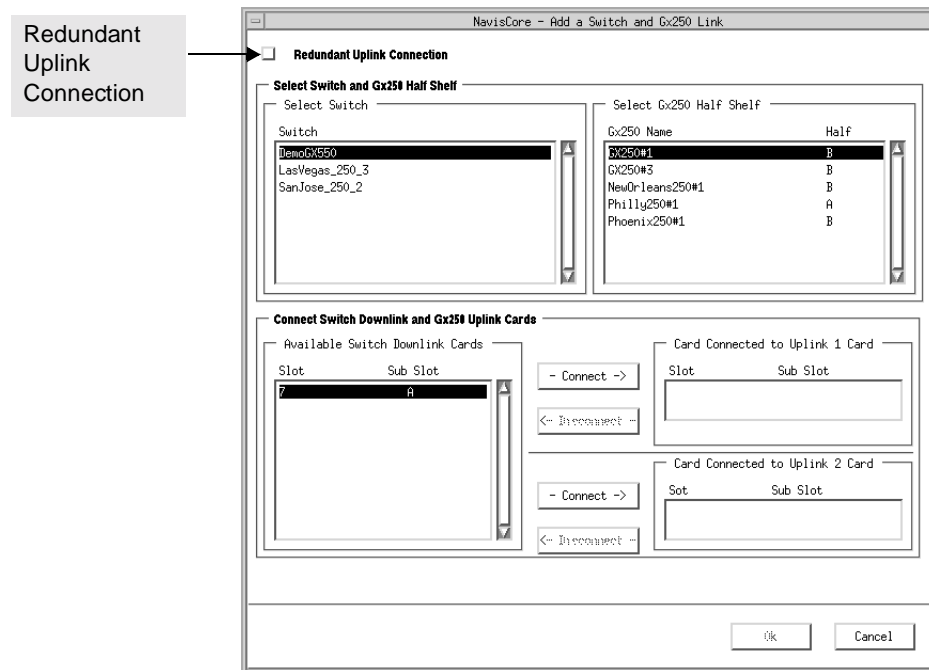


Figure 6-4. Add a Switch and GX 250 Link Dialog Box

3. Complete the dialog box fields, as follows:
  - a. (Optional) To create a redundant uplink connection for a GX 250 extender, choose Redundant Uplink Connection. The appearance of the dialog box remains the same except that the Select Switch list box displays the switches for which you have configured redundant downlink physical ports.

► Prior to creating a redundant uplink connection for a GX 250 extender, you must configure redundant downlink physical ports. See the *NavisCore Physical Interface Configuration Guide* for information.

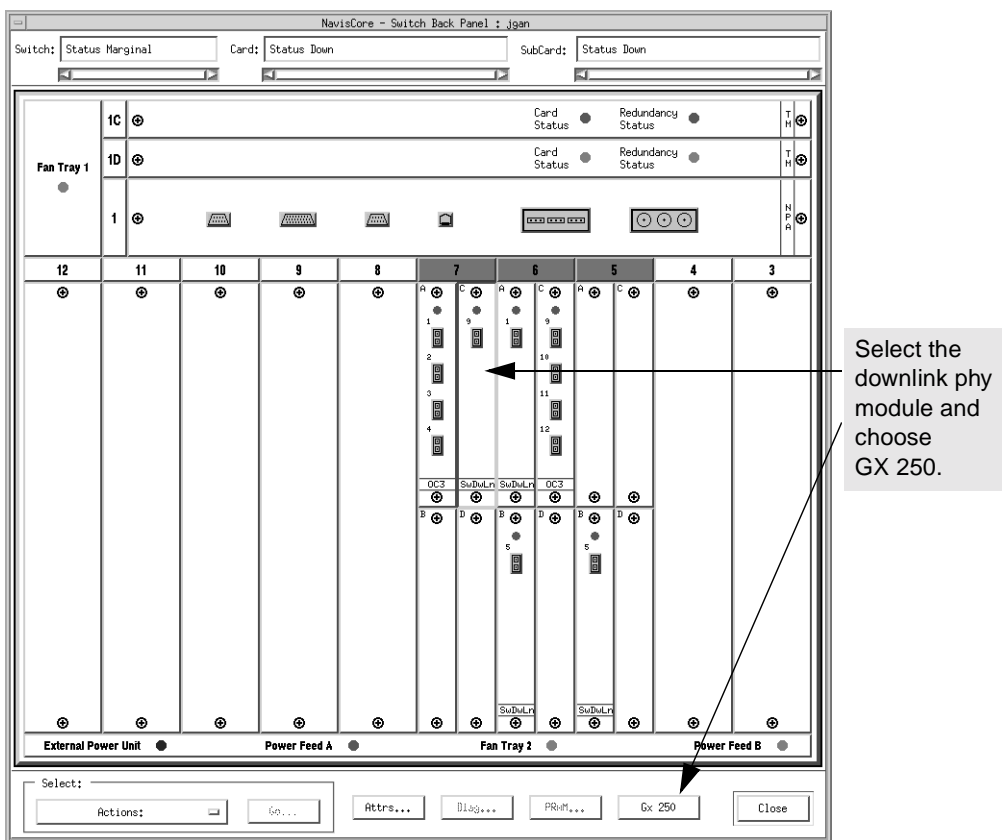
- b. In the Select Switch list box, select the GX 550 switch to which you are connecting the GX 250 half shelf. The Available Switch Downlink Cards list box displays the slot and sub slot in which the downlink module resides.
- c. In the Select GX 250 Half Shelf list box, select the GX 250 half shelf to which you are connecting the GX 550 switch.
- d. Select a downlink module from the Available Switch Downlink Cards list box.
- e. Choose one of the two Connect buttons to connect the downlink module to Uplink Card 1 or 2 of the half shelf.

- f. Choose OK to connect the downlink module with the uplink module. The Set All Switch and GX 250 Links dialog box reappears with the new link confirmation.
- g. Choose Close to exit.

## Accessing the GX 250 Back and Front Panels

To access the GX 250 back and front panels:

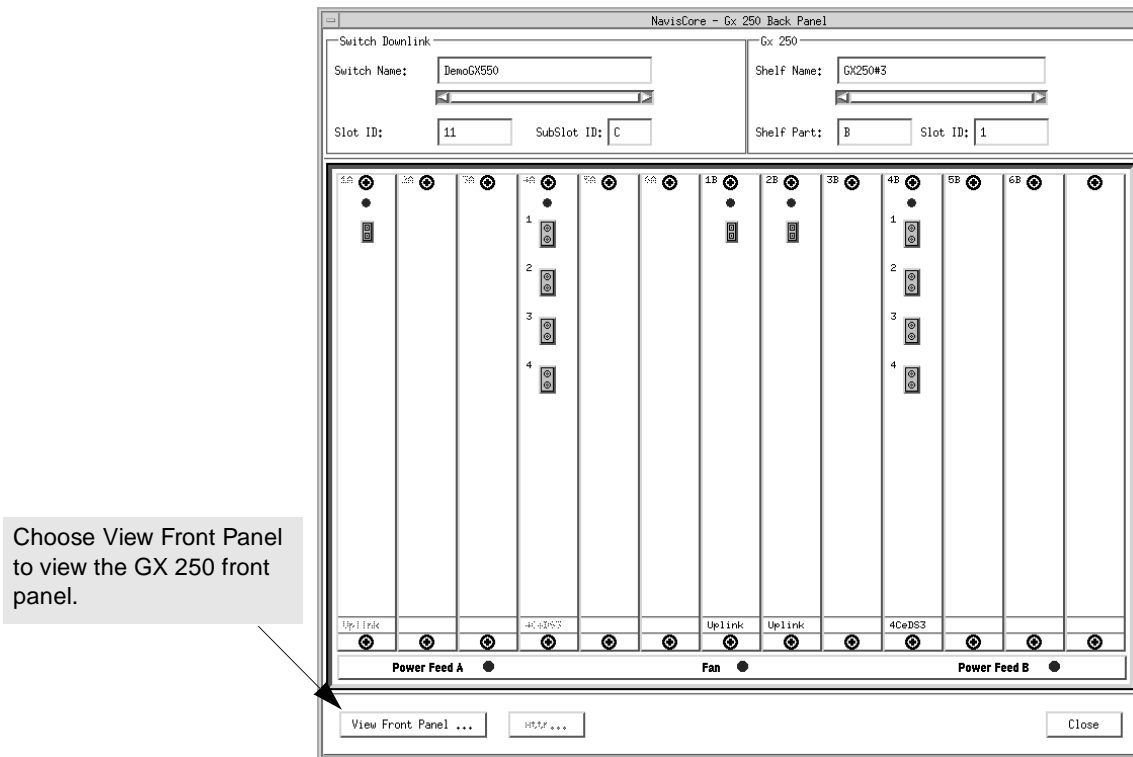
1. On the network map, select the GX 550 switch object that is connected to a GX 250.
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The GX 550 Switch Back Panel dialog box appears (see [Figure 6-5](#)).



**Figure 6-5. GX 550 Switch Back Panel Dialog Box**

3. Select the downlink module and choose GX 250.

The GX 250 Back Panel dialog box appears (see [Figure 6-6](#)).



**Figure 6-6. GX 250 Back Panel Dialog Box**

[Table 6-2](#) describes the buttons and display-only fields on the GX 250 back panel.

**Table 6-2. GX 250 Back Panel Buttons/Display-Only fields**

Field/Button	Description
Switch Name	Displays the name of the GX 550 switch that is connected to the GX 250 half shelf.
Slot ID	Displays the GX 550 slot number in which the downlink module resides.
Sub Slot ID	Displays the letter of the GX 550 sub slot in which the downlink module resides.
Shelf Name	Displays the name of the GX 250 half shelf that is connected to the GX 550 switch.
Shelf Part	Displays the portion of the GX 250 extender (either A or B) that is connected to the GX 550 switch.
Slot ID	Displays the GX 250 slot number in which the uplink module resides.

**Table 6-2. GX 250 Back Panel Buttons/Display-Only fields (Continued)**

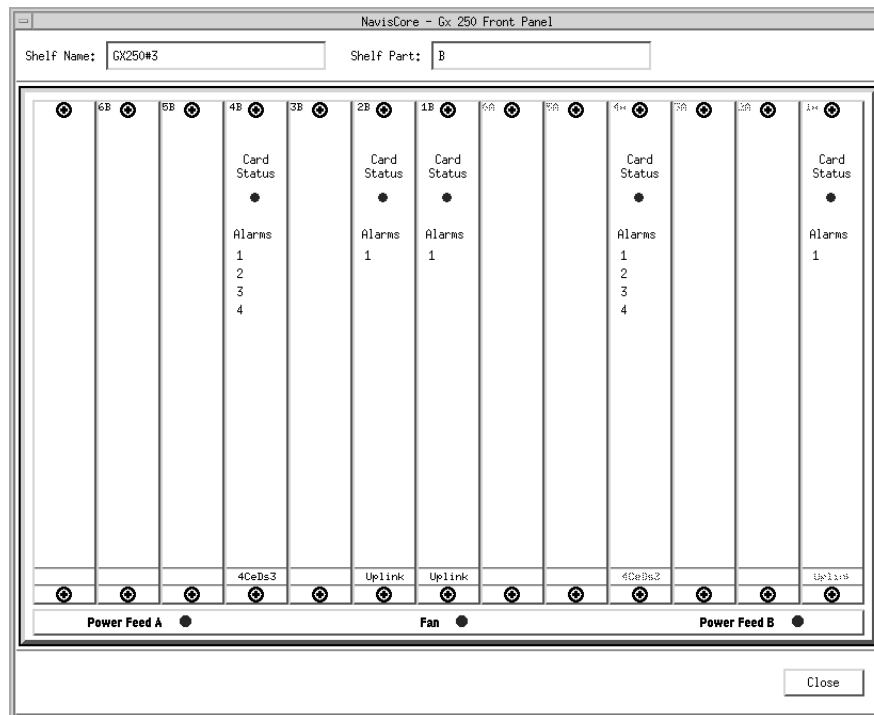
Field/Button	Description
View Front Panel	Enables you to view the GX 250 front panel.
Attr	Enables you to configure GX 250 modules. See the <i>NavisCore Physical Interface Configuration Guide</i> for more information.
Close	Enables you to exit the GX 250 back panel.



To configure the card and physical port attributes for the transport modules, see the *NavisCore Physical Interface Configuration Guide*.

To configure the logical ports for the transport modules and the necessary circuits, see the *NavisCore ATM Configuration Guide*.

- To view the GX 250 front panel, choose View Front Panel. The GX 250 Front Panel dialog box appears (see [Figure 6-7](#)).



**Figure 6-7. GX 250 Front Panel Dialog Box**



## Integrating Broadband Access Devices

This chapter describes how to integrate the following Broadband Access devices with the NavisCore network management software: PacketStar™ PSAX 100, 600, and 1200.

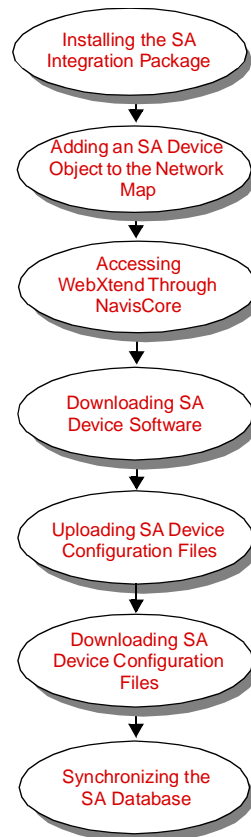


The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.



If you have the NavisAX product, you can add PSAX 1250/2300 objects to a NavisCore map as well as provision, view, and delete circuits between CBX 500 or GX 550 switches and PSAX 1250/2300 devices. For information about importing PSAX 1250/2300 objects to a NavisCore map and managing circuits, see the *NavisAX Administrator's Guide*.

This chapter describes the following topics and tasks:



## Installing the SA Integration Package



The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface. To add and manage a PSAX Broadband Access device through NavisCore, you must install the PSAX integration package included on the NavisCore CD-ROM. The installation procedure sets up all the necessary HP OpenView registration files, provides the PSAX device icon bitmap files, and enables the applicable NavisCore menu selections. See the *NavisCore NMS Getting Started Guide* for more information.

Before you can add and manage an SA device through NavisCore, you must install the SA integration package included on the NavisCore CD-ROM. The installation procedure sets up all the necessary HP OpenView registration files, provides the SA device icon bitmap files, and enables the applicable NavisCore menu selections.



To integrate SA devices with NavisCore, SA device software release 3.1, 4.0, 4.0.1 or 4.0.2 is required.

To install the SA integration package:

1. Log in to the NavisCore workstation as the root user.
2. Enter the following command to add the software package:

```
pkgadd -d <device_name> NAVISSa
```

where `device_name` is the device you are installing from (e.g., `/cdrom/cdrom0` if you are installing from CD-ROM). The following message appears:

```
Do you want to continue with the installation of <NAVISSa>
[y,n]?
```

3. Type `y`.

When the installation successfully completes, the system displays the following message:

```
Installation of <NAVISSa> was successful.
```

If applicable, you can view field registration error logs in `/tmp/ovwFields.log`.

The HP OpenView daemon error log is stored in `/tmp/ovStart.log`.

4. Set the environment variable SA\_APP\_START to non-zero by entering:

```
setenv SA_APP_START 1
```

This setting remains until you log out of the system or exit from the shell in which you are working.

To permanently set the value for the SA\_APP\_START environment variable, add the following line to your login script file (.cshrc):

```
setenv SA_APP_START 1
```

## Adding an SA Device Object to the Network Map

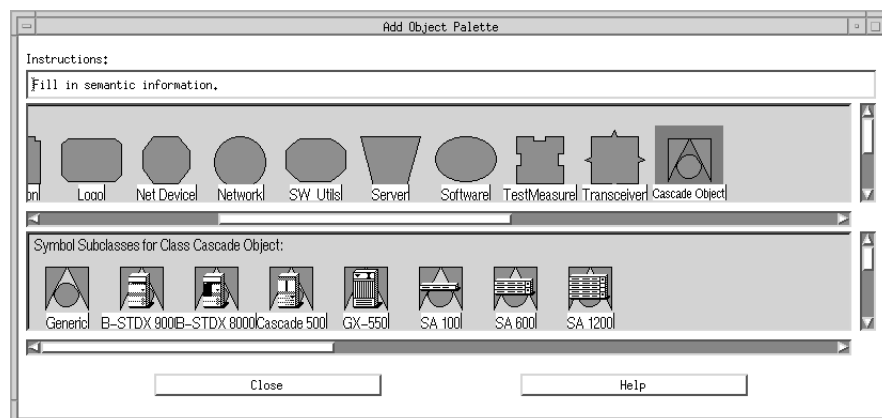
The NavisCore network map provides a graphical representation of your network. As you design the network map, you add a variety of device objects (such as a Lucent switch, Sun workstation, or an SA device) to represent the various elements in your network. See [“Adding Objects to the Map” on page 3-13](#) for information on adding Lucent switch objects and external devices to the network map.



The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.

To add an SA device object:

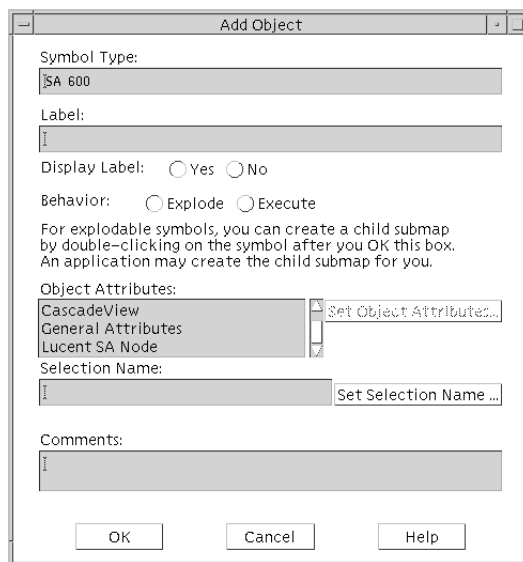
1. From the Edit menu, select Add Object. The Add Object Palette dialog box appears (see [Figure 7-1](#)).



**Figure 7-1. Add Object Palette Dialog Box**

2. In the Symbol Classes box, select the Cascade Object icon. The Symbol Subclasses box displays additional object types which represent the SA 100, SA 600, and SA 1200 devices.

3. To add this object to the Network map, select the desired SA object icon. Using the middle mouse button, select, drag, and release the object to the map. The Add Object dialog box appears (see [Figure 7-2](#)).



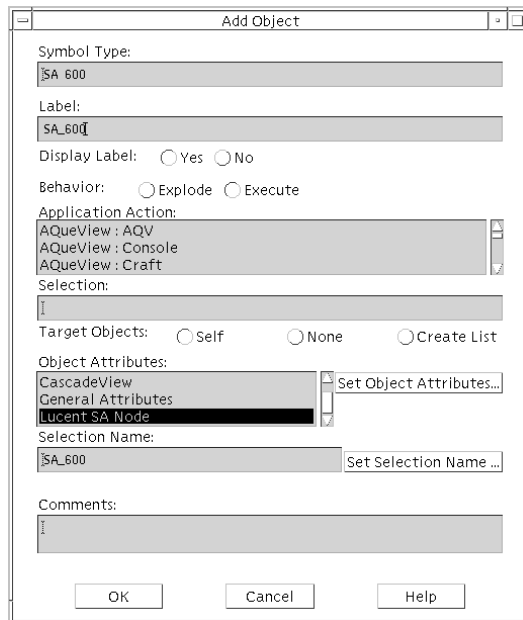
**Figure 7-2. Add Object Dialog Box**

4. Complete the fields described in [Table 7-1](#).

**Table 7-1. Add Object Fields**

Field	Action/Description
Symbol Type	Displays the selected object type to add to the network map.
Label	Enter a label to describe the object. The label must be unique throughout all HP OpenView objects.
Display Label	Select Yes to display the label beneath the object on the network map. Select No if you do not want the label to appear.
Behavior	Select Execute. The Add Object dialog box changes to reflect the Execute selection (see <a href="#">Figure 7-3</a> ).

**Figure 7-3** displays the Add Object dialog box with Execute selected.



**Figure 7-3. Add Object Dialog Box (Execute Selected)**

5. Select Lucent SA Node: WebXtend in the Application Action list box.
6. Select Lucent SA Node and then choose Set Object Attributes.  
The Add Object - Set Attributes dialog box appears (see **Figure 7-4**).



**Figure 7-4. Add Object - Set Attributes Dialog Box**



Once set, you cannot modify the Add Object - Set Attributes fields. If you need to change any of the fields after they are set, you must delete the device and add it again.

7. Complete the fields described in [Table 7-2](#).

**Table 7-2. Add Object - Set Attributes Fields**

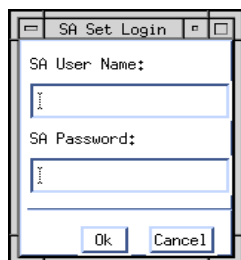
Field	Action
Device Name	Enter a unique name for the device.
IP Address	Enter the IP address for this device. This address should be on the same network as core switching devices.
Community Name	Enter the name of the SNMP community to which this device belongs (for example, public).
Customer ID	Assign a value from 1 to 65535 for the customer ID (if applicable). For more information about Virtual Network Navigator (VNN) Virtual Private Network (VPN) customer IDs, see the <i>NavisCore ATM Configuration Guide</i> or the <i>NavisCore Frame Relay Configuration Guide</i> .

8. Choose Verify to configure your settings.
9. Choose OK to return to the Add Object dialog box. The Selection Name field automatically defaults to the value you entered in the Label field. The selection name must be unique throughout all HP OpenView objects. Lucent recommends that you leave the selection name as it appears. In the Comments field, enter any additional information pertaining to this object.
10. Choose OK. The Add Object Palette dialog box reappears.
11. Choose Close. The network map displays an object icon that represents the new SA device.

## Accessing the SA Device Object

To log in before accessing the new device object:

1. Select the device object on the network map.
2. From the Misc menu select NavisCore ⇒ SA Set Login. The SA Set Login dialog box appears (see [Figure 7-5](#)).



**Figure 7-5. SA Set Login Dialog Box**

3. Enter the SA user name and SA password. The default user name is *root*, and the default password is *ascend*. See your SA network administrator for additional login information.
4. Choose OK.
5. When you finish managing SA devices on the network map, you can log out to clear the current user and password information. To do this, from the Misc menu, select NavisCore ⇒ SA Logout.



## Accessing WebXtend Through NavisCore

Once you have added an SA device object to a NavisCore map, you can configure and monitor this device through WebXtend, the Java Applet-based element manager that you use to configure and manage SA devices. NavisCore provides two methods for accessing WebXtend: The first method enables you to access WebXtend functions, such as Monitor Status, while the second method enables you to access SA network services directly, such as ATM User Network Interface. These methods are described in the following sections.



The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.

## Accessing WebXtend Functions

To access WebXtend functions through NavisCore:

1. Select the SA device and click on the right mouse button. A pop-up menu appears.
2. Choose SA Node Functions. The menu provides access to the following functions:
  - Administration
  - Monitor Status
  - Diagnostics
  - Utilities
  - Event Management
  - Interface Management
  - Service Management

For a description of these functions, see the *PacketStar<sup>TM</sup> PSAX 50/100/600/1200 Network Administrator's Guide*.

3. Select one of the functions and continue with the instructions in the *PacketStar<sup>TM</sup> PSAX 50/100/600/1200 Network Administrator's Guide* to configure SA devices through WebXtend.



To access SA network services, you can select the Service Management function from the pop-up menu. For a more direct method of accessing these services through NavisCore, see [“Accessing SA Network Services Through NavisCore” on page 7-10](#).

## Accessing SA Network Services Through NavisCore

This section describes the most direct way to access SA network services through NavisCore.

To access SA network services through NavisCore:

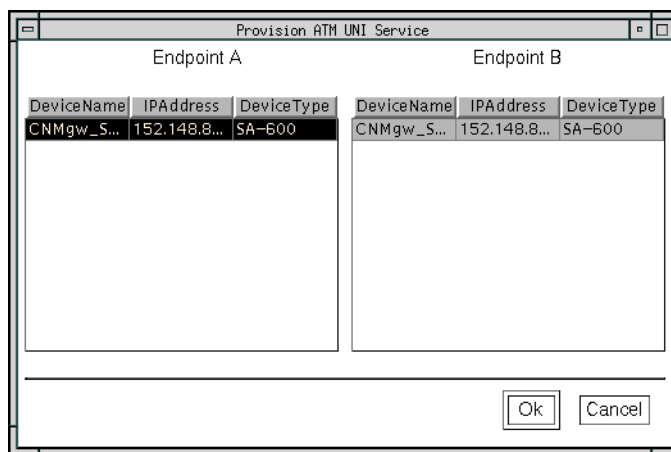
1. From the Administer menu, select Lucent Parameters ⇒ Set All SA Adaptation Services ⇒ <applicable service>.

The menu provides access to the following services:

- ATM User Network Interface
- Circuit Emulation Service
- Frame Service
- Inverse Multiplex Service
- Native LAN Service
- Voice Compression Service

Selecting a service type from the Administer menu displays the Provision Service dialog box, which shows two lists of SA devices for which you can configure service parameters (see [Figure 7-6](#)).

[Figure 7-6](#) shows a sample Provision Service dialog box using the ATM User Network Interface (UNI) service.



**Figure 7-6. Provision Service Dialog Box (ATM UNI)**

2. Select Endpoint A to configure the connection for one SA device; select both Endpoint A and Endpoint B to configure the connection for two SA devices.

3. Choose OK to enter WebXtend. If you are configuring two SA devices, two WebXtend windows appear.
4. Continue with the instructions in the *PacketStar™ PSAX 50/100/600/1200 Network Administrator's Guide* to configure this service through WebXtend.

## Downloading SA Device Software

NavisCore enables you to download device software files to an SA device via FTP. Review the Software Release Notice (SRN) that ships with your SA device before you upgrade your device software.



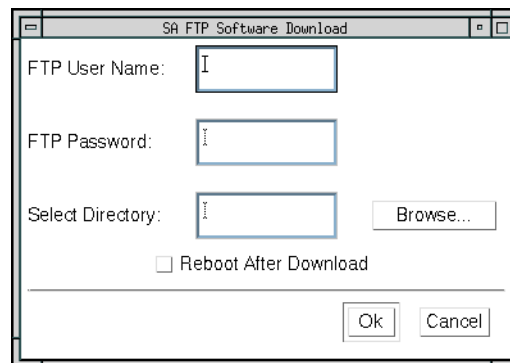
The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.



Use the upload procedures described in [“Uploading SA Device Configuration Files” on page 7-13](#) to back up SA device configuration files before you download new device software or configuration files.

To download software:

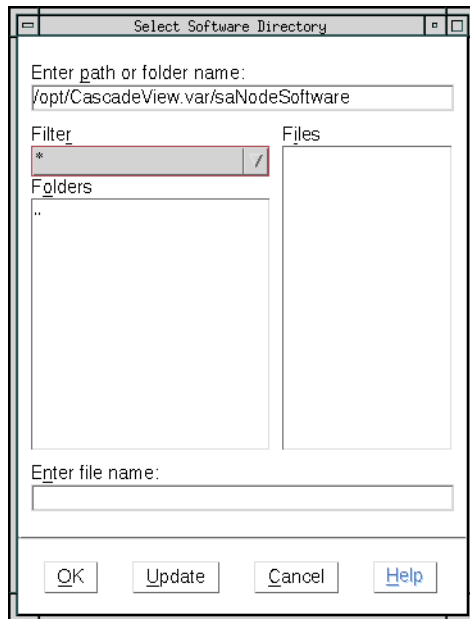
1. Select the SA device object on the network map.
2. From the Administer menu, select Lucent Switches ⇒ SA Software Download. The SA FTP Software Download dialog box appears (see [Figure 7-7](#)).



**Figure 7-7. SA FTP Software Download**

3. Enter your FTP user name and password.

4. Enter the name of the directory in which the software files are located, or choose Browse to search the directory tree. The Select Software Directory dialog box appears (see **Figure 7-8**).



**Figure 7-8. Select Software Directory Dialog Box**

The dialog box displays a list of folders (subdirectories) located in the specified directory.

5. To access the files for the device software, select the folder where the files reside. If necessary, use the Update button to refresh the Folder listing. The Enter file name field displays the name of the software folder.
6. Choose OK. The SA FTP Software Download dialog box reappears.
7. (*Optional*) Choose Reboot After Download. This option causes the device to reboot and updates the configuration file. Otherwise, enhancements in the new configuration file will not be available until you reboot the SA device.
8. Choose OK to download the software to the SA device.

## Uploading SA Device Configuration Files

NavisCore enables you to upload the SA device configuration file (`nv_db.dat`) and store it in the `/opt/Sahara.var/saCfgFiles/ <node>/<date>` directory. In the directory name string, `<node>` represents the SA node name (or IP address), and `<date>` represents the date and time of the upload.



