Force10 Node Manager Guide

Version 1.5.0

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FORCE10™

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New Features

This preface describes major changes in Node Manager version 1.5 and in this edition of the ***Force10 Node Manager Guide***.

Note that the changes in Node Manager 1.5 appear also in FTMS 1.5, because FTMS includes Node Manager.

New Features

- Username tracking and syslog viewable from FTMS GUI – change control/auditing
- Port-based permission assignment: access control; restrict Telnet and SSH access
- Support added for the following Force10 switches:

  C300 and its line cards

  S2410CP

  S2410P

  S50N (and S50N-DC — Node Manager does not distinguish between them.)

  For details, see Supported Devices on page 113.

Major Changes to this Document

This edition contains the following major revisions:

- An added **C-Series** chapter (Managing the C-Series on page 35)
- **Appendix A** updated with information on supported E-Series and S-Series devices (see Appendix A, Supported Devices).

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Chapter 1 Introduction

Overview

Node Manager is a GUI-based interface that enables network administrators to manage an individual Force10 device. The Node Manager features include:

- An intuitive Java interface
- Fast access to the device via Simple Network Management Protocol (SNMP) and Telnet
- Performance monitoring functions
- Support for all Force10 switches (with the possible exception of newly released models), including C-Series, E-Series, and S-Series
- Line card support

Node Manager is available both as a standalone application and as a standard component of Force10 Management System (FTMS). When used as a standalone application, you use the Node Manager launch screen to point to the management IP address of a particular Force10 switch. While you can only point Node Manager at one switch per session, you can point Node Manager at a different switch each session.

When used as a component of FTMS, the role of Node Manager is transparent. FTMS relies on SNMP discovery, so you do not need to identify a particular management IP address for Node Manager to function within FTMS.

Note that you can run FTMS and a standalone Node Manager from the same computer. So, for example, if your current need is only to manage a particular switch and does not include having a global network view, you could simply use Node Manager.

Objectives

This document provides step-by-step instructions and examples for:

- Installing the Force10 Node Manager software
- Navigating the Node Manager interface
- Using Node Manager to manage Force10 switch/routers

Audience

This guide assumes that you:

- Are responsible for configuring or maintaining Force10 equipment
- Have a basic understanding of Ethernet networks and network administration
- Have administrative rights or the permissions necessary to install and use software on a Microsoft Windows NT/2000/XP, for the Windows version, or the root privileges for installation and usage on a UNIX platform for the UNIX version

Conventions

Table 1 describes the formatting conventions Force10 uses in this document:

Table 1 Documentation Conventions

Convention	Description
Interface Object	Screen names, menu titles, menu selections, system messages, and button names.
Menu → Screen Button	Path of menus and screens you must use to accomplish a task
CLI Command	CLI text you must enter exactly as it appears in the documentation
CLI Parameter	Optional CLI parameter text
Document Name	Titles of related Force10 publications

Related Publications

Node Manager and FTMS documentation:

- *FTMS and Node Manager Installation Guide*
- *FTMS and Node Manager Release Notes*
- *FTMS and Node Manager online help*
- *FTMS Administrator and User Guide*

For more information about the devices managed by Node Manager, refer to these documents (All of this documentation is available on the iSupport website.):

- *FTOS™ Configuration Guide* and *FTOS Command Line Interface Reference*
- Installiation guides for the C-Series, E-Series, and S-Series
- Release Notes for FTOS (E-Series and C-Series)
- Release Notes for SFTOS (S-Series)
- *SFTOS™ Command Reference* and *SFTOS Configuration Guide* (plus separate set for S2410)
- Quick References for S-Series

Chapter 2 Installation

This Chapter covers these topics:

- Minimum System Requirements on page 17
- Node Manager Installation on page 18
- C-Series and E-Series Setup on page 25
- S-Series Setup on page 26

Minimum System Requirements

Force10 Node Manager requires this hardware and software to install correctly:

Microsoft Windows

- Microsoft Windows NT 4.0/2000/XP or later
- Intel Pentium III 733 MHz
- 512 MB RAM
- 55 MB disk space
- 1024 x 768 pixels screen resolution (1280 x 1024 is best)

Solaris

- SunOS 5.8 or later
- Solaris SPARC Architecture
- 512 MB RAM
- 85 MB disk space
- 1024 x 768 pixels screen resolution (1280 x 1024 is best)

Linux

- RedHat Linux version 7.3 or later
- Intel x86 Architecture
- 512 MB RAM
- 82 MB disk space
- 1024 x 768 pixels screen resolution (1280 x 1024 is best)

Note: Node Manager does not currently support integration with HP OpenView under Linux.

Node Manager Installation

Ideally, you would install another copy of Node Manager on a separate PC for each chassis that you want to manage through Node Manager. However, you can use one installation of Node Manager to manage multiple switches as long as you close and relaunch Node Manager each time you want to manage a different switch.

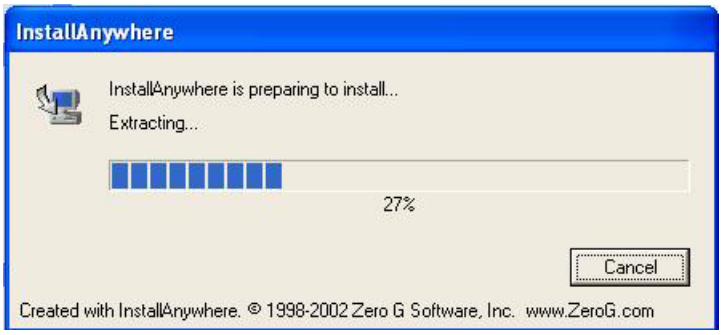
You identify the managed chassis to Node Manager through the management IP address assigned to that chassis (see C-Series and E-Series Setup on page 25 and S-Series Setup on page 26).

Some screenshots below are for earlier Node Manager versions, but they pertain to the current version.

Note: You only need to install Node Manager separately if you did not previously install Force10 Management System (FTMS). The FTMS installation installs Node Manager automatically.

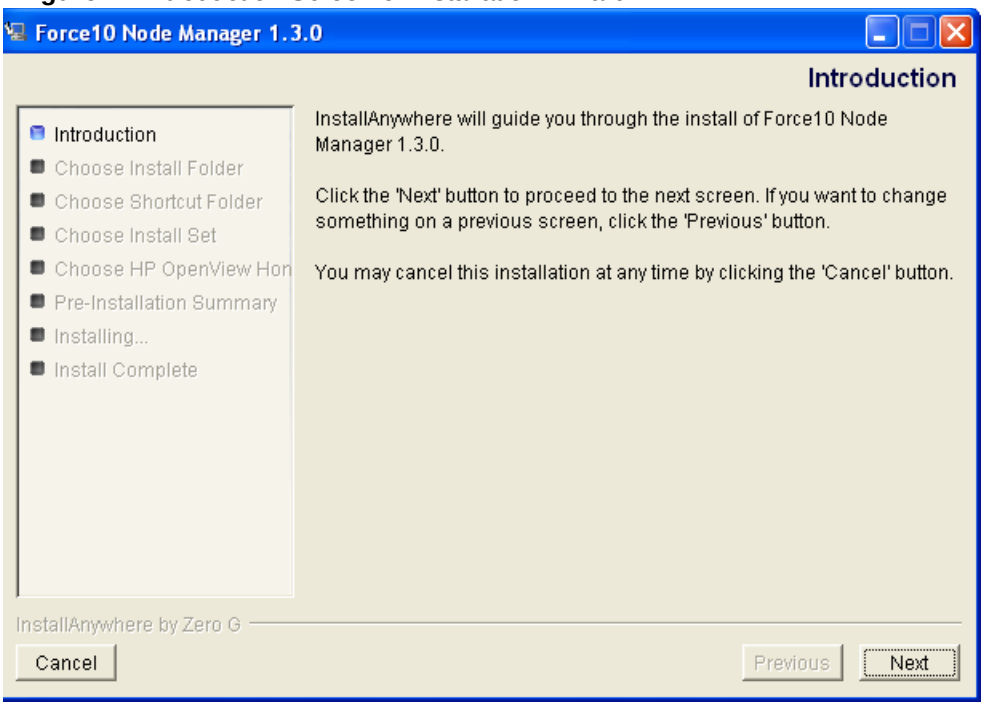
Step	Task
1	Log in as Administrator in Windows and as root in Solaris and Linux. You must have administrative rights to install Node Manager.

2	Navigate to the drive and directory where you keep the Node Manager software.
	For Windows:
	In the directory where you keep your copy of the Node Manager software, double-click **Install.exe**.
	For UNIX:
	Open a terminal to go to the directory containing the Node Manager installer (install.bin). Assuming install.bin is in /usr/local, execute the following commands:
	`$ cd /usr/local`
	`$ chmod 755 install.bin`
	`$ ./install.bin`

3	The installation wizard loads the installation application. To exit the procedure, click **Cancel**. 

Step	Task
4	After the installation application finishes loading, it displays the Introduction dialog: (**Note**: The screenshots have headers displaying an older version, but the installation screens are otherwise identical.)

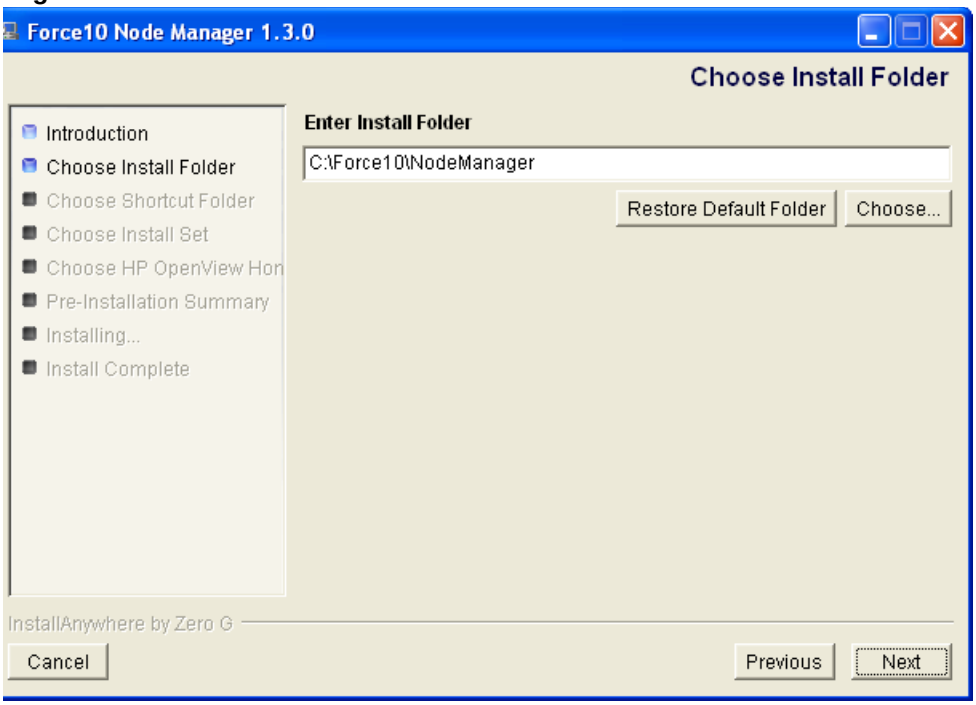
Figure 1 Introduction Screen of Installation Wizard



This dialog introduces the Node Manager installation and describes how to use the program. Click **Next** to continue.

Step	Task
5	The Node Manager installation application then displays this dialog:

Figure 2 Choose Install Folder Screen of Installation Wizard



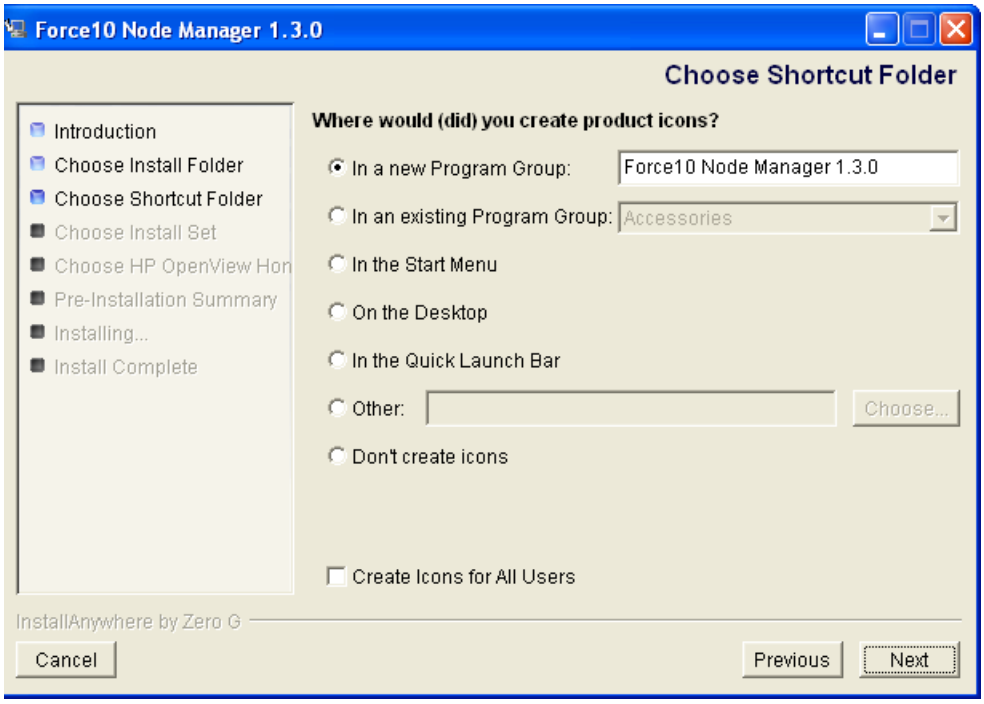
This dialog enables you to enter the location on your workstation where you want to install Node Manager. If you want to install it someplace else, either enter the path directly in the field (as shown above), or click **Choose** to open a dialog box that enables you to navigate to your preferrred location.

If you select a different location and then decide that you want to install the files in the default directory, click **Restore Default Folder.**

Click **Next** to continue.

Step	Task
6	Select the Windows locations where you want the Node Manager launch icons:

Figure 3 Choose Shortcut Folder Screen of Installation Wizard



If you do not like any of the default options, click **Other** and **Choose** to navigate to a folder where you would like to create your shortcuts.

To ***not*** create shortcut icons, click **Don't create icons**. To create icons for all users of the computer, select **Create Icons for All Users**.

When you have finished selecting where you want to create your shortcut icons, click **Next**.

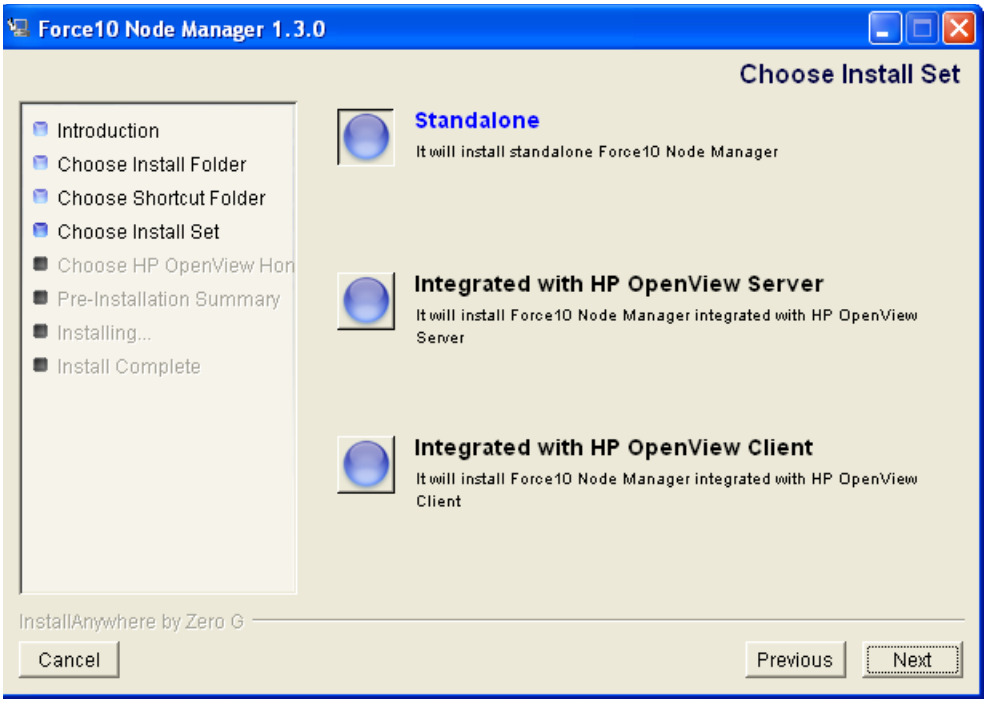
Step	Task
7	**For Windows:**

After choosing the shortcut locations, choose the installation type. The available installation types for Windows and UNIX platforms are different. You can either install a standalone version of Node Manager or integrate Node Manager with HP OpenView NNM.

In Windows, you have three installation options from which to choose (in addition to integration with FTMS):

- **Standalone version of Node Manager:** The Standalone version installs Node Manager as an independent software product with no requirements. Using this version of Node Manager, you can view a Force10 chassis and perform various monitoring and management operations.
- **Node Manager Integrated with HP OpenView Server:** In this version, Node Manager is integrated with HP OpenView Server. In addition to the functionalities provided by the Standalone version, this integration provides the following additional features to HP OpenView:
    - Force10 chassis in the network view of HP OpenView are marked with F10 logos as Force10 devices.
    - Node Manager can be invoked from the HP OpenView menu.
    - Alarms from Force10 devices are categorized under "Force10 Alarms" in the Alarms Window.
    - Force10 MIBs are loaded in the HP OpenView Server.
- **Node Manager Integrated with HP OpenView Client:** With this integration, Node Manager can be invoked from the HP OpenView menu.