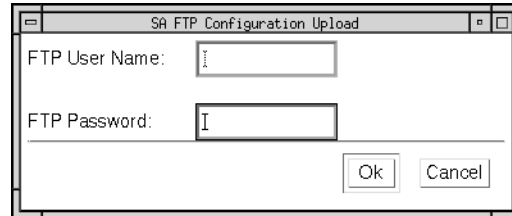
The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.



You can use the upload procedures to back up SA device configuration files before you download new device software or configuration files.

To upload SA device configuration files:

1. Select the SA device object on the network map.
2. From the Administer menu, select Lucent Switches ⇒ SA Configuration Upload. The SA FTP Configuration Upload dialog box appears (see [Figure 7-9](#)).



**Figure 7-9. SA FTP Configuration Upload Dialog Box**

3. Enter your FTP user name and password.
4. Choose OK to upload the configuration file.

## Downloading SA Device Configuration Files

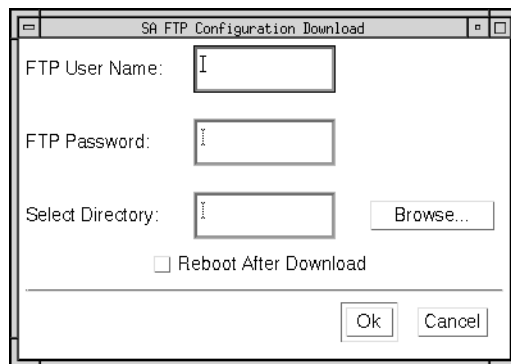
NavisCore enables you to send a copy of the SA device configuration file (`nv_db.dat`) from the NavisCore database to the SA device. NavisCore stores SA device configuration files in the `/opt/Sahara.var/saCfgFiles/<node>` directory, where `<node>` represents the SA node name (or IP address). Within the node directory, NavisCore lists subdirectories for each date, in the form of `Month_Day_Year.HH:MM:SS`. The `nv_db.dat` file is located within each dated directory.



The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.

To download the SA device configuration file:

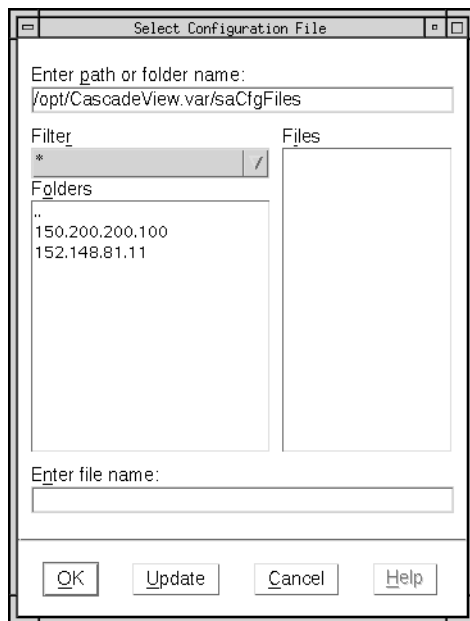
1. Select the SA device object on the network map.
2. From the Administer menu, select Lucent Switches ⇒ SA Configuration Download. The SA FTP Configuration Download dialog box appears (see [Figure 7-10](#)).



**Figure 7-10. SA FTP Configuration Download Dialog Box**

3. Enter your FTP user name and password.

4. Enter the name of the directory in which the configuration files are located, or choose Browse to search the directory tree. The Select Configuration File dialog box appears (see [Figure 7-11](#)).



**Figure 7-11. Select Configuration File Dialog Box**

The dialog box displays a list of folders (subdirectories) located in the specified directory.

5. To access the configuration file for the device, select the folder name that identifies the node name (IP address). If necessary, use the Update button to refresh the Folder listing. The Enter file name field displays the name of the software file.
6. Choose OK. The SA FTP Configuration Download dialog box reappears.
7. (*Optional*) Choose Reboot After Download. This option causes the device to reboot and updates the configuration file. Otherwise, enhancements in the new configuration file will not be available until you reboot the SA device.
8. Choose OK to download the configuration file to the SA device.

## Synchronizing the SA Database

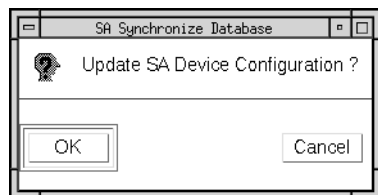
If the configuration file in the NavisCore database becomes out-of-sync with the SA configuration file on the device, you can use the Synchronize Database option to synchronize the two configuration files. An SA configuration file mismatch will cause the SA device to appear yellow on the map. When you make a change to an SA device, NavisCore issues a trap in the eventlog. An out-of-sync status indicates that the configuration data in the NavisCore SaCircuit table does not match the device information.



The PSAX 100, 600, and 1200 devices are also known as SA 100, 600, and 1200 devices in the NavisCore interface.

To synchronize the SA and NavisCore databases:

1. Select the device object on the network map.
2. From the Administer menu, select Lucent Switches ⇒ SA Synchronize Database. The SA Synchronize Database dialog box appears (see [Figure 7-12](#)).

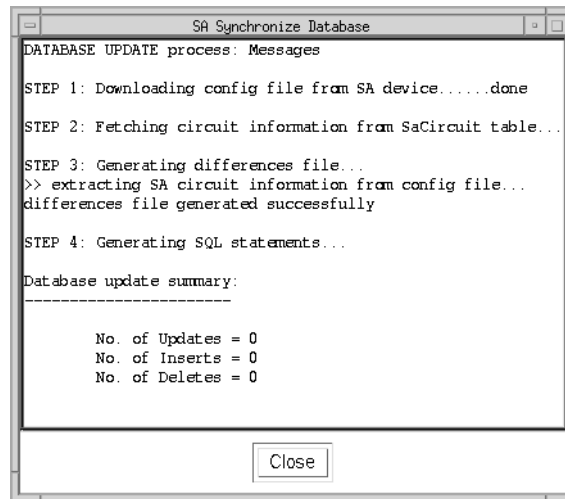


**Figure 7-12. SA Synchronize Database Dialog Box**

3. Choose OK to upload circuit configuration data (`nv_db.dat`) from the SA device. The upload process extracts the device data and stores it in the `nv_db_meta.dat.device` file. This process also extracts the circuit configuration from NavisCore's SaCircuit table and stores it in the `nv_db_meta.dat.database` file.

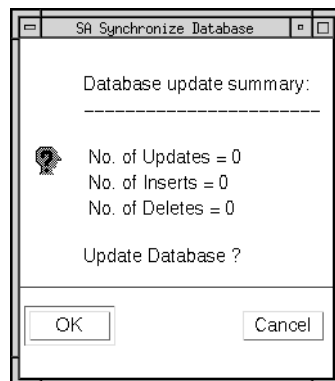


- The system displays the synchronization process as it compares the device circuit configuration (`nv_db_meta.dat.device`) to the NavisCore circuit configuration (`nv_db_meta.dat.database`). The results are stored in the file, `nv_db_meta.dif` (see [Figure 7-13](#)).



**Figure 7-13. SA Synchronize Database Update**

- Choose Close to exit.
- The Synchronize Database Update process creates the necessary SQL Insert/Update/Delete statements to update the NavisCore SaCircuit table as shown in a database update summary window (see [Figure 7-14](#)).



**Figure 7-14. SA Synchronize Database (Summary) Dialog Box**

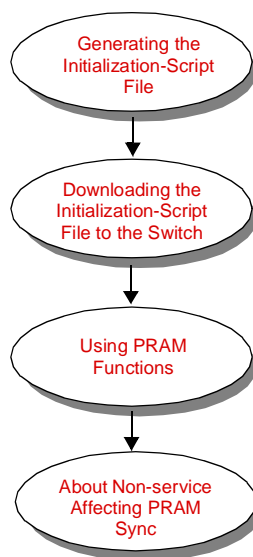
- Choose OK to update the NavisCore SaCircuit table with the device configuration.



## Downloading the Configuration

This chapter describes how to download information to the switch and establish Network Management Station (NMS)-to-switch communications. You can use these procedures to activate a new switch or to reconfigure an existing switch. For information on downloading PacketStar™ PSAX 100, 600, and 1200 (SA) device configuration files, see [“Downloading SA Device Configuration Files”](#) on page 7-14.

This chapter describes the following topics and tasks:



## Before You Begin

After you define the switch configuration through NavisCore, you must create an initialization-script file and download it to the switch.

You download a switch configuration file as follows:

- Step 1.* Create the initial switch configuration by generating an initialization-script file from the NMS.
- Step 2.* Make a console connection to the switch.
- Step 3.* Start the terminal emulation software.
- Step 4.* Download the initialization-script file to the switch (see [page 8-5](#)).
- Step 5.* Synchronize the switch from the NMS (see [page 8-62](#)).

## Generating the Initialization-Script File

The Initialize Switches function generates an initialization-script file that contains the Simple Network Management Protocol (SNMP) SET commands for each configuration. The initialization-script file is then used to load the initial switch configuration or to reload the configuration if the original configuration is erased or destroyed. The initialization-script file is stored in the `/var/CascadeView/initFiles` directory as `switchname.init`.

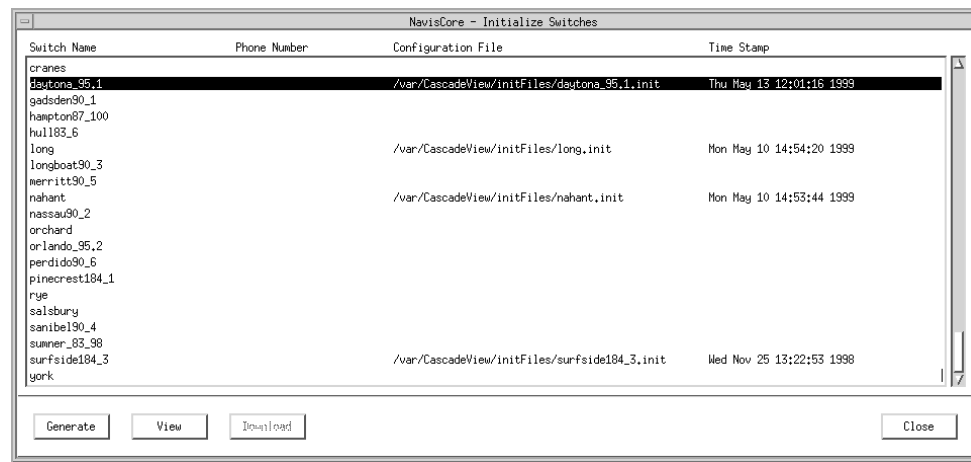


To download a new initialization-script file to a switch that already contains a configuration, you must first clear the parameter random access memory (PRAM). See [“Clearing Switch PRAM” on page 8-71](#).

To generate the initialization-script file:

1. Select a switch from your network map.
2. From the Misc menu, select NavisCore ⇒ Logon. Enter your operator password.

3. From the Administer menu, select Lucent Switches ⇒ Initialize Switches. The Initialize Switches dialog box appears (see [Figure 8-1](#)).



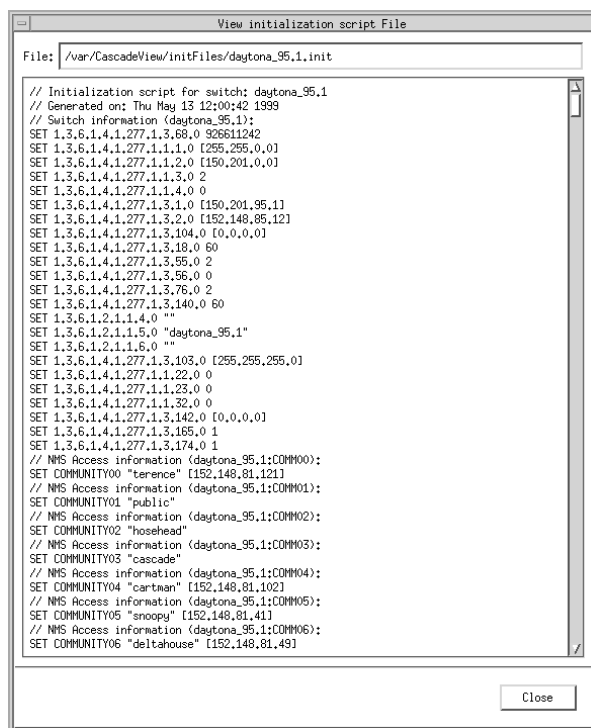
**Figure 8-1. Initialize Switches Dialog Box**

4. From the Switch Name list, select the switch you want to initialize.
5. Choose Generate to create the initialization-script file containing the SNMP SET commands. The initialization-script file will get a new date and time stamp each time the file is updated. This is the file you need to download to the switch.
6. Repeat [step 4](#) and [step 5](#) for each switch you need to initialize. Proceed to [“Downloading the Initialization-Script File to the Switch”](#) on [page 8-5](#).

## Viewing the Initialization-Script File

To view the initialization-script file before downloading it to the switch:

1. From the Initialize Switches dialog box, highlight the desired switch.
2. Choose View. The system displays the file contents similar to the example in [Figure 8-2](#).



```
File: /var/CascadeView/initFiles/daytona_95.1.init

// Initialization script for switch: daytona_95.1
// Generated on: Thu May 13 12:00:42 1999
// Switch information (daytona_95.1):
SET 1.3.6.1.4.1.277.1.3.68.0 325611242
SET 1.3.6.1.4.1.277.1.1.1.0 [255,255,0,0]
SET 1.3.6.1.4.1.277.1.1.2.0 [150,201,0,0]
SET 1.3.6.1.4.1.277.1.1.3.0 2
SET 1.3.6.1.4.1.277.1.1.4.0 0
SET 1.3.6.1.4.1.277.1.3.1.0 [150,201,95,11]
SET 1.3.6.1.4.1.277.1.3.2.0 [152,148,85,12]
SET 1.3.6.1.4.1.277.1.3.104.0 [0,0,0,0]
SET 1.3.6.1.4.1.277.1.3.18.0 60
SET 1.3.6.1.4.1.277.1.3.55.0 2
SET 1.3.6.1.4.1.277.1.3.56.0 0
SET 1.3.6.1.4.1.277.1.3.76.0 2
SET 1.3.6.1.4.1.277.1.3.140.0 60
SET 1.3.6.1.2.1.1.4.0 ""
SET 1.3.6.1.2.1.1.5.0 "daytona_95.1"
SET 1.3.6.1.2.1.1.6.0 ""
SET 1.3.6.1.4.1.277.1.3.103.0 [255,255,255,0]
SET 1.3.6.1.4.1.277.1.1.22.0 0
SET 1.3.6.1.4.1.277.1.1.23.0 0
SET 1.3.6.1.4.1.277.1.1.32.0 0
SET 1.3.6.1.4.1.277.1.3.142.0 [0,0,0,0]
SET 1.3.6.1.4.1.277.1.3.165.0 1
SET 1.3.6.1.4.1.277.1.3.174.0 1
// NMS Access information (daytona_95.1:COMM00):
SET COMMUNITY00 "terence" [152,148,81,121]
// NMS Access information (daytona_95.1:COMM01):
SET COMMUNITY01 "public"
// NMS Access information (daytona_95.1:COMM02):
SET COMMUNITY02 "hosehead"
// NMS Access information (daytona_95.1:COMM03):
SET COMMUNITY03 "cascade"
// NMS Access information (daytona_95.1:COMM04):
SET COMMUNITY04 "cartman" [152,148,81,102]
// NMS Access information (daytona_95.1:COMM05):
SET COMMUNITY05 "snoopy" [152,148,81,41]
// NMS Access information (daytona_95.1:COMM06):
SET COMMUNITY06 "deltahouse" [152,148,81,48]
```

**Figure 8-2. View Initialization Script File Dialog Box**

3. When you finish viewing the file, choose Close to return to the Initialize Switches dialog box.

## Downloading the Initialization-Script File to the Switch

After you have generated and viewed the initialization-script file, you can download it to the switch using any of the following methods:

**Tip Utility** — The Solaris Tip program. See “Using Tip” on page 8-5.

**Terminal Emulation Software** — PC in terminal emulation software. See “Using Terminal Emulation Software” on page 8-8 for instructions.

**Kermit Utility** — Console port running the kermit mode protocol. See “Using Kermit” on page 8-8 for instructions.

**Install Program** — Connection to the console using a PC or terminal. See “Using the Console Install Program with B-STDX Switches” on page 8-10 and “Using the Console Install Program with CBX and GX Switches” on page 8-34 for instructions.



Lucent recommends that you configure management permanent virtual circuits (MPVCs) after you download the NMS initialization-script to initialize the switch. If you configure MPVCs before you initialize the switch, the NMS searches the entire circuit table for the presence of MPVCs. Generating the initialization-script file can take 10 minutes or more, depending on the size of the circuit table.

### Using Tip

Before you use the Solaris Tip program to download a text file, verify the following:

- The console cable connects to serial port A on the back of your workstation. See your workstation hardware guide for information about locating serial port A.
- The hardware entry device (dv) is set for /dev/cua/a.
- The hardware entry in the /etc/remote file specifies 19200 bps.

For example:

```
hardware:\  
:dv=/dev/cua/a:br#19200:el=^C^S^Q^U^D:ie=%$:oe=^D
```



In UNIX, ^D means press d while holding down the Ctrl key.

## Downloading the Configuration

### Downloading the Initialization-Script File to the Switch

---

To access the switch:

1. In an Xterm window, enter `su - root` and enter the root login and password.
2. Enter `tip hardware`.

You should get a “connected” message.

3. Enter `~#`.

This command sends a break character to the switch. The console prompt appears.

4. Log in to the switch.
5. At the `>` prompt, enter the following:

```
enable debug
password: <your debug password>
```

If you do not know your debug password, contact the Technical Assistance Center (TAC) for help. For contact information, see [“Customer Support” on page xxvii](#).

6. At the `##` prompt, enter the following:  

```
## reset pram all
```
7. At the “Reset PRAM on all cards? Are you sure (YES/NO)?” prompt, enter **YES**.
8. At the `##` prompt, enter the following:

```
## reset system
```

9. At the “Are you sure (YES/NO)?” prompt, enter **YES**.

The system displays the following message:

```
resetting switch, stand by...
```

When the switch comes up (approximately 1-2 minutes), the `>>` prompt appears.

This prompt indicates that you successfully erased PRAM and the switch can accept a new initialization-script file (see [“Downloading the Initialization File” on page 8-7](#)). Before you download the file, verify that all Input/Output (I/O) modules are “up” by issuing a `show card console` command.



## Downloading the Initialization File

The file (executable) is located in `/opt/CascadeView/bin`.

To download the initialization file:

1. Open a second Xterm window.
2. Change directory as follows:

```
cd /opt/CascadeView/bin
```

3. Enter the following command:

```
./script-download -in [ifn] -out [ofn] -linedelay [#in 1/10  
seconds]
```

where:

[ifn] is the initialization filename  
(for example, `/var/CascadeView/initFiles/shuttle38.init`)

[ofn] is the output filename (for example, `/dev/cua/a`)

[# in 1/10 second] is the value of the line delay in 1/10th of a second  
(for example, use 3 to use a 3/10th-second line delay). Do not use a value  
less than 1.

4. When you finish, type `~^D` in the Xterm window to exit the Tip session.



Observe the switch on the network map. If the switch remains yellow and does not turn green within a few minutes, see [“Synchronizing Switches” on page 8-64](#) to synchronize the switch.

## Correcting Error Messages

If you have problems and you receive the error message “Couldn’t open input file” when you ran `script-download`, enter the following command to change permissions on the `/dev/cua/a` device (You must have root privilege to change the file permissions.):

```
chmod 666 /dev/cua/a
```

## Using Terminal Emulation Software

You can use any commercially available terminal emulation package to download the configuration text file from a PC. See the user guide that comes with this package for specific instructions for downloading text files.

Whichever emulation package you use, make sure to set the following variables:

**Transfer protocol** — Set this to text mode transfer.

**Line delay** — Set this to a minimum of 3/10 second.

Before you transfer the configuration text file to the PC, you may need to run the UNIX command, `unix2dos`, on this file.

## Using Kermit

You can use the kermit function to transfer the configuration text file through the console port to your switch's CP/SP/NP module. The advantage of using kermit instead of a PC terminal emulator is that with kermit, you only have to download the PRAM files needed to establish a connection between the switch and the NMS. For gateway switches, you only need to download your switch's CP/SP/NP module PRAM file. For non-gateway nodes, you need to download the CP/SP/NP module PRAM file and the PRAM file of the module that provides the trunk connection to the gateway node.

Another advantage is that after the CP/SP/NP module reboots with the PRAM file, you do not have to PRAM Sync the processor and module(s) that received the new configuration file.

To download the PRAM files to the switch:

1. Connect a console cable to serial port A on the back of your workstation. See your workstation hardware guide for information about serial port A.
2. Use the Generate PRAM function (see [“Generating PRAM” on page 8-65](#)) to generate a configuration file for the main processor and module(s).
  - *If this is a gateway switch*, you do not have to generate PRAM for any module(s).
  - *If this is not a gateway switch*, you must generate a PRAM file for the CP/SP/NP module and the module that provides the trunk connection to the gateway node.

The NMS stores the generated PRAM files in the `/opt/CascadeView.var/cfgSyncFiles` directory. The subdirectories that contain the PRAM files associated with this release may look like the following:

**Table 8-1. PRAM Files**

Switch Type	Directory Name
B-STDX 8000/9000	9000-07.xx.xx
CBX 500	500-04.xx.xx
GX 550	550-02.01.xx

When you look in these subdirectories, you see a number of files that include the name of the associated switch followed by a .Pslot number. For example, for switch `Westford1`, the CP/SP/NP module PRAM file name would be `westford1.P01`. If the PRAM file was from the module in slot 14, the PRAM file name would be `Westford1.P14`. These file types are the ones you must download to the switch.

3. From either the NMS or a PC, establish a console connection to the switch (19200 bps).
4. At the console prompt, type `kermit` and press Return. This sets the console port to kermit mode for file transfer.
5. Start a kermit session with binary-file transfer mode selected.
6. Transfer the CP/SP/NP module PRAM file. Once complete, the kermit session automatically terminates and the CP/SP/NP module should automatically warm boot.
7. (Optional) To transfer the module PRAM file(s), repeat **step 4** through **step 6**.
8. After the download is complete, the NMS should be able to access the switch. On the Switch Back Panel dialog box, if any remaining IOPs are yellow, you can PRAM Sync them. See **“Using PRAM Functions”** on page 8-62 for instructions.

## Using the Console Install Program with B-STDX Switches

You use the install program to enable B-STDX 8000/9000 switches with no PRAM to communicate with the NMS. Once switch-to-NMS connectivity is established, you can perform the remaining configuration tasks directly from the NMS.

To access the switch using the install program:

1. Establish a connection to the switch console port, using the NMS workstation or a stand-alone PC.
2. At the <switch name>## prompt, enter **Reset Pram all**.
3. At the “Reset PRAM on all cards. ARE YOU SURE <Yes|No>?” prompt, enter **YES**.
4. At the <switch name>## prompt, enter **reset system**.
5. At the “ARE YOU SURE <Yes|No>?” prompt, enter **YES**.

The system displays the following message:

```
RESETTING SWITCH, STAND BY....
```

6. At the >> prompt, enter **install**.
7. The system prompts you for the following information. Enter the applicable response and press Return after each entry.

```
Enter the network number:
```

```
Enter the network mask:
```

```
Select the DLCI addressing scheme (1-Global, 2-Local):
```

```
Enter the internal switch IP address:
```

```
Enter the NMS IP address:
```

```
Enter the community string:
```

If this is the first switch in the network, use the default internal Internet Protocol (IP) address shown or modify the last octet to represent the actual switch address.

Enter the community name of the NMS used to manage this switch. The default community name is *cascade*.

The system displays the following menu of interfaces that the switch can use to communicate with the NMS.

<b>Interface</b>	<b>See</b>
(1) Direct Ethernet	“Using Direct Ethernet” on page 8-12
(2) Indirect Ethernet	“Using Indirect Ethernet (Through a Gateway Device)” on page 8-13
(3) Direct Trunk	“Using a Direct Trunk” on page 8-14
(4) ATM OPTimum Cell Trunk	“Using an ATM OPTimum Cell Trunk (Through an Adjacent Switch)” on page 8-16
(5) Management PVC (single-hop)	“Using a Management PVC (Single-hop)” on page 8-18
(6) Multi-Hop MPVC Over a Direct Trunk	“Using a Multi-hop MPVC over a Direct Trunk” on page 8-20
(7) Multi-Hop MPVC Over an ATM OPTimum Trunk	“Using a Multi-hop MPVC over an ATM OPTimum Trunk” on page 8-23
(8) Frame Relay OPTimum Trunk	“Using a Frame Relay OPTimum Trunk (Through an Adjacent Switch)” on page 8-25
(9) Multi-Hop MPVC Over a Frame Relay OPTimum Trunk	“Using a Multi-hop MPVC Over a Frame Relay OPTimum Trunk” on page 8-27
(10) ATM OPTimum Frame Trunk	“Using an ATM OPTimum Frame Trunk (Through an Adjacent Switch – B-STDX only)” on page 8-30
(11) Multi-Hop MPVC Over an ATM OPTimum Frame Trunk	“Using a Multi-hop MPVC Over an ATM OPTimum Frame Trunk” on page 8-32

- 8.** Select your connection type, then proceed to the applicable section for further instructions.

#### Using Direct Ethernet

1. Enter the IP address of the Ethernet port.
2. Enter the IP address mask of the Ethernet port.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Direct Ethernet
Ethernet Port IP Address 152.148.82.25
Ethernet Port Mask 255.255.0.0
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct. When it receives confirmation, the system displays the following:  

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
4. When prompted, enter **yes** to reboot the switch.

### **Using Indirect Ethernet (Through a Gateway Device)**

1. Enter the IP address of the Ethernet port.
2. Enter the IP address mask of the Ethernet port.
3. Enter the IP address of the gateway device.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Indirect Ethernet (through a gateway
device)
Ethernet Port IP Address 152.148.82.25
Ethernet Port Mask 255.255.0.0
Gateway IP Address 152.148.82.79
```

4. When prompted, enter **yes** or **no** to confirm that this information is correct. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```

5. When prompted, enter **yes** to reboot the switch.

## Using a Direct Trunk

If you are using a direct trunk to communicate with the NMS, choose from the following module types:

- 8-port UIO
- 4-port 24-channel fractional T1
- 4-port 30-channel fractional E1
- 10-port DSX-1
- 2-port HSSI
- Channelized DS3
- 1-port ATM UNI DS3
- 1-port ATM UNI E3
- 1-port ATM IWU OC3c/STM1
- 1-port ATM CS/DS3
- 1-port ATM CS/E3
- 12-port E1
- 4-port unchannelized T1
- 4-port unchannelized E1
- Channelized DS3-1-0
- 12-port ATM E1
- 12-port ATM T1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock source selection. The system displays the following clock source options:
    - 1 DCE
    - 2 Loop Timed DCE
    - 3 DTE
    - 4 Direct Trunk
  - d. Enter the clock speed in Kbps.
  - e. Enter the interface number of the trunk.
  - f. Enter the Open Shortest Path First (OSPF) area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.



The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Direct Trunk (through an adjacent
switch)
Card Type 8 Port UIO
Slot Number of card 3
Port Number 1
Clock Selection DCE
Clock Speed 64
Interface # of the trunk 1
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 1
Internal IP Address of remote switch 152.148.50.2
```



You may need to configure additional parameters, depending on the card type you are configuring. Contact the TAC for assistance. For contact information, see **“Customer Support” on page xxvii.**

3. When prompted, enter **yes** or **no** to confirm that this information is correct. When it receives confirmation, the system displays the following:  

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
4. When prompted, enter **yes** to reboot the switch.

## Using an ATM OPTimum Cell Trunk (Through an Adjacent Switch)

If you are using an ATM OPTimum Cell trunk to communicate with the NMS, choose from the following module types:

- 1-port ATM UNI DS3
- 1-port ATM UNI E3
- 1-port ATM IWU OC3c/STM1
- 1-port ATM CS/DS3
- 1-port ATM CS/E3
- 12-port ATM E1
- 12-port ATM T1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - c. Enter the Cell Payload Scrambling Mode (1 - Disabled, 2 - Enabled).
  - d. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - e. Enter the interface number of the trunk.
  - f. Enter the OSPF area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.
  - j. Enter the interface number of the feeder logical port.
  - k. Enter the virtual path identifier (VPI) for the local OPTimum trunk.

The program displays your configuration information:

```
Network Number: 150.201.0.0
Network Mask: 255.255.0.0
DLCI Scheme: Local
Internal Switch IP Address: 150.201.85.4
NMS IP Address: 152.148.81.45
Community String: pike
NMS -> Switch Interface: ATM OPTimum Cell Trunk (through an
adjacent switch)
Card Type: 1-port ATM CS/DS3
Slot Number of card: 5
Port Number: 1
Clock Selection: Internal
Cell Payload Scrambling Mode: Enabled
Cell Mapping Mode: PLCP
Interface # of the trunk: 8
OSPF Area ID: 0.0.0.1
OSPF Area 1 backward compatibility: Yes
Interface # of the remote trunk: 16
Internal IP Address of remote switch: 150.201.85.1
Interface # of the feeder lport: 1
VPI for local OPTimum trunk: 10
```

3. When prompted, enter **yes** or **no** to confirm that this configuration is correct.

When it receives confirmation, the system displays the following:

```
Committing
```

```
Preliminary installation completed!
```

```
Use the NMS to complete the full installation.
```

4. When prompted, enter **yes** to reboot the switch.

## Using a Management PVC (Single-hop)

If you are using a single-hop management PVC (MPVC) to communicate with the NMS, choose from the following module types:

- 8-port UIO
- 4-port 24-channel fractional T1
- 4-port 30-channel fractional E1
- 10-port DSX-1
- 2-port HSSI
- Channelized DS3
- 1-port ATM UNI DS3
- 1-port ATM UNI E3
- 1-port ATM IWU OC3c/STM1
- 1-port ATM CS/DS3
- 1-port ATM CS/E3
- 12-port E1
- 4-port unchannelized T1
- 4-port unchannelized E1
- Channelized DS3-1-0
- 12-port ATM E1
- 12-port ATM T1

1. Select the module used for the MPVC endpoint or user-network interface (UNI) and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the MPVC endpoint or UNI card.
  - b. Enter the port number of the MPVC endpoint or UNI.
  - c. Enter the clock selection. The system displays the following clock source options:
    - 1 DCE
    - 2 Loop Timed DCE
    - 3 DTE
    - 4 Direct Trunk
  - d. Enter the clock speed in Kbps.
  - e. Enter the interface number of the UNI.
  - f. Enter the link management interface (LMI) protocol. The system displays the following options:
    - 1 Disabled
    - 2 LMI Rev1
    - 3 ANSI T1.617 Annex D
    - 4 CCITT Q.933 Annex A
  - g. Enter the UNI logical port type (1 - DCE, 2 - DTE, 3 - NNI)

- h.** Enter the data link connection identifier (DLCI) on the management logical port.
- i.** Enter the DLCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Management PVC (single-hop)
Card Type 8 Port UIO
Slot Number of card 4
Port Number 1
Clock Selection DCE
Clock Speed 1536
Interface # of the UNI 30
LMI Type ANSI T1.617 Annex D
UNI Lport Type DCE
DLCI on the Mgmt Lport 43
DLCI on the UNI 43
```

- 3.** When prompted, enter **yes** or **no** to confirm that this configuration is correct. When it receives confirmation, the system displays the following:  

```
Committing

Preliminary installation completed!

Use the NMS to complete the full installation.
```
- 4.** When prompted, enter **yes** to reboot the switch.

## Using a Multi-hop MPVC over a Direct Trunk

If you are using a multi-hop MPVC over a direct trunk to communicate with the NMS, choose from the following module types:

- 8-port UIO
- 4-port 24-channel fractional T1
- 4-port 30-channel fractional E1
- 10-port DSX-1
- 2-port HSSI
- Channelized DS3
- 1-port ATM UNI DS3
- 1-port ATM UNI E3
- 1-port ATM IWU OC3c/STM1
- 1-port ATM CS/DS3
- 1-port ATM CS/E3
- 12-port E1
- 4-port unchannelized T1
- 4-port unchannelized E1
- Channelized DS3-1-0
- 12-port ATM E1
- 12-port ATM T1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the channel number of the trunk.
  - c. Enter the clock speed in Kbps.
  - d. Enter the clock source selection. The system displays the following clock source options:
    - 1 DCE
    - 2 Loop Timed DCE
    - 3 DTE
    - 4 Direct Trunk
  - e. Enter the link framing selection. The system displays the following link framing options:
    - 1 D4
    - 2 ESF-ANSI
    - 3 ESF-ATT-a
    - 4 ESF-NONE
    - 5 E1-CAS-CRC4
    - 6 E1-CAS-NO-CRC4
    - 7 E1-NO-CAS-CRC4
    - 8 E1-NO-CAS-NO-CRC4
    - 9 ESF-ATT-b
    - 10 SF-ANSI
    - 11 E1-UNSTRUCTURED

- f.** Enter the zero coding scheme. The system displays the following zero coding options:
  - 1 AMI
  - 2 B8ZS
  - 3 HDB3
  - 4 Jammed-bit
  - 5 Nx56
  - 6 Nx64
- g.** Enter the interface number of the trunk.
- h.** Enter the OSPF area ID.
- i.** Enter **yes** or **no** for the OSPF area 1 backward compatibility.
- j.** Enter the interface number of the remote trunk.
- k.** Enter the internal IP address of the remote switch.
- l.** Enter the DLCI on the management logical port.
- m.** Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
- n.** Enter the MPVC remote UNI interface number.
- o.** Enter the switch IP address of the remote MPVC endpoint.
- p.** Enter the DLCI on the UNI.

## Downloading the Configuration

### Downloading the Initialization-Script File to the Switch

---

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over
Card Type Channelized DS3
Slot Number of card 4
Channel Number 6
Clock Speed 1536
Clock Selection Internal
Link Framing ESF-ANSI
Zero Coding Scheme B8ZS
Interface # of the trunk 2
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 1
Internal IP Address of remote switch 150.201.82.65
DLCI on the Mgmt Lport 30
MPVC Remote UNI Interface Type Frame-Relay
MPVC Remote UNI Interface # 60
Switch IP Addr of Remote MPVC Endpoint 150.201.82.65
DLCI on the UNI 60
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct. When it receives confirmation, the system displays the following:

```
Committing

Preliminary installation completed!

Use the NMS to complete the full installation.
```

4. When prompted, enter **yes** to reboot the switch.



## Using a Multi-hop MPVC over an ATM OPTimum Trunk

If you are using a multi-hop MPVC over an ATM OPTimum trunk to communicate with the NMS, choose from the following module types:

- 1-port ATM UNI DS3
- 1-port ATM UNI E3
- 1-port ATM IWU OC3c/STM1
- 1-port ATM CS/DS3
- 1-port ATM CS/E3
- 12-port ATM E1
- 12-port ATM T1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - c. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - d. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - e. Enter the interface number of the trunk.
  - f. Enter the OSPF area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.
  - j. Enter the interface number of the feeder logical port.
  - k. Enter the VPI for the local OPTimum trunk.
  - l. Enter the DLCI for the management logical port.
  - m. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame-Relay).
  - n. Enter the MPVC remote UNI interface number.
  - o. Enter the switch IP address of the remote MPVC endpoint.
  - p. Enter the VPI on the UNI.
  - q. Enter the virtual channel identifier (VCI) on the UNI.

## Downloading the Configuration

### Downloading the Initialization-Script File to the Switch

---

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over
Card Type 1-port ATM UNI DS3
Slot Number of card 3
Port Number 1
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Cell Mapping Mode PLCP
Interface # of the trunk 45
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 30
Internal IP Address of remote switch 150.201.82.65
Interface # of the feeder lport 5
VPI for local OPTimum trunk 11
DLCI on the Mgmt Lport 20
MPVC Remote UNI Interface Type ATM
MPVC Remote UNI Interface # 34
Switch IP Addr of Remote MPVC Endpoint 150.201.82.65
VPI on the UNI 12
VCI on the UNI 56
```

3. When prompted, enter **yes** or **no** to confirm that this configuration is correct.

When it receives confirmation, the system displays the following:

```
Committing
```

```
Preliminary installation completed!
```

```
Use the NMS to complete the full installation.
```

4. When prompted, enter **yes** to reboot the switch.

## Using a Frame Relay OPTimum Trunk (Through an Adjacent Switch)

If you are using a Frame Relay OPTimum trunk to communicate with the NMS, choose from the following module types:

- 8-port UIO
- 4-port 24-channel fractional T1
- 4-port 30-channel fractional E1
- 10-port DSX-1
- 2-port HSSI
- Channelized DS3
- 12-port E1
- 4-port unchannelized T1
- 4-port unchannelized E1
- Channelized DS3-1-0

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection. The system displays the following clock source options:
    - 1 DCE
    - 2 Loop Timed DCE
    - 3 DTE
    - 4 Direct Trunk
  - d. Enter a clock speed in Kbps.
  - e. Enter the local trunk interface number of the trunk.
  - f. Enter the OSPF area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.

## Downloading the Configuration

### Downloading the Initialization-Script File to the Switch

---

- j.** Enter the DLCI for the local OPTimum trunk.
- k.** Enter the link management interface (LMI) protocol. The system displays the following options:
  - 1 Disabled
  - 2 LMI Rev1
  - 3 ANSI T1.617 Annex D
  - 4 CCITT Q.933 Annex A
- l.** Enter the feeder logical port type (1 - DTE, 2 - NNI).

The program displays your configuration information:

```
Network Number: 150.201.0.0
Network Mask: 255.255.0.0
DLCI Scheme: Local
Internal Switch IP Address: 150.201.85.4
NMS IP Address: 152.148.81.45
Community String: pike
NMS -> Switch Interface: Frame Relay OPTimum Trunk (through
an adjacent switch)
Card Type: 8 Port UIO
Slot Number of card: 13
Port Number: 8
Clock Selection: DTE
Clock Speed: 1536
Interface # of the trunk: 10
OSPF Area ID: 0.0.0.1
OSPF Area 1 backward compatibility: Yes
Interface # of the remote trunk: 6
Internal IP Address of remote switch: 150.201.85.5
Interface # of the feeder lport: 9
DLCI for local OPTimum trunk: 16
LMI Type: Disabled
Feeder Lport Type: NNI
```

- 3.** When prompted, enter **yes** or **no** to confirm that this configuration is correct. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
- 4.** When prompted, enter **yes** to reboot the switch.

## **Using a Multi-hop MPVC Over a Frame Relay OPTimum Trunk**

If you are using a multi-hop MPVC over a Frame Relay OPTimum trunk to communicate with the NMS, choose from the following module types:

- 8-port UIO
- 4-port 24-channel fractional T1
- 4-port 30-channel fractional E1
- 10-port DSX-1
- 2-port HSSI
- Channelized DS3
- 12-port E1
- 4-port unchannelized T1
- 4-port unchannelized E1
- Channelized DS3-1-0

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter a clock speed in Kbps.
  - d. Enter the clock selection. The system displays the following clock source options:
    - 1 Loop Timed
    - 2 Internal
    - 3 External
    - 4 Chassis
  - e. Enter the link framing selection. The system displays the following link framing options:
    - 1 D4
    - 2 ESF-ANSI
    - 3 ESF-ATT-a
    - 4 ESF-NONE
    - 5 E1-CAS-CRC4
    - 6 E1-CAS-NO-CRC4
    - 7 E1-NO-CAS-CRC4
    - 8 E1-NO-CAS-NO-CRC4
    - 9 ESF-ATT-b
    - 10 SF-ANSI
    - 11 E1-UNSTRUCTURED

## Downloading the Configuration

### Downloading the Initialization-Script File to the Switch

---

- f.** Enter the zero coding scheme. The system displays the following zero coding options:
  - 1 AMI
  - 2 B8ZS
  - 3 HDB3
  - 4 Jammed-bit
  - 5 Nx56
  - 6 Nx64
- g.** Enter the local trunk interface number of the trunk.
- h.** Enter the OSPF area ID.
- i.** Enter **yes** or **no** for the OSPF area 1 backward compatibility.
- j.** Enter the interface number of the remote trunk.
- k.** Enter the internal IP address of the remote switch.
- l.** Enter the interface number of the feeder logical port.
- m.** Enter the DLCI for the local OPTimum trunk.
- n.** Enter the link management interface (LMI) protocol. The system displays the following options:
  - 1 Disabled
  - 2 LMI Rev1
  - 3 ANSI T1.617 Annex D
  - 4 CCITT Q.933 Annex A
- o.** Enter the feeder logical port type (2 - DTE, 3 - NNI).
- p.** Enter the DLCI on the management logical port.
- q.** Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
- r.** Enter the MPVC remote UNI interface.
- s.** Enter the switch IP address of the remote MPVC endpoint.
- t.** Enter the VPI on the UNI.
- u.** Enter the VCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over
Card Type 12-Port E1
Slot Number of card 3
Port Number 2
Clock Speed 1536
Clock Selection Internal
Link Framing ESF-ANSI
Zero Coding Scheme B8ZS
Interface # of the trunk 25
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 35
Internal IP Address of remote switch 150.201.82.65
Interface # of the feeder lport 11
DLCI for local OPTimum trunk 47
LMI Type ANSI T1.617 Annex D
Feeder Lport Type DTE
DLCI on the Mgmt Lport 34
MPVC Remote UNI Interface Type ATM
MPVC Remote UNI Interface # 65
Switch IP Addr of Remote MPVC Endpoint 150.201.82.76
VPI on the UNI 7
VCI on the UNI 32
```

3. When prompted, enter **yes** or **no** to confirm that this configuration is correct. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```

4. When prompted, enter **yes** to reboot the switch.

## Using an ATM OPTimum Frame Trunk (Through an Adjacent Switch – B-STDX only)

The ATM OPTimum Frame trunk can only be used with B-STDX switches and only supports the following module:

1-port ATM IWU OC3c/STM1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the clock selection (1- Loop Timed, 2 - Internal).
  - c. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - d. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - e. Enter the Optical Transmission mode (1 - SONET, 2 - SDH).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the internal IP address of the remote switch.
  - j. Enter the interface number of the feeder logical port.
  - k. Enter the VPI for the local OPTimum trunk.
  - l. Enter the VCI for local OPTimum trunk.



The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.65
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface ATM OPTimum Frame Trunk (through an
adjacent switch)
Card Type 1-port ATM IWU OC3c/STM1
Slot Number of card 9
Port Number 1
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Cell Mapping Mode PLCP
Optical Transmission Mode SONET
Interface # of the trunk 31
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 44
Internal IP Address of remote switch 150.201.82.71
Interface # of the feeder lport 30
VPI for local OPTimum trunk 1
VCI for local OPTimum trunk 33
```

3. When prompted, enter yes or no to confirm that this configuration is correct. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```

4. When prompted, enter **yes** to reboot the switch.

## Using a Multi-hop MPVC Over an ATM OPTimum Frame Trunk

If you are using a multi-hop MPVC over an ATM OPTimum Frame trunk to communicate with the NMS, choose from the following module types:

- 1-port ATM UNI DS3
- 1-port ATM UNI E3
- 1-port ATM IWU OC3c/STM1
- 1-port ATM CS/DS3
- 1-port ATM CS/E3
- 12-port ATM E1
- 12-port ATM T1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the clock selection (1- Loop Timed, 2 - Internal).
  - c. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - d. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - e. Enter the Optical Transmission mode (1 - SONET, 2 - SDH).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.
  - k. Enter the interface number of the feeder logical port.
  - l. Enter the VPI for the local OPTimum trunk.
  - m. Enter the VCI for the local OPTimum trunk.
  - n. Enter the DLCI on the management logical port.
  - o. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
  - p. Enter the MPVC remote UNI interface.
  - q. Enter the switch IP address of the remote MPVC endpoint.
  - r. Enter the VPI on the UNI.
  - s. Enter the VCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
DLCI Scheme Local
Internal Switch IP Address 150.201.82.71
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over
Card Type 4-port Unchannelized T1
Slot Number of card 6
Port Number 3
Clock Speed 1536
Clock Selection Internal
Link Framing ESF-ANSI
Zero Coding Scheme B8ZS
Interface # of the trunk 55
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 28
Internal IP Address of remote switch 150.201.82.65
Interface # of the feeder lport 33
DLCI for local OPTimum trunk 88
LMI Type ANSI T1.617 Annex D
Feeder Lport Type DTE
DLCI on the Mgmt Lport 78
MPVC Remote UNI Interface Type Frame-Relay
MPVC Remote UNI Interface # 65
Switch IP Addr of Remote MPVC Endpoint 150.201.82.65
DLCI on the UNI 65
```

3. When prompted, enter **yes** or **no** to confirm that this configuration is correct. When it receives confirmation, the system displays the following:

```
Committing

Preliminary installation completed!

Use the NMS to complete the full installation.
```

4. When prompted, enter **yes** to reboot the switch.

## Using the Console Install Program with CBX and GX Switches

You use the install program to enable CBX 500 and GX 550 switches with no PRAM to communicate with the NMS. Once switch-to-NMS connectivity is established, you can perform the remaining configuration tasks directly from the NMS.

To access the switch using the install program:

1. Establish a connection to the switch console port, using the NMS workstation or a stand-alone PC.
2. At the <switch name>## prompt, enter **Reset Pram all**.
3. At the “Reset PRAM on all cards. ARE YOU SURE <Yes|No>?” prompt, enter **YES**.
4. At the <switch name>## prompt, enter **reset system**.
5. At the “ARE YOU SURE <Yes|No>?” prompt, enter **YES**.

The system displays the following message:

```
RESETTING SWITCH, STAND BY....
```

6. At the >> prompt, enter **install**.
7. The system prompts you for the following information. Enter the applicable response and press Return after each entry.

```
Enter the network number:
```

```
Enter the network mask:
```

```
Enter the internal switch IP address:
```

```
Enter the NMS IP address:
```

```
Enter the community string:
```

If this is the first switch in the network, use the default internal IP address shown or modify the last octet to represent the actual switch address.

Enter the community name of the NMS used to manage this switch. The default community name is *cascade*.

The system displays the following menu of interfaces that the switch can use to communicate with the NMS depending on the switch platform.

<b>Interface</b>	<b>See</b>
(1) Direct Ethernet	“Using Direct Ethernet” on page 8-12
(2) Indirect Ethernet	“Using Indirect Ethernet (Through a Gateway Device)” on page 8-13
(3) Direct Trunk	“Using a Direct Trunk” on page 8-38
(4) ATM OPTimum Cell Trunk	“Using an ATM OPTimum Cell Trunk (Through an Adjacent Switch)” on page 8-42
(5) Management PVC (single-hop)	“Using a Management PVC (Single-hop)” on page 8-46
(6) Multi-Hop MPVC Over a Direct Trunk	“Using a Multi-hop MPVC Over a Direct Trunk” on page 8-50
(7) Multi-Hop MPVC Over an ATM OPTimum Trunk	“Using a Multi-hop MPVC Over an ATM OPTimum Trunk” on page 8-54
(8) Frame Relay OPTimum Trunk	“Using a Frame Relay OPTimum Trunk (Through an Adjacent Switch – CBX 500 only)” on page 8-58
(9) Multi-Hop MPVC Over a Frame Relay OPTimum Trunk	“Using a Multi-hop MPVC Over A Frame Relay OPTimum Trunk (CBX 500 only)” on page 8-60

- 8.** Select your connection type, then proceed to the applicable section for further instructions.

#### Using Direct Ethernet

1. Enter the Ethernet port IP address.
2. Enter the Ethernet port mask.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface Direct Ethernet
Ethernet Port IP Address 152.148.81.124
Ethernet Port Mask 255.255.0.0
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct. When it receives confirmation, the system displays the following:  

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
4. When prompted, enter **yes** to reboot the switch.

### **Using Indirect Ethernet (Through a Gateway Device)**

1. Enter the Ethernet port IP address.
2. Enter the Ethernet port mask.
3. Enter the gateway IP address.

The system then provides the entered values as shown in the following example.

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface Indirect Ethernet (through a gateway
device)
Ethernet Port IP Address 152.148.82.124
Ethernet Port Mask 255.255.0.0
Gateway IP Address 150.148.82.79
```

4. When prompted, enter **yes** or **no** to confirm that this information is correct. When it receives confirmation, the system displays the following:  

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using a Direct Trunk

You can use a direct trunk to communicate with the NMS on both the CBX 500 and GX 550.

### **CBX 500**

If you are using a direct trunk to communicate with the NMS, choose from the following module types:

- 8-port DS3
- 8-port E3
- 4-port OC3/STM1
- 1-port OC12/STM4
- 8-port T1
- 8-port E1
- 6-port Frame T3
- 6-port Frame E3

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.



The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface Direct Trunk (through an adjacent
switch)
Card Type 8 Port DS3
Slot Number of card 4
Port Number 1
Clock Selection Loop Timed
Cell Payload Scrambling Mode Enabled
Cell Mapping Mode PLCP
Interface # of the trunk 54
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 33
Internal IP Address of remote switch 150.201.82.66
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

#### **GX 550**

If you are using a direct trunk to communicate with the NMS, choose from the following module types:

- BIO1 - 4-port OC3 SubCard
- BIO1 - 1-port OC12 SubCard
- BIO1 - 1-port OC12x4 SubCard
- BIO1 - 1-port OC48 SubCard

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal)
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the optical transmission mode (1 - SONET, 2 - SDH).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF Area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.70
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Direct Trunk (through an adjacent
switch)
Card Type BIO1 - 4-port OC3 SubCard
Slot Number of card 5
Port Number 1
Clock Selection Loop Timed
Cell Payload Scrambling Mode Enabled
Optical Transmission Mode SONET
Interface # of the trunk 45
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 54
Internal IP Address of remote switch 150.201.82.66
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using an ATM OPTimum Cell Trunk (Through an Adjacent Switch)

You can use an ATM OPTimum Cell trunk to communicate with the NMS on both the CBX 500 and GX 550.

### **CBX 500**

If you are using an ATM OPTimum Cell trunk to communicate with the NMS, choose from the following module types:

- 8-port DS3
- 8-port E3
- 4-port OC3/STM1
- 1-port OC12/STM4
- 8-port T1
- 8-port E1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.
  - k. Enter the VPI for the local OPTimum trunk.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface ATM OPTimum Cell Trunk (through an
adjacent switch)
Card Type 8 Port E3
Slot Number of card 5
Port Number 1
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Cell Mapping Mode PLCP
Interface # of the trunk 33
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 20
Internal IP Address of remote switch 150.201.82.67
Interface # of the feeder lport 32
VPI for local OPTimum trunk 1
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

#### **GX 550**

If you are using an ATM OPTimum Cell trunk to communicate with the NMS, choose from the following module types:

- BIO1 - 4-port OC3 SubCard
- BIO1 - 1-port OC12 SubCard
- BIO1 - 1-port OC12x4 SubCard
- BIO1 - 1-port OC48 SubCard

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the optical transmission mode (1 - SONET, 2 - SDH).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.
  - k. Enter the interface number of the feeder logical port.
  - l. Enter the VPI for the local OPTimum trunk.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.70
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface ATM OPTimum Cell Trunk (through an
adjacent switch)
Card Type BIO1 - 1-port OC12 SubCard
Slot Number of card 3
Port Number 1
Clock Selection Loop Timed
Cell Payload Scrambling Mode Enabled
Optical Transmission Mode SONET
Interface # of the trunk 43
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 58
Internal IP Address of remote switch 150.201.82.66
Interface # of the feeder lport 65
VPI for local OPTimum trunk 2
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using a Management PVC (Single-hop)

You can use a management PVC to communicate with the NMS on both the CBX 500 and GX 550.

### **CBX 500**

If you are using a management PVC to communicate with the NMS, choose from the following module types:

- 8-port DS3
- 8-port E3
- 4-port OC3/STM1
- 1-port OC12/STM4
- 8-port T1
- 8-port E1
- 6-port Frame T3
- 6-port Frame E3
- 4-port Channelized DS3

1. Select the module used for the UNI and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the UNI card.
  - b. Enter the port number of the UNI.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - f. Enter the interface number of the UNI.
  - g. Enter the UNI logical port type (1 - DCE, 2 - DTE).
  - h. Enter the OSPF area ID.
  - i. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - j. Enter the VPI on the management logical port.
  - k. Enter the VCI on the management logical port.
  - l. Enter the VPI on the UNI.
  - m. Enter the VCI on the UNI.



The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface Management PVC
Card Type 8 Port E3
Slot Number of card 5
Port Number 1
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Cell Mapping Mode PLCP
Interface # of the UNI 23
UNI Lport Type DCE
VPI on the Mgmt Lport 1
VCI on the Mgmt Lport 37
VPI on the UNI 4
VCI on the UNI 68
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

#### **GX 550**

If you are using a management PVC to communicate with the NMS, choose from the following module types:

BIO1 - 4-port OC3 SubCard  
BIO1 - 1-port OC12 SubCard  
BIO1 - 1-port OC12x4 SubCard  
BIO1 - 1-port OC48 SubCard

1. Select the module used for the UNI and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the UNI card.
  - b. Enter the port number of the UNI.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the optical transmission mode (1 - SONET, 2 - SDH).
  - f. Enter the interface number of the UNI.
  - g. Enter the UNI logical port type (1 - DCE, 2 - DTE).
  - h. Enter the VPI on the management logical port.
  - i. Enter the VCI on the management logical port.
  - j. Enter the VPI on the UNI.
  - k. Enter the VCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.70
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Management PVC
Card Type BIO1 - 1-port OC12x4 SubCard
Slot Number of card 4
Port Number 1
Clock Selection Loop Timed
Cell Payload Scrambling Mode Enabled
Optical Transmission Mode SONET
Interface # of the UNI 30
UNI Lport Type DCE
VPI on the Mgmt Lport 1
VCI on the Mgmt Lport 65
VPI on the UNI 3
VCI on the UNI 34
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using a Multi-hop MPVC Over a Direct Trunk

You can use a multi-hop MPVC over a direct trunk to communicate with the NMS on both the CBX 500 and GX 550.

### **CBX 500**

If you are using a multi-hop MPVC over a direct trunk to communicate with the NMS, choose from the following module types:

- 8-port DS3
- 8-port E3
- 4-port OC3/STM1
- 1-port OC12/STM4
- 8-port T1
- 8-port E1
- 6-port Frame T3
- 6-port Frame E3

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the Cell Mapping mode (1 - PLCP, 2 - Direct Mapping).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.
  - k. Enter the VPI on the management logical port.
  - l. Enter the VCI on the management logical port.
  - m. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
  - n. Enter the MPVC remote UNI interface.
  - o. Enter the switch IP address of the remote MPVC endpoint.
  - p. Enter the DLCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.81.12
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over a Direct
Trunk
Card Type 8 Port DS3
Slot Number of card 3
Port Number 4
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Cell Mapping Mode PLCP
Interface # of the trunk 50
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 45
Internal IP Address of remote switch 150.201.82.65
VPI on the Mgmt Lport 13
VCI on the Mgmt Lport 33
MPVC Remote UNI Interface Type Frame-Relay
MPVC Remote UNI Interface # 20
Switch IP Addr of Remote MPVC Endpoint 150.201.82.65
DLCI on the UNI 20
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

#### **GX 550**

If you are using a multi-hop MPVC over a direct trunk to communicate with the NMS, choose from the following module types:

- BIO1 - 4-port OC3 SubCard
- BIO1 - 1-port OC12 SubCard
- BIO1 - 1-port OC12x4 SubCard
- BIO1 - 1-port OC48 SubCard

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - e. Enter the Optical Transmission mode (1 - SONET, 2 - SDH).
  - f. Enter the interface number of the trunk.
  - g. Enter the OSPF area ID.
  - h. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - i. Enter the interface number of the remote trunk.
  - j. Enter the internal IP address of the remote switch.
  - k. Enter the VPI on the management logical port.
  - l. Enter the VCI on the management logical port.
  - m. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
  - n. Enter the MPVC remote UNI interface.
  - o. Enter the switch IP address of the remote MPVC endpoint.
  - p. Enter the VPI on the UNI.
  - q. Enter the VCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.70.3
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over a Direct
Trunk
Card Type BIO1 - 1-port OC12x4 SubCard
Slot Number of card 5
Port Number 6
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Optical Transmission Mode SONET
Interface # of the trunk 65
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 34
Internal IP Address of remote switch 150.201.81.65
VPI on the Mgmt Lport 11
VCI on the Mgmt Lport 45
MPVC Remote UNI Interface Type ATM
MPVC Remote UNI Interface # 45
Switch IP Addr of Remote MPVC Endpoint 150.201.81.65
VPI on the UNI 10
VCI on the UNI 67
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using a Multi-hop MPVC Over an ATM OPTimum Trunk

You can use a multi-hop MPVC over an ATM OPTimum trunk to communicate with the NMS on both the CBX 500 and GX 550.

### **CBX 500**

If you are using a multi-hop MPVC over an ATM OPTimum trunk to communicate with the NMS, choose from the following module types:

- 8-port DS3
- 8-port E3
- 4-port OC3/STM1
- 1-port OC12/STM4
- 8-port T1
- 8-port E1

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - c. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - d. Enter the optical transmission mode (1 - SONET, 2 - SDH).
  - e. Enter the interface number of the trunk.
  - f. Enter the OSPF area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.
  - j. Enter the VPI for the local OPTimum trunk.
  - k. Enter the VPI on the management logical port.
  - l. Enter the VCI on the management logical port.
  - m. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
  - n. Enter the MPVC remote UNI interface.
  - o. Enter the switch IP address of the remote MPVC endpoint.
  - p. Enter the VPI on the UNI.
  - q. Enter the VCI on the UNI.