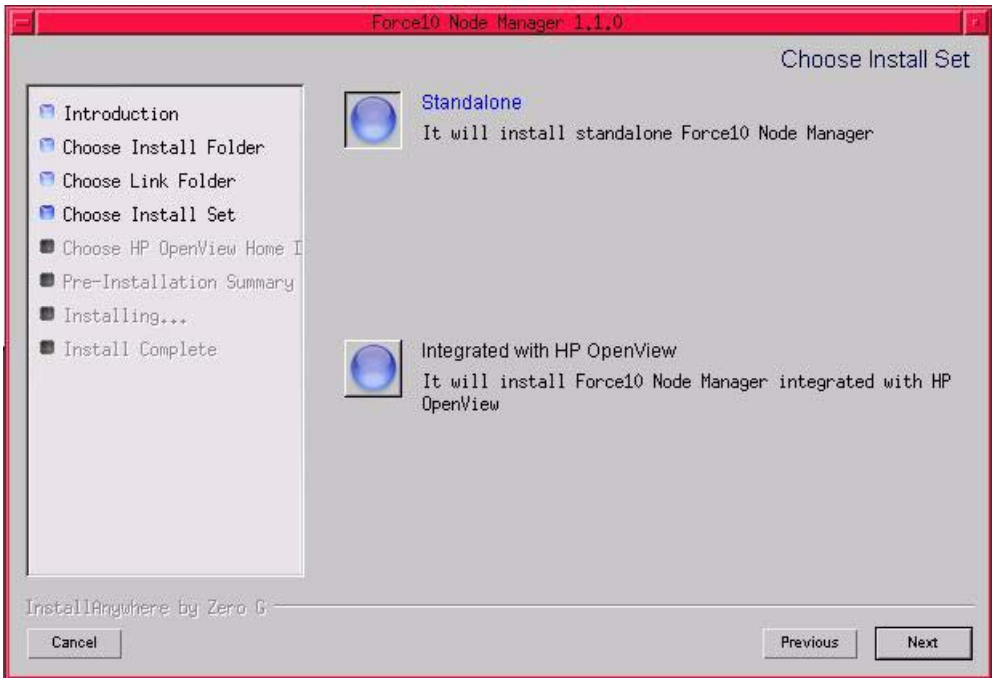
Note: If Node Manager is integrated with HP OpenView Client, HP OpenView Server should also be integrated with Node Manager to fully utilize the Node Manager functionalities.



Step	Task

8	**For Solaris:**
	After choosing the shortcut locations, choose the installation type:
	• **Standalone version of Node Manager:** The Standalone version installs Node Manager as an independent software product with no requirements. Using this version of Node Manager, you can view a Force10 chassis and perform various monitoring and management operations.
	• **Node Manager Integrated with HP OpenView:** In addition to the functionalities provided by the Standalone version, the integration provides the following features to HP OpenView:
	  • Force10 chassis in the network view of HP OpenView are marked with F10 logos as Force10 devices.
	  • Node Manager can be invoked from the HP OpenView menu.
	  • Alarms from Force10 devices are categorized under "Force10 Alarms" in the Alarms Window.
	  • Force10 MIBs are loaded in HP OpenView.

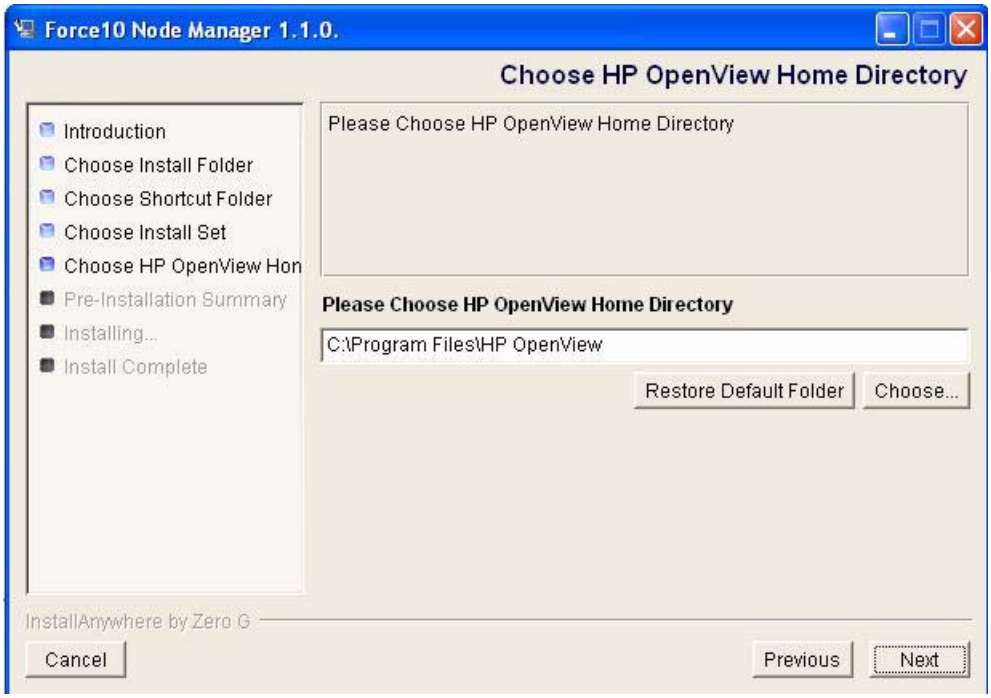
Figure 4 Choose Install Set (for Solaris) Screen of Installation Wizard



Note: The screenshot is for an older version, but it is unchanged in the current version.

Step	Task
9	If you choose to integrate Node Manager with HP OpenView, the installer asks for the HP OpenView Home Directory (the screenshot is of an older version, but it is unchanged in the current version). The directory should exist and should be a valid HP OpenView Home Directory. The installation will not proceed if an invalid or non-existing directory is chosen.

Figure 5 Choose HP OpenView Home Directory Screen of Installation Wizard



10	The installation program now displays the *Pre-Installation Summary* for you to verify your choices and that you have enough disk space. Click **Install** to write the files to your hard disk.
11	The installation application copies the Node Manager files to your hard disk. The application indicates its status and how close it is to finishing.
12	When the the Node Manager installation application finishes copying files to your hard disk, it displays the *Install Complete* dialog. Click **Done**.

C-Series and E-Series Setup

To complete the installation, Node Manager requires that you use the FTOS CLI from the C-Series or E-Series switch to perform two activities for each managed chassis.

Configuring SNMP

Node Manager communicates to each chassis by means of SNMP. This requires that you define an SNMP community string.

Command Syntax	Command Mode	Usage
snmp-server community *community-string* {ro}	CONFIGURATION	Enter the community string you wish to use for Node Manager with the addition of a read-only (ro) parameter. Force10 suggests that you use the same community string for all of your chassis. If you have previously entered a string for another SNMP manager and agent, use the existing string.

Defining a Virtual IP Address

To maintain the IP connection between Node Manager and a chassis in the event of an RPM failover, Force10 Networks suggests you create a virtual IP address instead of using the IP addresses of the management interfaces:

Command Syntax	Command Mode	Usage
virtual ip *ip-address*	CONFIGURATION	Establishes a virtual IP address for a chassis. Maintains all primary IP connectivity functions, including SNMP, in the event of a failover. For details, see the Management Interface section of the *FTOS Configuration Guide*.

For more on C-Series and E-Series management, see Managing the S-Series on page 85.

S-Series Setup

To complete the installation, use SFTOS to configure the management connection on each S-Series chassis that you want to manage from Node Manager.

Configuring SNMP

Node Manager communicates to each chassis by means of SNMP. This requires that you define an SNMP community string.

Command Syntax	Command Mode	Usage
snmp-server community *name*	Global Config	Enter the community string you wish to use for Node Manager. Force10 suggests that you use the same community string for all chassis. If you have previously entered a string for another SNMP manager and agent, use the existing string.

Defining the S-Series Management IP Address

Follow the instructions in the Management chapter of the *SFTOS Configuration Guide* on configuring the management IP address of an S-Series chassis for accessing it through an IP connection (such as through Telnet). Briefly:

Command Syntax	Command Mode	Usage
interface managementethernet	Global Config	Invoke the (Config-if-ma)# prompt.
ip address *ipaddr subnetmask*	(Config-if-ma)# prompt	Set the IP address and subnet mask of the management interface.
management route default *gateway*	Global Config	Set the IP gateway of the management interface.

Note: If you are managing an S50 running SFTOS 2.2 or earlier, use the **network parms** command (Global Config mode) to set the management IP address, subnet mask, and default gateway.

For more on S-Series management, see Managing the S-Series on page 85.

Chapter 3 Using Node Manager

This Chapter contains these topics:

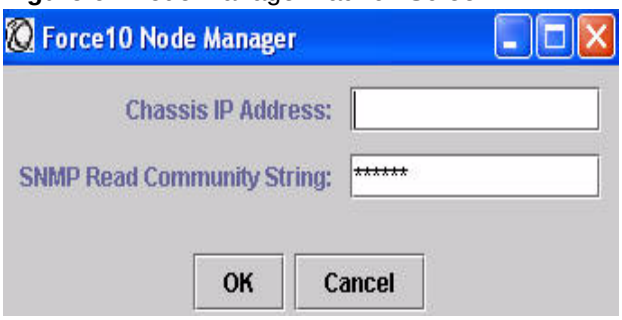
- Launching Node Manager
- Using the Menus on page 29
- Using Keyboard Commands on page 30
- Selecting Objects on page 30
- Labels, Status Colors, and Indicator LEDs on page 31
- The System Message Bar on page 32
- Copying and Pasting Text on page 32
- Finding Help on page 33
- Configuring Refresh Rate and SNMP Properties (Optional) on page 33

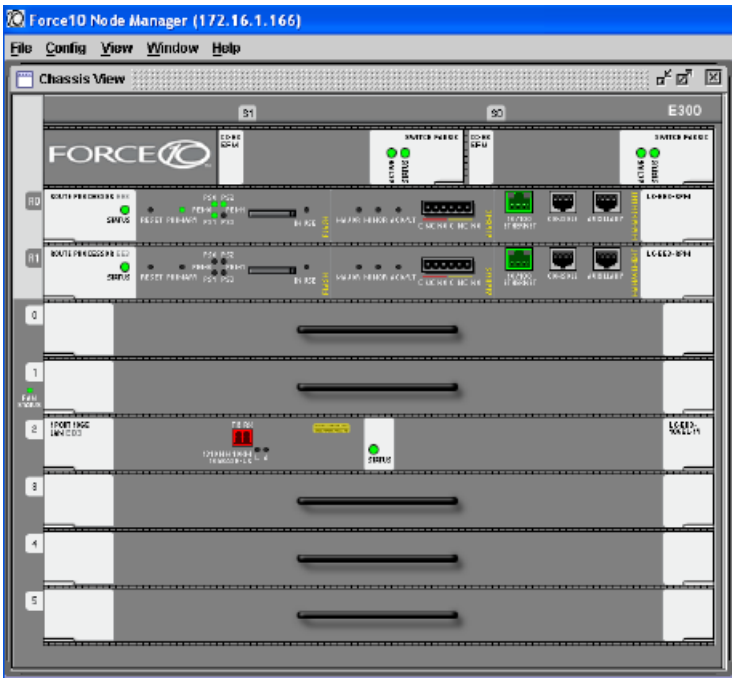
Launching Node Manager

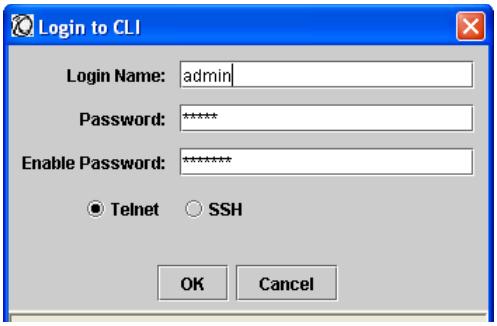
Node Manager launches automatically when you double-click on a map icon in FTMS. To launch Node Manager independently of FTMS, follow these steps:

Step	Icon	Task
1		Navigate to the location where you installed the Node Manager shortcut icon.
2		In Windows, launch and log in to Node Manager. In UNIX, execute **startchassisview.sh** under <NM_HOME>/bin folder. NM_HOME is the default Node Manager Home Directory.

Figure 6 Node Manager Launch Screen



Step	Icon	Task
3		Enter the IP address of the chassis you want to view. The *SNMP Read Community String* defaults to *public* and Port Number defaults to 161. Node Manager uses SNMP v1/v2 as the default version. If you want to configure v3 parameters, select the **v3** checkbox. Click **OK** to continue or **Cancel** to exit. See C-Series and E-Series Setup on page 25 (includes C-Series) and S-Series Setup on page 26.
4		When you click **OK**, Node Manager displays its main application window and a graphic representing the chassis as configured (this example shows a thumbnail view of an E300): **Figure 7** E300 Chassis View 

Step	Icon	Task
5		Click **File** → **Login**. Node Manager displays this dialog box: **Figure 8** Login to CLI Screen  Enter your CLI *Login Name*, *Password* and *Enable Password*. Click **OK** to complete the login process or **Cancel** to exit and return to the Main Application window. **Note:** If you wish to log in by SSH, determine whether SSH is enabled by using the command **show ip ssh**. To enable the SSH server, go to Configuration mode and issue the **ip ssh server enable** command. Close this dialog box and reopen and select **SSH**.

Using the Menus

The Node Manager menus allow you to perform a task without knowing the CLI. A picture of the main Node Manager menu, followed by a description of each menu item, appears below:

Figure 9 Node Manager Main Menu

Table 2 Node Manager Main Menu Selections

Menu Item	Description
Title Bar	Above the main menu, the title bar displays “Force10 Node Manager” and the IP address of the chassis you are viewing in parentheses, along with the standard Microsoft Windows buttons for minimizing, maximizing, and closing the window.
File Menu	Contains functions that affect either your current session: *Telnet to Device*, *Property Setting*, *Login*, and *Exit*.
Config Menu	Enables you to make mass configurations of interfaces (*Config Interfaces*) and port channels (*Port Channel*).
Performance Templates Menu	*View Templates* opens the *Performance Templates* window, where you can create, modify, and remove the templates that manage the display of charts in the Performance Current Data Viewer.
View Menu	Redisplays the view of the chassis (*Chassis*), if you have closed it, or refreshes your screen (*Refresh*).
Window Menu	Allows you to switch between windows if you have multiple ones open in the interface.
Help Menu	Provides online access to this document and the *Help* → *About* dialog box.

Using Keyboard Commands

You can also use these keyboard commands to navigate within Node Manager:

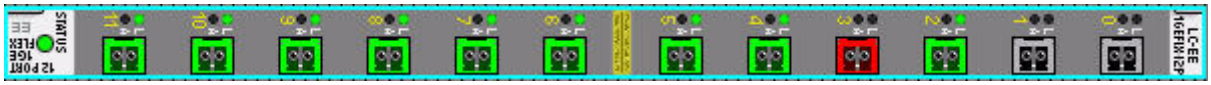
Table 3 Node Manager Keyboard Commands

Keyboard Entry	Usage
Page Up	Scrolls up one screen
Page Down	Scrolls down one screen
Tab	Moves to the next input field
Shift+Tab	Moves to the previous input field
Ctrl+C	Copies highlighted text to the clipboard

Selecting Objects

You select objects in Node Manager by moving your mouse over them and single-clicking. When you do so, Node Manager changes the edge of the component to a light turquoise color. An example of this appears in Figure 10 (the blue line surrounding the graphic indicates that the whole line card is selected):

Figure 10 Selection Example



Labels, Status Colors, and Indicator LEDs

Force10 uses labels, status colors, and simulations of light-emitting diodes (LEDs) in Node Manager to communicate information about a chassis and how it is functioning.

Labels

Node Manager uses labels extensively to identify interface components. These labels appear in the same location on the interface as they do on the actual component in the chassis. See Figure 11 for an example of the labels on a component:

Figure 11 Labeling Example

Status Colors and Indicator LEDs

The Node Manager uses the same status colors as used by the E-Series to communicate the operational status of each component. The general meaning of each status color appears in Table 4. For more information about these colors, please see Appendix B, Alarms, on page 117.

Table 4 Node Manager Colors and their Meaning

Color	Example	Meaning
Green		The device is operational and functioning.
Amber		The device is active but a serious condition or fault exists.
Red		The device is active but a hardware failure, temperature problem or other serious condition exists.
Unlit		This can be one of several issues. The device: • has been shut down administratively in Node Manager • is in standby mode • has no electrical power • has a critical temperature condition or other problem

The System Message Bar

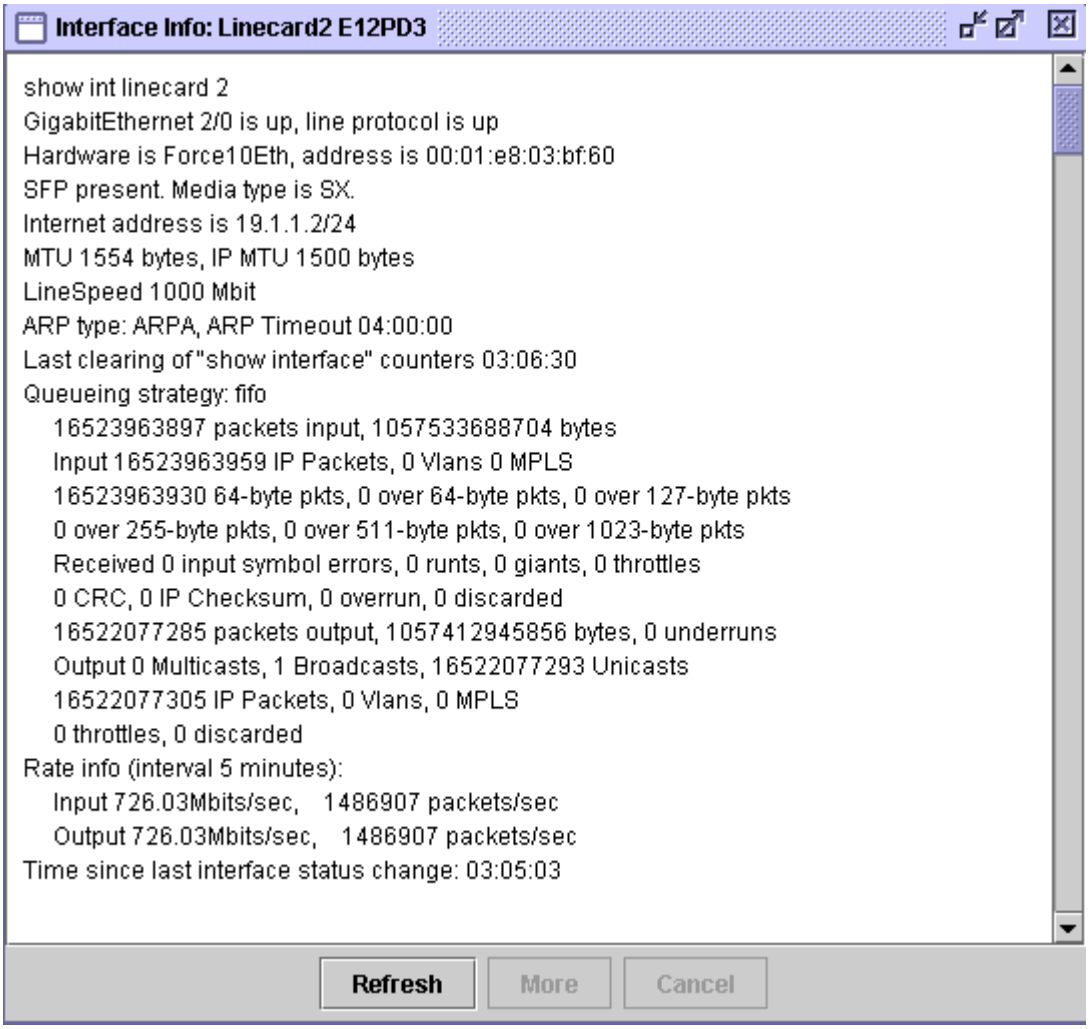
The System Message Bar displays error and other status messages. It appears at the bottom of the Main Application window. The purpose of this bar is to alert you to any change in connection status and to display the text of any error condition that might exist. See Figure 12 for an example of the System Message Bar. Critical messages appear in red.