The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.81.12
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over an ATM OPT
Trunk
Card Type 1 port OC12/STM4
Slot Number of card 4
Port Number 1
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Optical Transmission Mode SONET
Interface # of the trunk 22
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 34
Internal IP Address of remote switch 152.148.81.201
Interface # of the feeder lport 7
VPI for local OPTimum trunk 4
VPI on the Mgmt Lport 15
VCI on the Mgmt Lport 56
MPVC Remote UNI Interface Type ATM
MPVC Remote UNI Interface # 29
Switch IP Addr of Remote MPVC Endpoint 152.148.82.65
VPI on the UNI 2
VCI on the UNI 78
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

#### **GX 550**

If you are using a multi-hop MPVC over an ATM OPTimum trunk to communicate with the NMS, choose from the following module types:

BIO1 - 4-port OC3 SubCard  
BIO1 - 1-port OC12 SubCard  
BIO1 - 1-port OC12x4 SubCard  
BIO1 - 1-port OC48 SubCard

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - c. Enter the Cell Payload Scrambling mode (1 - Disabled, 2 - Enabled).
  - d. Enter the Optical Transmission mode (1 - SONET, 2 - SDH).
  - e. Enter the interface number of the trunk.
  - f. Enter the OSPF area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.
  - j. Enter the VPI for the local OPTimum trunk.
  - k. Enter the VPI on the management logical port.
  - l. Enter the VCI on the management logical port.
  - m. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
  - n. Enter the MPVC remote UNI interface.
  - o. Enter the switch IP address of the remote MPVC endpoint.
  - p. Enter the VPI on the UNI.
  - q. Enter the VCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.0.0
NMS IP Address 150.201.70.3
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over an ATM OPT
Trunk
Card Type BIO1 - 1-port OC12 SubCard
Slot Number of card 7
Port Number 5
Clock Selection Internal
Cell Payload Scrambling Mode Enabled
Optical Transmission Mode SONET
Interface # of the trunk 34
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 76
Internal IP Address of remote switch 150.201.81.65
Interface # of the feeder lport 65
VPI for local OPTimum trunk 7
VPI on the Mgmt Lport 8
VCI on the Mgmt Lport 77
MPVC Remote UNI Interface Type ATM
MPVC Remote UNI Interface # 56
Switch IP Addr of Remote MPVC Endpoint 150.201.81.65
VPI on the UNI 2
VCI on the UNI 48
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using a Frame Relay OPTimum Trunk (Through an Adjacent Switch – CBX 500 only)

If you are using a Frame Relay OPTimum trunk to communicate with the NMS, choose from the following module types:

6-port Frame T3

6-port Frame E3

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the interface number of the trunk.
  - e. Enter the OSPF area ID.
  - f. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - g. Enter the interface number of the remote trunk.
  - h. Enter the internal IP address of the remote switch.
  - i. Enter the interface number of the feeder logical port.
  - j. Enter the DLCI for the local OPTimum trunk.
  - k. Enter the LMI type. The system displays the following options:
    - 1 Disabled
    - 2 LMI Rev1
    - 3 ANSI T1.617 Annex D
    - 4 CCITT Q.933 Annex A
  - l. Enter the feeder logical port type (2 - DTE, 3 - NNI).

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.82.67
NMS IP Address 152.148.81.45
Community String pike
NMS -> Switch Interface Frame Relay OPTimum Trunk (through
an adjacent switch)
Card Type 6 port Frame T3
Slot Number of card 3
Port Number 1
Clock Selection Internal
Clock Speed 1536
Interface # of the trunk 32
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 44
Internal IP Address of remote switch 150.201.82.67
Interface # of the feeder lport 20
DLCI for local OPTimum trunk 56
LMI Type ANSI T1.617 Annex D
Feeder Lport Type NNI
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing

Preliminary installation completed!

Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

## Using a Multi-hop MPVC Over A Frame Relay OPTimum Trunk (CBX 500 only)

If you are using a multi-hop MPVC over a Frame Relay OPTimum trunk to communicate with the NMS, choose from the following module types:

6-port Frame T3

6-port Frame E3

1. Select the module used for the trunk and press Return.
2. Enter the following configuration information at the prompts:
  - a. Enter the slot number of the trunk card.
  - b. Enter the port number of the trunk.
  - c. Enter the clock selection (1 - Loop timed, 2 - Internal).
  - d. Enter the clock speed in Kbps.
  - e. Enter the interface number of the trunk.
  - f. Enter the OSPF area ID.
  - g. Enter **yes** or **no** for the OSPF area 1 backward compatibility.
  - h. Enter the interface number of the remote trunk.
  - i. Enter the internal IP address of the remote switch.
  - j. Enter the DLCI for the local OPTimum trunk.
  - k. Enter the link management interface (LMI) protocol. The system displays the following options:
    - 1 Disabled
    - 2 LMI Rev1
    - 3 ANSI T1.617 Annex D
    - 4 CCITT Q.933 Annex A
  - l. Enter the feeder logical port type (2 - DTE, 3 - NNI).
  - m. Enter the VPI on the management logical port.
  - n. Enter the VCI on the management logical port.
  - o. Enter the MPVC remote UNI interface type (1 - ATM, 2 - Frame Relay).
  - p. Enter the MPVC remote UNI interface.
  - q. Enter the switch IP address of the remote MPVC endpoint.
  - r. Enter the DLCI on the UNI.

The program displays your configuration information:

```
Network Number 150.201.0.0
Network Mask 255.255.0.0
Internal Switch IP Address 150.201.81.12
NMS IP Address 152.148.81.201
Community String orca
NMS -> Switch Interface Multi-hop Mgmt PVC over an FR OPT
Trunk
Card Type 6 port Frame T3
Slot Number of card 6
Port Number 3
Clock Selection Internal
Clock Speed 1536
Interface # of the trunk 34
OSPF Area ID 0.0.0.1
OSPF Area 1 backward compatibility Yes
Interface # of the remote trunk 67
Internal IP Address of remote switch 152.148.81.201
Interface # of the feeder lport 43
DLCI for local OPTimum trunk 24
LMI Type ANSI T1.617 Annex D
Feeder Lport Type DTE
VPI on the Mgmt Lport 12
VCI on the Mgmt Lport 37
MPVC Remote UNI Interface Type Frame-Relay
MPVC Remote UNI Interface # 54
Switch IP Addr of Remote MPVC Endpoint 152.148.82.65
DLCI on the UNI 54
```

3. When prompted, enter **yes** or **no** to confirm that this information is correct.
4. When it receives confirmation, the system displays the following:

```
Committing
Preliminary installation completed!
Use the NMS to complete the full installation.
```
5. When prompted, enter **yes** to reboot the switch.

The following section describes the various PRAM functions and their use.

## Using PRAM Functions

This section describes the various PRAM functions and the tasks associated with their use.

### Synchronizing PRAM

Whenever you download an initialization-script file from the NMS to the switch for the *first time*, you must synchronize PRAM (*PRAM Sync*) for the switch to receive complete configuration information. Occasionally you may also need to synchronize a switch to correct a mismatch between the NMS database and the configuration that resides in switch PRAM. This situation occurs when you use the NMS to make modifications to a switch that is unmanaged or not actively communicating with the NMS (unreachable) or if changes are made to the switch using console commands.

The Synchronize PRAM function enables you to correct inconsistencies between the NMS database and switch PRAM. [Table 8-2](#) describes the object status indicators that identify these inconsistencies.



The Non-service Affecting PRAM Sync feature (Sync Tool) enables you to synchronize partially provisioned PVCs (dangling PVCs), logical ports, or point-to-multipoint (PMP) circuits without PRAM Syncing an entire card and disrupting service. See [“About Non-service Affecting PRAM Sync” on page 8-73](#) for information on using this feature.

**Table 8-2. Object Status Indicators**

Object Color	Description
Yellow	An I/O module in the switch may be out-of-sync. Display the Switch Back Panel dialog box and review the status of each module. If necessary, synchronize PRAM. If the switch does not turn green, see the <i>NavisCore Diagnostics Guide</i> to review background diagnostic statistics.
Wheat	The switch object is not managed. You <i>unmanage</i> an object to prevent the NMS from polling the object while you configure it. To manage an object, select Manage Object from the Map menu.
Red	The indicated object is in a failed state and cannot actively communicate with the NMS.
Green	The indicated objects/switches are actively communicating with the NMS.



For more information about monitoring the network, see the *NavisCore Diagnostics Guide*.

Before you synchronize a switch, verify that you have defined the following, as described in [Chapter 5, “Setting Switch Parameters”](#):

- NMS IP Address
- Community Name
- Read/Write privileges



CPU-intensive operations, such as PRAM synchronization, can cause NavisCore to drop node polls. To avoid this problem, increase the amount of time between SNMP retries. Edit the `/opt/CascadeView/etc/cascadeview.cfg` file and increase the `CV_SNMP_RETRY_INTERVAL` value from 300. This value is in tenths of a second.

Lucent recommends a value of 1.5 seconds for a configuration with 10 to 15 simultaneous instances of NavisCore and more than 15 switches in the network. This change takes effect when you restart NavisCore.

See [“Synchronizing Switches” on page 8-64](#) to PRAM Sync a switch.

## Synchronizing Switches

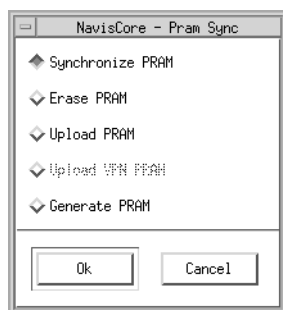
To synchronize a switch:

1. Select the switch to synchronize and, from the Misc menu, select NavisCore ⇒ Logon and enter the operator password. (You can only synchronize one switch at a time.)
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Set Switch Back Panel dialog box appears.
3. Select the I/O module you want to synchronize.



If you changed some switch attributes, such as the management path, you must synchronize the processor module before you synchronize any I/O modules. If you need to synchronize more than one module, always synchronize from the processor module first. Then work your way toward the module with the highest slot ID.

4. Choose the PRAM button. The PRAM Sync dialog box appears (see [Figure 8-3](#)).



**Figure 8-3. PRAM Sync Dialog Box**

5. Select Synchronize PRAM and choose OK. This sends the binary image of the configuration to the selected module, causing it to perform a warm boot. When the module reboots, all physical ports, logical ports, PVCs, and active sessions stall for approximately 0-30 seconds. If you have a heavily configured module, it may take several minutes or more to reboot.



If you made only minimal changes to the configuration, you can synchronize PRAM at a later time to avoid interrupting network traffic.

## Generating PRAM

The Generate PRAM function generates SNMP SET commands to configure PRAM but does not upload the switch configuration file to the NMS. This feature enables you to view the configuration file before uploading it to the switch.

To generate PRAM:

1. Select the switch and, from the Misc menu, select NavisCore ⇒ Logon and enter the operator password.
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears.
3. Choose the PRAM command. The PRAM Sync dialog box appears (see [Figure 8-3 on page 8-64](#)).
4. Select Generate PRAM and choose OK. This sends the SNMP SET commands to a configuration file. See [“Uploading PRAM”](#) for information on how to upload the configuration file to the switch.

## Uploading PRAM

Occasionally the switch configuration file for a specific I/O module and the configuration in the NMS database do not match. A mismatch can occur when you upgrade your switch software, make a change through NavisCore, or change a switch configuration through SNMP commands or the MIB.

The Upload PRAM function requires the following software:

- NavisCore 4.0 or greater
- B-STDX switch software, Release 6.0 or greater
- CBX 500 switch software, Release 3.0 or greater
- GX 550 switch software, Release 1.0 or greater

## Supported PRAM Objects

Upload PRAM currently supports the following objects:

- Physical ports
- Logical ports (except trunk ports)
- IP objects excluding point-to-point Label Switched Path (LSP) connections

## Guidelines for Using Upload PRAM

Before you use the Upload PRAM function, review the following points:

- Use the Upload PRAM function to resolve PRAM conflicts by viewing the switch configuration file stored in PRAM. This function enables you to compare the configuration file in the switch (PRAM) to the configuration file in the NMS database.
- Use the Upload PRAM function to replace the configuration file in the NMS database with the switch configuration file.
- Use Upload PRAM to add objects from switch PRAM to the NMS database, as long as the objects being added do not conflict with existing objects in the database; for example, the NMS database already contains a switch with that name.
- Use Upload PRAM to delete objects from the database. Due to the interdependency of objects in the database, *be careful* when you use Upload PRAM to delete objects from the database. In general, make sure there are no dangling objects (i.e., objects without a parent) in the switch before applying Upload PRAM. For example, deleting a logical port without first deleting all associated individual addresses or address screens creates dangling objects and causes a problem during the Upload PRAM process.

## Uploading a Switch Configuration File

To upload the switch configuration file stored in PRAM:

1. On the network map, select the switch object.
2. From the Administer menu, select Lucent Parameters ⇒ Set Parameters. The Switch Back Panel dialog box appears, displaying the back panel of the selected switch.
3. Select either the I/O module or the processor module and choose the PRAM button. The PRAM Sync dialog box appears (see [Figure 8-3 on page 8-64](#)).
4. Select Upload PRAM and choose OK. The Card PRAM Upload and NMS Synchronization dialog box appears (see [Figure 8-4](#)).

	Records Different	Records Uploadable
Items found in Switch Only	<input type="text"/>	<input type="text"/>
Items found in NMS Only	<input type="text"/>	<input type="text"/>
Items in Both NMS and Switch	<input type="text"/>	<input type="text"/>

Differences Listed in file:

I

**Figure 8-4. Card PRAM Upload and NMS Synchronization Dialog Box**

5. Choose Compare PRAM.

The Card PRAM Upload and NMS Synchronization dialog box displays information about the number of inconsistencies between the PRAM configuration file and the NMS database. If the field displays a zero, there are no differences between the PRAM and NMS configuration files.

An *item* can be a single physical port or logical port definition. Item fields include:

**Items found in Switch only** — The item exists in switch PRAM but not in the NMS database. This situation occurs when you configure a switch using a third-party NMS, or use the MIB to change configuration information.

**Items in the NMS only** — The item exists in the NMS database, but not in the switch PRAM. This discrepancy occurs when you make configuration changes to an unmanaged switch.

**Items found in both NMS and Switch** — The item exists in both places but there are discrepancies in the configuration. This can happen if you modified the configuration directly from the console. For example, if you used console commands to change the admin status of a logical port, the logical port definition in switch PRAM indicates that the logical port is Down; the NMS database records indicate the logical port is Up. These discrepancies can also occur if a PRAM synchronization or SET fails.

The Card PRAM Upload and NMS Synchronization dialog box displays the name and location of the file that contains the inconsistencies.



8. To synchronize the configuration information between switch PRAM and the NMS database, do one of the following:
  - Choose the Update NMS Database button to use the configuration stored in switch PRAM.
  - Choose Close to use the configuration stored in the NMS database and update PRAM using the Synchronize PRAM command (see [page 8-62](#)).
9. Repeat [step 3](#) through [step 8](#) for each I/O module to complete the configuration upload process.



If an error occurs during the upload process, a message dialog box appears. After closing this dialog box, you can choose Update NMS Database to continue the upload process for the remaining physical port and logical port definition. If there are problems with the PRAM configuration file, see [page 8-62](#) for instructions to download the configuration file stored in the NMS database.

## Erasing PRAM

Occasionally you must download the initialization-script file to switch PRAM if you suspect the switch PRAM configuration file is incorrect. If you experience problems with a new release of switch software, you might also have to download the file as part of a switch downgrade or upgrade procedure. Before you download the file, you must first clear the existing switch configuration file from PRAM using the Erase PRAM function.

See [“Clearing Switch PRAM” on page 8-71](#) to erase PRAM on a switch.



## Clearing Switch PRAM

You can clear the existing PRAM configuration in the following ways:

**Method 1** — Use the NMS software to clear PRAM (recommended method).

**Method 2** — Connect a console terminal and clear the PRAM on each I/O module. Use this second method as a backup.

**Method 3** — Use as a last resort and only *after consulting a TAC representative*.

### Method 1

1. On the network map, select the switch for which you want to clear PRAM.
2. From the Administer Menu, select Lucent Parameters ⇒ Set Parameters.
3. Select each I/O module (one at a time) and choose the PRAM button. The PRAM Sync dialog box appears (see [Figure 8-3 on page 8-64](#)).
4. Select Erase PRAM.
5. Choose OK.
6. Repeat [step 3](#) through [step 5](#) until you erase the PRAM for each module.

### Method 2

1. Install a console terminal to the network management port on the main processor module. (See “Connecting a Console” in your switch hardware installation guide for details.)
2. Force a line break condition to the switch.
3. Enter a minimum of three characters for the login name and enter a valid community name as the password (*cascade* is the default community name).



If you are using console authentication, call the TAC for additional information. See also [“Configuring Console Authentication” on page 5-25](#).

4. At the `switchname>` prompt, enter the following:

```
enable debug
Debug password: <your debug password>
```



If you are erasing PRAM on all I/O modules in the switch (including the processor module) clear the PRAM on the highest numbered slot first and continue to the lowest numbered slot (i.e., CP/SP/NP last).

5. At the <switch name>## prompt, enter the following:

```
reset pram [#]
```

where [#] is the module or slot number. [All] will reset all cards.

6. At the “Reset PRAM. Are you sure (YES/NO)?” prompt, enter **YES** (uppercase).

### **Method 3**

You should only use the following method as a last resort and only as instructed by a TAC representative.

1. Latch down all the cards.
2. Install a connection from the NMS SPARCstation to your switch’s network management port. (See your hardware installation guide for details.)
3. Set both of the two-position dip switches (located on the front of the CP/SP/NP) to the Off position (left).
4. Latch up all the cards.
5. Establish a terminal emulation session. Set the line parameters as follows:  
19,200 baud, 8 bits, no parity.
6. Press Return.
7. At the % prompt, enter the following:  

```
erase_pram
```

  
Wait for the prompt to appear.
8. Latch down all of the cards.
9. Set one or both of the main processor module’s two-position dip switches to the On position, pointing to the right, away from the position numbers on the switch.
10. Latch up all of the cards.

Once the switch comes up (approximately 1-2 minutes), a >> prompt appears. This prompt indicates that PRAM is erased on the CP/SP/NP only, and the switch is ready for a new configuration file download.

## About Non-service Affecting PRAM Sync

The Non-service Affecting PRAM Sync feature (Sync Tool) enables you to synchronize partially provisioned PVCs (dangling PVCs), logical ports, or point-to-multipoint (PMP) circuits without PRAM Syncing an entire card and disrupting service. This feature identifies PVCs, logical ports, and PMP circuits for which an SNMP SET has failed, creating an out-of-sync condition between the NavisCore database and switch configuration.

When you configure a PVC, logical port, or PMP circuit on an unmanaged switch, Sync Tool enables you to synchronize the NavisCore database and switch information once you manage the switch. You can also use Sync Tool when objects configured for a managed switch become out-of-sync because the network was busy and timed out.

## How the Sync Tool Utility Works

The Sync Tool utility lists any out-of-sync PVCs, logical ports, or PMP circuits and the reason for this out-of-sync condition. You can select an individual object (or group of objects) from the list and resend the SNMP SET to synchronize. Unlike a PRAM Sync, only the individual object is affected; the card and its other ports can remain online. See [“Synchronizing a PVC, Logical Port, or PMP Circuit” on page 8-81](#) for more information.

Before you use the Sync Tool utility to synchronize a PVC, logical port, or PMP circuit, you must complete the following tasks:

- Edit the `cascadeview.cfg` file and set the `OBJECT_PRAMSTATUS_OFF` variable to 0. See [“Enabling/Disabling the Sync Tool Utility” on page 8-77](#).
- Set the `synctool.cfg` file variables. See [“Setting the synctool.cfg File Variables” on page 8-78](#).

The following sections describe how the Sync Tool utility handles SNMP SET failures and circuit deletes.

## About SNMP SET Failures

NavisCore handles SNMP SET failures differently depending on whether the Sync Tool utility is enabled or disabled. See [“Enabling/Disabling the Sync Tool Utility”](#) on page 8-77 for instructions.

### **SNMP SET Failures With Sync Tool Enabled**

If you enable the Sync Tool utility, and you configure a PVC, logical port, or PMP circuit on a *managed switch* and the SNMP SET fails, a message box appears prompting you to choose one of the following options:

**Retry** — NavisCore resends the SNMP SET, and if it fails again, the same message box reappears.

**Ignore** — NavisCore marks the object out-of-sync and records the reason for the out-of-sync condition in the database (i.e., logical port add failed). The NavisCore user interface identifies the out-of-sync condition as follows:

- The Switch Back Panel dialog box displays the card (in yellow) on which this PVC, logical port, or PMP circuit resides. If you select the card, the Card Status field displays the corresponding out-of-sync status message. For example:  

```
Status Marginal and out-of-sync (Circuit)
```

```
Status Up and out-of-sync (LPort)
```
- The Set All PVCs, Set All Logical Ports, and Set All Point-to-Multiple-Point Circuits dialog boxes contain a status field to indicate an out-of-sync condition.

To recover from the out-of-sync condition, see [“Synchronizing a PVC, Logical Port, or PMP Circuit”](#) on page 8-81.



If you enable the Sync Tool utility, and you configure a PVC, logical port, or PMP circuit on an *unmanaged switch*, no SNMP SET is sent to the switch. NavisCore does not display a message box; however, it behaves as if you selected the Ignore option.

### ***SNMP SET Failures With Sync Tool Disabled***

If you disable the Sync Tool utility, and you configure a PVC, logical port, or PMP circuit and the SNMP SET fails, NavisCore behaves as it did in previous releases. The message box prompts you to choose one of the following options:

**Retry** — NavisCore resends the SNMP SET, and if it fails again, the same message box reappears.

**Ignore** — NavisCore ignores the SNMP SET failure and commits the provisioned object (either PVC, logical port, or PMP circuit) to the database. It marks the card out-of-sync (the card displays “yellow” on the Switch Back Panel dialog box) because the information in the NavisCore database does not match the switch configuration.

To recover from the out-of-sync condition, you must PRAM Sync the card on which the object resides. See [“Synchronizing PRAM” on page 8-62](#) for information on how to PRAM Sync a card.

**Abort** — NavisCore removes the configuration from its database; however, a partial SNMP SET configuration may have reached the switch. It does not mark the card out-of-sync, but you can run the PRAM Compare utility for the card on which the object resides to determine if the information in the NavisCore and switch configuration databases match. If the databases are out-of-sync, you must PRAM Sync the card on which the object resides to clear the dangling objects.

## About Circuit Deletes

The `cascadeview.cfg` file contains the variable, `DELETE_MARK_OUT_OF_SYNC`.

*If you set this variable to 1 (default), an SNMP SET delete command functions as it did in previous releases of NavisCore. You can delete a circuit or logical port on both managed and unmanaged switches. If the switch is unmanaged, NavisCore deletes the record from the database and marks the card on which the circuit, logical port, PMP root, or PMP leaf resides as out-of-sync.*

*If you set this variable to 0 and enable the Sync Tool utility, NavisCore does not remove the record from the database if a circuit or logical port delete fails. Instead, the database stores a failed status. See [“Enabling/Disabling the Sync Tool Utility” on page 8-77](#) for information on how to enable the Sync Tool utility.*



The Sync Tool utility does not correct circuit or logical port SNMP SET delete failures. To resolve this type of failure, you must PRAM Sync the affected card. See [“Synchronizing PRAM” on page 8-62](#) for information on how to PRAM Sync a card.

To modify the `DELETE_MARK_OUT_OF_SYNC` variable in the `cascadeview.cfg` file:

1. To exit NavisCore, from the HP OpenView File Menu, select File ⇒ Exit.
2. Enter `su - root` to log in as the root user. At the prompt, enter the root password.
3. Edit the `cascadeview.cfg` file. This file is located in `/opt/CascadeView/etc`.
4. Set the `DELETE_MARK_OUT_OF_SYNC` variable to 0.
5. Log out and restart your user session windows.
6. Enter `/opt/OV/bin/ovw &` in a console window to start an HP OpenView session.

## Enabling/Disabling the Sync Tool Utility

Use the `OBJECT_PRAMSTATUS_OFF` variable to enable (1 - default) or disable (0) the Sync Tool utility. If you modify this variable, you must shut down and then restart NavisCore.

To modify this variable in the `cascadeview.cfg` file:

1. To exit NavisCore, from the HP OpenView File Menu, select File ⇒ Exit.
2. Enter `su - root` to log in as the root user. At the prompt, enter the root password.
3. Edit the `cascadeview.cfg` file. This file is located in `/opt/CascadeView/etc`.
4. Set the `OBJECT_PRAMSTATUS_OFF` variable to 0.
5. Log out and restart your user session windows.
6. Enter `/opt/OV/bin/ovw &` in a console window to start an HP OpenView session.

## Setting the synctool.cfg File Variables

Sync Tool uses a configuration file to set up the paths and environment variables it needs to execute. This configuration file contains variables for SNMP retries and time-outs, database machine location, name, and other parameters. The file is located in `/opt/CascadeView/etc/synctool.cfg`. [Table 8-3](#) describes the `synctool.cfg` variables.

The following output shows the system defaults for this file. Modify this file to use your system defaults:

```
#This file contains initial values for snmp session parameters
MIBsFile = /opt/CascadeView/snmp_mibs/cascade.mib
CircuitText = /opt/CascadeView/etc/circuit.txt
LPORTText = /opt/CascadeView/etc/lport.txt
SynctoolLogging = minimum
LOGFILE = /tmp/activity.log
SnmpVersion = v1
Port = 161
Retries = 3
Timeout = 2500
CommunityString = <Switch's Community Name>
DSQUERY = CASCADE
CV_ROOT = /opt/CascadeView
SERVER_NAME = <Your NMS Server>
CV_DB_PORTNUM = 1025
CV_DB_USER_NAME = sa
CV_DB_NAME = cascview
CV_DB_PASSWORD = superbase
```



If you need to modify the `synctool.cfg` file, make sure all users exit the Sync Tool utility prior to making changes.

**Table 8-3. synctool.cfg Variable Descriptions**

Variable	Description
MIBsFile	Displays the location of the <code>cascade.mib</code> file.
CircuitText	Displays the location of the circuit definitions.
LPORTText	Displays the location of the logical port definitions.
SynctoolLogging	Specifies the size of the activity log file that Sync Tool generates. See <a href="#">“Using the Activity Log” on page 8-88</a> for more information.
LOGFILE	Displays the location of the activity log file. See <a href="#">“Viewing the Activity Log” on page 8-86</a> for more information.

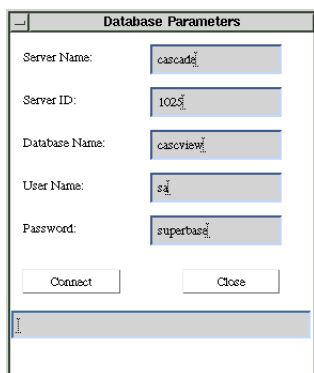


**Table 8-3. synctool.cfg Variable Descriptions (Continued)**

Variable	Description
SnmpVersion	Displays the version number of the SNMP protocol.
Port	Displays the UDP socket interface number.
Retries	Displays the number of retries the SNMP client attempts before it declares a timeout.
Timeout	Displays the amount of time (in milliseconds) between SNMP retries.
CommunityString	<p>Specifies your switch's community name. Set this variable if you have multiple read/write communities defined in the Sybase database. Sync Tool uses the first read/write community it encounters in the database as the default for this variable, which may not be the community that your switch is using.</p> <p>To find the community name for your switch, check the CV_SNMP_READ_WRITE_COMMUNITY variable in the /opt/CascadeView/etc/cascadeview.cfg file. See <a href="#">Appendix A, "NavisCore Configuration File"</a> for more information about the cascadeview.cfg file.</p>
DISQUERY	Displays the Sybase SQL server interface name.
CV_ROOT	Displays the root directory for all the Sync Tool files.
SERVER_NAME	Specifies the name of the Sybase server where the cascvview database resides.
CV_DB_PORTNUM	Specifies the TCP socket number for the Sybase server.
CV_DB_USER_NAME	Specifies the database administrator user name.
CV_DB_NAME	Specifies the cascvview database name.
CV_DB_PASSWORD	Specifies the database administrator password.

## Setting Database Parameters

If you do not set the `synctool.cfg` file to specify the proper path and environment variables, the Database Parameters dialog box appears when you access the PRAM Sync Tool (see [Figure 8-6](#)). For information on accessing Sync Tool, see [“Synchronizing a PVC, Logical Port, or PMP Circuit” on page 8-81](#).



**Figure 8-6. Database Parameters Dialog Box**



Entering information in the fields on the Database Parameters dialog box does not update the `synctool.cfg` file. To automatically enable these settings, use the instructions in [“Setting the `synctool.cfg` File Variables” on page 8-78](#).

To set the database parameters:

1. Complete the fields described in [Table 8-4](#).

**Table 8-4. Database Parameters**

Field	Description	Default Value
Server Name	The name of the Sybase server where the casoview database resides.	Sybase server machine name
Server ID	The TCP socket number for the Sybase server.	1025
Database Name	The casoview database name.	casoview
User Name	The database administrator user name.	sa
Password	The database administrator password.	superbase

2. Choose Connect. The Sync Tool dialog box (see [Figure 8-7 on page 8-82](#)) displays the network number where the out-of-sync object(s) resides.
3. Continue with [step 2 on page 8-82](#).