Figure 12 Node Manager System Message Bar

Copying and Pasting Text

The Force10 Node Manager enables you to copy and paste interface text to Windows Notepad or similar programs. The feature works with both data fields and text boxes (Figure 13 has an example of a text box).

Figure 13 Node Manager Text Box



Note: In Figure 13, note the **More** button at the bottom of the window. That button is for use when "`--More-- or (q)uit`" appears at the bottom of the report. That instruction is for use from the CLI. To accomplish the same results in Node Manager, click the **More** or **Cancel** buttons.

Finding Help

There are three types of online help in Node Manager:

- Tool Tip help
- **Help → Contents** assistance
- **Help → About** dialog

Tool Tip help appears whenever you let your mouse pointer linger over an interface component. It displays in a small text box below your pointer. Its purpose is to identify the component. For example, if you let your mouse pointer hover over the picture of an SFM, the words *Switch Fabric Module* appear.

When you click **Help → Contents**, Node Manager displays this *Force10 Node Manager Guide, version 1.5.0* document online in the form of an Adobe Acrobat file.

If you want to contact Force10 Networks, click **Help → About** for a list of phone numbers, email and web addresses that may be helpful to you.

See also Related Publications on page 16.

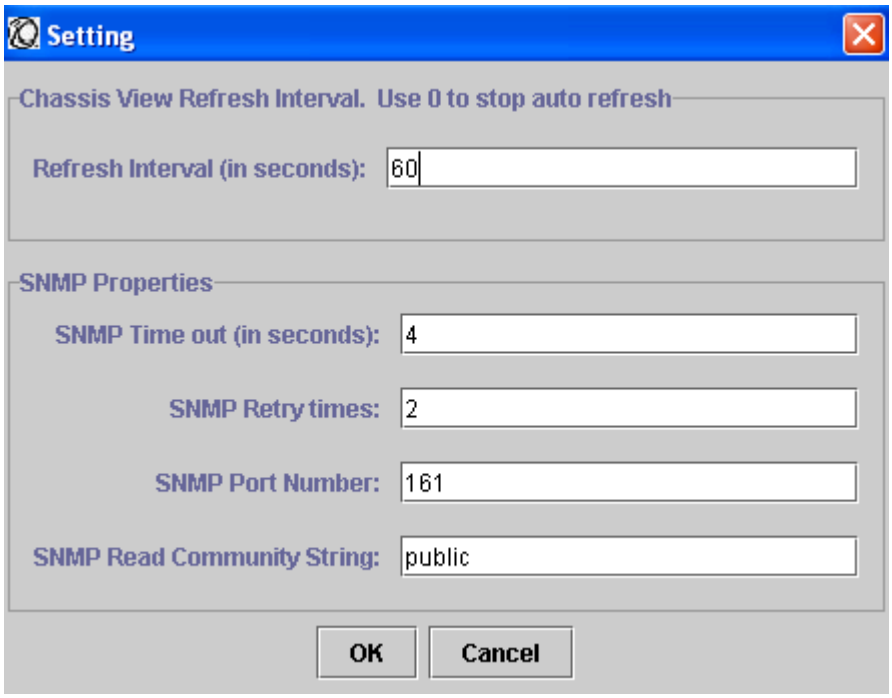
Configuring Refresh Rate and SNMP Properties (Optional)

By default, Node Manager refreshes its display of chassis information every 60 seconds. To make Node Manager refresh its screen more frequently, or to change your client's SNMP properties, follow these steps:

Step	Icon	Task
1		In Windows, launch and log in to Node Manager. In UNIX, execute **startchassisview.sh** command in the <NM_HOME>/bin folder. <NM_HOME> is the Node Manager home directory.

Step	Icon	Task
2		Click **File** → **Property Setting**. Node Manager displays this screen:

Figure 14 Property Setting Screen



3 Enter your selections. See the following table for a description of each field.

Field Name	Usage
Refresh Interval	Defines how often Node Manager polls the chassis to see if it is functioning. The default is 60 seconds. Enter **0** to disable this capability.
SNMP Time Out	Sets the number of seconds Node Manager waits for a connection to the chassis through SNMP before timing out.
SNMP Retry Times	Defines the number of times Node Manager attempts to connect to the chassis through SNMP before stopping.
SNMP Port Number	Sets the UDP port number Node Manager uses to communicate with the chassis.
SNMP Read Community String	Sets the SNMP password in FTMS that Node Manager uses to read chassis information. The password must match that set on the target switch.

4 Click **OK** to make the change or **Cancel** to return to main Node Manager window.

Chapter 4 Managing the C-Series

This chapter has one section — Navigating the C300 Chassis on page 36.

You can connect Node Manager to all types of Force10 Networks switches — C-Series, E-Series, and S-Series. Because the C-Series C300 switch uses a subset of the same FTOS command set used by the E-Series, this chapter simply presents the C300 icon that displays when you access a C300 through Node Manager. For details on monitoring and configuring the C300 switch, you can use the directions in the E-Series chapter; see Chapter 6, Managing the S-Series, on page 85.

For details on S-Series switch management, see Chapter 6, Managing the S-Series, on page 85.

Navigating the C300 Chassis

Figure 15 shows how the Force10 C300 chassis appears in Node Manager (see Figure 16 for a smaller, annotated image).

Figure 15 C300 Chassis

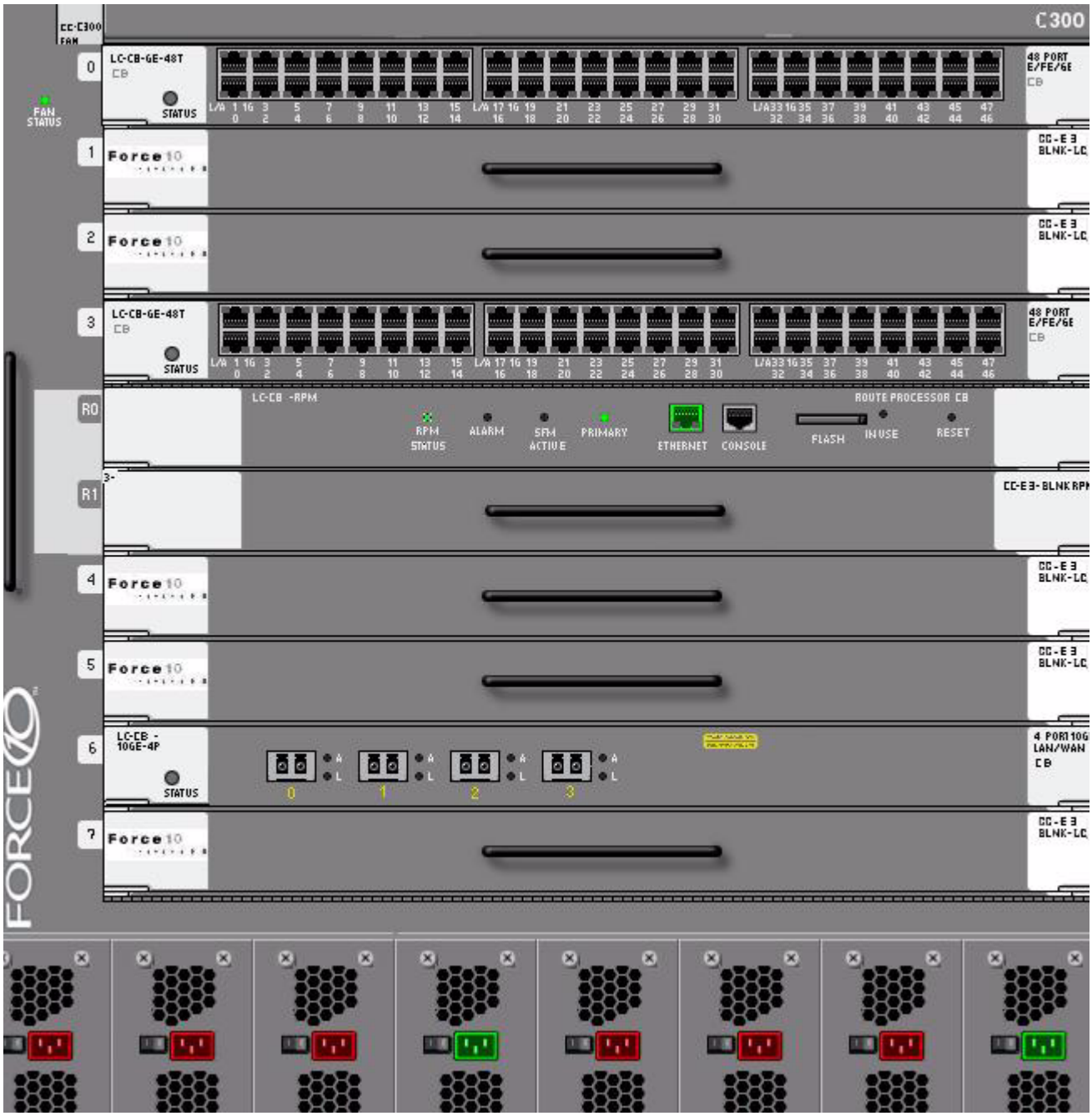
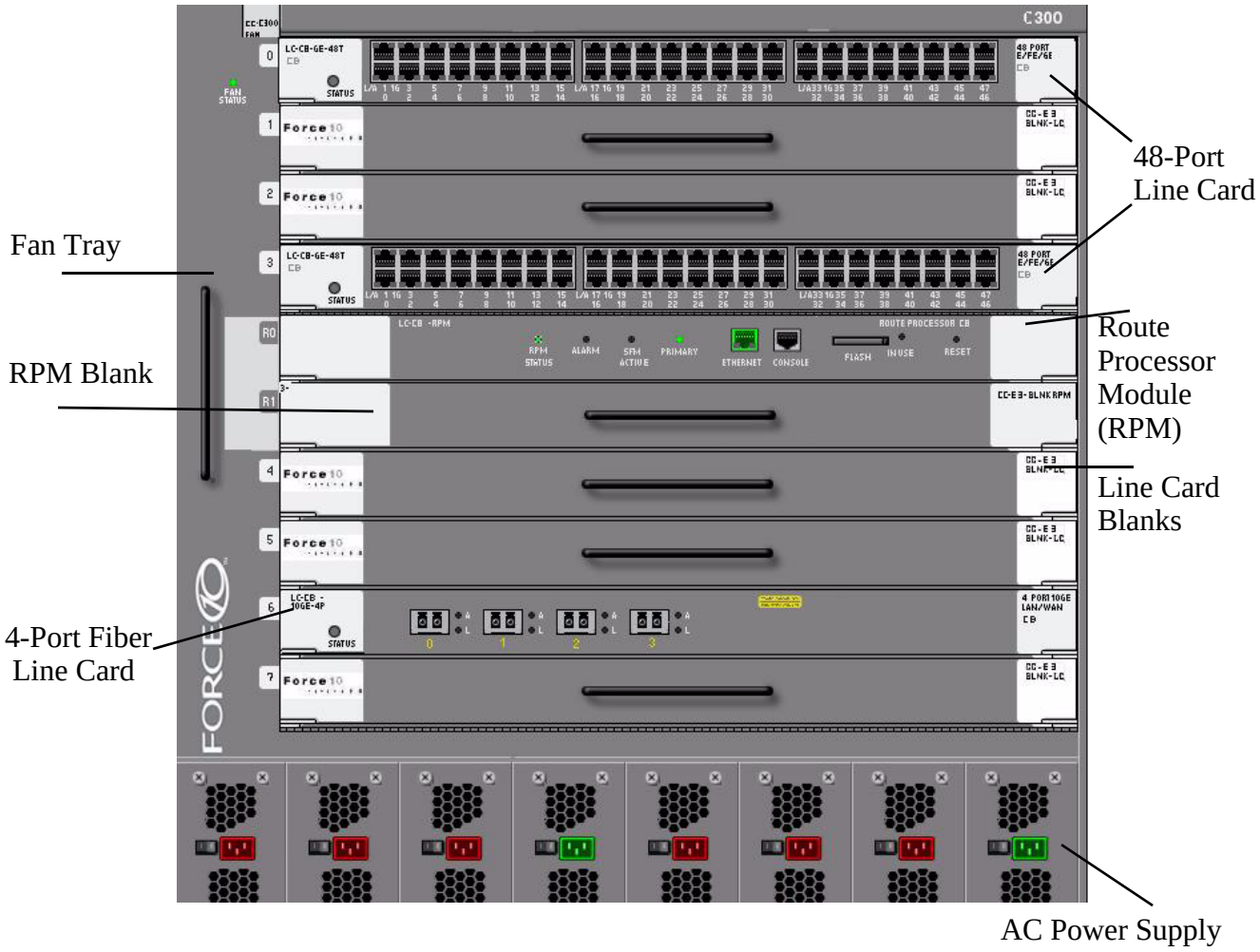


Figure 16 shows the same icon in a smaller image to allow component annotations.

Figure 16 C300 Chassis (annotated)



For interpretations of status colors, see Labels, Status Colors, and Indicator LEDs on page 31.

Chapter 5 Managing the E-Series

All E-Series switches, the management of which is described in this chapter, are supported by Node Manager, including E300, E600, E600i, and E1200. You can also use the instructions in this chapter for a C-Series switch. For more on the C-Series switch icon, see Chapter 4, Managing the C-Series, on page 35.

Note: FTMS includes more support for configuration information uploads and software image downloads; these features are not part of the Node Manager component.

This chapter covers these topics:

- Navigating the E-Series Chassis
- Displaying E-Series Chassis Information on page 42
- Managing E-Series RPMs on page 46
- Managing Line Cards on page 55
- Managing E-Series Interfaces on page 61
- Managing OSPF Areas on page 66
- Managing E-Series Port Channels on page 67
- Viewing SFM Information on page 77
- Viewing Power Supply Information on page 79
- Viewing Fan Tray Information on page 81
- Using Bulk Configuration on page 82

Navigating the E-Series Chassis

These images show how Force10 E-Series chassis appear in Node Manager:

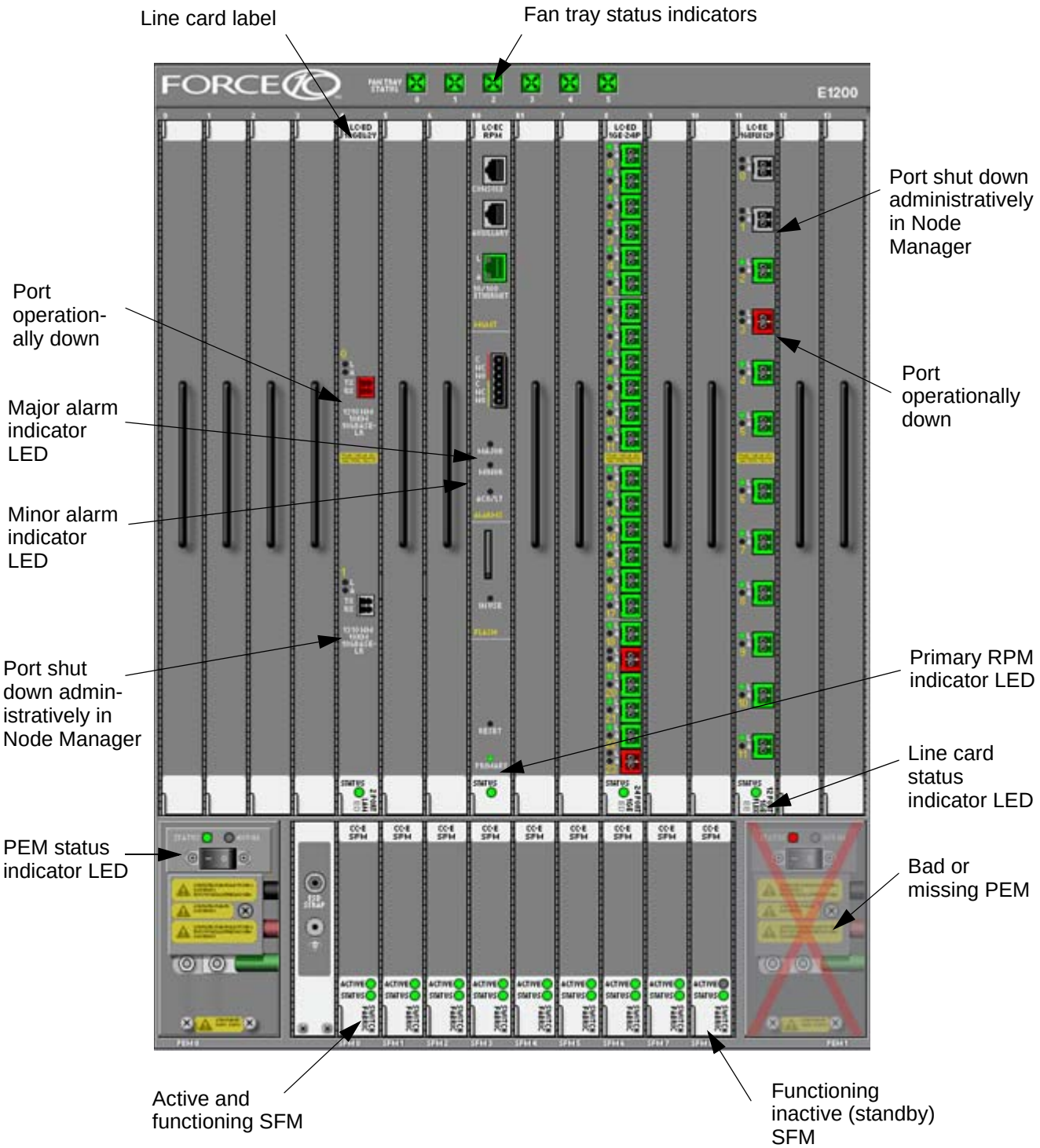
- The E1200 Chassis View on page 40
- The E600 Chassis View on page 41
- The E300 Chassis View on page 42

For interpretations of status colors, see Labels, Status Colors, and Indicator LEDs on page 31.

Note: The E600i chassis is not depicted in this book. Its depiction differs from the E600 graphic in that the SFM graphic has a gray area where the extra SFM modules are in the E600.

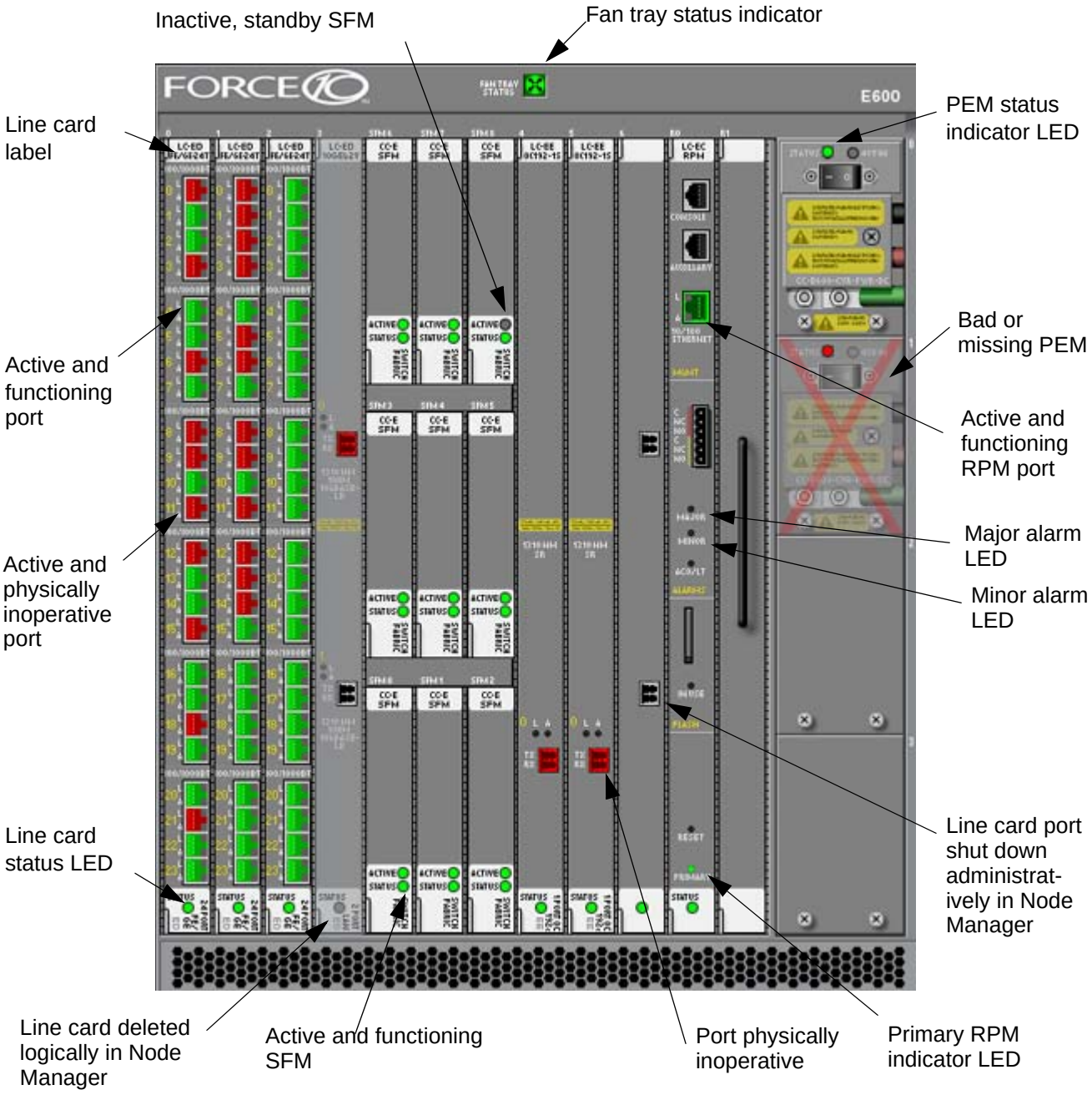
The E1200 Chassis View

Figure 17 E1200 Chassis View Example



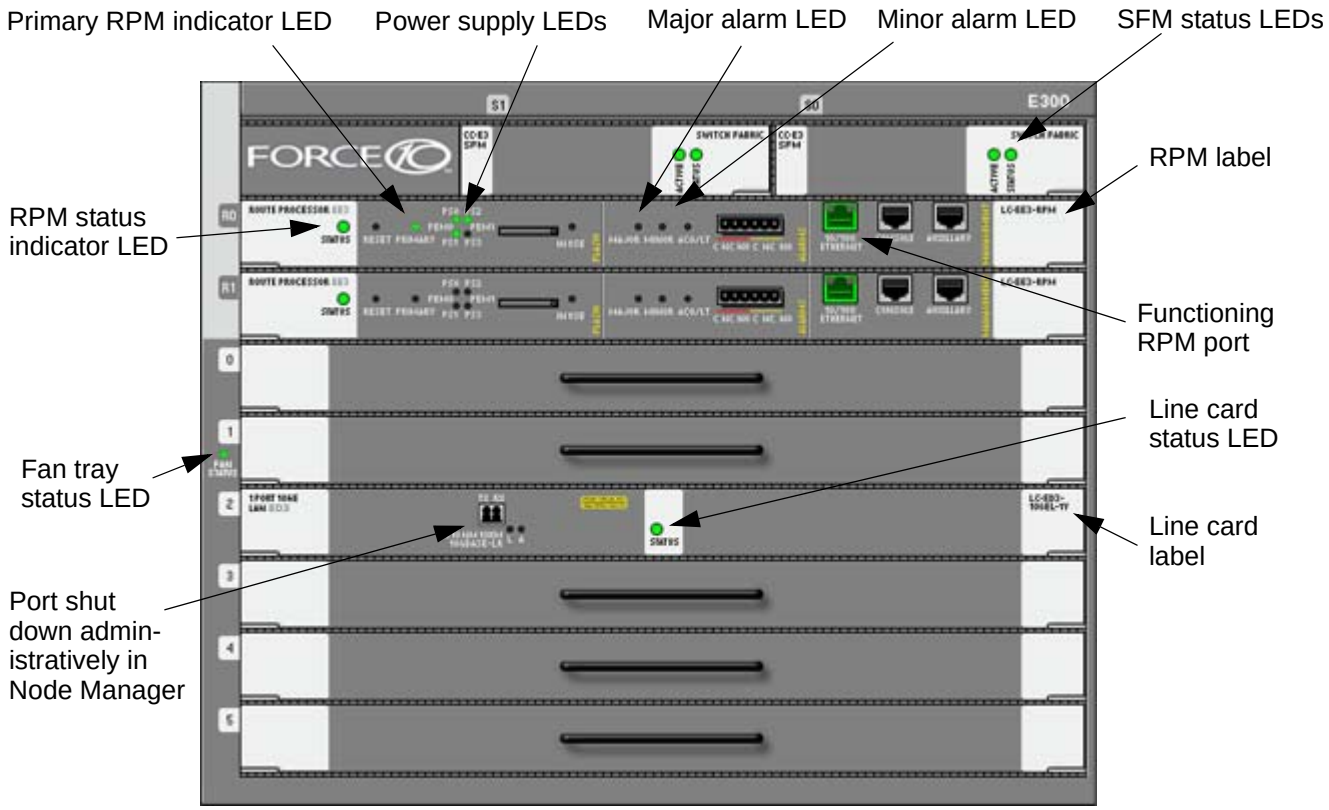
The E600 Chassis View

Figure 18 E600 Chassis View Example



The E300 Chassis View

Figure 19 E300 Chassis View Example

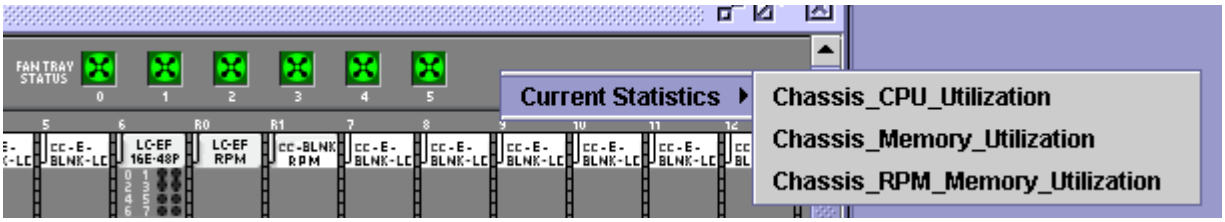


Displaying E-Series Chassis Information

Node Manager enables you to display chassis information in various ways. Right-click the area next to the fan tray status icons. From the popup menu, click **Current Statistics** to select from the following choices (as shown in Figure 20):

- **Chassis_CPU_Utilization**
- **Chassis_Memory_Utilization**
- **Chassis_RPM_Memory_Utilization**

Figure 20 Chassis Current Statistics



Whichever of the options you select, the Performance Current Data Viewer window opens (Figure 21 on page 44). The window displays an empty bar chart at first, but then begins to display data based upon the default settings for the selected report. You can select an alternate chart type from the Chart Options section at the bottom of the window. Besides **Bar Chart**, you can select **Line Chart** or **XY Line Chart**.

Note: The window is divided into three panes. To give more room to the graph, click the triangular down button located at the top left of one of the two lower panes. You can then expand the lower panes with the triangular up button.

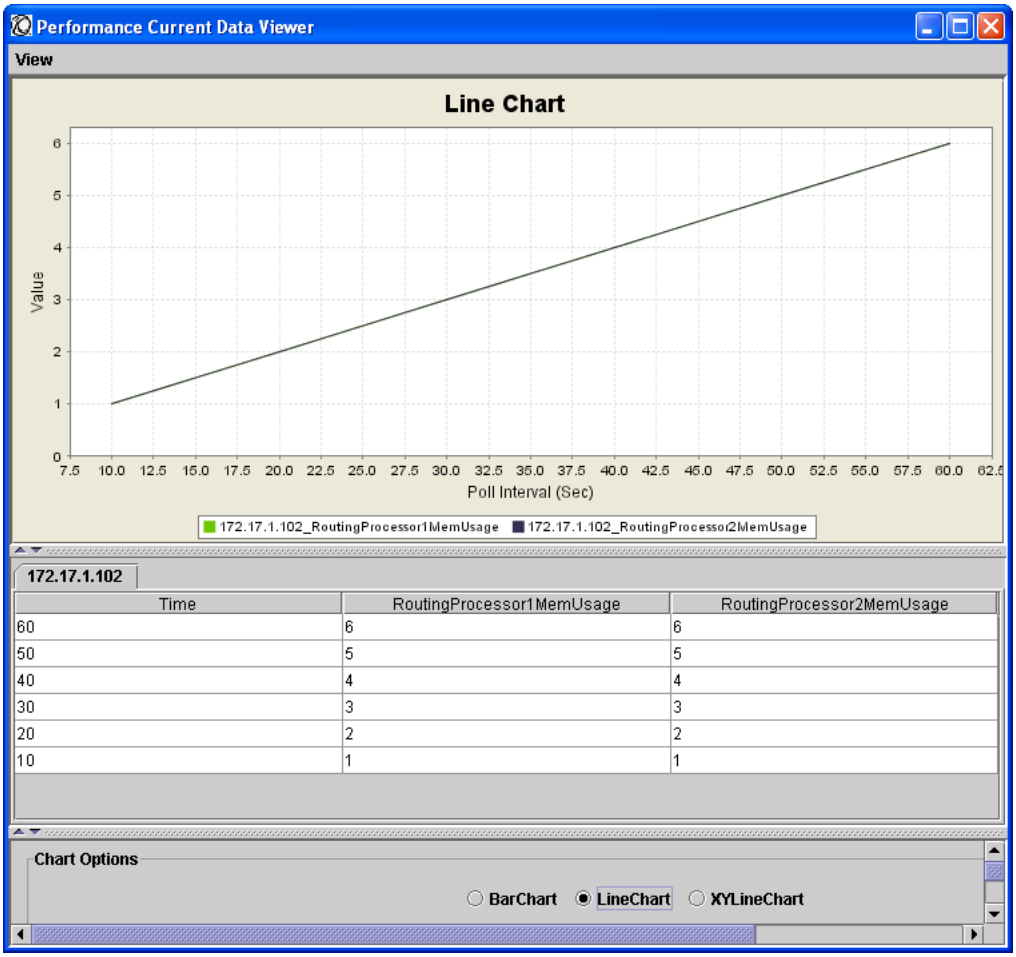
Below the chart is a table that reports the data collected at each data collection point in the collection interval. You can modify the collection interval in the **Poll Interval** field (specified in seconds), which is near the bottom of the window.

For chart input, you can select from the following parameters, which are in the bottom pane of the window:

- **Average**: The data collected over the specified time period is added together, and the number of sampling period values is divided by the added value. The sampling period value is used as the poll interval for current monitoring. 15 minutes is used for history monitoring.
- **Nth Percentile**: This function needs two parameters: time period (enter a value in seconds in the **Duration** field) and percentile value (enter in the **Percentile** field). When this function is applied, the data plotted is the percentile value of the number of samples collected over the specified time period.
- **Max Nth Percentile**: This function is similar to Nth Percentile, but the sample values collected over the specified time period are sorted in descending order, and the given Nth percentile value is calculated.
- **Min Nth Percentile**: This function is similar to Nth Percentile, but the sample values collected over the specified time period are sorted in ascending order, and the given nth percentile value is calculated.
- **Cumulative Data**: The data plotted in the graph is the data value at any nth interval, and is the sum of the data values collected in the previous n – 1 intervals.
- **Max Value in Set**: The maximum value of the data collected over the specified time period is plotted in the graph.
- **Min Value in Set**: The minimum value of the data collected over the specified time period is plotted in the graph.
- **None**: The raw data collected from the node is plotted as such.

To start collecting data with a new parameter, click **Apply**. You can start and stop polling with the **Start Polling/Stop Polling** button, which is near the bottom of the window (When polling starts, the Stop Polling button replaces the Start Polling button.)

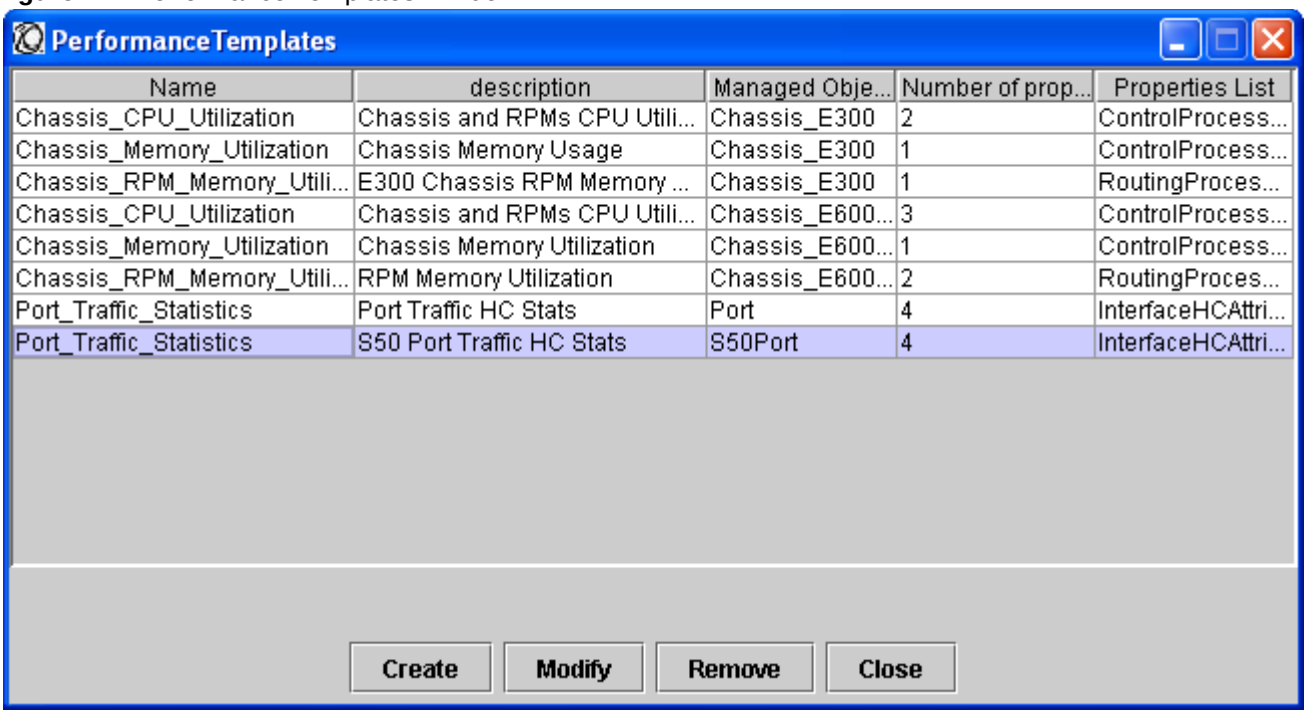
Figure 21 Performance Current Data Viewer



Managing Performance Templates

To delete or modify existing performance monitoring templates or create templates, click **Performance Template → Template Viewer**. The Performance Templates window opens, an example of which is shown in Figure 22.

Figure 22 Performance Templates Window

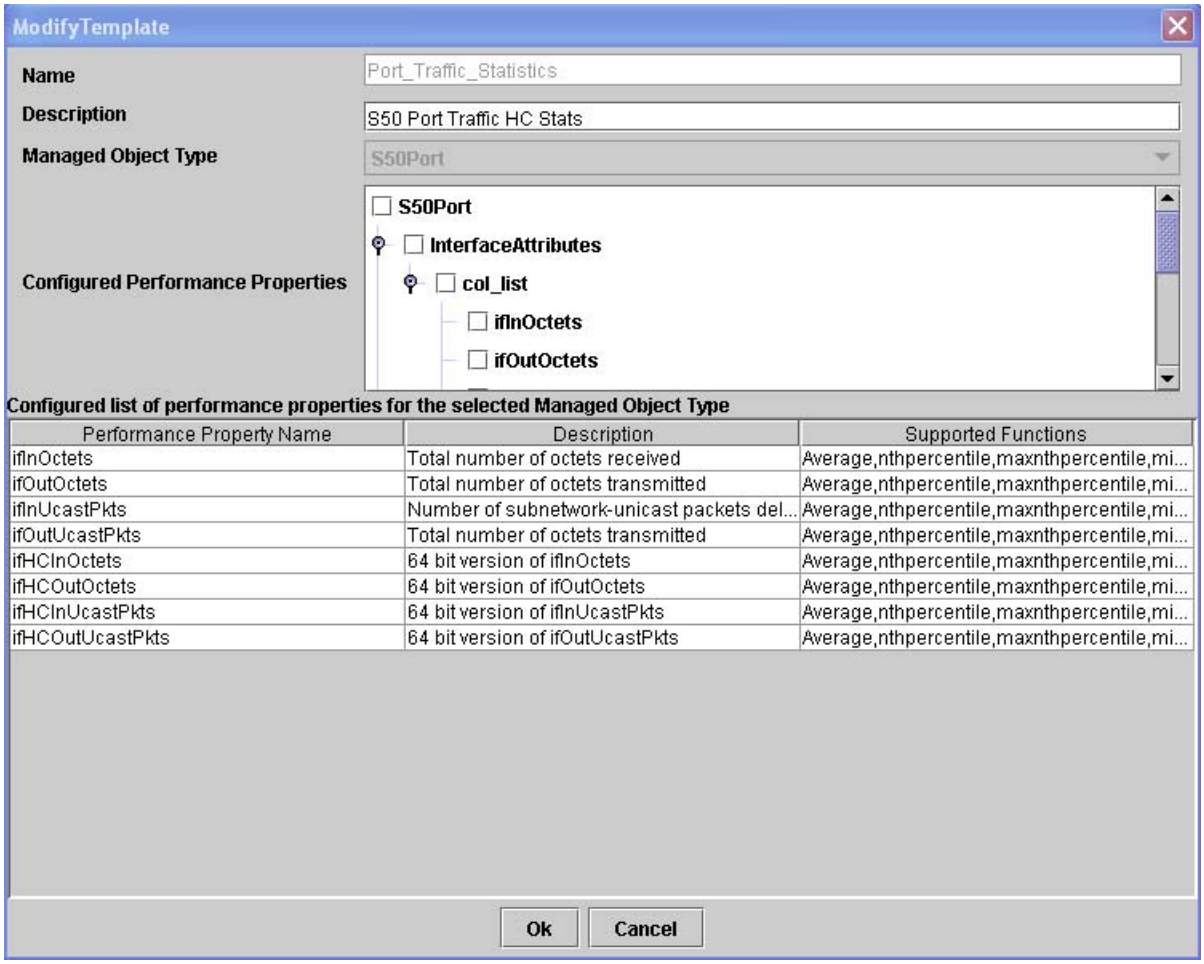


As indicated by the buttons at the bottom of the Performance Templates window, you can create, modify, and remove the templates that manage the display of charts in the Performance Current Data Viewer.