## Synchronizing a PVC, Logical Port, or PMP Circuit

Sync Tool enables you to identify and recover an out-of-sync PVC, logical port, or PMP circuit. Although this tool identifies PVC, logical port, and PMP circuit delete failures, you cannot use Sync Tool to resolve the problem.

Before you use the Sync Tool utility to synchronize a PVC, logical port, or PMP circuit, verify that the following tasks are complete:

- Edit the `cascadeview.cfg` file and set the `OBJECT_PRAMSTATUS_OFF` variable to 0. See [“Enabling/Disabling the Sync Tool Utility” on page 8-77](#).
- Set the `synctool.cfg` file variables. See [“Setting the synctool.cfg File Variables” on page 8-78](#).



You must synchronize logical ports before you synchronize circuits or PMP roots, and you must synchronize PMP roots before you synchronize PMP leaves.



Sync Tool does not support circuits that have defined paths.

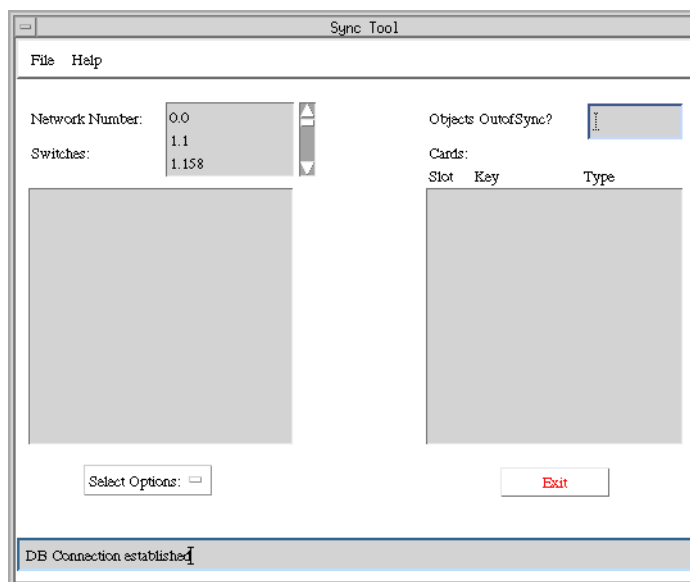
To synchronize a PVC, logical port, or PMP circuit:

1. From the Administer menu, select NavisCore ⇒ Sync Tool.

You can also start Sync Tool from the UNIX command line by entering:

```
/opt/CascadeView/bin/run_synctool
```

With either method, the Sync Tool dialog box appears (see [Figure 8-7](#)).



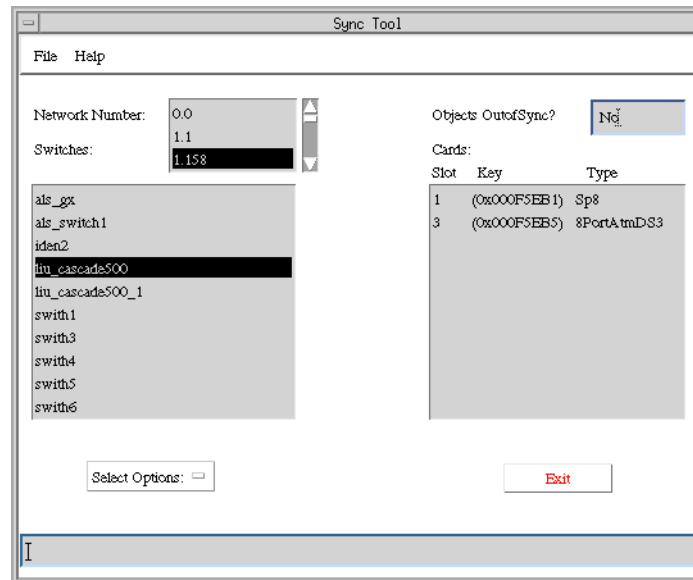
**Figure 8-7. Sync Tool Dialog Box**



If you did not set the `synctool.cfg` file to specify the proper path and environment variables, the Database Parameters dialog box (see [Figure 8-6 on page 8-80](#)) appears when you try to access Sync Tool. Use the information in [“Setting Database Parameters” on page 8-80](#) to complete the fields on this dialog box.

2. From the list box, select the Network Number where the out-of-sync object(s) resides. The Sync Tool dialog box displays the list of switches located within this network.

3. Select the switch name from the list. The Sync Tool dialog box displays the list of cards installed in this switch (see **Figure 8-8**).

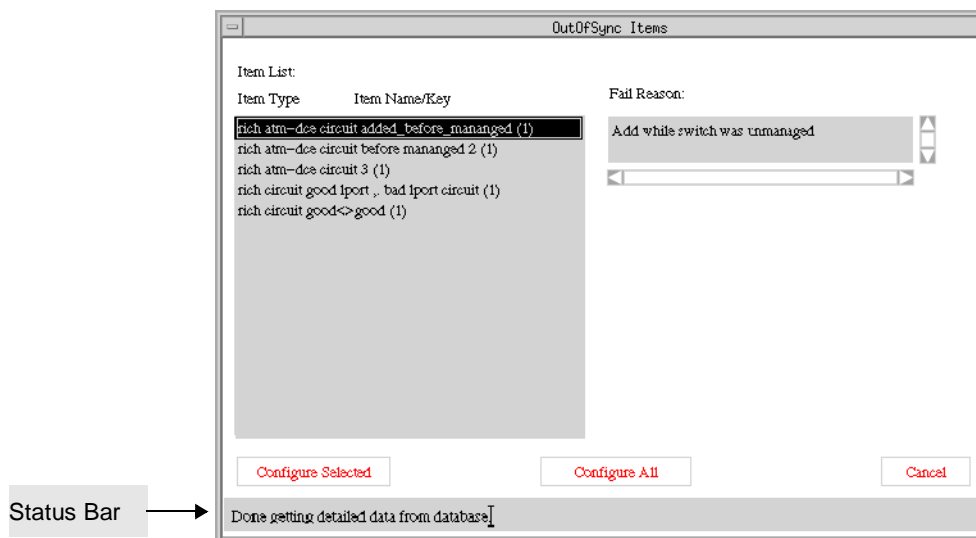


**Figure 8-8. Sync Tool Dialog Box – Switch list**

4. To locate the out-of-sync object(s), do one of the following:

To Display...	Action
Specific out-of-sync objects for an entire switch	Choose Select Options and select either Circuit, Lport, or Pmp.
All out-of-sync objects for an entire switch	Choose Select Options and select All_OBJ.
Specific out-of-sync objects for a specific card	Select a card from the list. Then, choose Select Options and select either Circuit, Lport, or Pmp.
All out-of-sync objects for a specific card	Select a card from the list. Then, choose Select Options and select All_OBJ.

The OutOfSync Items dialog box appears (see [Figure 8-9](#)), displaying a list of circuits or logical ports from either the selected switch or card. For each item you select, it displays the reason for the SNMP SET failure (*Fail Reason*). [Table 8-5](#) lists the possible Fail Reasons.



**Figure 8-9. OutOfSync Items Dialog Box**

5. Perform one of the following steps:

*To resolve a single out-of-sync instance* – Select the item from the list and choose Configure Selected.

*To resolve the entire group of out-of-sync instances* – Choose Configure All.

The status bar at the bottom of the OutOfSync Items dialog box reports the success (or failure).



You cannot resolve SNMP Delete failures using Sync Tool. To resolve this type of failure, you must PRAM Sync the affected card. See [“Synchronizing PRAM” on page 8-62](#) for information.

**Table 8-5. SNMP Synchronization Failed Reasons**

Message	Description
Snmp Delete Failed	Attempt to delete PVC, logical port, or PMP circuit failed. Sync Tool cannot resolve this type of failure.
Snmp Delete Not Sent	SNMP delete command was not sent to switch. Sync Tool cannot resolve this type of failure.

**Table 8-5. SNMP Synchronization Failed Reasons (Continued)**

Message	Description
Snmp Delete; PDU Timed Out	Protocol data unit (PDU) timed out on an SNMP delete. Sync Tool cannot resolve this type of failure.
Snmp Delete; No Such Name error returned from switch.	SNMP delete failed. PVC, logical port, or PMP circuit object does not exist on switch. Sync Tool cannot resolve this type of failure.
Snmp Delete; Bad value error returned from switch	SNMP delete failed with a bad value error returned from switch. Sync Tool cannot resolve this type of failure.
Delete while switch was unmanaged	SNMP delete failed because the switch was not online (unmanaged). Manage the switch and try to delete the PVC, logical port, or PMP circuit again.
Snmp Add Failed	Attempt to add PVC, logical port, or PMP circuit failed.
Snmp Add Not Sent	SNMP add command was not sent to switch.
Snmp Add; PDU Timed Out	PDU timed out on an SNMP add.
Snmp Add; No Such Name error returned from switch	SNMP add failed. PVC, logical port, or PMP circuit object does not exist on switch.
Snmp Add; Bad value error returned from switch	SNMP add failed with a bad value error returned from switch.
Add while switch was unmanaged	SNMP add failed because the switch was not online (unmanaged). Manage the switch and try to add the PVC, logical port, or PMP circuit again.
Snmp Mod Failed	Attempt to modify PVC, logical port, or PMP circuit failed.
Snmp Mod Not Sent	SNMP modify command was not sent to switch.
Snmp Mod; PDU Timed Out	PDU timed out on an SNMP modify.
Snmp Mod; No Such Name error returned from switch	SNMP modify failed. PVC, logical port, or PMP circuit object does not exist on switch.
Snmp Mod; Bad value error returned from switch	SNMP modify failed with a bad value error returned from switch.
Mod while switch was unmanaged	SNMP modify failed because the switch was not online (unmanaged). Manage the switch and try to modify the PVC, logical port, or PMP circuit again.

## Viewing the Activity Log

The sample activity log file (see [Figure 8-10](#) displayed below) is stored in the /tmp directory. You can view this file using any text editor. The activity log contains information about both successful and unsuccessful Sync Tool attempts to resolve out-of-sync conditions and provides a listing of all MIB variables sent to the switch during a configuration attempt.

The log filename format is:

activity.log<date-month-year>-<hour-minutes-seconds>-EDT.

For example, activity.log24-May-1999-13:46:12-EDT:

The activity log shows which switches were selected and displays the following:

- Switch ID (in hex) →
- Network number (in hex) →
- Endpoint IP address →

```
Error Log created on 24-May-1999-13:46:12-EDT
Information ; Please Wait! Loading MIBs...
/opt/CascadeView/snmp_mibs/cascade.mib
Information ; Loading MIBs: /opt/CascadeView/snmp_mibs/cascade.mib
Information ; Trying to establish database connection...
Information ; DB Server: jdbc:sybase:Tds:trout88:1025/nc50db1
Information ; Connection to SybDriver OK.
Information ; switchID1 = 00005764
Information ; networkNumber = 96C90000
Information ; endPointIPAddr1 = 150.201.87.100
Information ; *****
Information ;
-----
Information ; comStr: pike85
Information ; snmpVersion: v1
Information ; portNum: 161
Information ; retries: 3
Information ; timeout: 2500
Information ;
-----
Information ; Starting SnmpAPI...
Information ; Creating session...
Information ; Peername = 150.201.87.100
Information ; Retrieving applicable 2
Information ; numItems: 8 Items found.
Information ; Getting detailed data from database...
Information ; Number of columns processed = 263
Information ; Getting detailed data from database...
Information ; Number of columns processed = 263
Information ; addVariable(): nodeState, value = 0
```



```
Information ; numPDUs = 1    remainPDU = 1
Information ; addVariable(): ifAdminStatus, value = 0
Information ; numPDUs = 1    remainPDU = 1
Information ; addVariable(): lportSlotId, value = 3
Information ; addVariable(): lportPportId, value = 6
Information ; addVariable(): lportId, value = 1
Information ; addVariable(): lportLink, value = 0
Information ; addVariable(): lportProtocol, value = 4
Information ; addVariable(): lportSignal, value = 1
Information ; addVariable(): lportLmiRxDelay, value = 0
Information ; addVariable(): lportPrivateNetOverflow, value = 1
Information ; addVariable(): lportDataRate, value = 1536000
Information ; addVariable(): lportSmdsPduCheck, value = 0
Information ; addVariable(): lportDceVerifTimer, value = 0
Information ; addVariable(): lportDceErrorThresh, value = 0
Information ; addVariable(): lportShaperId, value = 1
Information ; addVariable(): lportEthernetTxEncapsulation, value =0
Information ; addVariable(): lportBilling, value = 1
Information ; addVariable(): lportCloseLoopSwitch, value = 0
Information ; addVariable(): lportDs0BitStuff, value = 0
Information ; addVariable(): ifAdminStatus, value = 1
Information ; numPDUs = 1    remainPDU = 18

Error ; Error in Response: Error Status: The value given has the
wrong type or length.

Error Index: 11

Errored Object ID:
.iso.org.dod.internet.private.enterprises.cascade.cascfr.lport.lpo
rtTable.lportEntry.lportDceVerifTimer.12
```

**Figure 8-10. Sample Activity Log File**

## Using the Activity Log

The `synctool.cfg` file provides a variable, `SynctoolLogging`. See “[Setting the synctool.cfg File Variables](#)” on page 8-78 for information on the `synctool.cfg` file.

*If you set this variable to minimum* (default), Sync Tool generates a small log file that contains enough information to verify that an SNMP SET has passed (or failed).

*If you set this variable to maximum*, Sync Tool generates a complete activity log, similar to the one shown in [Figure 8-10 on page 8-87](#). Use this setting for troubleshooting purposes.

To set this variable:

1. Instruct all users to exit the Sync Tool utility.
2. Edit the `synctool.cfg` file located in `/opt/CascadeView/etc/`.
3. Set the `SynctoolLogging` variable to maximum (`SynctoolLogging = maximum`).

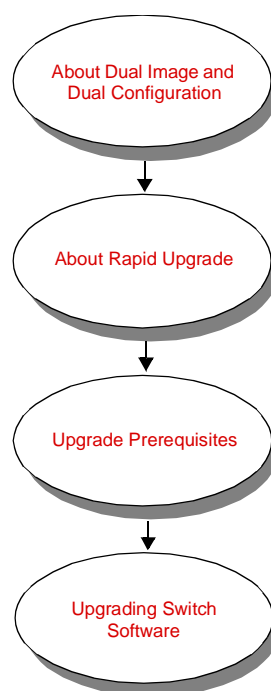
When you run Sync Tool again, the utility generates a complete activity log file.



When you set the `SynctoolLogging` variable to maximum, the log file can become quite large and use a lot of disk space. When you finish troubleshooting, make sure all users exit the Sync Tool utility and delete the file, `activity.log` from the `/tmp` directory. Reset the `synctool.cfg` `SynctoolLogging` variable to minimum.

# Upgrading Switch Software

This chapter describes the Dual Image/Dual Configuration feature set and the Rapid Upgrade feature used to upgrade your switch software. In addition, it provides instructions for upgrading your switch software. This chapter describes the following topics and tasks:



## About Dual Image and Dual Configuration

The Dual Image/Dual Configuration feature set consists of the following:

**Dual Image** — Enables the switch to simultaneously store two different versions of switch software.

**Dual Configuration** — Enables the switch software to maintain two independent sets of configuration (PRAM) files.

You specify the software image set that the new files will overwrite in the Download Switch Software dialog box (see [Figure 9-6 on page 9-23](#)). The parameter random access memory (PRAM) conversion for each card occurs after the card boots up.

## About Rapid Upgrade

This section provides information on using the Rapid Upgrade feature, which enables you to minimize service disruption when you download new software to the Input/Output (I/O) modules in the switch. During a rapid upgrade, there should be no loss of physical line signals and no permanent virtual circuit (PVC) reroutes; however, you will need to re-establish ATM switched virtual circuit (SVC) endpoints, Frame Relay SVC endpoints, and Internet Protocol (IP) routes after the rapid upgrade is complete.

This section describes the following topics and tasks:

- [“Rapid Upgrade Process Flowchart” on page 9-3](#)
- [“Identifying Modules That Support Rapid Upgrade” on page 9-4](#)
- [“Identifying Module Memory Capacity” on page 9-7](#)
- [“Viewing Rapid Upgrade Trap Alarm Conditions” on page 9-9](#)
- [“Viewing Rapid Upgrade MIB Variables” on page 9-10](#)



See [Table 9-4 on page 9-13](#) for a list of the minimum switch software versions that support the rapid upgrade process.

There are two new commands for Rapid Upgrade. The `reset uplink` command enables you to reboot an individual GX 250 Uplink card from the GX 550 system console. The `shdump` command enables you to display the GX 250 memory of the downlink card that connects the GX 250 to the GX 550. For more details about these commands, see the *Console Command Reference* for B-STDx 7.2.2.x, CBX 4.2.2.x, and GX 2.2.2.x (Product Code: 80103).

## Rapid Upgrade Process Flowchart

Figure 9-1 summarizes the rapid upgrade process.

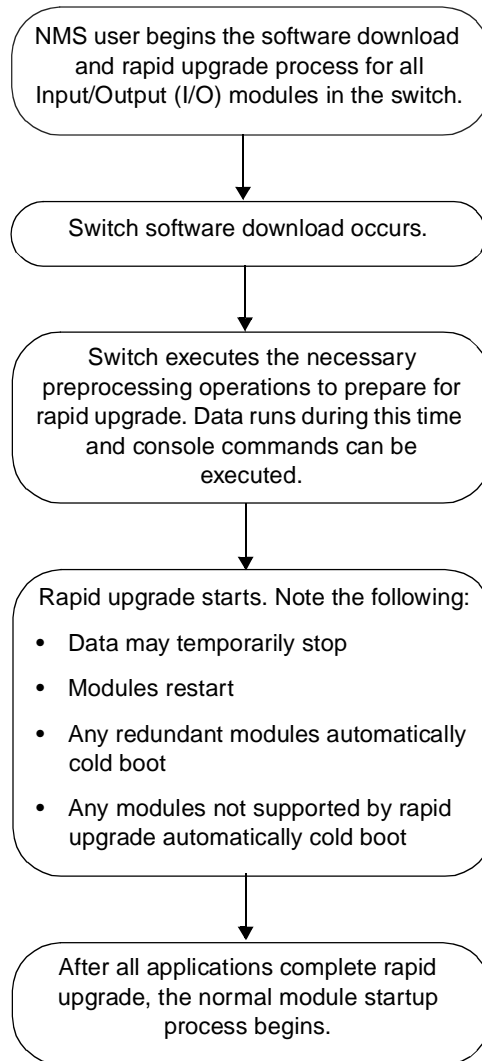


Figure 9-1. Rapid Upgrade Process

## Identifying Modules That Support Rapid Upgrade

The following platforms and modules support the Rapid Upgrade feature:

- B-STDX 8000/9000 (16 MB input/output processors (IOPs), 64 MB IOPs, and CP 40 and CP 50 modules only)
- CBX 500 (32 MB input/output modules (IOMs) or greater and SP 20, SP 30, and SP 40 modules only)
- GX 550 (all modules)
- GX 250 Multiservice Shelf Extender (all modules)



GX 550 Release 02.02.01.00 is the first release that supports Rapid Upgrade on the GX 250. For this reason, you must use the Cold Boot After Download option *the first time* you upgrade GX 250 modules with the GX 550 Release 02.02.01.00 switch code. You can use the Rapid Upgrade feature for subsequent switch code upgrades to GX 250 modules.

The following modules do not support the Rapid Upgrade feature:

- B-STDX 8000/9000 (8 MB IOPs and CP 30 modules)
- CBX 500 (16 MB ATM IOMs)

You can identify modules that support the Rapid Upgrade feature with either of the following methods:

- Using NavisCore (see [“Using NavisCore to Identify Modules That Support Rapid Upgrade” on page 9-5](#)).
- Using the console (see [“Using the Console to Identify Modules That Support Rapid Upgrade” on page 9-6](#)).

You can also check the memory capacity of a module. For further information, see [“Identifying Module Memory Capacity” on page 9-7](#)).

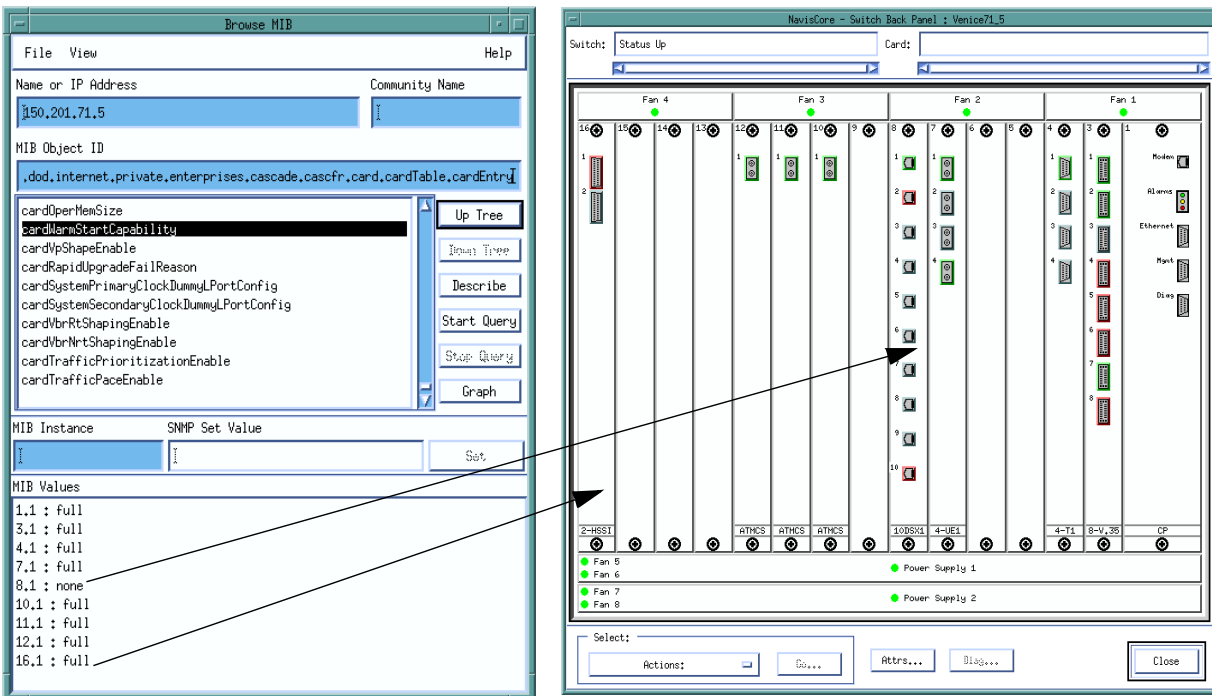


The system automatically cold boots any modules that do not support the Rapid Upgrade feature.

## Using NavisCore to Identify Modules That Support Rapid Upgrade

To identify modules that support rapid upgrade:

1. From the Misc menu, select SNMP MIB Browser. A screen similar to [Figure 9-2](#) appears.



**Figure 9-2. Warm Start Capability MIB Browser Display and Associated Switch Display**

2. Select the following MIB object:

```
private.enterprises.cascade.cascfr.card.cardTable.cardEntry.  
cardWarmStartCapability
```

You can use the MIB Browser to identify supported modules on a B-STDX 8000/9000 and CBX 500. [Figure 9-2](#) illustrates the resulting MIB display for a B-STDX 8000/9000 switch. Each switch slot displays either *full* or *none* to indicate one of the following conditions:

**Full** — Indicates that you can use the Rapid Upgrade feature to upgrade this module.

**None** — Indicates that you cannot use the Rapid Upgrade feature to upgrade this module. The system automatically cold boots any modules that display a value of *none*.

## Using the Console to Identify Modules That Support Rapid Upgrade

To identify modules that support rapid upgrade:

1. Issue the following command to list the module type for each slot in the switch:

```
>show card
```

2. Issue the following command to identify supported modules on the B-STDX 8000/9000, CBX 500, or GX 550:

```
>next card.2.1.203
```

This command displays a value of 1 or 2 for each module in the switch, which indicates the module's rapid upgrade capability. The system displays the following sample output (CBX 500):

```
Jakarta> sho card
Current time:   Wed Oct 21 19:06:34 1998 UTC

Serial Number:  21A05997           Internal IP Addr:  150.201.82.68
Hardware Rev:   02                  Ethernet IP Addr:  152.148.82.19
EPROM Rev:     01.00.00.00         Network Wide Addr: 150.201.0.0
Software Rev:   03.01.00.00         Network Mask:     255.255.0.0
Ethernet Addr:  00:04:AC:D5:89:D9

Slot Type      Redund  SW Rev  HW Rev  EPROMSerial#
              State
1   SP20           Active  03.01.00.00 04      01.00.00.00 22A22788
3   OC3/STM1-4    Active  03.01.00.00 03      01.00.00.00 22A01986
5   DS3-8         Active  03.01.00.00 11      01.00.00.00 22A22348
7   OC3/STM1-4    Active  03.01.00.00 02      01.00.00.00 22A02017
10  FRM-DS3-6     Active  03.01.00.00 04      00.00.00.00 28B33137
16  FRM-DS3-6     Active  03.01.00.00 03      00.00.00.00 28B02879
```

```
Jakarta> next card.2.1.203
1.3.6.1.4.1.277.1.7.2.1.203.1.1 = 2 (Integer)
1.3.6.1.4.1.277.1.7.2.1.203.3.1 = 1 (Integer)
1.3.6.1.4.1.277.1.7.2.1.203.5.1 = 2 (Integer)
1.3.6.1.4.1.277.1.7.2.1.203.7.1 = 1 (Integer)
1.3.6.1.4.1.277.1.7.2.1.203.10.1 = 2 (Integer)
1.3.6.1.4.1.277.1.7.2.1.203.16.1 = 2 (Integer)
```

Slot ID

1- Indicates that you cannot use the Rapid Upgrade feature to upgrade this module. The system automatically cold boots any modules that display a value of 1.

2- Indicates that you can use the Rapid Upgrade feature to upgrade this module.



## Identifying Module Memory Capacity

You can check the memory capacity of a module for further information about whether the module supports rapid upgrade. The following sections describe how to check module memory capacity by issuing console commands.

### Checking the Memory Capacity of a B-STDX 8000/9000 Module

To check the memory capacity of a B-STDX module, issue the following command:

```
> show card
```

The system displays the following sample output:

```
Alexandria81_6## sho card
```

```
Current time: Wed Oct 20 19:01:05 1999 UTC
```

```
Serial Number: 0040FB03310B      Internal IP Addr: 150.201.81.6
Hardware Rev: 08                  Ethernet IP Addr: 0.0.0.0
EPROM Rev: 00.00.00.00           Network Wide Addr: 150.201.0.0
Software Rev: 06.01.00.00         Network Mask: 255.255.0.0
Ethernet Addr: 00:40:FB:03:31:0B
```

The standby CP automatically cold boots.

All 16 MB IOPs have a "/16" to indicate 16 MB memory capacity and are supported by rapid upgrade.

Modules that have 8 MB capacity do not have a value following the module type and are not supported by rapid upgrade.

Slot	Type	Redund State	SW Rev	HW Rev	EPROM	Serial #
1	CP-40	Active	06.01.00.00	08	00.00.00.00	28A51098
2	CP-40	Standby	06.01.00.00	01	00.00.00.00	28B04109
3	HSSI-2/16	Active	06.01.00.00	10	00.00.00.00	28A50457
4	UIO-8/16	Active	06.01.00.00	05.00.00	04.04.00.00	0040FB03433B
5	FT1-4-24/16	Active	06.01.00.00	06.00.00	04.01.00.00	0040FB028610
6	DSX1-10/16	Active	06.01.00.00	03.00.00	04.05.00.00	0040FB0265F9
7	UEL-4-30/16	Active	06.01.00.00	03.00.00	04.03.00.00	0040FB0328C9
8	FE1-12/16	Active	06.01.00.00	05	00.00.00.00	28A45749
9	CHDS3-1/16	Active	06.01.00.00	04	00.00.00.00	28A38136
10	HSSI-2/16	Active	06.01.00.00	03	00.00.00.00	28A35090
11	HSSI-2/16	Active	06.01.00.00	10	00.00.00.00	28A50419
12	HSSI-2/16	Active	06.01.00.00	10	00.00.00.00	28A50255
13	ATM-IWU/16	Active	06.01.00.00	04	00.00.00.00	28A43014
14	ATM-IWU/16	Active	06.01.00.00	02	00.00.00.00	28A19512
15	ATM_CSE3_1/16	Active	06.01.00.00	04	00.00.00.00	28A20642
16	HSSI-2	Active	06.01.00.00	02.00.00	00.00.00.00	0040FB029535

## Checking the Memory Capacity of a CBX 500 or GX 550 Module

To check the memory capacity of a CBX 500 or GX 550 module:

1. Issue the following command to list the module type for each slot in the switch:  
`>show card`
2. Issue the following command to indicate the memory capacity of each module in the switch:  
`>next card.2.1.202`

The system displays the following sample output (CBX 500):

```
Taipei82_66## sho card
Current time: Thu Oct 15 19:30:05 1998 UTC
Serial Number: 21A03256 Internal IP Addr: 150.201.82.66
Hardware Rev: 01 Ethernet IP Addr: 152.148.82.140
EPROM Rev: 01.00.00.00 Network Wide Addr: 150.201.0.0
Software Rev: 03.01.00.00 Network Mask: 255.255.0.0
Ethernet Addr: 00:04:AC:90:C1:85
```

Slot	Type	Redund	SW Rev	HW Rev	EPROM	Serial #
2	SP20	Active	03.01.00.00	04	01.00.00.00	22A24166
4	OC3/STM1-4	Active	03.01.00.00	05	01.00.00.00	22A37018
8	FRM-DS3-6	Active	03.01.00.00	04	00.00.00.00	28B33127
10	FRM-DS3-6	Active	03.01.00.00	03	00.00.00.00	28B02851
11	FRM-DS3-6	Active	03.01.00.00	04	00.00.00.00	28B33133
13	OC3/STM1-4	Active	03.01.00.00	01	01.00.00.00	A0000019
14	FRM-DS3-6	Active	03.01.00.00	2A	00.00.00.00	ATS00388
15	DS3-8	Active	03.01.00.00	05	01.00.00.00	22A08208
16	FRM-DS3-6	Active	03.01.00.00		00.00.00.00	

SP modules that indicate a 16 MB capacity or greater are supported by rapid upgrade.