To modify a template, you can either select the template and then click **Modify**, or you can double-click the template. The Modify Templates dialog box opens, as shown in Figure 23 on page 46.

Similarly, to create a template, click **Create**. The Create Templates dialog box opens, which is basically like the Modify Templates dialog box, except without any default selections.

Figure 23 Modify Templates Dialog Box



Managing E-Series RPMs

Node Manager enables you to manage Route Processor Modules (RPMs). All E-Series chassis use RPMs to segregate core routing and control operations, such as SNMP, CLI, Layer 2, and Layer 3, for redundancy and speed.

You can perform these RPM management activities with Node Manager:

- Viewing RPM Information on page 46
- Configuring RPMs on page 52

Viewing RPM Information

In addition to the show commands introduced in Using RPM Show Commands on page 48, Node Manager allows you to research RPM configuration data several different ways:

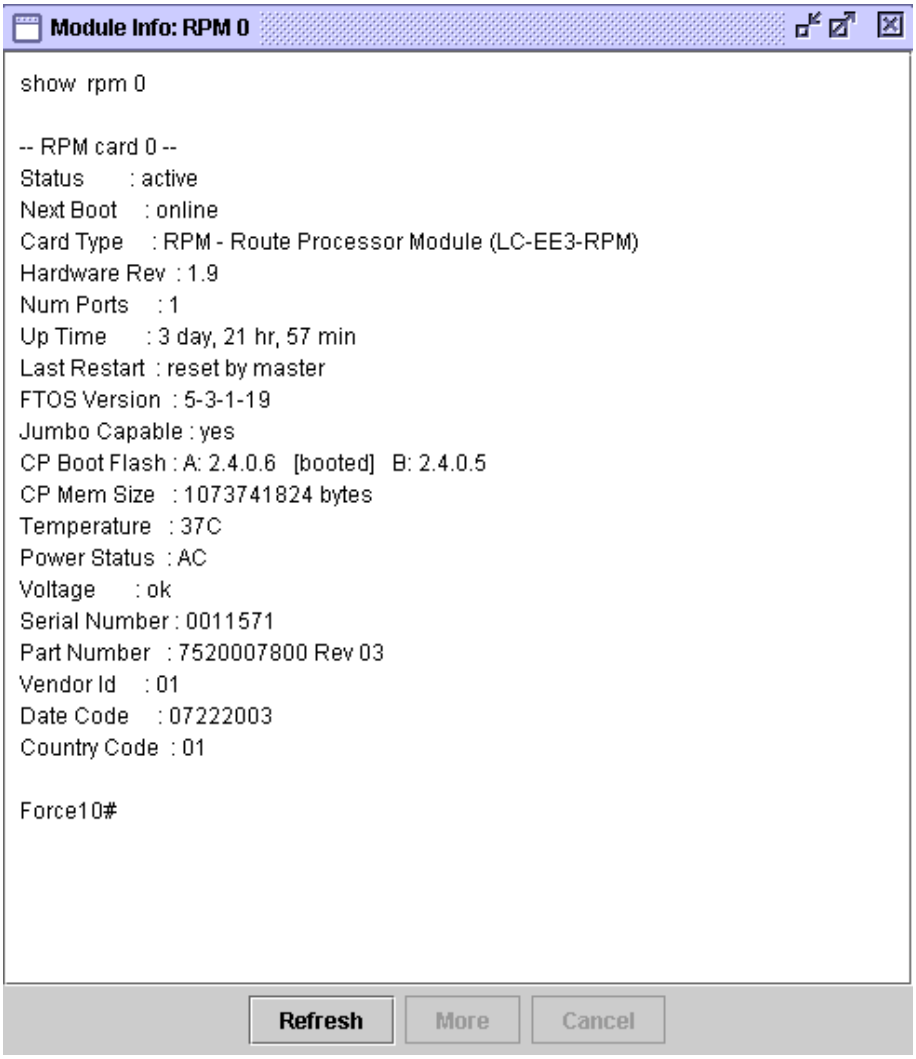
- Using the Module Info Option to Display RPM Information on page 47
- Using RPM Show Commands on page 48

- Examining RPM Configuration Information on page 50
- Analyzing RPM Performance on page 51

Using the Module Info Option to Display RPM Information

Step	Task
1	Right-click inside the picture of the RPM you wish to examine. (Do not click the management port icon or your results will be different.) Node Manager displays a pop-up menu of available options.
2	Select **Module Info**. Node Manager displays a window containing the output from the **show rpm** *number* command:

Figure 24 RPM Module Info (show rpm Command)



Using RPM Show Commands

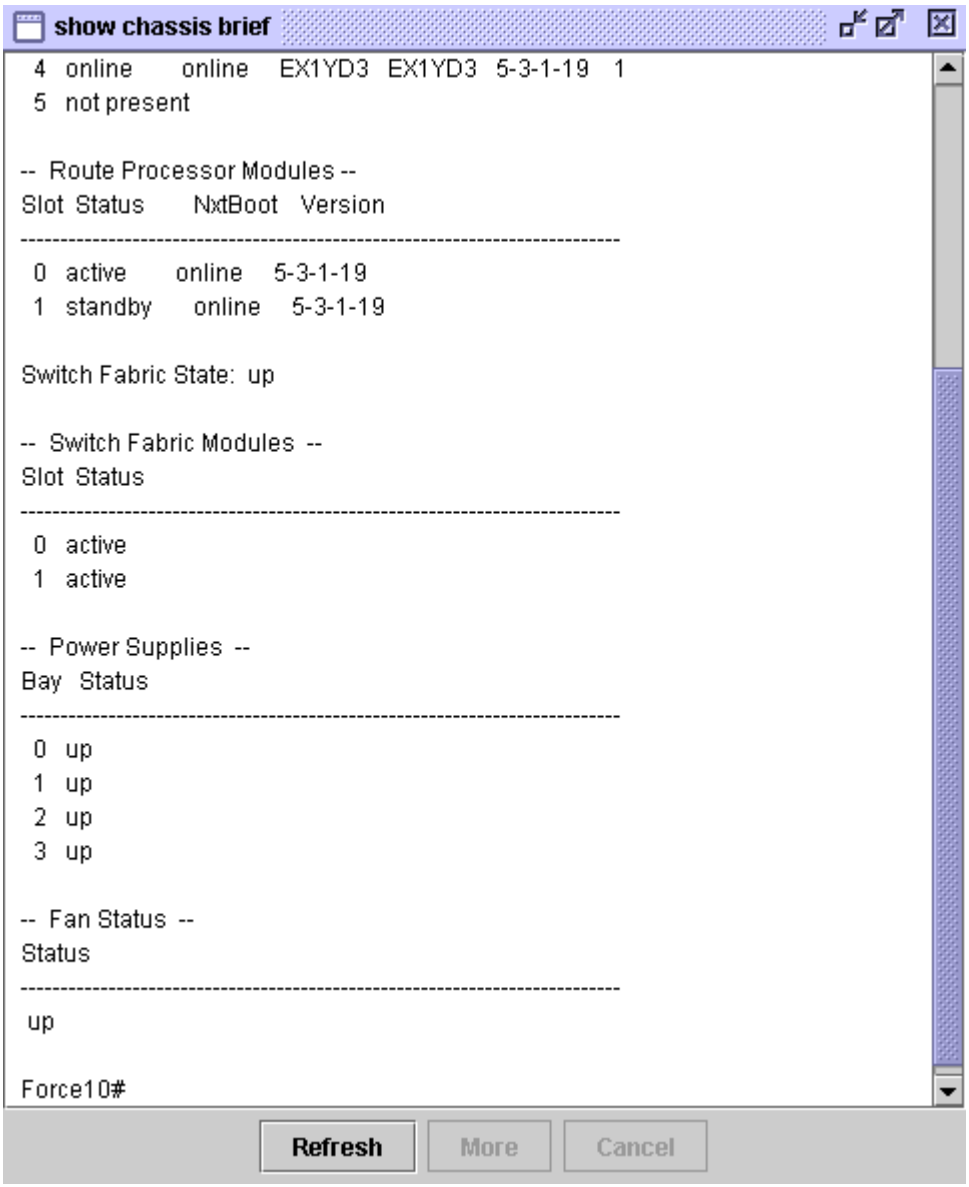
You can use Node Manager to launch CLI `show` commands and display the output in a scrollable window. To access these commands:

Step	Task
1	Right-click the icon of the Primary RPM (the one with the lit *Primary* LED). Do not click the management port icon or your results will be different. If you have not yet logged into the CLI, Node Manager prompts you to do so. Node Manager displays a pop-up menu of available options.
2	Select **Show**. Node Manager displays a menu of available show commands:

Command	Description
alarms	Shows the minor and major alarms set for the RPM.
bootvar	Shows the RPM's bootvar configuration.
chassis brief	Displays the output from the **show chassis brief** command.
environment	Reports the RPM's temperature, voltage, and so forth.
logging	Shows the logging settings and system messages contained in the RPM's internal buffer.
redundancy	Reports current RPM redundancy information.
Process	Displays a menu with two sub-options: • *CPU*: Shows CPU usage information for the RPM based on running processes. • *Memory*: Displays the memory usage information for the RPM based on running processes.
running-config	Displays current configuration information and indicates any changes from the default values.
startup-config	Shows the startup configuration file, if present.
version	Displays version and startup information about the chassis.

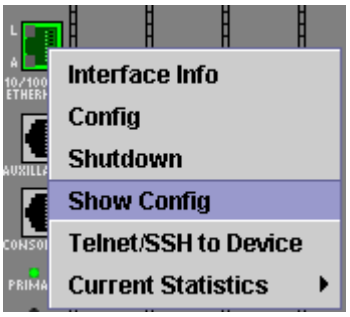
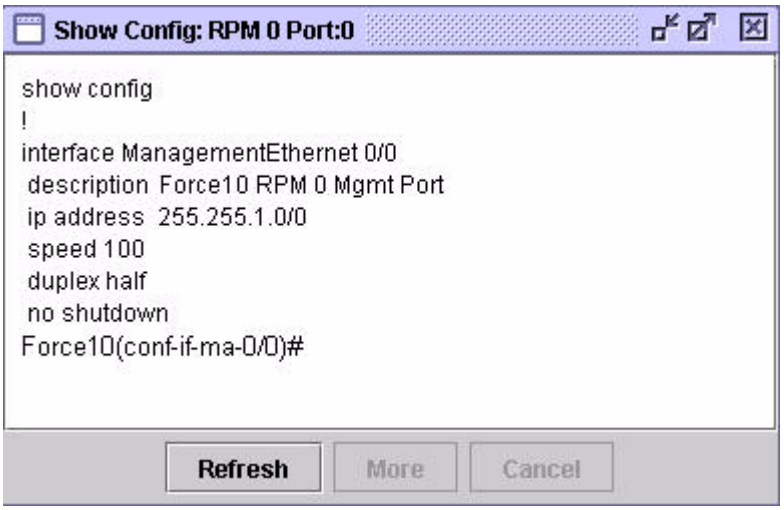
Step	Task
3	Select the name of the command. Node Manager displays a window containing the output for the command. See Figure 25 on page 49 for an example.

Figure 25 Show Chassis Brief Example Output



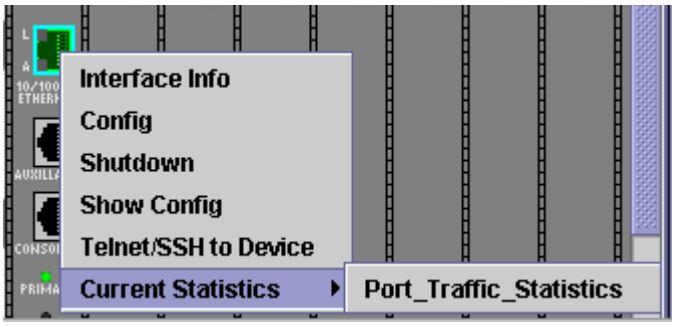
Examining RPM Configuration Information

To review RPM configuration information:

Step	Icon	Task
1		Right-click the icon for the RPM's management port. Node Manager displays a pop-up menu of available options.
2		Select **Show Config**. Figure 26 is a screenshot showing that selection on the popup menu overlaid on a partial view of the selected management port on the selected RPM. **Figure 26** RPM Popup Menu, Show Config  If you have not yet logged into the CLI, Node Manager prompts you to do so. After you do, Node Manager displays a window containing the output from the **show config** command for the RPM management port: **Figure 27** Show Config: RPM 

Analyzing RPM Performance

Node Manager enables you to plot the performance of each RPM graphically:

Step		Task
1		Right-click the icon for the Primary RPM's management port. Node Manager displays a pop-up menu of available options.
2		Select **Current Statistics → Port_Traffic_Statistics**. Figure 28 is a screenshot showing that selection on the popup menu overlaid on a partial view of the selected management port on the selected RPM. **Figure 28** RPM Popup Menu, Current Statistics  Node Manager displays the Performance Current Data Viewer window, with data for the selected RPM displayed on the graph and table. The window displays an empty bar chart at first, but then begins to display data based upon the default settings for the selected report. You can select an alternate chart type from the Chart Options section at the bottom of the window, along with a variety of input parameters. For details on modifying display parameters on the window, see Displaying E-Series Chassis Information on page 42

Configuring RPMs

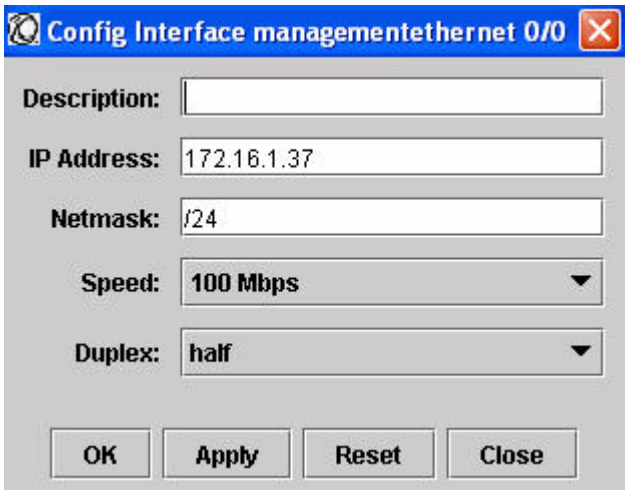
The Force10 Node Manager also enables you to perform these RPM configuration activities:

- Configuring RPM Management Ports on page 52
- Shutting Down RPM Ports on page 53
- Telneting to an RPM on page 54

Configuring RPM Management Ports

To configure the management port on an RPM:

Step	Icon	Task
1		Right-click the icon for the RPM management port. Node Manager displays a pop-up menu of available options.
2		Select **Config**. Node Manager displays this dialog box:



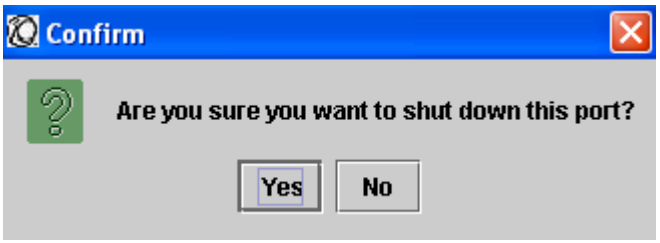
Step	Icon	Task
3		Enter your selections. You have these options: **Field Name** — **Usage** *Description* — Enables you to enter a descriptive text for the management port. *IP Address* — Allows you to assign an IP address to the management port. *Netmask* — Enables you to assign an IP address mask to the management port. *Speed* — Sets the speed of the management port. The available list options are: • *10 Mbps*: Ten megabits per second. • *100 Mbps*:100 megabits per second. • *Auto*: Node Manager sets the speed to the maximum the RPM permits. *Duplex* — Sets the mode of the management port. The available list options are: • *half*: Sets the management interface to transmit only in one direction. • *full*: Sets the management interface to transmit in both directions.
4		Click **Apply** to make your change. Click **Reset** to reload the default settings.
5		Click **OK** or **Close** to exit.

Shutting Down RPM Ports

Warning: If you use this feature to shut down the active RPM port and you do not have a second RPM installed for failover, you cannot access the chassis from Node Manager or from within Telnet to re-enable it. If you shut down the active port on a chassis with only one RPM, the only way you can restart it is to reboot the chassis.