The IOM modules that indicate a 16 MB capacity are *not* supported by rapid upgrade.

The modules that indicate a 32 MB or greater capacity are supported by rapid upgrade.

```
Taipei82_66## next card.2.1.202
1.3.6.1.4.1.277.1.7.2.1.202.1.1 = 16 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.4.1 = 32 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.8.1 = 64 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.10.1 = 64 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.11.1 = 64 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.13.1 = 16 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.14.1 = 64 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.15.1 = 16 (Integer)
1.3.6.1.4.1.277.1.7.2.1.202.16.1 = 64 (Integer)
```

Slot ID

Memory Capacity (MB)

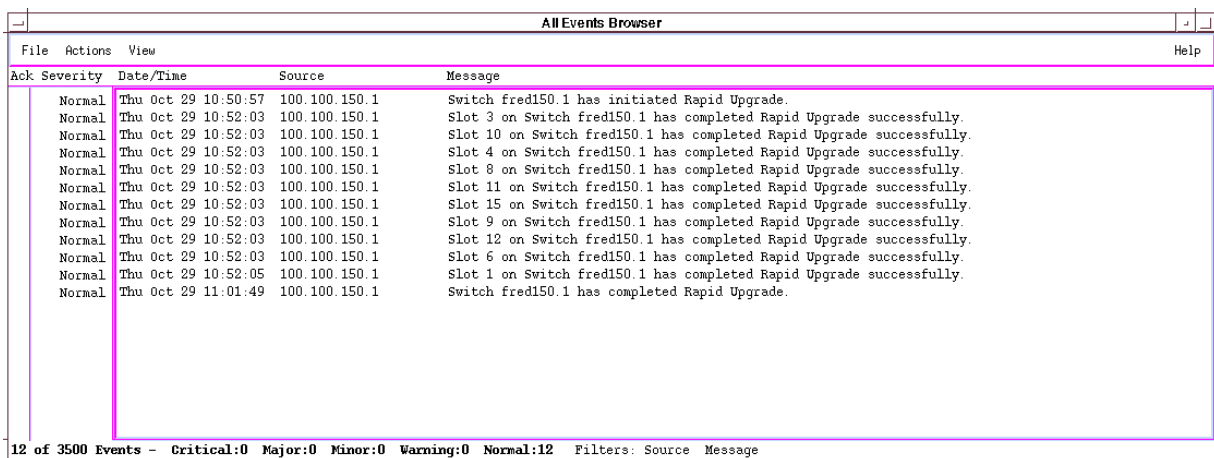
## Viewing Rapid Upgrade Trap Alarm Conditions

The system may report one or more of the following new trap alarm conditions as a result of the rapid upgrade process (see [Table 9-1](#)). These traps are reported in the Events Browser. For more details about reviewing trap alarm conditions in the Events Browser, see the *NavisCore Diagnostics Guide*.

**Table 9-1. Rapid Upgrade Trap Alarm Conditions**

Trap Alarm Condition	Description
<switch name> has initiated rapid upgrade	Indicates that a rapid upgrade has started on the specified switch name.
<slot number> on <switch name> has completed rapid upgrade successfully	Indicates the completion of the rapid upgrade process.
<slot number> on <switch> has failed rapid upgrade	Indicates that the rapid upgrade of a specified module has failed.
<switch> has completed rapid upgrade	Indicates that the rapid upgrade process is complete.

[Figure 9-3](#) illustrates the rapid upgrade trap alarms. You can view these trap alarms from the console or from the NMS MIB Browser.



**Figure 9-3. Rapid Upgrade Trap Alarm Window**

## Viewing Rapid Upgrade MIB Variables

Following a rapid upgrade, you can use the following console command to view the MIB variables for a switch:

```
next card.2.1.205
```

The system displays the following sample output:

```
Alexandria81_6## next card.2.1.205  
1.3.6.1.4.1.277.1.7.2.1.205.1.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.1.2 = 9 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.3.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.4.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.5.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.6.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.7.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.8.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.9.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.10.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.11.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.12.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.13.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.14.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.15.1 = 1 (Integer)  
1.3.6.1.4.1.277.1.7.2.1.205.16.1 = 2 (Integer)
```

For each module in the switch, the system displays a value between 1 and 10. [Table 9-2 on page 9-11](#) describes each of these values.

For each module in the switch, the system displays a value between 1 and 10. **Table 9-2** describes each of these values.

**Table 9-2. Diagnostic Values**

Value	Description
1	The module successfully completed the rapid upgrade.
2	You have attempted to use the Rapid Upgrade feature with an unsupported module on the switch. For this reason, a cold boot was issued after download of the code to this unsupported module.
3	The bootflash code download failed.
4	The application code download failed.
5	The system was not able to read an application code file.
6	The system could not load the fast loader. The fast loader is the module that overwrites the old application code with the new application code.
7	The save state failed.
8	A module time-out occurred.
9	The Standby module, which was automatically cold booted.
10	Downgrade not supported.



A new background diagnostic error message (#172) indicates that the rapid upgrade process is selected. The major error number is 172. The minor error number may be any of the values listed in **Table 9-2**. For more details about reviewing this and other background diagnostics, see the *NavisCore Diagnostics Guide*.

## Upgrade Prerequisites

To verify that your switch is ready for upgrade:

- Confirm that you are using the correct minimum version of the switch software by typing the following command at the console:

```
show software
```

See your switch Software Release Notice (SRN) for the correct minimum version of switch software for each switch platform. Your current software version determines the upgrade method(s) that you can use. See [“Upgrade Methods” on page 9-17](#) for details.

- Determine whether you can use the Dual Image, Dual Configuration, and/or the Rapid Upgrade feature based on your current software version.

[Table 9-3](#) lists the minimum switch software versions required to specify dual image and dual configuration as part of the upgrade process.

**Table 9-3. Switch Software Versions That Support Dual Image and Dual Configuration**

Switch Software Releases	Dual Image Supported	Dual Configuration Supported
Releases prior to the following: <ul style="list-style-type: none"><li>• B-STDX 8000/9000 – 06.00.00.00</li><li>• CBX 500 – 03.00.04.00</li><li>• GX 550 – 01.00.10.00</li></ul>	No	No
Releases including and between the following: <ul style="list-style-type: none"><li>• B-STDX 8000/9000 – 06.00.00.00 to 07.00.00.00</li><li>• CBX 500 – 03.00.04.00 to 04.00.00.00</li><li>• GX 550 – 01.00.10.00 to 02.01.00.00</li></ul>	Yes	No
Releases including and greater than the following: <ul style="list-style-type: none"><li>• B-STDX 8000/9000 – 07.00.01.00</li><li>• CBX 500 – 04.00.01.00</li><li>• GX 550 – 02.01.01.00</li></ul>	Yes	Yes

Table 9-4 lists the minimum switch software versions that support the rapid upgrade process. For information on identifying modules that support Rapid Upgrade, see “Identifying Modules That Support Rapid Upgrade” on page 9-4.

**Table 9-4. Switch Software Versions That Support Rapid Upgrade**

Switch	Release Version Number
B-STDX 8000/9000	06.01.00.00 (or greater)
CBX 500	03.01.00.00 (or greater)
GX 550	01.01.00.00 (or greater)

- If you are upgrading a B-STDX 8000/9000 switch, verify that you are using CP40 and CP50 cards.
- If you are upgrading a B-STDX 8000/9000 or a CBX 500 switch from a switch software version that is prior to one of the following:
  - B-STDX 8000/9000 06.00.00.00
  - CBX 500 03.00.00.00

and you are managing the gateway switch via direct/indirect Ethernet with Routing Information Protocol (RIP) enabled, you must add a static route and disable RIP. Use the following steps to add a static route and disable RIP:

1. Verify that a static route exists from the NMS server to the gateway switch. If not, create one as follows:

Log on as the root user and enter the following command:

```
route add net <internal network address of switch> <external
ethernet IP address of gateway switch> 1
```

For example:

```
route add net 150.150.0.0 152.148.81.2 1
```

2. Disable RIP on the Ethernet port if it was enabled.



Do not use RIP on the Ethernet port of a switch that currently uses private internal management addresses. If you do, RIP will broadcast these internal addresses to other routers.

- If you lose connectivity to a B-STDX 8000/9000 or CBX 500 switch and need to recover, either run the install command from the console, perform a script download, or use kermit to download the PRAM. See Chapter 8, “Downloading the Configuration” for information.

- Make sure that copies of the software images (.rom files) are located in the /tftpboot/cv\_switchSoftware directory before you continue with this installation.

## Upgrading Switch Software

This section describes how to upgrade switch software for the B-STDX 8000/9000, CBX 500, and GX 550 switch platforms and includes the following topics and tasks:

- [“Upgrade Process Flowchart” on page 9-15](#)
- [“Upgrade Sequence” on page 9-16](#)
- [“Upgrade Methods” on page 9-17](#)
- [“Setting the Default Switch Software Image” on page 9-30](#)



These instructions describe the switch upgrade process. For information about downgrading switches, contact the Technical Assistance Center (TAC). See [“Customer Support” on page xxvii](#).



## Upgrade Process Flowchart

Figure 9-4 summarizes the process for upgrading switch software.

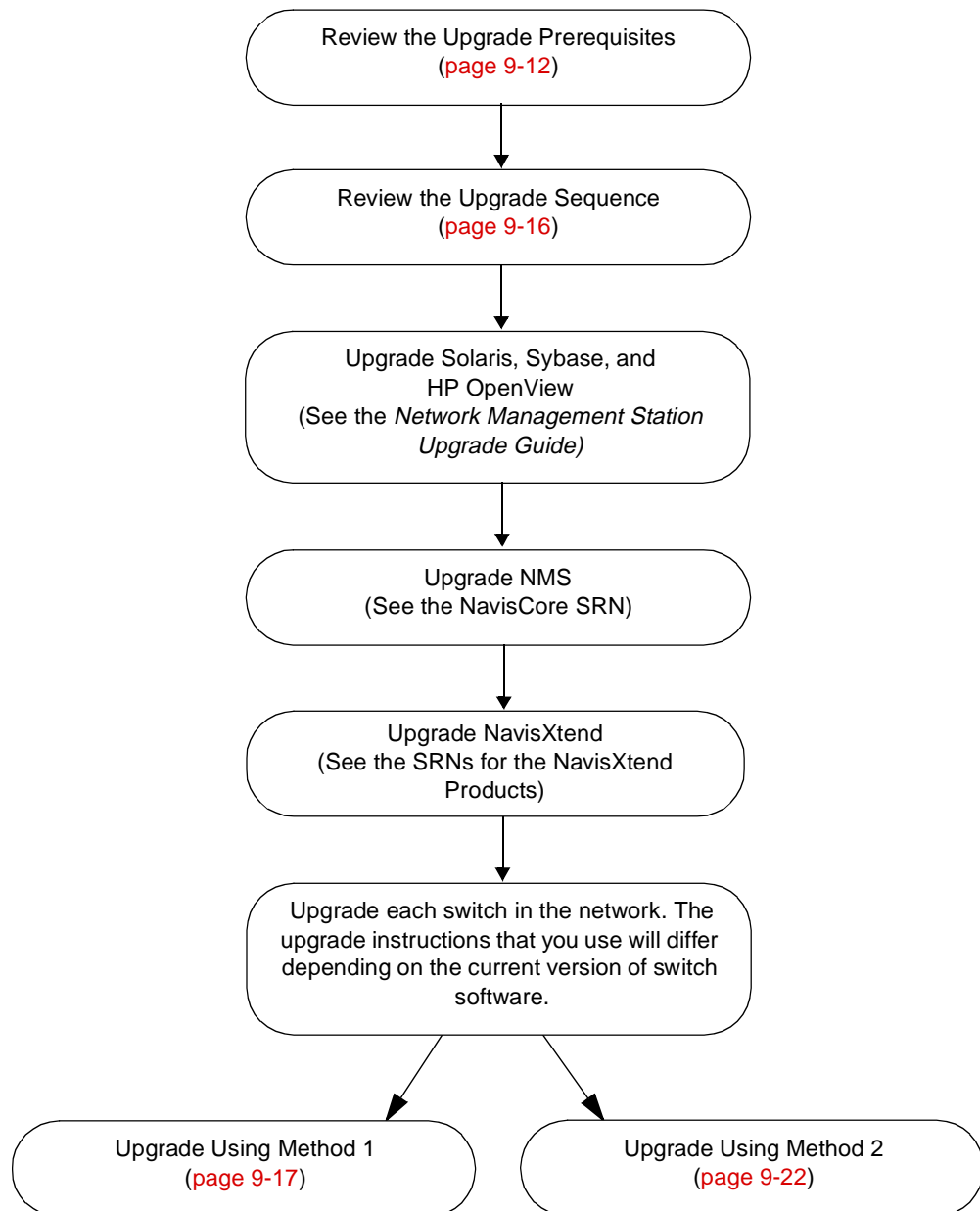


Figure 9-4. Switch Software Upgrade Process

## Upgrade Sequence

Review this sequence to upgrade your switch software.



You cannot use NMS 05.00.xx.xx to manage an STDX 3000/6000 switch. In addition, STDX 3000/6000 switches cannot exist in a map that is managed by this NMS version. You must convert your STDX 3000/6000 switches to B-STDX 8000/9000 switches and then remove any STDX 3000/6000 switches from your network. This conversion and removal process must be completed before you upgrade to NMS 05.00.xx.xx. See the *NavisXtend Tools User Guide* for details about the 6000-to-9000 conversion utility.

1. Use the instructions in the *Network Management Station Upgrade Guide* to upgrade the following products in the order listed:
  - Solaris Version 2.6
  - Sybase Version 11.9.2
  - HP OpenView Version 5.01
2. Upgrade the NMS according to the instructions in the NavisCore SRN.
3. Upgrade any NavisXtend products that your installation uses (see the appropriate NavisXtend documentation for upgrade instructions). You should install the NavisXtend products in the following order:
  - Provisioning Server
  - Fault Server, Report Generator, Statistics Server, Accounting Server, and SLA Reports (any order)
  - CNM Gateway (not supported)
  - NavisXtend Tools
4. Upgrade the switch software for each switch in your network as necessary. Lucent recommends that you upgrade your network using the following sequence:
  - a. Upgrade the switch that is the furthest away from the gateway switch.
  - b. Continue upgrading each switch, moving in toward the gateway switch.
  - c. Upgrade the gateway switch last.

The upgrade method that you use will differ depending on your current switch software version. See “[Upgrade Methods](#)” on page 9-17 for details.

## Upgrade Methods

You can use one of two methods to upgrade your switch software. The method you use depends on your current switch software version.

**Method 1** — Use this method if you are upgrading from switch software versions prior to B-STDX 06.00.00.00, CBX 03.00.04.00, and GX 550 01.00.10.00 (not including B-STDX 05.xx.xx.xx or CBX 02.05.xx.xx).

**Method 2** — Use this method if you are upgrading from switch software versions B-STDX 06.00.00.00, CBX 03.00.04.00, and GX 550 01.00.10.00 or greater (not including B-STDX 06.05.xx.xx; CBX 03.05.xx.xx, or GX 550 01.05.xx.xx).

### Upgrading Switch Software Using Method 1

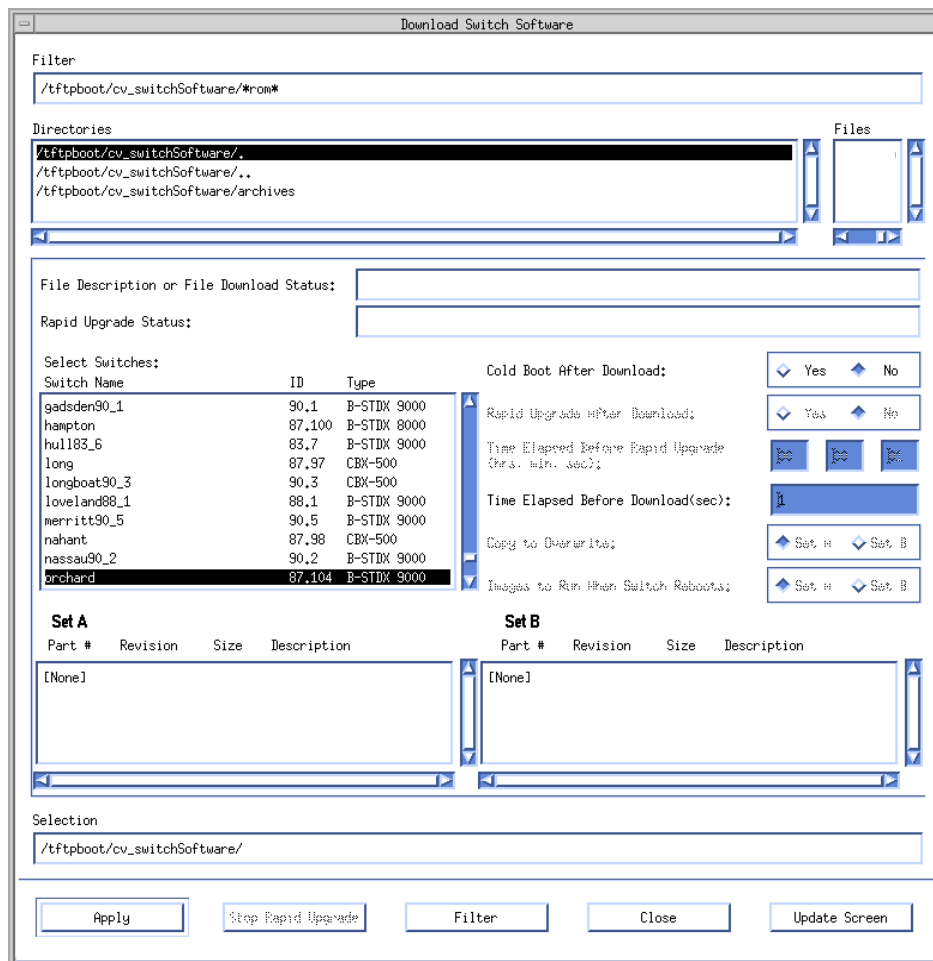
The following instructions describe how to upgrade switch software using an automatic or manual Cold Boot After Download.



Be sure to follow the upgrade procedure exactly as specified.

1. From the NavisCore map, highlight the switch you want to upgrade.
2. From the Administer menu, choose Lucent Switches ⇒ Download Switch Software.

The Download Switch Software dialog box appears (see [Figure 9-5](#)). [Table 9-6](#) contains a description of the Download Switch Software dialog box fields.



**Figure 9-5. Download Switch Software Dialog Box**

3. Select the following filter:  
`/tftpboot/cv_switchSoftware/*rom*`
4. In the Select Switches list box, select the switch you want to upgrade.

- From the Files list box, select the appropriate software image files. For a list of the software image files, see the SRN for your switch software. [Table 9-5](#) lists additional upgrade notes according to your switch type.

**Table 9-5. Upgrade Notes**

Switch Platform	Task	Upgrade Note
B-STDX 8000/9000	Upgrading from a release prior to 06.00.00.00.	Do not download the <code>cp1xpost.rom</code> file until after you upgrade and reboot the switch. Releases prior to 06.00.00.00 do not recognize this file.
CBX 500	Upgrading from a release prior to 03.00.00.00.	Do not download the <code>iom2app.rom</code> and <code>iom2boot.rom</code> files until after you upgrade and reboot the switch. Releases prior to 03.00.00.00 do not recognize these files. The <code>iom2</code> files are only for the following non-ATM IOMs that are now available in the CBX 500: <ul style="list-style-type: none"> <li>• 4-port Ethernet</li> <li>• 4-port channelized DS3/1</li> <li>• 4-port channelized DS3/1/0</li> <li>• 6-port DS3 Frame</li> </ul>
GX 550	Upgrading from a release prior to 02.01.00.00.	Do not download the <code>shelf.rom</code> file until after you upgrade and reboot the switch. Releases prior to 02.01.00.00 do not recognize this file.



When you are upgrading B-STDX switch software, you must download the `cp1xpost.rom` file to Set A to have the file executed at switch startup. Set B will not allow you to download `cp1xpost.rom`. The `cp1xpost.rom` file is independent of Set A or Set B software images; therefore, whether you reboot the switch using Set A or Set B, the switch will execute the `cp1xpost.rom` file if it is present in Set A.

6. Use one of the following step sequences, depending on your switch configuration.
  - *If you are upgrading a CBX 500, GX 550, or B-STDX 8000/9000 with a single CP, use the “Sequence for CBX 500, GX 550, or B-STDX 8000/9000 With a Single CP.”*
  - *If you are upgrading a B-STDX 8000/9000 with a redundant CP, use the “Sequence for B-STDX 8000/9000 With a Redundant CP.”*

**Sequence for CBX 500, GX 550, or B-STDX 8000/9000 With a Single CP**

- a. Perform one of the following steps depending on whether you want to manually or automatically reboot the switch following the image file download.

*To manually reboot the switch following image file download* — Set the Cold Boot After Download option to No before choosing OK to initiate the download.

*To automatically reboot the switch following image file download* — Set the Cold Boot After Download option to Yes before choosing OK to initiate the download.

- b. Proceed to [step 7 on page 9-21](#).

**Sequence for B-STDX 8000/9000 With a Redundant CP**

- a. Set the Cold Boot After Download option to No before choosing OK to initiate the download.
- b. After downloading the switch software to the active CP, switch to the redundant CP. To do this, access the Set Switch Back Panel dialog box, select the CP, and choose the “Switch To Redundant” command. (You can also use the `toggle card 1` console command.)
- c. From the Files list box, select the appropriate software image files to download the images to the newly active CP. (For a list of the software image files, see the SRN for your switch software.)
- d. Verify that the File Description box contains the correct build ID and version. For a list of build IDs and version numbers, see the SRN for your switch software. This information should be verified for each of the image files.
- e. Perform one of the following steps depending on whether you want to manually or automatically reboot the switch following the image file download.

*To manually reboot the switch following image file download* — Set the Cold Boot After Download option to No before choosing OK to initiate the download.

*To automatically reboot the switch following image file download* — Set the Cold Boot After Download option to Yes before choosing OK to initiate the download.



After the switchover completes and the new active CP is downloading, the NMS reports the following marginal conditions on the CP:

- software mismatch detected
- standby capability mismatch

This is a normal part of the upgrade process.

f. Proceed to **step 7**.

7. As each file download completes, a trap message appears indicating whether the image download was successful. If you have not selected the automatic reboot option, you can use the `show software flash` command to verify the presence of each of the image files on the disk.
8. You can manually or automatically reboot the switch following the image file download.

**Manual Reboot** — You should cold boot the switch from the NMS or use the reset system console command after you verify that the software image download is complete.

**Automatic Reboot** — The switch reboots automatically when the download process completes.

9. Perform the following task according to your switch type.

Switch Platform	Task
B-STDX 8000/9000	Download the CP bootflash file and the extended post diagnostic file ( <code>cp1boot.rom</code> , <code>cp1xpost.rom</code> ) after the switch has rebooted with the B-STDX 07.00.00.00 images or greater.  To have the <code>cp1xpost.rom</code> file executed at switch startup, you must download the file to Set A. Set B will not allow you to download <code>cp1xpost.rom</code> . The <code>cp1xpost.rom</code> file is independent of Set A or Set B software images; therefore, whether you reboot the switch using Set A or Set B, the switch will execute the <code>cp1xpost.rom</code> file if it is present in Set A.
CBX 500	If you are upgrading from a switch software version prior to 03.01.xx.xx, download the IOM2 application and bootflash files ( <code>iom2app.rom</code> and <code>iom2boot.rom</code> ) after the switch has rebooted with the CBX 04.00.00.00 images or greater.
GX 550	Download the shelf application file ( <code>shelf.rom</code> ) after the switch has rebooted with the GX 550 02.01.00.00 images or greater.

**10.** After the switch completes its reboot, the cards may be marked out-of-sync.

If the cards are not marked out-of-sync, all PVCs traversing the switch should be active. However, due to some existing anomalies in the PRAM conversion process following an upgrade, non-service affecting differences will exist between the switch and NMS.

Lucent recommends that you PRAM Sync the cards to clear any existing PRAM discrepancies and avoid potential problems that can make it more difficult to troubleshoot any PRAM problems later.

## **Upgrading Switch Software Using Method 2**

You can upgrade switch software using one or more of the following options:

**Automatic or manual Cold Boot After Download** — This function is available for all upgrades.

**Dual Image** — This function is available if you are currently running B-STDX 06.00.00.00, CBX 03.00.04.00, or GX 550 01.00.10.00 or greater.

**Dual Configuration** — This function is available if you are currently running B-STDX 07.00.01.00, CBX 04.00.01.00, or GX 550 02.01.01.00 or greater. You will be able to take advantage of some of the Dual Configuration features when you specify the Dual Image set specification.

**Rapid Upgrade** — This function is available if you are currently running B-STDX 06.01.00.00, CBX 500 03.01.00.00, or GX 550 01.01.00.00 or greater. See [“About Rapid Upgrade” on page 9-2](#) before you select the Rapid Upgrade option as part of the upgrade process.

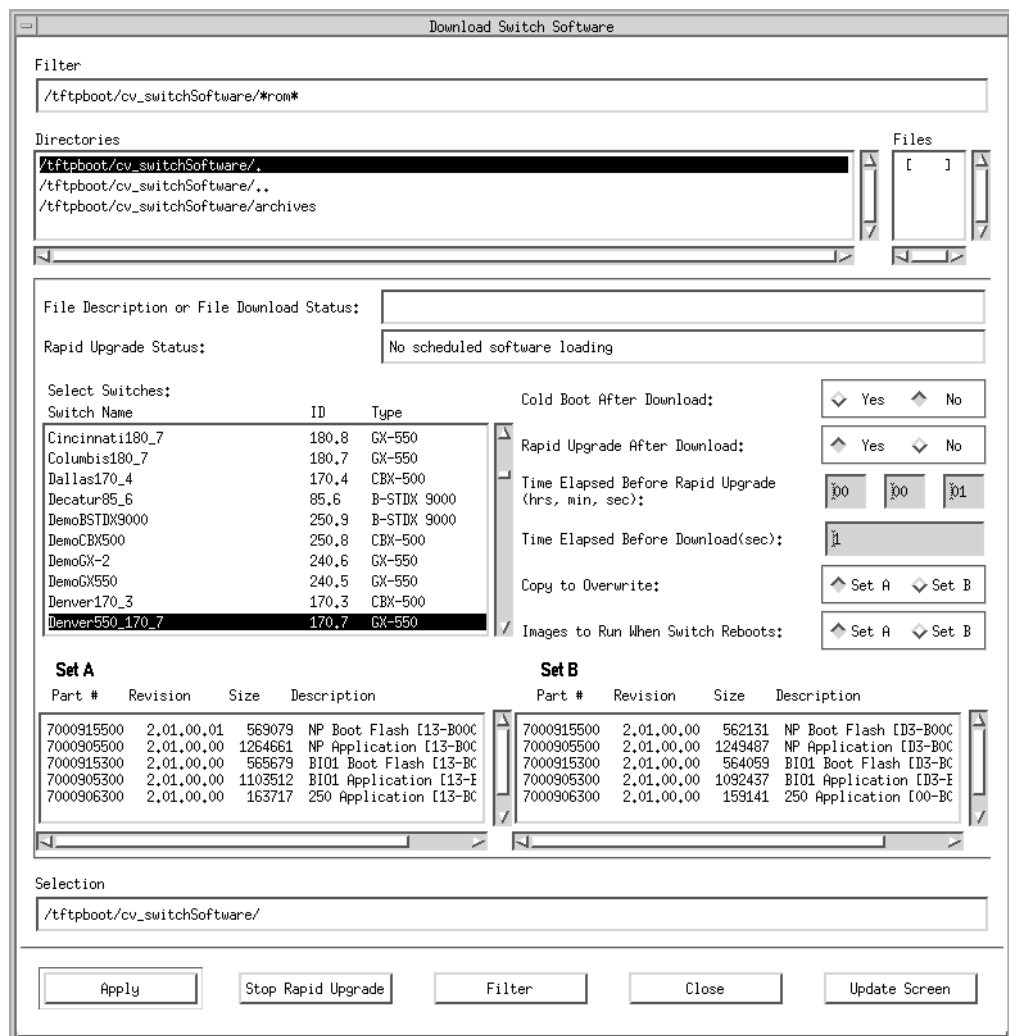


The following instructions describe how to upgrade your switch software using one or more of the options described on [page 9-22](#).