To shut down a RPM port:

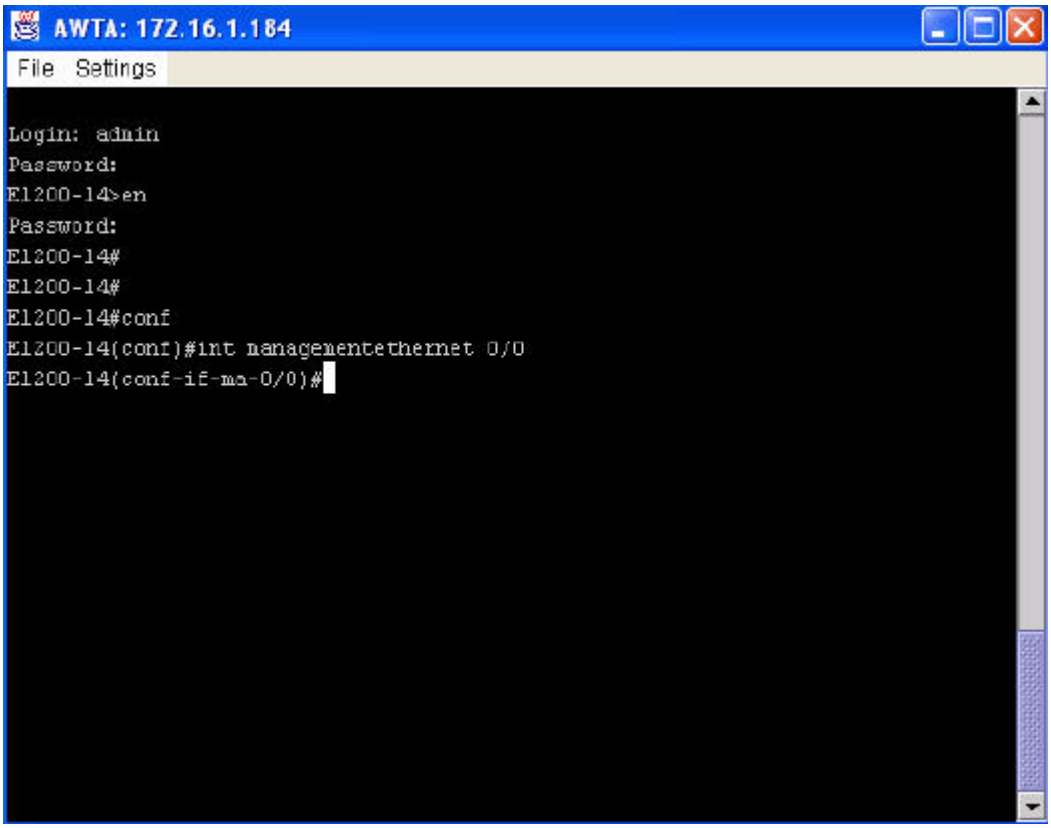
Step	Icon	Task
1		Right-click the icon for the RPM's management port. Node Manager displays a pop-up menu of available options.

Step	Icon	Task
2		Select **Shutdown**. If you have not logged into the CLI, Node Manager prompts you to do so. Node Manager displays this dialog box to confirm your wish to shut down the port: **Figure 29** Port Shutdown Confirmation Dialog Box 
3		Click **Yes** to shut down the RPM's management port and the RPM. If you have a secondary RPM configured for failover, it automatically takes over. If you only have one RPM or are shutting down your only functioning RPM, the chassis goes offline.

Telneting to an RPM

To Telnet to the management port of an RPM:

Step	Icon	Task
1		Right-click the icon for the RPM's management port. If you have not logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays a pop-up menu.

Step	Icon	Task
2		From the pop-up menu, click **Telnet to Device**. Node Manager displays a Telnet window and automatically invokes the CLI commands that enable you to manage the RPM. **Figure 30** Telnetting to an RPM  **Note:** You can do anything in this Telnet window that you can do by telnetting into the switch in a more conventional way. In other words, you can manage ports, run global show commands, etc.
3		Make your changes using the CLI.
4		To terminate the Telnet session, click **File → Disconnect**. To terminate the session and close the window, click **File → Exit**.

Managing Line Cards

You can use Node Manager to manage many types of line cards. For information about the line cards Node Manager supports, refer to Appendix A, Supported Devices on page 113.

E-Series line cards are hot-swappable. You can add, replace, or remove a card without interrupting system power or system operations. No additional configuration is necessary if you insert a new line card into a slot occupied by a blank panel or if you hot-swap identical card types.

If you replace an existing line card with one from a different series, you must configure the system with the updated line card information. Refer to the *CLI Commands* section of the installation document that accompanies each card for more information about this process.

Warning: Always wear an ESD-preventative wrist or foot-ground heel strap when handling line cards. After you remove the original packaging, place components on an anti-static surface.

You can perform these line card management activities with Node Manager:

- Displaying Line Card Information on page 56
- Adding Logical Line Cards on page 59
- Deleting Logical Line Cards on page 60

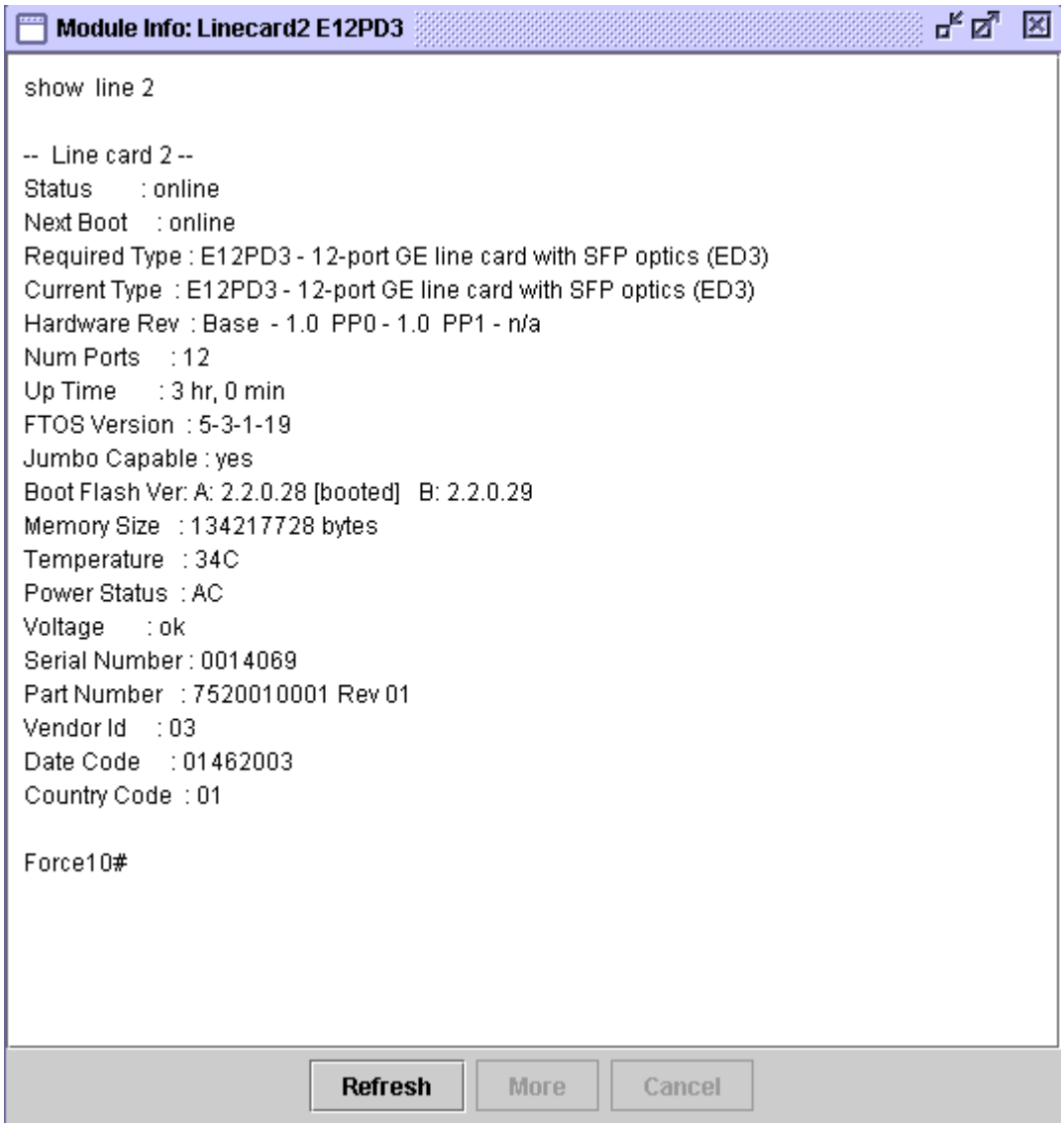
Displaying Line Card Information

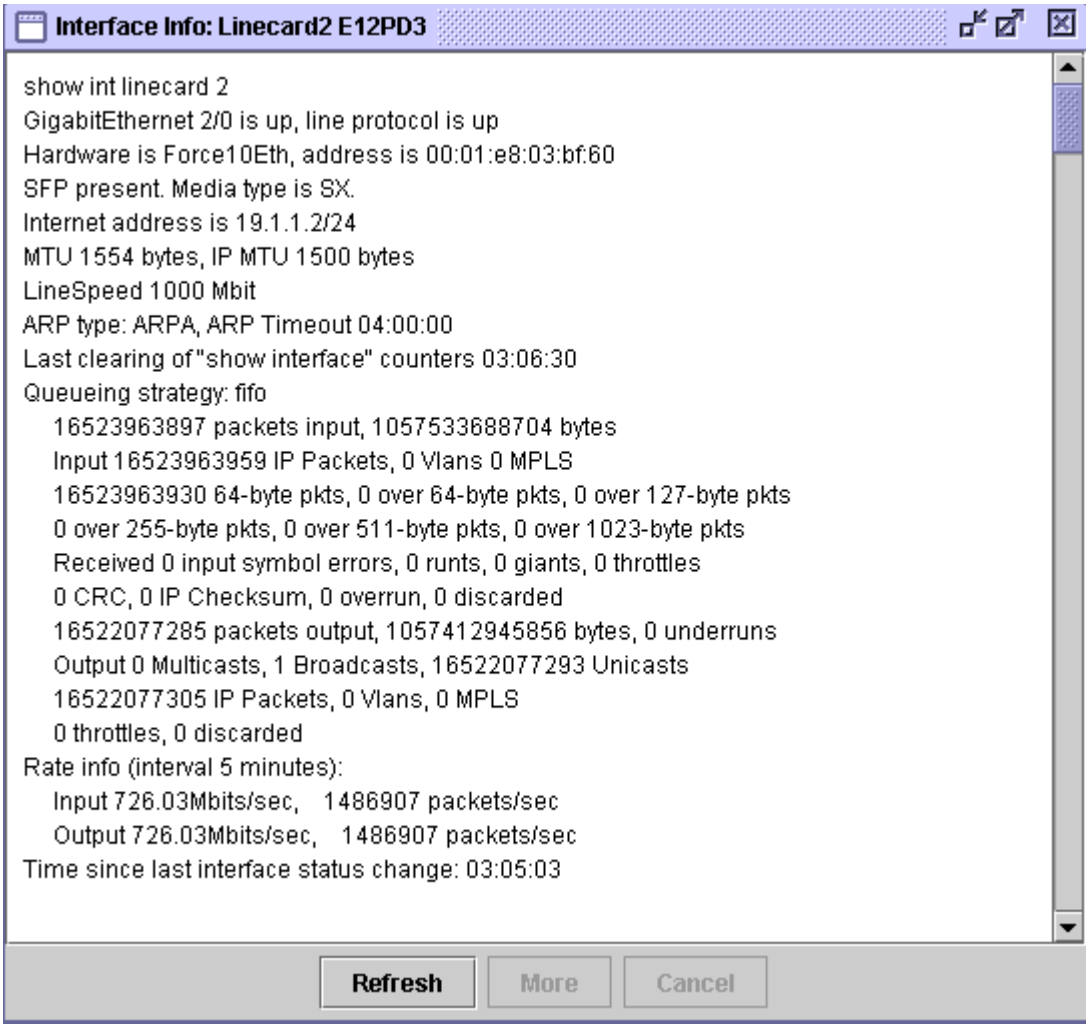
To view line card information:

Step	Task
1	Right-click inside the picture of the line card you wish to examine. (Do not click a port icon or your results will be different.) If you have not yet logged into the CLI, Node Manager prompts you to do so. Node Manager displays a pop-up menu of available options: • **Module Info** (see Figure 31 on page 57) • **Interface Info** (see Figure 32 on page 58) • **Config Interfaces** (This menu item invokes a window that is also invoked from the main menu: **Config → Config Interfaces**. See Using Bulk Configuration on page 82.)

Step	Task
2	For an overview of a particular line card, right-click the line card graphic and select **Module Info**. Node Manager displays a window containing the output from the **show linecard *number*** command (You can also access the report by double-clicking the line card graphic):

Figure 31 Line Card Module Info Window (show linecard Command)



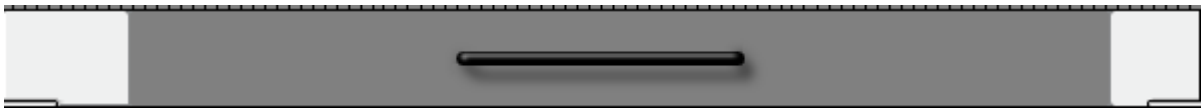
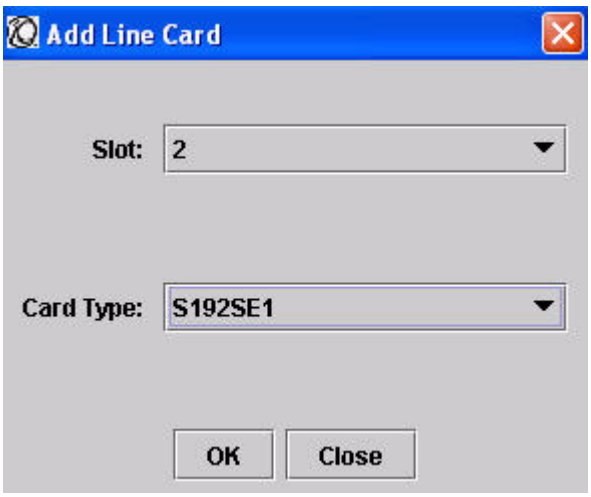
Step	Task
3	To view the status of a line card, right-click the line card graphic (If you have not yet logged into the CLI, Node Manager prompts you to do so), and select **Interface Info**. Node Manager displays a window containing the output from the **show interfaces linecard *number*** command (use the scroll bar and the **More** button to access the complete report): **Figure 32** Line Card Interface Info Window (show interfaces linecard Command) 

Adding Logical Line Cards

Note: Node Manager does not support all Force10 line cards. For information about the line cards Node Manager does support, refer to Appendix A, Supported Devices on page 113.

You can only add logical line cards in Node Manager. Logical line cards are those that only exist in the software and that do not exist physically in the chassis.

To add a logical line card in Node Manager:

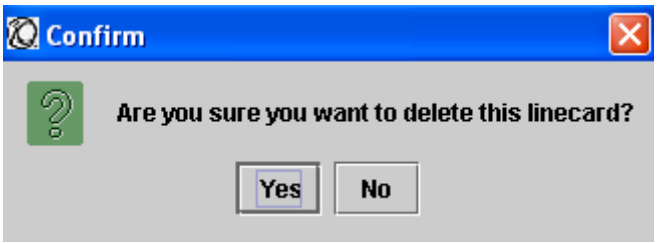
Step	Task
1	Right-click on the picture of any empty slot. Node Manager indicates these by displaying a picture of a blank panel. Node Manager displays a pop-up menu of available options. **Figure 33** Empty Slot 
2	Select **Add Linecard**. If you have not previously logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays this dialog box: **Figure 34** Add Linecard Dialog Box  Node Manager automatically proposes the number of the slot you clicked in the **Slot** list and a line card in the **Card Type** list.
3	From the **Slot** list, select the location where you wish to add the line card. Select a different number if you wish to insert the card in a slot other than the default.

Step	Task
4	From the **Card Type** list, select the type of line card you wish to install. Once you select a line card, Node Manager displays a grayed-out version of it in the slot: **Figure 35** Blank Line Card Icon
5	Follow the directions that accompany the line card to install it physically in the slot.
6	Configure the line card. Refer to Managing E-Series Interfaces on page 61 for more information about this process.

Deleting Logical Line Cards

You can only delete logical line cards in the Force10 Node Manager. Logical line cards are those that only exist in the software and that do not exist physically in the chassis.

To delete a logical line card in Node Manager:

Step	Task
1	Right-click the picture of the grayed-out line card you wish to delete. (Do not click a port icon or your results will be different.) Node Manager displays a pop-up menu of available options.
2	Select **Delete Linecard**. If you have not previously logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays this dialog box: **Figure 36** Delete Line Card Dialog Box 
3	Click **Yes**. Node Manager removes the card from the display.

Managing E-Series Interfaces

Node Manager enables you to manage logical interfaces. Logical interfaces are software connections to hardware line card ports. You can perform the following interface management activities in Node Manager:

- Viewing Interface Information
- Configuring Interfaces on page 63

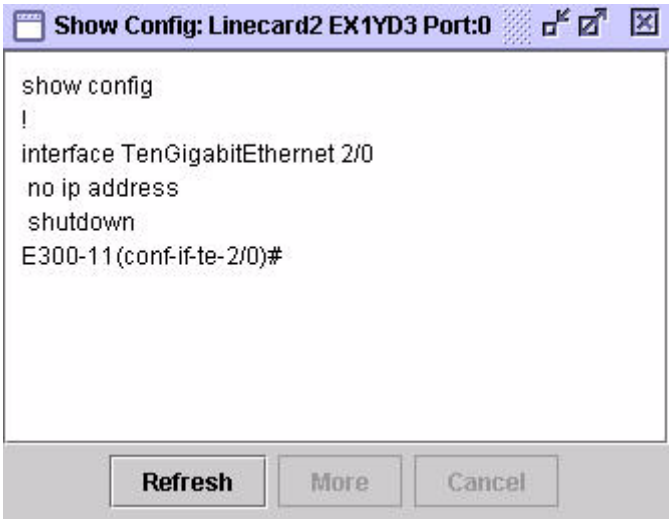
Viewing Interface Information

Node Manager enables you to view interface configuration data several different ways:

- Examining Interface Configuration Information on page 61
- Analyzing Interface Performance on page 62

Examining Interface Configuration Information

To research logical interface configuration information:

Step	Icon	Task
1		Right-click the icon of the port that you wish to examine. Node Manager displays a pop-up menu of available options.
2		Click **Show Config**. If you have not yet logged into the CLI, Node Manager prompts you to do so. Node Manager displays a window containing the output from the **show config** CLI command for that port: **Figure 37** Show Config: Linecard 

Analyzing Interface Performance

Node Manager enables you to plot the performance of each line card port graphically using a variety of techniques. To do so:

Step		Task
1		Right-click the icon of the line card port you wish to examine. If you have not yet logged into the CLI, Node Manager prompts you to do so. Node Manager displays a pop-up menu of available options.
2		Select **Current Statistics → Port Traffic Statistics**. The Performance Current Data Viewer window opens (see Figure 21 on page 44). Just as described previously for the chassis, selected RPM, and selected line card, the window displays an empty bar chart at first, but then begins to display data based upon the default settings for the selected report. You can select an alternate chart type from the Chart Options section at the bottom of the window, along with a variety of input parameters. For details on using the window, see Displaying E-Series Chassis Information on page 42.