Be sure to follow the upgrade procedure exactly as specified.

1. From the NavisCore map, highlight the switch you want to upgrade.
2. From the Administer menu, select Lucent Switches ⇒ Download Switch Software. The Download Switch Software dialog box appears (see [Figure 9-6](#)).



**Figure 9-6. Download Switch Software Dialog Box**

**Table 9-6** lists and describes the Download Switch Software dialog box fields. Review these descriptions before proceeding to the next step. Note that some of the fields in this list are used for the Dual Image and Rapid Upgrade options.

**Table 9-6. Download Switch Software Field and Button Descriptions**

Field/Button	Action/Description
Filter	<p>Enables you to specify the files that you want to list in the Directories list box. Specify the following path to list all of the available switch software software:</p> <p style="text-align: center;"><b><code>/tftpboot/switchSoftware/*rom*</code></b></p> <p>Then, press Enter or select the Filter button to list the available files.</p>
Directories	<p>Lists the subdirectories that match the directory structure specified in the Filter field.</p>
Files	<p>Select the switch files that you want to download.</p>
File Description or File Download Status	<p>If a file is currently being downloaded, this field displays the status of the download process.</p>
Rapid Upgrade Status	<p>Displays the status of the rapid upgrade process. Possible status messages include:</p> <ul style="list-style-type: none"> <li>Loading application</li> <li>Loading bootflash</li> <li>Loading fast loader</li> <li>Decompressing files</li> <li>Saving state</li> <li>Executing application</li> <li>Recovering from rapid upgrade</li> </ul> <p>See <b>“About Rapid Upgrade”</b> on page 9-2 for more information on the Rapid Upgrade feature.</p>
Select Switches	<p>Lists the available switches on the map and enables you to select a switch for switch software download.</p>
Cold Boot After Download	<p>If the Rapid Upgrade After Download option is selected, this option is disabled. Select one of the following options:</p> <ul style="list-style-type: none"> <li>No – Indicates that you want to manually reboot the switch after download.</li> <li>Yes – Indicates that you want to automatically reboot the switch after the download operation is complete.</li> </ul>

**Table 9-6. Download Switch Software Field and Button Descriptions (Continued)**

Field/Button	Action/Description
Rapid Upgrade After Download	<p>If the Cold Boot After Download option is selected, this option is disabled.</p> <p>Select one of the following options:</p> <p>Yes – Indicates that you want to use the Rapid Upgrade function so that you can minimize service interruption when you download a new switch software release to each of the cards installed in the switch.</p> <p>No – Indicates that you do not want to use the Rapid Upgrade function.</p> <p>See <b>“About Rapid Upgrade”</b> on page 9-2 for more information on the Rapid Upgrade feature.</p>
Time Elapsed Before Rapid Upgrade	<p>Specify the number of hours, minutes, and seconds before the rapid upgrade will occur. One (1) second is the default value. It is recommended that you specify a value that is a <i>minimum of one second</i> in length.</p> <p><b>Note:</b> You cannot stop a rapid upgrade if the Time Elapsed Before Rapid Upgrade value is a value that is less than 10 seconds in length.</p>
Time Elapsed Before Download	<p>Specify the number of seconds before the download operation will occur. One (1) second is the default value. The possible range of values for this parameter is any number from 1 to 99999 seconds (27 hours).</p>
Copy to Overwrite	<p>Specify Set A or Set B to indicate the software image set that the new files will overwrite.</p>
Images to Run When Switch Reboots	<p>Specify the image set that you will be using after the switch reboots or when the rapid upgrade process is complete.</p>
Set A	<p>Lists all of the switch software files for Set A that are currently on the switch. See <a href="#">Table 9-7</a>, <a href="#">Table 9-8</a>, and <a href="#">Table 9-9</a> for further details about set selection.</p>
Set B	<p>Lists all of the switch software files for Set B that are currently on the switch. See <a href="#">Table 9-7</a>, <a href="#">Table 9-8</a>, and <a href="#">Table 9-9</a> for further details about set selection.</p> <p><b>Note:</b> Choosing Set B during the upgrade process automatically invokes the Dual Image/Dual Configuration feature.</p>
Selection	<p>Lists the selected directory path.</p>

**Table 9-6. Download Switch Software Field and Button Descriptions (Continued)**

Field/Button	Action/Description
Apply	Starts the software download and reboot process if selected.
Stop Rapid Upgrade	If the File Download process has not started, choosing this button will stop the rapid upgrade process. <i>Note: You cannot stop a rapid upgrade if the Time Elapsed Before Rapid Upgrade value is a value that is less than 10 seconds in length.</i>
Filter	A Motif file selection function that adds the asterisk (*) file selection value to the value in the Filter field if the final character in the filter field is the forward slash (/) character.
Close	Exits this dialog box and returns to the network map display.
Update Screen	Updates the screen display with the current file download and rapid upgrade status. This option button is disabled during the file download process.

3. Select the following filter:  
`/tftpboot/cv_switchSoftware/*rom*`
4. In the Select Switches list box, select the switch that you want to upgrade.
5. From the Files list box, select the appropriate software image files. For a list of the software image files, see the SRN for your switch software.



When you are upgrading B-STDX switch software, you must download the `cp1xpost.rom` file to Set A to have the file executed at switch startup. Set B will not allow you to download `cp1xpost.rom`. The `cp1xpost.rom` file is independent of Set A or Set B software images; therefore, whether you reboot the switch using Set A or Set B, the switch will execute the `cp1xpost.rom` file if it is present in Set A.



If you are upgrading from a GX 550 release prior to 02.01.00.00, do not download the `shelf.rom` file until after you upgrade and reboot the switch. The switch software for releases prior to the GX 550 release 02.01.00.00 do not recognize the `shelf.rom` file.

6. Select one of the following options:

**Cold Boot After Download** — This function is available for all upgrades. If you use this option, specify Yes or No as follows:

*Yes* – Indicates that you want to automatically cold boot the switch after the download operation is complete.

*No* – Indicates that you do not want to automatically cold boot the switch after download.

**Rapid Upgrade After Download** —This function is available if you are currently running B-STDX 06.01.00.00, CBX 03.01.00.00, or GX 550 01.01.00.00 or greater. If you use this option, specify Yes or No as follows:

*Yes* – Indicates that you want to use the Rapid Upgrade function so that you can minimize service interruption when you download a new switch software release to each of the cards installed in the switch. Both the Rapid Upgrade and the Dual Image feature can be used simultaneously. The system automatically cold boots any cards that are unsupported by the Rapid Upgrade feature.

*No* – Indicates that you do not want to use the Rapid Upgrade feature.

7. Specify the hours, minutes, and seconds values for the Time Elapsed Before Rapid Upgrade. The default amount of time before rapid upgrade begins is one second.
8. Specify a value (in seconds) for Time Elapsed Before Download. The default amount of time before the software download begins is one second.
9. For the Copy to Overwrite field, specify Set A or B to indicate the software image set that the new image files will overwrite. (You can change this value later by using the Set Default Switch Software function as described in “[Setting the Default Switch Software Image](#)” on page 9-30.) See [Table 9-7](#), [Table 9-8](#), and [Table 9-9](#) for information about the upgrade choices you can make based on your current switch software.



When you are upgrading B-STDX switch software, you must download the `cp1xpost.rom` file to Set A to have the file executed at switch startup. Set B will not allow you to download `cp1xpost.rom`. The `cp1xpost.rom` file is independent of Set A or Set B software images; therefore, whether you reboot the switch using Set A or Set B, the switch will execute the `cp1xpost.rom` file if it is present in Set A.



If you change the configuration after an upgrade, and then revert back to the previous release and configuration, you must PRAM Sync the NMS with the switch.

**Table 9-7. Results of Upgrades from Switch Versions Prior to B-STDX 06.00.00.00, CBX 03.00.04.00, and GX 550 01.00.10.00**

	Downloading New Images to Set A	Downloading New Images to Set B
<b>Current images: Set A</b> <b>Current config. files: Set A</b>	<ul style="list-style-type: none"> <li>New images overwrite Set A images.</li> <li>Configuration files are converted to the new configuration file format for Set A.</li> </ul>	Not Supported
<b>Current images: Set B</b> <b>Current config. files: Set B</b> (Not Supported)	Not Supported	Not Supported

**Table 9-8. Results of Upgrades from B-STDX 06.00.00.00, CBX 03.00.04.00, and GX 550 01.00.10.00 or Greater to release B-STDX 07.00.01.00, CBX 04.00.01.00, and GX 550 02.01.01.00**

	Downloading New Images to Set A	Downloading New Images to Set B
<b>Current images: Set A</b> <b>Current config. files: Set A</b>	<ul style="list-style-type: none"> <li>New images overwrite Set A images.</li> <li>Configuration files are converted to the new configuration file format for Set A.</li> </ul>	<ul style="list-style-type: none"> <li>New images are copied to Set B. Current images remain on Set A.</li> <li>Configuration files are copied from Set A to Set B and converted to the new configuration file format for Set B. Current configuration files remain on Set A.</li> </ul>
<b>Current images: Set B</b> <b>Current config. files: Set A</b>	<ul style="list-style-type: none"> <li>New images are copied to Set A. Current images remain on Set B.</li> <li>Configuration files are converted to the new configuration file format for Set A.</li> </ul>	<ul style="list-style-type: none"> <li>New images overwrite Set B images.</li> <li>Configuration files are copied from Set A to Set B and converted to the new configuration file format for Set B. Current configuration files remain on Set A.</li> </ul>

**Table 9-9. Results of Upgrades from B-STDX 07.00.01.00, CBX 04.00.01.00, and GX 550 02.01.01.00 or Greater**

	<b>Downloading New Images to Set A</b>	<b>Downloading New Images to Set B</b>
<b>Current images: Set A</b> <b>Current config. files: Set A</b>	<ul style="list-style-type: none"> <li>• New images overwrite Set A.</li> <li>• Configuration files are converted to the new configuration file format for Set A.</li> </ul>	<ul style="list-style-type: none"> <li>• New images are copied to Set B. Current images remain on Set A.</li> <li>• Configuration files are copied from Set A to Set B and converted to the new configuration file format for Set B. Current configuration files remain on Set A.</li> </ul>
<b>Current images: Set B</b> <b>Current config. files: Set B</b>	<ul style="list-style-type: none"> <li>• New images are copied to Set A. Current images remain on Set B.</li> <li>• Configuration files are copied from Set B to Set A and converted to the new configuration file format for Set A. Current configuration files remain on Set B.</li> </ul>	<ul style="list-style-type: none"> <li>• New images overwrite Set B.</li> <li>• Configuration files are converted to the new configuration file format for Set B.</li> </ul>

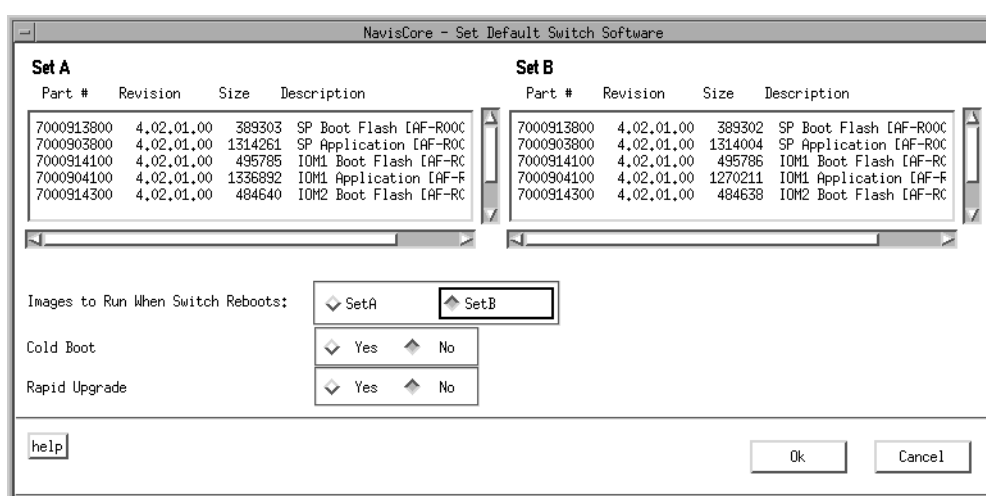
10. For the Images to Run when Switch Reboots field, specify either Set A or Set B to indicate the software image set that the switch will run following the reboot.
11. Choose Apply to start the File Download process and update the selected switch image.  
  
As each file download completes, a trap message appears indicating whether the image download was successful. If you have not selected the automatic reboot option, you can use the `show software flash` command to verify the presence of each of the image files on the disk.
12. Choose Update Screen to refresh the information displayed on the dialog box. (You cannot select Update Screen until after the File Download process is complete.)
13. After all images have been downloaded, verify that the version numbers and build IDs match those listed in the SRN for your switch software.
14. If you did not previously choose either the Rapid Upgrade or the Automatic Cold Boot options, cold boot the switch from the NMS or use the `reset system` console command after the download operation has completed.
15. *For a GX 550 upgrade only* - Download the shelf application file (`shelf.rom`) after the switch has rebooted with the GX 550 02.01.00.00 image or greater.

## Setting the Default Switch Software Image

You can specify the default software image that the switch will use following a reboot. The Download Switch Software dialog box (see [Figure 9-6](#)) enables you to specify this information when you download the software. You can modify this information on the Set Default Switch Software dialog box.

To set switch software defaults:

1. From the NavisCore map, highlight the switch you want to configure.
2. From the Administer menu, choose Lucent Switches ⇒ Set Default Switch Software. The Set Default Switch Software dialog box appears (see [Figure 9-7](#)).



**Figure 9-7. Set Default Switch Software Dialog Box**

The dialog box displays two software image sets called Set A and Set B.

3. Select Set A or Set B as the software image set that the switch will use when it reboots.
4. Choose OK.



# NavisCore Configuration File

This appendix describes the NavisCore defaults configuration file, `cascadeview.cfg`. This file is located in `/opt/CascadeView/etc/` and contains the default variables for many Lucent switch software features.

Whenever you modify this file, you must restart NavisCore for the changes to take effect. See [Chapter 2, "Administering NavisCore"](#) for instructions on stopping and starting NavisCore.

## cascadeview.cfg Contents

To view the contents of cascadeview.cfg, enter:

```
more /opt/CascadeView/etc/cascadeview.cfg
```

```
#!/bin/sh
# @(#)cascadeview.cfg (version: $Revision: 1.22 $Date$)
# CascadeView configuration file.
# Copyright 2000 Lucent Technologies Corp.
# All rights reserved.
#
# Config for tracing:
CV_TRACE_ENABLED=0
CV_TRACEFILE=
export CV_TRACE_ENABLED CV_TRACEFILE
#
# Config for message catalogs:
CV_ERROR_MSG_CAT_PATH=/opt/CascadeView/nls/C/cascadeview-errors.cat
export CV_ERROR_MSG_CAT_PATH
#
# Config for database:
CVDB_TRACE_FILE_NAME=
export CVDB_TRACE_FILE_NAME
#
# Config for map application:
CV_DEF_ADDRESS_SIGNIFICANCE=2          #local
CV_DEF_NETWORK_NUMBER=152.148.0.0
export CV_DEF_ADDRESS_SIGNIFICANCE CV_DEF_NETWORK_NUMBER
#
# Config for switch initialization:
CV_SWITCH_INIT_FILE_DIR=/var/CascadeView/initFiles
export CV_SWITCH_INIT_FILE_DIR
#
# Config for configuration sync.:
CV_SYNC_FILE_DIR=/tftpboot/cv_cfgSyncFiles
CV_SYNC_CHECK_DELAY=8
CV_SYNC_CHECK_INTERVAL=3
CV_SYNC_CHECK_COUNT=10

CV_UPLOAD_CHECK_DELAY=5
CV_UPLOAD_CHECK_INTERVAL=3
CV_UPLOAD_CHECK_COUNT=20
```

```
export CV_SYNC_FILE_DIR
export CV_SYNC_CHECK_DELAY CV_SYNC_CHECK_INTERVAL CV_SYNC_CHECK_COUNT
export CV_UPLOAD_CHECK_DELAY CV_UPLOAD_CHECK_INTERVAL CV_UPLOAD_CHECK_COUNT
#
# Config for offline pram sync file name
CV_SYNC_FILE_OFFLINE_LIST=/tftpboot/cv_cfgSyncFiles/offline.lst
export CV_SYNC_FILE_OFFLINE_LIST
#
# Config for SNMP management
CV_SNMP_IS_ENABLED=1
CV_SNMP_MAX_RETRIES=4

# REQUEST TIMEOUT is for Provisioning Server. It defined the timeout value
# for requests between PS Clients and the Server.
# This value is in 1/10's of a second.
CV_SNMP_REQUEST_TIMEOUT=600

RETRY INTERVAL is specified in 1/10's of a second. This defines the
# SNMP timeout value to the switch.
CV_SNMP_RETRY_INTERVAL=300

CV_SNMP_PUBLIC_COMMUNITY=public
CV_SNMP_READ_WRITE_COMMUNITY=constitution

export CV_SNMP_IS_ENABLED CV_SNMP_REQUEST_TIMEOUT CV_SNMP_MAX_RETRIES
export CV_SNMP_RETRY_INTERVAL CV_SNMP_PUBLIC_COMMUNITY
export CV_SNMP_READ_WRITE_COMMUNITY
#
# Hostname of NMS IP address used in building SNMP requests.
# Only necessary if NMS workstation has more than 1 IP interface.
# Default is hostname of workstation having only 1 IP interface.
#
CV_SNMP_NMS_HOSTNAME=
export CV_SNMP_NMS_HOSTNAME
#
# Config for diagnostics (all time periods are in seconds):
#
CV_BG_DIAG_POLL_INTERVAL=3
CV_FG_DIAG_CHECK_DELAY=5
CV_FG_DIAG_CHECK_INTERVAL=1
CV_FG_DIAG_CHECK_COUNT=3

CV_DIAG_REASON_CATALOG=/opt/CascadeView/nls/C/cvDiagReasons.cat
```

```
export CV_BG_DIAG_POLL_INTERVAL CV_FG_DIAG_CHECK_DELAY
export CV_FG_DIAG_CHECK_INTERVAL CV_FG_DIAG_CHECK_COUNT
export CV_DIAG_REASON_CATALOG
#
# Config for switch configuration:
CV_NODE_QOS_POLL_TIMER=60
export CV_NODE_QOS_POLL_TIMER
#
# Config for status monitoring (time periods are in seconds):
CV_STATUS_POLL_INTERVAL=300
export CV_STATUS_POLL_INTERVAL
#
# Config for physical port performance tuning:
#
CV_PPORT_DEF_DISCARD_HIGH=32
CV_PPORT_DEF_DISCARD_LOW=10
CV_PPORT_DEF_AQL_THRESHOLD=16

export CV_ENV_PPORT_DEF_DISCARD_HIGH
export CV_ENV_PPORT_DEF_DISCARD_LOW
export CV_ENV_PPORT_DEF_AQL_THRESHOLD
#
# Config for SMDS Prefix Length: (temporary)
#
CV_SMDS_MASK_SIZE=6
export CV_SMDS_MASK_SIZE
#
# Disable SMDS Switching System
# 0 to enable and 1 to disable
CV_DISABLE_SMDS_SS=0
export CV_DISABLE_SMDS_SS
#
# Enable audit trail
#
CV_AUDIT_TRAIL_ENABLE=TRUE
export CV_AUDIT_TRAIL_ENABLE
#
# Determine how frequent to refresh the out-of-sync flag from the database.
# 0 will be used to disable this feature and
# N implies out-of-sync flag will be refreshed for every N node poll intervals
#
```

```
CV_OUT_OF_SYNC_REFRESH_CNT=5
export CV_OUT_OF_SYNC_REFRESH_CNT
#
# Enable HSSI PPort over clocking
# Warning: User is not recommended to enable this feature because overclocking
# the HSSI pport may cause instability to the HSSI card.
#
CV_ENABLE_HSSI_PPORT_OVERCLOCKING=FALSE
export CV_ENABLE_HSSI_PPORT_OVERCLOCKING
#
# Enable ATM OPTimum Trunk Bandwidth over subscribing.
#
CV_ENABLE_ATM_TRK_BW_OVERSUBSCRIBE=FALSE
export CV_ENABLE_ATM_TRK_BW_OVERSUBSCRIBE
#
# Override default max LPorts per STDX 3000/6000.
# <= 0 or missing - use default (currently 150). > 0 - use this value.
CV_MAX_INTERFACES_PER_STDx=150
export CV_MAX_INTERFACES_PER_STDx

CV_POLL_SERVER_PORT=10888
CV_POLL_SERVER_ADDRESS=localhost
export CV_POLL_SERVER_PORT CV_POLL_SERVER_ADDRESS
#
# ATM UNI logical port defaults.
#
# o "UNI Type" defaults can be "PUBLIC" or "PRIVATE"
# o "Connection Type" defaults can be "NET_ENDSYS" or "NET_NET"
#
CV_ATMUNI_UNI_TYPE_DEFAULT=PUBLIC
CV_ATMUNIDCE_CONN_TYPE_DEFAULT=NET_ENDSYS

export CV_ATMUNI_UNI_TYPE_DEFAULT
export CV_ATMUNIDCE_CONN_TYPE_DEFAULT
#
# Enable Move All Circuit
CV_ENABLE_MOVE_ALL_CIRCUIT=TRUE
export CV_ENABLE_MOVE_ALL_CIRCUIT
#
# Checking the card type for Move All Circuit
CV_MV_CKT_CARD_TYPE_CHECKING=TRUE
export CV_MV_CKT_CARD_TYPE_CHECKING
```

```
#
# VPN/Customer configuration
#
# CV_CUR_VPNCUST =[VPN | CUSTOMER ]
CV_CUR_VPNCUST=
CV_CUR_VPN_NAME=
CV_CUR_CUST_NAME=
export CV_CUR_VPNCUST
export CV_CUR_VPN_NAME
export CV_CUR_CUST_NAME
#
# Default Login settings
# CV_LOGON_TYPE =[OPERATOR | PROVISIONING]
#
#CV_LOGON_TYPE=OPERATOR
#export CV_LOGON_TYPE
#
# 4 or 16 levels of circuit priorities
#
# CV_CKT_PRIORITY_LEVELS = [FOUR | SIXTEEN]
CV_CKT_PRIORITY_LEVELS=FOUR
export CV_CKT_PRIORITY_LEVELS
#
# Time interval to refresh QoS metrics (time periods are in seconds):
# Range is (300 to 1799)
#
#CV OSPF_LSA_REFRESH_INTERVAL=0
export CV OSPF_LSA_REFRESH_INTERVAL

#
# SNMP Trace FILE
#
CV SNMP_TRACE_FILE=
export CV SNMP_TRACE_FILE

#
# Cell Circuits defined as interworking
#
# CV_CELLCKT_TYPE = [NORMAL | INTERWORKING]
# CV_CELLCKT_TYPE = INTERWORKING
# export CV_CELLCKT_TYPE

#
```

```
# enable Config for PRAM Upload Abort button; 1 to enable;
#
#                               otherwise to disable
#
CV_PRAM_UPLOAD_ABORT_ENABLED=1
export CV_PRAM_UPLOAD_ABORT_ENABLED
#
# enable 310 bulk lport creation
# CV_310_BULK_LPORT= [TRUE | FALSE] default is disabled
CV_310_BULK_LPORT=TRUE
export CV_310_BULK_LPORT
# Network distribution evaluation interval.
#
#   o CV_NET_DIST_EVAL_INTERVAL is the number of seconds to pause
#     between evaluations when determining the network distribution
#     of a distributed Cascade object. To be used when defining an
#     evaluation threshold for a Cascade distributed object. Allowable
#     values are "1" to "60".
#
CV_NET_DIST_EVAL_INTERVAL=2
export CV_NET_DIST_EVAL_INTERVAL
#
# SVC Closed User Groups network distribution evaluation threshold.
#
#   o CV_SVC_CUG_NODE_EVAL_THRESH is the number of nodes (out of all of
#     the nodes in the network to be evaluated) on which to match configured
#     SVC addresses against a member rule regular expression at one time
#     before pausing for CV_NET_DIST_EVAL_INTERVAL seconds. A value of
#     zero ("0") results in all nodes in the network being evaluated at
#     once with no pause.
#   o CV_SVC_CUG_LOGFILE is the path and filename to log the results of
#     matching configured SVC addresses against a member rule regular
#     expression when determining whether or not a node belongs in a member
#     rule's network distribution. A valid value enables logging. A null
#     or invalid value disables logging. The CascadeView PID will be
#     appended to the filename.
#
CV_SVC_CUG_NODE_EVAL_THRESH=0
CV_SVC_CUG_LOGFILE=

export CV_SVC_CUG_NODE_EVAL_THRESH
export CV_SVC_CUG_LOGFILE
#
```

```
# CBX 500 shared switching fabric thread bandwidth limit enforcement
#
#   When this variable is set to "TRUE" CascadeView will restrict the sum
#   of the logical port bandwidth on two IOMs sharing a common switching
#   fabric thread to the thread's maximum supported bandwidth.  Setting this
#   variable to "FALSE" will disable this restriction and permit logical
#   ports to oversubscribe the thread.
#
CV_ENFORCE_CBX500_THREAD_BW_LIMIT=TRUE
export CV_ENFORCE_CBX500_THREAD_BW_LIMIT
#
# Config for Loading Profile Rate Tables
#
CV_PROFILE_DISCARD_FILE=/opt/CascadeView/etc/cvDiscard.dat
CV_PROFILE_CONGESTION_FILE=/opt/CascadeView/etc/cvCongestion.dat
CV_PROFILE_RIF_FILE=/opt/CascadeView/etc/cvRif.dat
CV_PROFILE_RDF_FILE=/opt/CascadeView/etc/cvRdf.dat

export CV_PROFILE_DISCARD_FILE
export CV_PROFILE_CONGESTION_FILE
export CV_PROFILE_RIF_FILE
export CV_PROFILE_RDF_FILE
#
# Env variable to DISABLE Get Card Status action before an
# ADD or DELETE or MODIFY is performed on a Circuit object
#CV_CARD_STATS=DISABLE
#export CV_CARD_STATS
#
# Config for saving statistics directory
# Note: directory must be writable by others
#
CV_SAVE_STATS_DIR=
export CV_SAVE_STATS_DIR

#
# Default trunk OSPF area
#
CV_DEFAULT_TRUNK_OSPF_AREA=0.0.0.1
export CV_DEFAULT_TRUNK_OSPF_AREA

#
# Caching Dialogs
```



```
# To cache a dialog, and therefore only create one instance of it,
# set the CV_CACHE_SET_ALL_LPORTS_DIALOG environment variable to TRUE.
#
# Caching LPort screens
CV_CACHE_SET_ALL_LPORTS_DIALOG=
export CV_CACHE_SET_ALL_LPORTS_DIALOG

#
#
# The following environment variable allows the user to enable
# Drag and Drop. To do this, uncomment out the "export XENVIRONMENT"
# line and restart ovw.
#
XENVIRONMENT=/opt/CascadeView/app-defaults/CVEnableDragDrop
# export XENVIRONMENT
#
# IP Server PVC
# This allows customer to create IPServerPVC with both ends
# being IPServer LPORTS
# set the CV_IP_SERVER_PVC_BOTH_ENDS_IP_SERVER_LPORTS environment variable to
TRUE.
#
CV_IP_SERVER_PVC_BOTH_ENDS_IP_SERVER_LPORTS=TRUE
export CV_IP_SERVER_PVC_BOTH_ENDS_IP_SERVER_LPORTS

# JNI CLASSPATH points to the Java Runtime Environment and the jConnect class
# for running JDBC to Sybase.
CV_JNI_CLASSPATH=/opt/CascadeView/jre/jrel.2/usr/java1.2/jre/lib/rt.jar:${CV_R
OOT}/jav
export CV_JNI_CLASSPATH

#
# database debug for JDBC layer
#
CVDB_JDBC_TRACE_FILE=
export CVDB_JDBC_TRACE_FILE

# This sets the packetsize for the database server.
CVBD_PACKETSIZE=512
export CVBD_PACKETSIZE

# The following two flags are used for the "Reliable Provisioning" feature
# OBJECT_PRAM_STATUS_OFF & DELETE_MARK_OUT_OF_SYNC.
```

```
#
# NOTE: This feature is not supported for PSAX 1250 - CBX 500 circuits.
#
# OBJECT_PRAMSTATUS_OFF is for disabling the reliable provisioning, which will
# record the SNMP status with new configuration for the Lport and Ckt into the
# database when there is a SNMP failure. If the flag is set to '1', the SNMP
# status will be recorded in the database, and the user will have the option to
# abort the provisioning operation. If the flag is set to '0', which means the
# reliable provisioning feature is enabled, the user will not have the option to
# abort the operation andf the SNMP status with new configuration will be
# recorded into the databse when there is a SNMP failure. If the flag is not be
# set, the default behaviour is equivalent to set it to 1.
OBJECT_PRAMSTATUS_OFF=1
export OBJECT_PRAMSTATUS_OFF
#
# DELETE_MARK_OUT_OF_SYNC is only applicable when
# OBJECT_PRAMSTATUS_OFF is set to 0.
# DELETE_MARK_OUT_OF_SYNC is for the user to choose the behaviour when delete
# operation results in the SNMP error. If the flag is set to '1',
# then the user would be allowed to delete the object from DB
# and set the card out of sync. If the flag is set to '0' then
# delete of the object has to succeed on the SWITCH to delete
# it from the DB.
DELETE_MARK_OUT_OF_SYNC=1
export DELETE_MARK_OUT_OF_SYNC

# CV_MAP_MONITOR is used for optional map monitoring feature.
# By default, this variable is set to Enable.
# When CV_MAP_MONITOR is set to ENABLE, there will be periodic polls
# for the switches/trunks on the open map.
# When CV_MAP_MONITOR is set to DISABLE, there will be NO polls for
# the switches/trunks on the open map.
# Real status of a switch can be seen through the back panel though.
# After the user changes the variable setting here, NavisCore session
# needs to be restarted.
CV_MAP_MONITOR=ENABLE
export CV_MAP_MONITOR

# The maximum number of switches within the OSPF areas that the switch
# endpoint defined
# WARNING: DO NOT CHANGE THIS PARAMETER UNLESS INSTRUCTED TO DO SO
# BY LUCENT CUSTOMER SERVICE. The limit of 400 switches is necessary
# for reliable switch performace in most networks. It may only be
# raised in very special networks under emergency conditions.
```

```
# Also, Lucent reserves the right to remove this parameter in later
# releases.
# CV_OSPF_MAX_NUM_SWITCH=400
# export CV_OSPF_MAX_NUM_SWITCH

# When CV_NUMBER_OF_CKT is enabled, it restricts the wildcard search against
# the database in Set/Show All PVC/Redirect PVC screens, by listing the number
# of ckts returned by the database server.
CV_NUMBER_OF_CKT=100
export CV_NUMBER_OF_CKT
#
# end cascadeview.cfg
#
```

## cascadeview.cfg Variables

The cascadeview.cfg file contains the following variable descriptions:

**CV\_TRACE\_ENABLED=0** – This trace tool variable is for Lucent Customer Support diagnostic purposes only. Set to 1 to enable tracing.