Configuring Interfaces

Node Manager also enables you to perform these interface configuration activities:

- Configuring Line Card Interfaces on page 63
- Shutting Down Line Card Interfaces on page 64
- Telneting to the Switch to Manage a Port on page 65

Configuring Line Card Interfaces

To configure a line card interface:

Step	Icon	Task
1		Right-click the icon of the line card port you want to configure. Node Manager displays a pop-up menu of available options.
2		Select **Config**. Node Manager displays this dialog box:

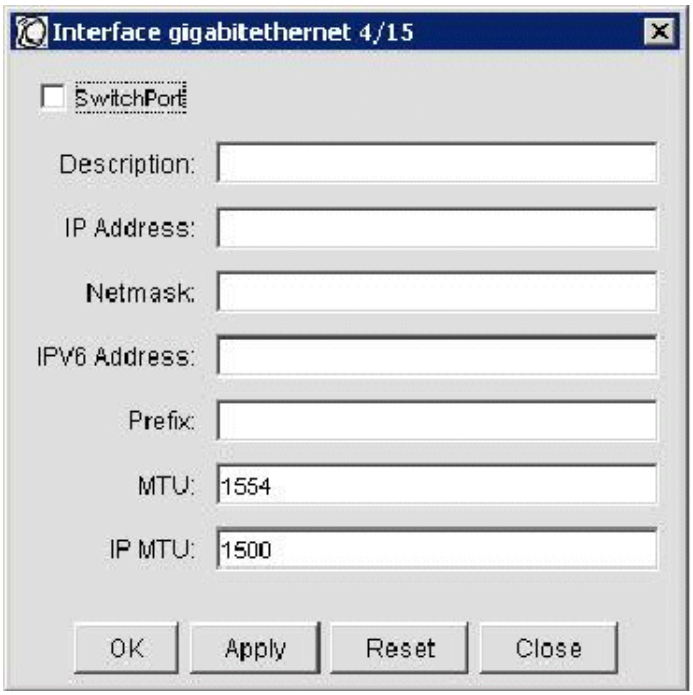


Figure 38 Line Card Configuration Dialog Box

Step	Icon	Task	
3		Enter your selections. See this table for a description of each field.	
		Field Name	**Usage**
		SwitchPort	Specify if this interface operates in Layer 2 mode. Check the box to place it in Layer 2 mode. Uncheck the box or leave it blank to place the interface in Layer 3 mode.
		Description	Allows you to enter a descriptive text for this interface.
		IP Address	Permits you to assign an IPv4 address to the port.
		Netmask	Permits you to assign an IPv4 address mask to the interface.
		IPV6 Address	Permits you to assign an IPv6 address to the port.
		Prefix	Permits you to assign an IPv6 address mask to the interface. Enter the prefix in bits: <0-128>
		MTU	Enables you to enter a link Maximum Transmission Unit (MTU) size for the interface. Range: 594 to 9252 bytes Default: 1554 bytes
		IP MTU	Allows you to enter an IP Maximum Transmission Unit (IP MTU) size for the interface. Range: 594 to 9252 bytes Default: 1500 bytes
4		Click **Apply** to make your change or changes. Click **Reset** to reload the default settings.	
5		Click **OK** or **Close** to exit.	

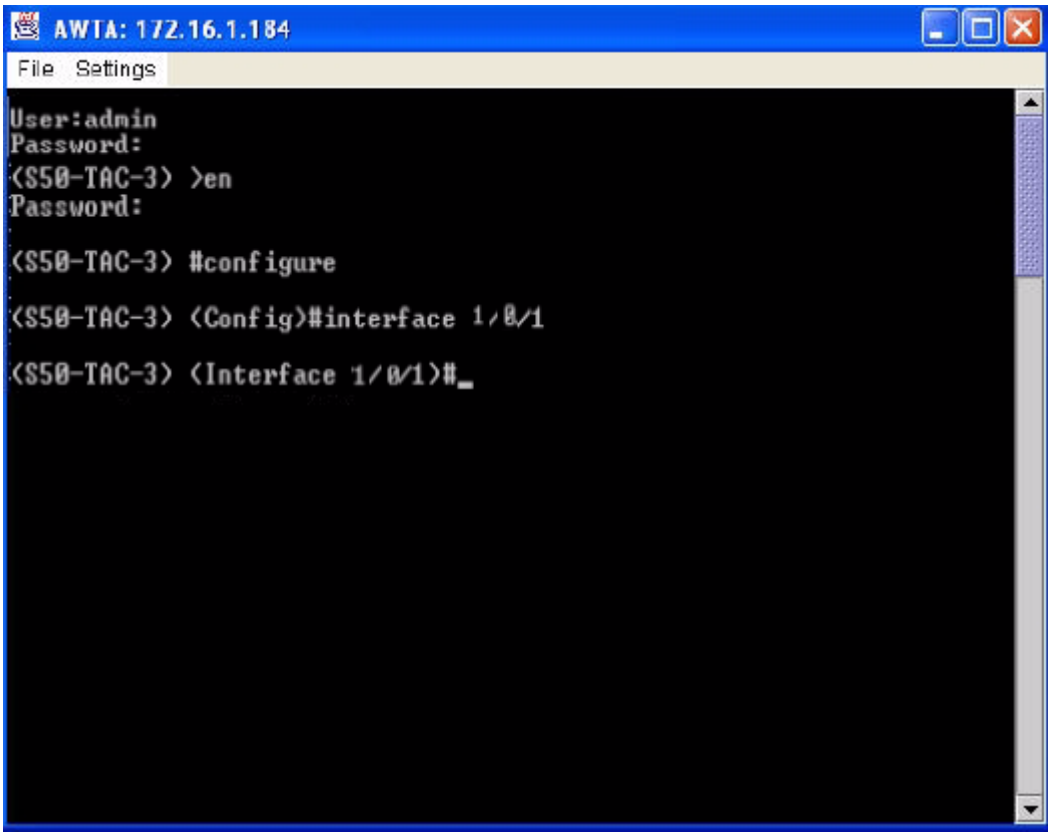
Shutting Down Line Card Interfaces

To shut down a line card interface:

Step	Icon	Task
1		Right-click the icon of the line card port you want to shut down. Node Manager displays a pop-up menu of available options.
2		Select **Shutdown**. If you have not logged into the CLI, Node Manager prompts you to do so. Node Manager displays a confirmation box to confirm your wish to shut down the port:
3		Click **Yes**. Node Manager shuts down the port and returns you to the Main Application window.

Telneting to the Switch to Manage a Port

To Telnet to the switch to manage a port:

Step	Icon	Task
1		Right-click on the port that you want to manage. If you have not logged into the CLI, Node Manager prompts you to do so.
2		From the pop-up menu, click **Telnet to Device**. Node Manager displays a Telnet window and automatically invokes the CLI commands that enable you to manage the selected port.  **Note:** You can do anything in this Telnet window that you can do by telnetting into the switch in a more conventional way. In other words, you can manage other ports, run global show commands, etc.
3		Make your changes using the CLI.
4		To terminate the Telnet session, click **File → Disconnect**. To terminate the session and close the window, click **File → Exit**.

Managing OSPF Areas

You can use Node Manager to add E-Series networks to OSPF areas and delete them from OSPF areas.

Adding a Network to an OSPF Area

To add an E-Series switch network to an OSPF area:

1 Open the **Router OSPF Configuration** window (Figure 39) from the **Config** menu:

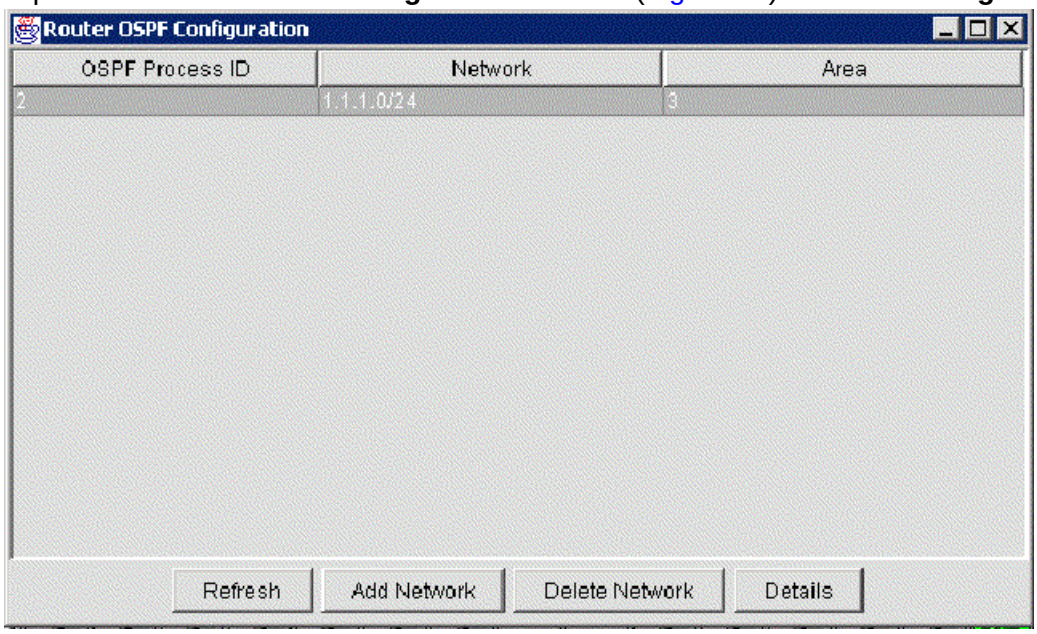


Figure 39 Router OSPF Configuration Window

2 Inspect the current area associations to verify that you are adding a new network to the correct OSPF area. Click **Details** to display the output of the `show ip ospf` command.

3 Click **Add Network**. Node Manager displays the Add Network dialog box:

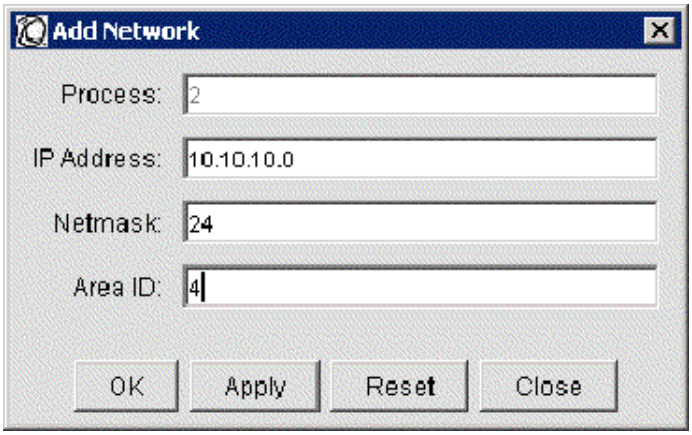


Figure 40 Add Network Dialog

4 Enter your selections. See this table for a description of each field.

Table 5 Add Network Dialog Fields

Field Name	Usage
Process	Permits you to create an OSPF instance (the equivalent of the router-ospf process-id command). If the target switch already has an instance of an OSPF process running, this field is preset with that process ID.
IP Address	Assign an IPv4 address.
Netmask	Assign a subnet mask in CIDR format.
Area ID	Assign a new area a unique integer ID. If the area is new, FTMS creates the area.

5 Click **`Apply`** to make your change or changes, or click **Reset** to reload the default settings.

6 Click **OK** or **Close** to exit. Verify that your changes appear in the Router OSPF Configuration window.

Removing a Network from an OSPF Area

To remove an E-Series network from an OSPF area:

1 As above, open the **Router OSPF Configuration** window from the **Config** menu.

2 Select the network that you want to remove, and click **Delete Network**.

3 Node Manager displays a confirmation dialog. Click **OK**.

4 Node Manager returns you to the Router OSPF Configuration window. Verify that the network no longer appears in the table.

Managing E-Series Port Channels

You can use Node Manager to both add and remove port channels. A port channel is Force10's method of grouping multiple physical interfaces into a single logical interface. In IEEE 802.3ad, these are referred to as a Link Aggregation Group (LAG).

Force10 port channels provide redundancy by enabling you to aggregate up to 16 physical interfaces of the same interface type and speed interfaces into one logical interface. This enables the E-Series to have one physical interface carry the traffic of another if the former goes down in a port channel. You can configure up to 32 port channels per chassis.

You can perform the following port channel management activities in Node Manager:

- Viewing E-Series Port Channel Information on page 68
- Adding E-Series Port Channels on page 72
- Deleting E-Series Port Channels on page 73
- Configuring E-Series Port Channels on page 74

Viewing E-Series Port Channel Information

Node Manager allows you to research port channel information several different ways:

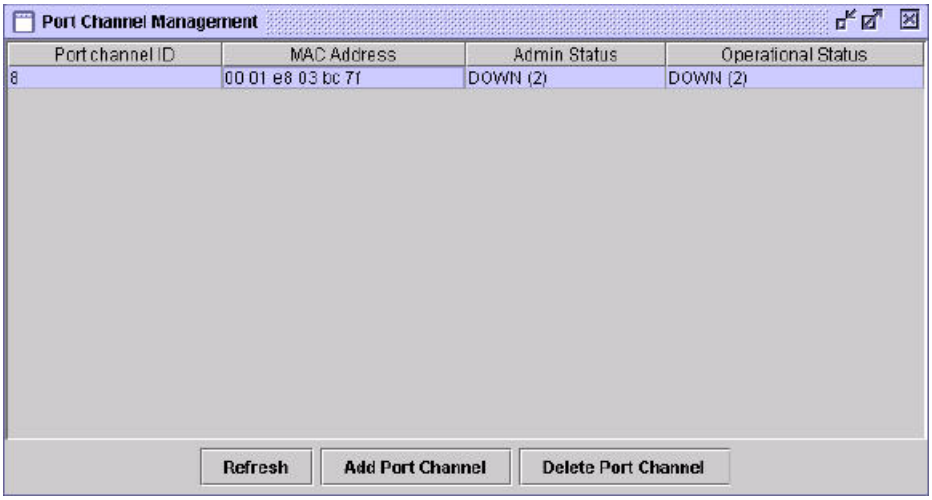
- Displaying Port Channel Interface Information on page 68
- Examining E-Series Port Channel Configuration Information on page 69
- Analyzing E-Series Port Channel Performance on page 70

Displaying Port Channel Interface Information

To display interface information for a port channel:

Step	Task
1	Click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window:

Figure 41 Port Channel Management Window



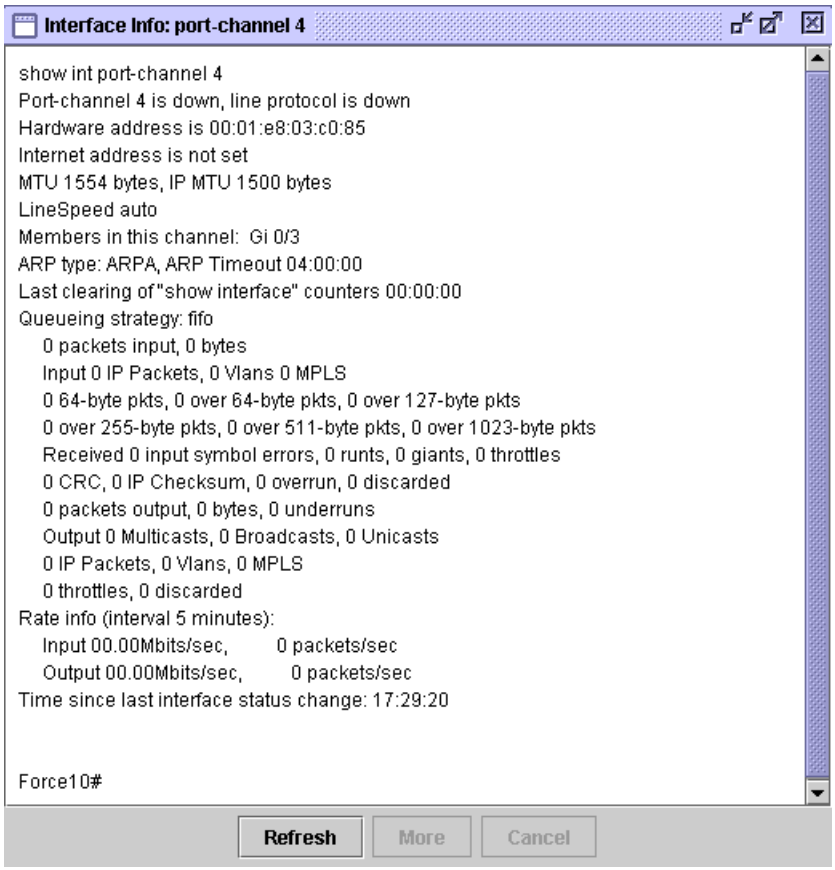
This dialog box displays the:

- *Port channel ID:* The identification number of the port channel
- *MAC Address:* The Medium Access Control address of the port channel
- *Admin Status*: The port channel's administrative status. This can be either *UP* or *DOWN*. The MIB value status appears after the administrative status in parenthesis (*1* for up, *2* for down).
- *Operational Status*: The operational status of the port channel. This can be either *UP* or *DOWN*. The MIB value status appears after the operational status in parenthesis (*1* for up, *2* for down).

2 Right-click the display line of the port channel you wish to examine. Node Manager displays a pop-up menu of available options.

Step	Task
3	Select **Interface Info**. If you have not yet logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays a dialog box containing the output from the **show interface port-channel *number*** command for the port channel.

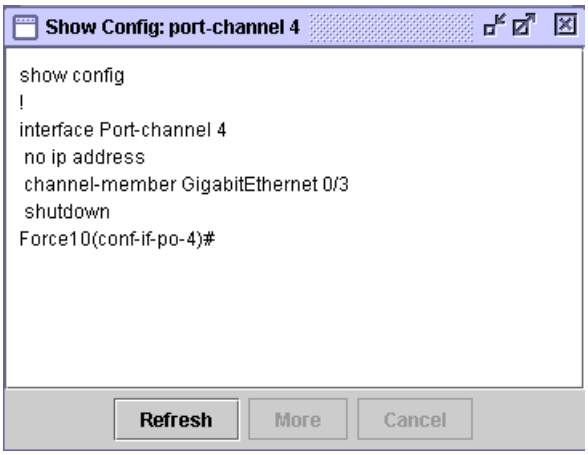
Figure 42 Interface Info Window (show interface port-channel Command)



Examining E-Series Port Channel Configuration Information

To review configuration information for a port channel:

Step	Task
1	Select **Config → Port Channel**. Node Manager displays the *Port Channel Management* window as shown in Figure 41 on page 68.
2	Right-click the display line of the port channel you wish to examine. Node Manager displays a pop-up menu.

Step	Task
3	Select **Show Config**. If you have not yet logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays a dialog box containing the output from the **show config** command for the port channel. Some sample output for this command appears below: **Figure 43** Show Config Window 

Analyzing E-Series Port Channel Performance

Node Manager enables you to plot graphically the performance of each port channel.

Step	Task
1	Select **Config** → **Port Channel**. Node Manager displays the *Port Channel Management* window, as shown in Figure 41 on page 68.
2	Right-click the display line of the port channel you wish to examine. Node Manager displays a pop-up menu.
3	Select **Current Statistics** → **Port Traffic Statistics**. The Performance Current Data Viewer window opens (see Figure 21 on page 44). The chart window is the same one used for ports, the chassis, selected RPM, and selected line card. The window displays an empty bar chart at first, but then begins to display data based upon the default settings for the selected report. You can select an alternate chart type from the Chart Options section at the bottom of the window, along with a variety of input parameters. For details on using the window, see Displaying E-Series Chassis Information on page 42.