**CV\_TRACEFILE** – Specifies the location of the trace file.

**CV\_ERROR\_MSG\_CAT\_PATH=/opt/CascadeView/nls/C/cascadeview-errors.cat** – Sets the location of the error file that NavisCore uses. **Do not modify** this path and filename.

**CVDB\_TRACE\_FILE\_NAME** – Displays the trace filename for database trace. This file is used by Lucent Customer Support in conjunction with the previous trace variable.

**CV\_DEF\_ADDRESS\_SIGNIFICANCE=2 # local** – Indicates that the addressing scheme used for DLCIs is of local significance only. A DLCI must only be unique to a logical port. **Do not modify** this value.

**CV\_DEF\_NETWORK\_NUMBER** – Displays the internal IP address for the Lucent network. The NMS uses this number to contact and communicate with the gateway switch. This number must be a unique number within the LAN environment and must not be the same as any external Ethernet address. See [Chapter 3, "Creating and Managing Network Maps"](#) for more information about configuring the network number for the NMS.

**CV\_SWITCH\_INIT\_FILEDIR=/var/CascadeView/initFiles** – Sets the location of the switch initialization files. **Do not modify** this path and filename.

**CV\_SYNC** – These variables provide specific PRAM Sync information:

**CV\_SYNC\_FILE\_DIR=/tftpboot/cv\_cfgSyncFiles** – Sets the location of the following PRAM synchronization files. **Do not modify** this path and filename.

**CV\_SYNC\_CHECK\_DELAY=8**

**CV\_SYNC\_CHECK\_INTERVAL=3**

**CV\_SYNC\_CHECK\_COUNT=10**

**CV\_UPLOAD\_CHECK\_DELAY=5** – Specifies the time delay (in seconds) that the NMS waits before it checks the PRAM upload status.

**CV\_UPLOAD\_CHECK\_INTERVAL=3** – Specifies the amount of time (in seconds) between checks.

**CV\_UPLOAD\_CHECK\_COUNT=20** – Specifies the maximum number of checks before the NMS reports an error.

**CV\_SYNC\_FILE\_OFFLINE\_LIST=/tftpboot/cv\_cfgSyncFiles/offline.lst** (**B-STDx only**) – Sets the location of the offline PRAM synchronization files. **Do not modify** this path and filename.

**CV\_SNMP\_IS\_ENABLED=1** – This setting enables SNMP. **Do not modify**.

**CV\_SNMP\_REQUEST\_TIMEOUT=300** – Specifies the amount of time (in tenths of a second) between SNMP retries from the Provisioning Client to the Provisioning Server. This variable is currently set to a default value of 300, which indicates that there is a 30-second wait between each SNMP retry.

**CV\_SNMP\_MAX\_RETRIES=4** – Specifies the number of retries the SNMP client attempts before it declares a timeout. The default is 4. In larger networks where the NMS is on a very busy LAN segment or is multiple hops away from the switch that contains the Ethernet module, you may need to increase this value to 5.

**CV\_SNMP\_RETRY\_INTERVAL=300** – Specifies the amount of time (in tenths of a second) between SNMP retries from NavisCore or Provisioning Server to a switch. This variable is currently set to a default value of 300, which indicates that there is a 30-second wait between each SNMP retry. CPU-intensive operations, such as PRAM synchronization, can cause NavisCore to drop node polls. Increase the amount of time between SNMP retries to avoid this problem. If you modify this value, restart NavisCore.



Lucent recommends a value of 30 seconds for a configuration with 10 to 15 simultaneous instances of NavisCore and more than 15 switches in the network.

**CV\_PUBLIC\_COMMUNITY=public** – Specifies the SNMP public community name.

**CV\_SNMP\_READ\_WRITE\_COMMUNITY=cascade** – Specifies the default master community name of the NMS. Each NMS you define must use this name.

**CV\_SNMP\_NMS\_HOSTNAME** – Specifies an alternate SNMP hostname. Use this variable if your NMS has more than one IP interface. The default for this variable is the NMS with one IP interface.

**CV\_BG\_DIAG\_POLL\_INTERVAL=3** – This variable has no effect since background diagnostics do not poll the background diagnostic result.

**CV\_FG\_DIAG\_CHECK\_DELAY=5** – Sets the time delay (in seconds) that the NMS waits before it sends the first PDU to check that foreground diagnostics are complete.

**CV\_FG\_DIAG\_CHECK\_INTERVAL=1** – The NMS sends a “check PDU” multiple times until the diagnostics are complete. The CHECK\_INTERVAL is the interval (in seconds) between the check PDUs.

**CV\_FG\_DIAG\_CHECK\_COUNT=3** – The CHECK\_COUNT is the maximum number of check PDUs that the NMS will send.



The value of CHECK\_COUNT is used as the interval and the value of CHECK\_INTERVAL is used as the count. **Do not modify** these values.

**CV\_DIAG\_REASON\_CATALOG=/opt/CascadeView/nls/C/cvDiagReasons.cat** – This variable points to the catalog file that contains the diagnostics result strings. **Do not modify** this path and filename.

**CV\_NODE\_QOS\_POLL\_TIMER=300** – Sets the default value for the Quality of Service (QoS) statistics for retrieving circuit data from the switches.

**CV\_STATUS\_POLL\_INTERVAL=90** – The NMS node poll status interval variable sets the time interval that NavisCore uses to poll the nodes in the network. The default value is in seconds and the default is 5 minutes (300 seconds).

You can change the interval based on the number of users running NavisCore. A system with 30 users polls approximately once every 10 seconds. This change takes effect when you restart NavisCore. In a configuration with 10-15 simultaneous instances of NavisCore, 60 seconds is an acceptable value for this variable.



The following “CV\_PPORT\_DEF” values are used for physical port performance tuning. **Do not modify** these values.

- CV\_PPORT\_DEF\_DISCARD\_HIGH=32
- CV\_PPORT\_DEF\_DISCARD\_LOW=10
- CV\_PPORT\_DEF\_AQL\_THRESHOLD=16

**CV\_SMDS\_MASK\_SIZE=6** (*B-STDX only*) – Use this variable to modify the size of the SMDS address mask for the entire network map. The mask size indicates the number of address digits a switch uses to make a switching decision. Valid values are 1 through 15. A mask size of 0 will disable the SMDS switching system. For more information, see the *NavisCore SMDS Configuration Guide*.

**CV\_DISABLE\_SMDS\_SS=0** (*B-STDX only*) – Use this variable to enable (0) or disable (1) the SMDS switching system for the entire NavisCore network. If you modify this value, you must PRAM Sync each CP card in the network.

**CV\_AUDIT\_TRAIL\_ENABLE=TRUE** – Use this variable to enable (TRUE) or disable (FALSE) the Audit Trail utility. If you modify this variable, you must shut down and then restart NavisCore. For more information about the Audit Trail utility, see [“Using the Audit Trail Utility” on page 2-8](#).

**CV\_OUT\_OF\_SYNC\_REFRESH\_CNT=5** – The map you display in each session of NavisCore refreshes every N node polls, where N is the number of specified node polls. To refresh, NavisCore checks the database for any out-of-sync conditions. Edit this variable to modify the refresh rate. To disable this feature, set this variable to 0.

**CV\_ENABLE\_HSSI\_PPORT\_OVERCLOCKING=FALSE** (*B-STDX only*) – Use this variable if you must exceed the maximum HSSI module capacity. The total bandwidth of all physical ports on the HSSI module can exceed the maximum module capacity of 44.212 Mbps. However, this setting can cause frame errors if all physical ports are running at full speed. To resolve this problem, set this variable to True.

**CV\_ENABLE\_ATM\_TRK\_BW\_OVERSUBSCRIBE=FALSE** – If you set this value to True, the total bandwidth of all ATM OPTimum trunk logical ports on a single physical port can exceed maximum physical port bandwidth.

**CV\_MAX\_INTERFACES\_PER\_STDX=150** – This value specifies the maximum number of logical ports that can be defined on an STDX switch. You can set this value between 0 and 254.

**CV\_ATMUNI\_UNI\_TYPE\_DEFAULT=PUBLIC** – This value is set to Public if at least one end of this connection attaches to a public network. It is set to Private if this connection resides completely within a private network. See the *NavisCore Frame Relay Configuration Guide* for more information about ATM UNI logical ports.

**CV\_ATMUNIDCE\_CONN\_TYPE\_DEFAULT=NET\_ENDSYS** – This value is set to Net\_Endsys if this port connects to a router or host. It is set to Net\_Net if this port connects to another ATM switch. See the *NavisCore Frame Relay Configuration Guide* for more information about connection types.

**CV\_POLL\_SERVER\_PORT=10888** – This variable represents the port NavisCore polls when using the Poll Server function. The default value is 10888. The value must match the POLL\_SRV\_SRV\_PORT. See [Appendix B, “Configuring Poll Server”](#) for more information.

**CV\_POLL\_SERVER\_ADDRESS=localhost** – This variable is required and provides the IP address (in dot notation) of the node used to run the Poll Server. If the Poll Server runs on the same node as NavisCore, this variable is set to a value of "localhost." Setting this variable and the CV\_POLL\_SERVER\_PORT variable enables Poll Server. See [Appendix B, "Configuring Poll Server"](#) for more information.

**CV\_ENABLE\_MOVE\_ALL\_CIRCUIT=TRUE** – If this variable is set to True, the Move Circuit function is enabled for this network; if set to False, it is disabled. See your switch configuration guide for information about the Move Circuit function.

**CV\_MV\_CKT\_CARD\_TYPE\_CHECKING=TRUE** – The Move Circuit function fails if the number of circuits moved exceeds the maximum allowed for the IOM. If this variable is set to True, the NMS notifies you that this problem exists before you move the circuit. If you set this variable to False, notification is not sent.

**CV\_CUR\_VPN\_CUST** – Indicates the current view (binding) for this map, either VPN or Customer.

**CV\_CUR\_VPN\_NAME** – If CV\_CUR\_VPN\_CUST indicates a VPN binding, this variable displays the VPN name the map is using.

**CV\_CUR\_CUST\_NAME** – If CV\_CUR\_VPN\_CUST indicates a customer binding, this variable displays the customer name the map is using.

**CV\_LOGON\_TYPE** – This variable displays the logon privilege you enabled for this map, either Operator or Provisioning.

**CV\_CKT\_PRIORITY\_LEVELS=FOUR** – This variable represents the time interval (in seconds) to refresh QoS metrics. Valid values are FOUR and SIXTEEN.

**CV OSPF\_LSA\_REFRESH\_INTERVAL=0** – This variable represents the time interval to refresh QoS metrics. The time periods are in seconds. Valid value range from 300 to 1799.

**CV\_SNMP\_TRACE\_FILE=** – This variable represents the path and filename used to log SNMP results.

**CV\_CELLCKT\_TYPE=INTERWORKING** – When set to interworking, cell circuits will be interworking circuits, otherwise, cell circuits will be normal. Valid values are INTERWORKING and NORMAL.

**CV\_PRAM\_UPLOAD\_ABORT\_ENABLED=1** – This variable adds the Pram Upload Abort button to the PRAM dialog box. To disable this feature, set the value to 0.

**CV\_310\_BULK\_LPORT=FALSE** – This variable adds the Bulk LPort Create button to the Set All Logical Ports dialog box. This feature is disabled by default.

**CV\_NET\_DIST\_EVAL\_INTERVAL=2** – This variable represents the number of seconds to pause between evaluations when determining the network distribution of a distributed Lucent object. It is used when defining an evaluation threshold for a Lucent distributed object. Valid values range from 1 to 60.

**CV\_SVC\_CUG\_NODE\_EVAL\_THRESH=0** – This variable represents the number of nodes (out of all the nodes in the network to be evaluated) on which to match configured SVC addresses before pausing for the number of seconds identified by the variable CV\_NET\_DIST\_EVAL\_INTERVAL. A value of zero (0) results in all nodes in the network being evaluated at once with no pause.

**CV\_SVC\_CUG\_LOGFILE** – This variable represents the path and filename used to log the results of matching configured SVC addresses when determining if a node belongs in a member rule's network distribution. A valid value enables logging. A null or invalid value disables logging. The NavisCore process ID will be appended to the filename.

**CV\_ENFORCE\_CBX500\_THREAD\_BW\_LIMIT=TRUE** – When set to True, this variable will restrict the sum of the logical port bandwidth on two IOMs sharing a common switching fabric thread to the thread's maximum supported bandwidth. A False setting will permit logical ports to oversubscribe the thread.

**CV\_PROFILE** – These variables specify the location of the default buffer threshold and rate profile files used for the ATM FCP card. The ATM FCP uses these tables to determine the available bandwidth, the rate increase factor (RIF), and the rate decrease factor (RDF) for each VC on a port. See the *NavisCore ATM Configuration Guide* for more information.

**CV\_PROFILE\_DISCARD\_FILE**=/opt/CascadeView/etc/cvDiscard.dat – Sets the location of the default discard file for NavisCore.

**CV\_PROFILE\_CONGESTION\_FILE**=/opt/CascadeView/etc/cvCongestion.dat – Sets the location of the default congestion file for NavisCore.

**CV\_PROFILE\_RIF\_FILE**=/opt/CascadeView/etc/cvRif.dat – Sets the location of the default RIF file for NavisCore.

**CV\_PROFILE\_RDF\_FILE**=/opt/CascadeView/etc/cvRdf.dat – Sets the location of the default RDF file for NavisCore.

**CV\_CARD\_STATS** – This variable is used to disable the “Get Card Status” activity before an add, delete, or modify is performed on a circuit object. This feature is enabled by default.

**CV\_SAVE\_STATS\_DIR** – This variable identifies the directory used for storing various configuration statistics. The directory must have write privileges.

**CV\_DEFAULT\_TRUNK OSPF AREA** – This variable identifies the default trunk OSPF area.

**CV\_CACHE\_SET\_ALL\_LPORTS\_DIALOG** – This variable, when set to True, caches a dialog.

**XENVIRONMENT**=/opt/CascadeView/app-defaults/CVEnableDragDrop – This variable, when uncommented, enables drag and drop functionality. You may need to restart HP OpenView.

**CV\_IP\_SERVER\_PVC\_BOTH\_ENDS\_IP\_SERVER\_LPORTS=TRUE** – This variable, when set to True, allows IP Server PVCs with IP Server logical ports on both endpoints.

**CV\_JNI\_CLASSPATH**=/opt/CascadeView/jre/jre1.2/usr/java1.2/jre/lib/rt.jar:\${CV\_ROOT}/jav – This variable is necessary for JDBC to communicate with the dataserer. **Do not modify** this path and filename.

**CVDB\_JDBC\_TRACE\_FILE**= – Specifies the location of the trace file.

**CVDB\_PACKETSIZE=512** – Represents the packet size used by the application to communicate with the database server. This variable is set to 512 by default.

**OBJECT\_PRAMSTATUS\_OFF=0** – Use this variable to enable (1 - default) or disable (0) the Sync Tool utility. If you modify this variable, you must shut down and then restart NavisCore. For more information, see [“How the Sync Tool Utility Works” on page 8-73](#).

**DELETE\_MARK\_OUT\_OF\_SYNC=1** – Used to manage PVC, logical port, and PMP circuit deletes with the Sync Tool utility.

*If you set this variable to 1 (default), an SNMP SET Delete command functions as it did in previous releases of NavisCore. You can delete a circuit or logical port, with or without a switch being managed. If the switch is unmanaged, NavisCore deletes the record from the database and marks the card on which the circuit, logical port, PMP leaf, or PMP root resides as out-of-sync.*

*If you set this variable to 0, and a circuit or logical port delete fails, NavisCore does not remove the record from the database; instead, the database stores a failed status.*



**CV\_MAP\_MONITOR=ENABLE** — Used for optional map monitoring feature. If you set this value to **ENABLE**, there will be periodic polls for the switches/trunks on the open map. If you set the value to **DISABLE**, there will be no polls for the switches/trunks on the open map. If you modify this value, restart NavisCore.



The value of **CV\_OSPF\_MAX\_NUM\_SWITCH** is used to specify the maximum number of switches within the OSPF areas that the switch endpoint defined. The limit of 400 switches is necessary for reliable switch performance in most networks. **Warning:** Do not change this parameter unless instructed to do so by Lucent Customer Service.

**CV\_NUMBER\_OF\_CKT=100** — Used to restrict the wildcard search against the database by limiting the number of circuits returned by the database server.



## Configuring Poll Server

This release provides the optional Poll Server function, which does not run automatically until you configure and start it. By using Poll Server, you can reduce NavisCore's status-polling overhead when there are multiple NavisCore users monitoring the network simultaneously. If there are more than five NavisCore sessions running, using the Poll Server is the most efficient way to poll the switches without causing switch congestion.

The Poll Server acts like a daemon running in the background waiting for requests from an NMS session. When the Poll Server receives a request for status information, it polls the switch. Any additional NMS sessions requesting data receive status information from the Poll Server directly.



As a general guideline, with 40 consecutive users and 50 switches in the network, the Poll Server uses approximately 2 MB of RAM.

To use the Poll Server, you must set corresponding parameters in both NavisCore and the Poll Server's environment variables. NavisCore uses these environment variables to locate the Poll Server. If the environment variables are not set, NavisCore assumes that Poll Server is not present and therefore communicates directly with the switch(es).

## NavisCore Environment Variables

The environment variables that configure Poll Server for NavisCore are set in the `cascadeview.cfg` file (default directory `/opt/CascadeView/etc`). The `cascadeview.cfg` file sets these variables such that the Poll Server is disabled. If you make changes to these variables in `cascadeview.cfg`, you must start the Poll Server node and restart all NavisCore sessions for the changes to take effect. See [Appendix A, "NavisCore Configuration File"](#) for information about modifying the `cascadeview.cfg` file.

Table B-1 describes the main parameters used to configure NavisCore to use the Poll Server function.

**Table B-1. Poll Server Parameters (in `cascadeview.cfg`)**

Parameter	Description
CV_POLL_SERVER_PORT	The port NavisCore polls when using the Poll Server. The default is 10888. This parameter is required and must match the POLL_SRV_SRV_PORT parameter (described in Table B-2). <i>Note: As a minimum configuration, set this parameter to 10888, and set CV_POLL_SERVER_ADDRESS to the node where the Poll Server is running.</i>
CV_POLL_SERVER_ADDRESS	IP address (in dot notation) of the node used to run the Poll Server. If the Poll Server runs on the same node as NavisCore, you can specify "localhost." To use Poll Server, you must set this variable. <i>Note: As a minimum configuration, set this parameter to the node where the Poll Server is running, and set CV_POLL_SERVER_PORT to 10888.</i>
CV_STATUS_POLL_INTERVAL	(Optional) Status polling interval used by NavisCore. The default is 300 seconds. This setting should be greater than the POLL_TIME_INTERVAL setting.

## Poll Server Environment Variables

You configure the "pollsrv" environment variables in the `run-pollsrv.sh` file, which is located in the `/opt/CascadeView/bin` directory.

Table B-2 describes the main parameters used to configure the Poll Server function.

**Table B-2. Poll Server Parameters (in `run-pollsrv.sh`)**

Parameter	Description
POLL_SRV_SRV_PORT	(Optional) The port used to receive polls from NavisCore. This setting must match the CV_POLL_SERVER_PORT setting (described in Table B-1). The default is 10888.
POLL_SRV_COMMUNITY	(Optional) The default value for the community name used to poll switches. The default is "public."
POLL_TIME_INTERVAL	(Optional) The polling interval used to poll switches. This setting should be less than the CV_STATUS_POLL_INTERVAL setting. The default is 20 seconds.

**Table B-2. Poll Server Parameters (in run-pollsrv.sh) (Continued)**

Parameter	Description
POLL_SRV_DEV_PORT	<i>(Optional)</i> The port used when polling switches. This value is normally not changed. The default is 161.
POLL_SRV_DEV_TIMEOUT	<i>(Optional)</i> The timeout value used when polling switches. The default is 1500 milliseconds.
POLL_SRV_DEV_RETRIES	<i>(Optional)</i> The number of retry attempts for polling. This value is normally not changed. The default is 4.

## Minimum Configuration

The minimal configuration that enables NavisCore to use the Poll Server is to set `CV_POLL_SERVER_PORT` to 10888 and `CV_POLL_SERVER_ADDRESS` to the node where the Poll Server is running. If the Poll Server runs on the same node, a value of “localhost” can be used. If these environment variables are not set, NavisCore will poll the switches directly.

The Poll Server expects that the community string to be sent to the switch will be embedded in the string that is sent from the client. If this is not found, it will use the environment variable `POLL_SRV_COMMUNITY` as the community name for the switches. The same value is used for all switches.

The Poll Server periodically refreshes its cached values. The expiration time for a value is given by `POLL_TIME_INTERVAL`. This value should be lower than the `CV_STATUS_POLL_INTERVAL`, because values collected more frequently than the `POLL_TIME_INTERVAL` will not reflect changes.

## Starting and Stopping Poll Server

This section describes how to start and stop the Poll Server function. The following steps assume the default NavisCore directory is `/opt/CascadeView`. If your default directory is in a different location, substitute accordingly.



When starting and stopping Poll Server (pollsrv), be sure to exit and restart all NavisCore sessions to take advantage of the configured polling service.

### Starting Poll Server

To start the Poll Server:

1. As the root user, enter the following command to start the Poll Server (pollsrv):

```
/opt/CascadeView/bin/start-pollsrv.sh
```

This command adds the “run-pollsrv.sh” entry in the `/etc/inittab` file and starts the pollsrv process.

2. Edit `/opt/CascadeView/etc/cascadeview.cfg` as follows:

Locate and uncomment the following `CV_POLL_SERVER` environment variables:

```
CV_POLL_SERVER_PORT
```

```
CV_POLL_SERVER_ADDRESS
```

```
export CV_POLL_SERVER_PORT CV_POLL_SERVER_ADDRESS
```

Verify there is no `#` sign before the three environment variables.

3. (Optional) You may customize the Poll Server-related variables at this point.
4. Press the Escape key.
5. Enter `:wq!`

Any NavisCore sessions started after you complete these steps will use the Poll Server.

## Stopping Poll Server

To stop the Poll Server:

1. As the root user, enter the following command:

```
/opt/CascadeView/bin/stop-pollsrv.sh
```

This command removes the “run-pollsrv.sh” entry in the `/etc/inittab` file and stops the pollsrv process.

2. Edit `/opt/CascadeView/etc/cascadeview.cfg` as follows:

Locate and comment out the following `CV_POLL_SERVER` environment variables:

```
CV_POLL_SERVER_PORT
```

```
CV_POLL_SERVER_ADDRESS
```

Any NavisCore sessions started after you complete these steps no longer use the Poll Server.

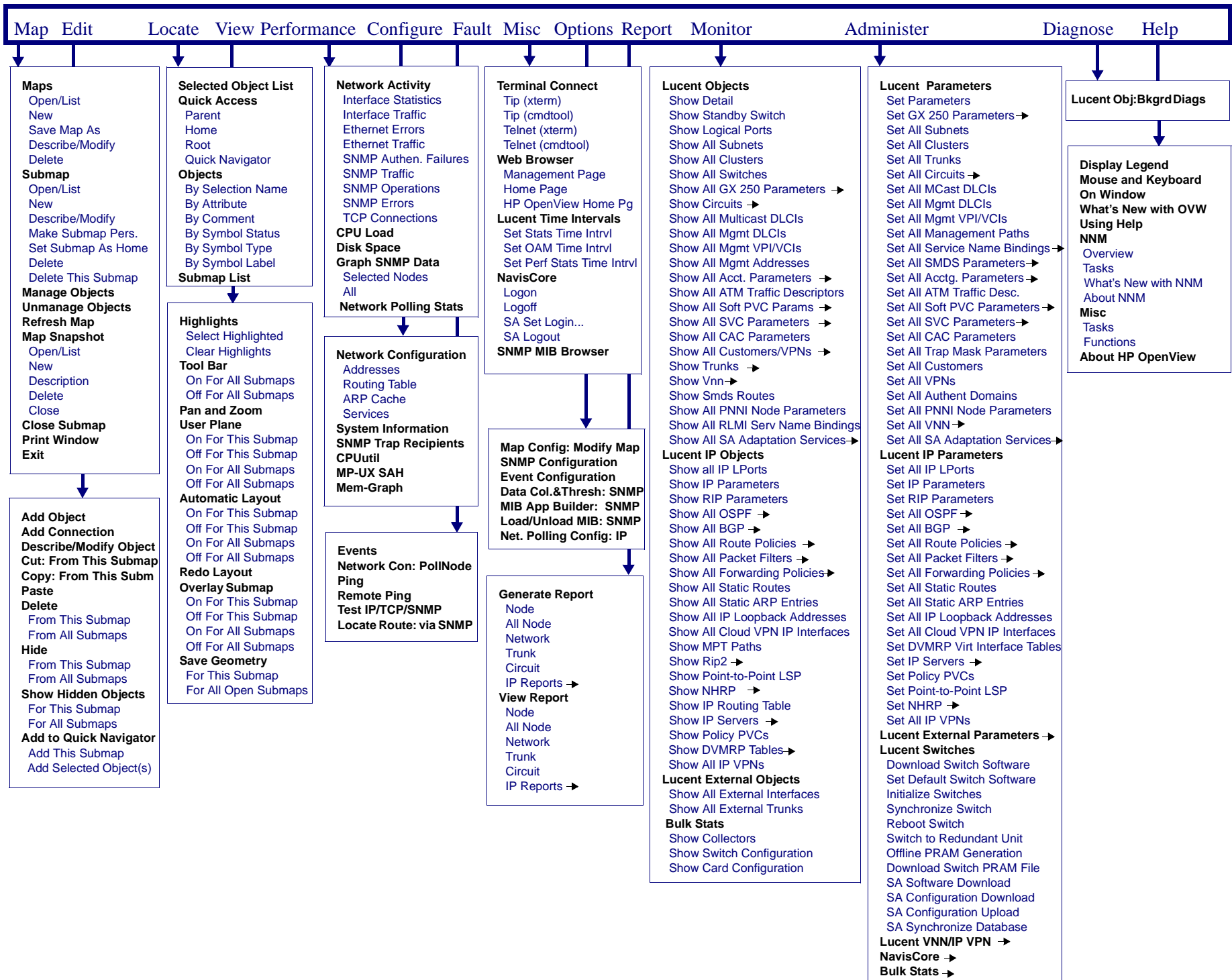




# NavisCore Menu System

This appendix contains a diagram of the NavisCore menu system.

# NavisCore Menu System



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