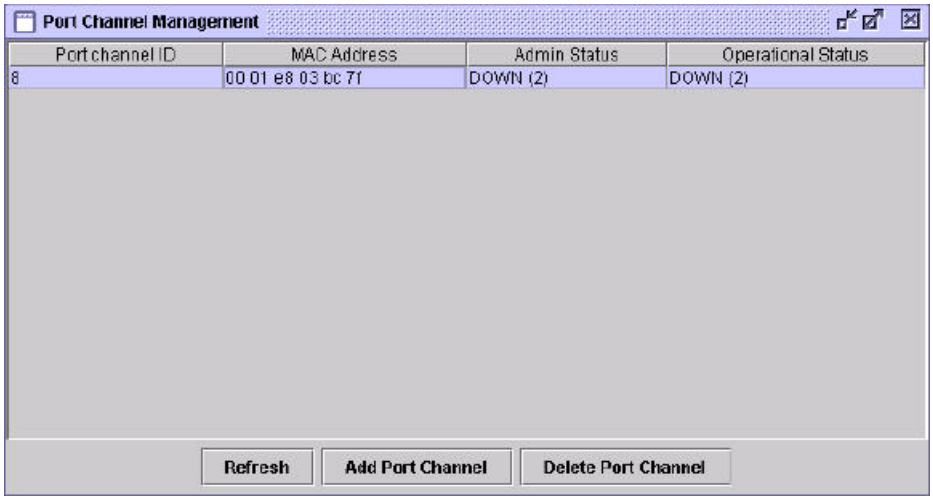
Step	Task
4	Use the choices at the bottom of the window to select the parameters of graph you wish to view. If you wish, you can change the appearance of the graph. For example, you can enter a different number of seconds in the Polling Interval field. You can also choose a different presentation method from the Graph Type list. The available options are: • Line (default) • Bar • XY Step Plot To view the X-Y coordinate values of a point on the graph, move your mouse to that location. (Node Manager displays the coordinates of your mouse pointer once you move it into the dialog box.) To view help documentation, click the **Help** icon.
5	To return to the main Node Manager window, click the **Close** icon (top right). You can also select the window you want from the **Window** menu.

Adding E-Series Port Channels

To add a port channel:

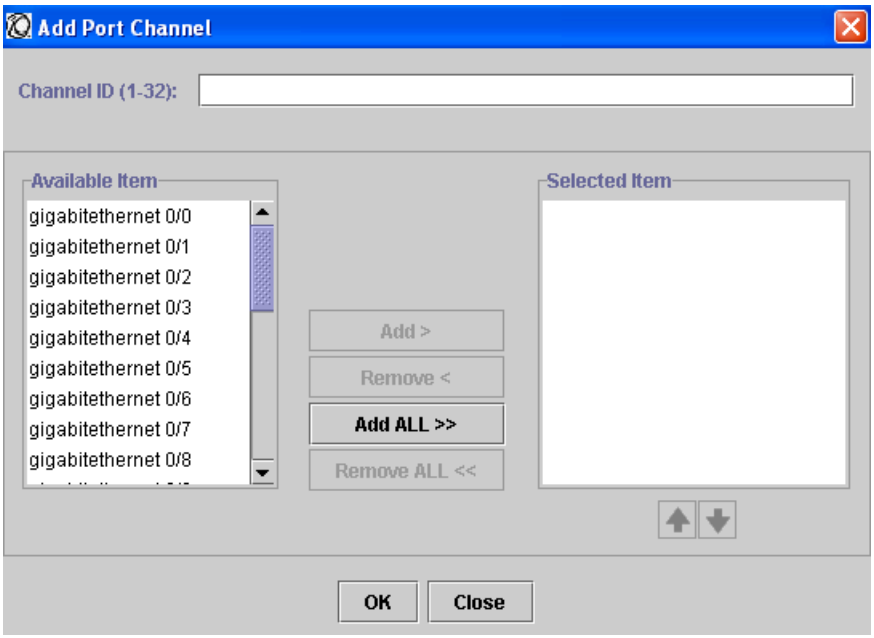
Step	Task
1	Click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window.

Figure 44 Port Channel Management Window



This dialog box displays the:

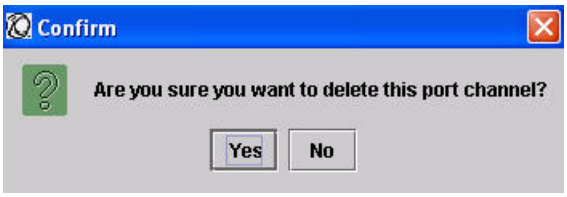
- *Port channel ID:* The identification number of the port channel.
- *MAC Address:* The Medium Access Control address of the port channel.
- *Admin Status*: The port channel's administrative status. This can be either *UP* or *DOWN*. The MIB value status appears after the administrative status in parenthesis (*1* for up, *2* for down).
- *Operational Status*: The operational status of the port channel. This can be either *UP* or *DOWN*. The MIB value status appears after the operational status in parenthesis (*1* for up, *2* for down).

Step	Task
2	Click the **Add Port Channel** button. If you have not previously logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays this dialog box: **Figure 45** Add Port Channel Dialog Box 
3	Enter the ID number you wish to assign to the port channel in the **Channel ID** field.
4	Select the description of the interface and port from the **Available Item** field. The *Add* button becomes active.
5	Click **Add**. Node Manager moves the line card to the **Selected Item** field.
6	Click **OK**. Node Manager adds the port channel to the list in the *Port Channel Management* window.

Deleting E-Series Port Channels

To delete a port channel:

Step	Task
1	Click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window, as shown in Figure 44 on page 72.
2	Select the display line of the port channel that you want to delete.

Step	Task
3	Click **Delete Port Channel**. If you have not previously logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays the Confirm dialog. **Figure 46** Confirm Delete Port Channel Dialog 
4	Click **Yes** to delete the port channel and return to the *Port Channel Management* window.

Configuring E-Series Port Channels

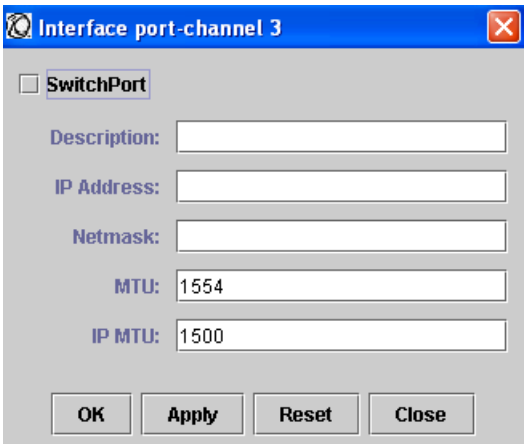
The Force10 Node Manager also enables you to perform these port channel management activities:

- Configuring Port Channels
- Shutting Down Port Channels on page 76
- Starting Port Channels on page 76
- Telneting to a Port Channel on page 77

Configuring Port Channels

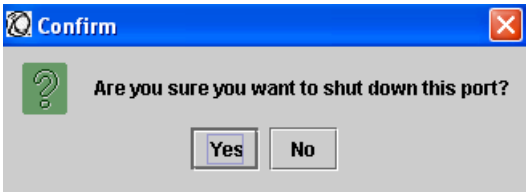
After creating a port channel (see Adding E-Series Port Channels on page 72), to configure it:

Step	Task
1	Click **Config** → **Port Channel**. Node Manager displays the *Port Channel Management* window, as shown in Port Channel Management Window on page 72.
2	Right-click on the display line of the port channel you wish to configure. Node Manager displays a pop-up menu of available options.

Step	Task
3	Click **Config**. Node Manager displays this dialog box: **Figure 47** Interface Port Channel Configuration Dialog Box 
4	Enter your selections. You have these options. **Field Name** — **Usage** *SwitchPort* — Allows you to specify if this port channel operates in Layer 2 mode. Check the box to place it in Layer 2 mode. Uncheck the box or leave it blank to disable **switchport** and place the port channel in Layer 3 mode. *Description* — Enables you to enter a descriptive text for this port channel. *IP Address* — Allows you to assign an IP address to this port channel. *Netmask* — Enables you to assign an IP address mask to the port channel. *MTU* — Enables you to define a link Maximum Transmission Unit (MTU) size for the port channel. Range: 594 to 9252 bytes. Default: 1554 bytes *IP MTU* — Allows you to define an IP Maximum Transmission Unit (IP MTU) size for the port channel. Range: 594 to 9252 bytes. Default: 1500 bytes
5	Click **Apply** to make your change. Click **Reset** to reload the default settings.
6	Click **OK** or **Close** to exit.

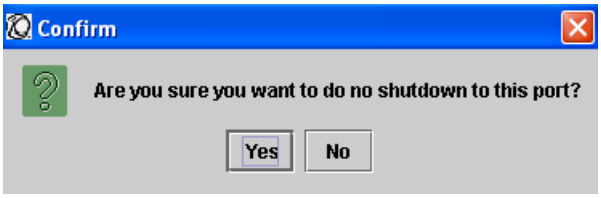
Shutting Down Port Channels

To shut down a port channel:

Step	Task
1	Click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window, as shown in Figure 45 on page 73.
2	Right-click on the display line of the port channel you wish to shut down. Node Manager displays a pop-up menu of available options.
3	Click **Shutdown**. If you have not logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays this dialog box to confirm your wish to shut down the port: **Figure 48** Port Shutdown Confirmation Dialog Box 
4	Click **Yes** to shut down the port channel and return to the *Port Channel Management* window.

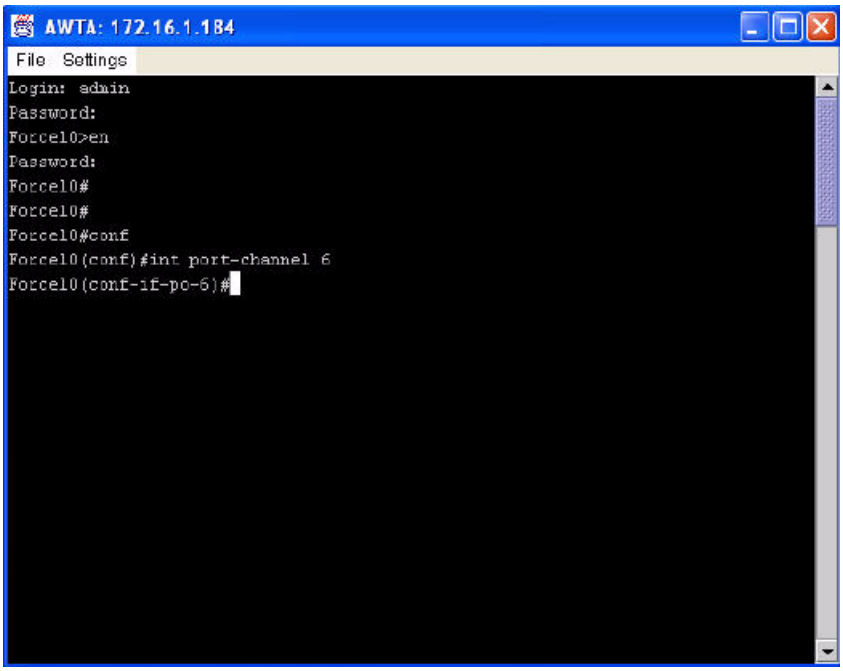
Starting Port Channels

To start a port channel;

Step	Task
1	Click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window, as shown in Figure 44 on page 72.
2	Right-click on the display line of the port channel you wish to start. Node Manager displays a pop-up menu of available options.
3	Click **No Shutdown**. If you have not logged into the CLI, Node Manager prompts you to do so. Node Manager displays this dialog box to confirm your wish to start the port: **Figure 49** Port Startup (no shutdown Command) Confirmation 
4	Click **Yes** to start the port channel and return to the *Port Channel Management* window.

Telneting to a Port Channel

To telnet to a port channel (a logical interface address) on the switch:

Step	Task
1	Click **Config → Port Channel**. Node Manager displays a list of currently existing port channels, as shown in Figure 45 on page 73.
2	Right-click the display line of the port channel to which you want to telnet. Node Manager displays a pop-up menu of available options.
3	From the pop-up menu, click **Telnet to Device**. Node Manager displays a Telnet window and automatically invokes the CLI commands that enable you to manage the selected port channel. **Figure 50** Telnet Window  **Note:** You can do anything in this Telnet window that you can do by telnetting into the switch in a more conventional way. In other words, you can manage ports, run global show commands, etc.
4	Make your changes using the CLI.
5	To terminate the session and close the Telnet window, click **File → Disconnect**, **File → Exit**.

Viewing SFM Information

You can use Node Manager to learn about your Switch Fabric Modules (SFMs) two different ways:

- Checking SFM Status Visually on page 78
- Displaying Detailed SFM Performance Information on page 78

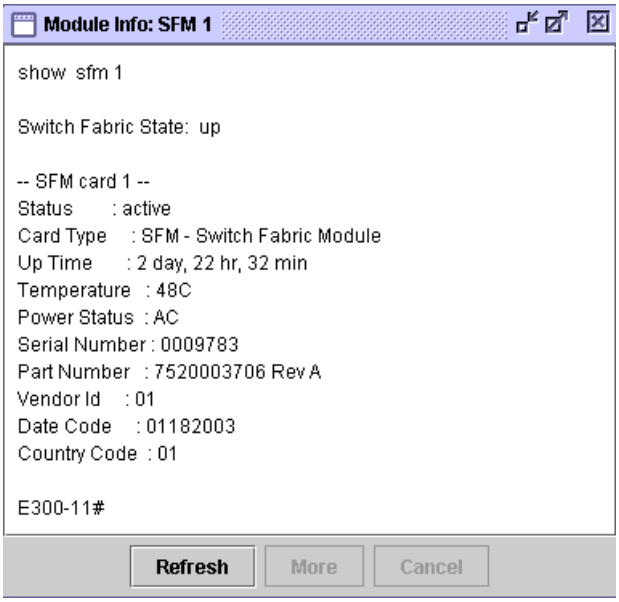
Checking SFM Status Visually

To check the status of switch fabric modules (SFMs) visually:

Step	Icon	Task
1		Locate the SFM you want to examine. **Figure 51** Switch Fabric Module (SFM) Status Icon If both the *Active* and *Status* LEDs are green, the SFM is functioning properly. If the *Status* LED is green and the *Active* is not, and the SFM is in Slot 8, the SFM is a standby unit and is functioning properly. If the SFM is in a slot other than 8, and either LED is a color other than green, refer to Displaying Detailed SFM Performance Information on page 78 and consult the information in Appendix B, Alarms on page 117.

Displaying Detailed SFM Performance Information

To launch a CLI **show** command to display detailed information about a SFM:

Step	Task
1	Right-click the picture of the SFM, as shown above, and select **Module Info**. Node Manager displays a window containing the output of the **show sfm** command for the SFM: **Figure 52** SFM Module Info Window 

Viewing Power Supply Information

You can use Node Manager to view the status of your AC and DC Power Equipment Modules (PEMs).

- Checking E1200 and E600 PEMs Visually on page 79
- Displaying More E1200 and E600 Power Supply Information on page 80
- Checking the Status of E300 AC Power Supplies on page 80

Checking E1200 and E600 PEMs Visually

To verify visually that your E1200 and E600 PEMs are functioning properly:

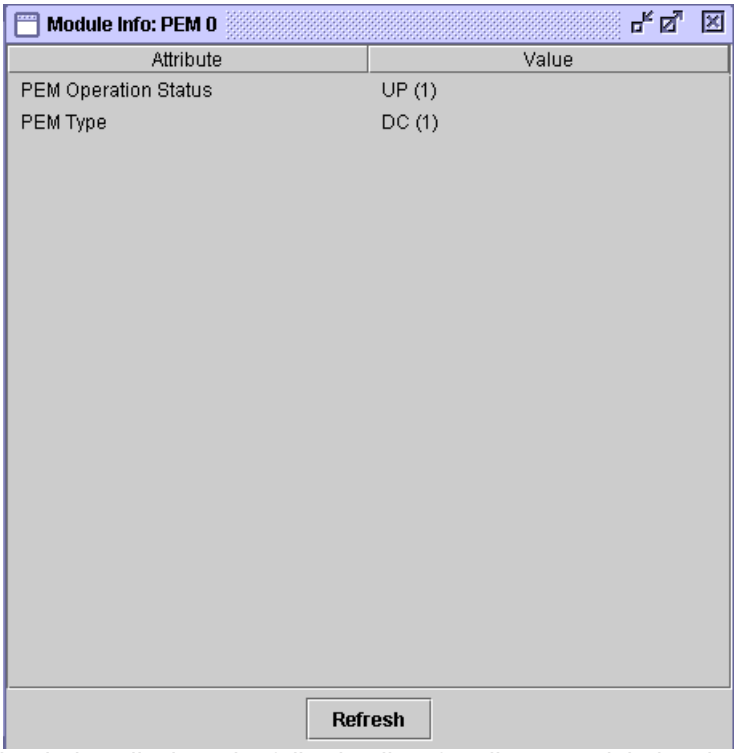
Step	Icon	Task
1		Locate the *Status* LED. If it is green, the PEM is functioning properly. If the PEM appears like either image below, there is no PEM in that location or it is not functioning: **Figure 53** Power Equipment Module (PEM) Icons
2		If the status is some other color, consult the CLI and use the information in Appendix B, Alarms on page 117.

Displaying More E1200 and E600 Power Supply Information

To display additional E1200 and E600 power supply information:

Step	Task
1	Right-click the picture of the PEM and select **Module Info**. Node Manager displays this window:

Figure 54 PEM Module Info Window



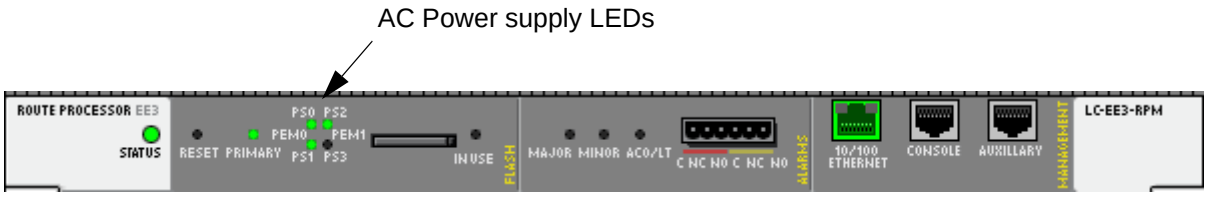
This window displays the following list of attributes and their values:

- *PEM Operation Status:* This can be either *UP* or *DOWN*. The MIB value status appears after the operational status in parenthesis (*1* for up, *2* for down)
- *PEM Type:* This can be either *AC* or *DC*. The MIB value status appears after the operational status in parenthesis (*1* for up, *2* for down).

Checking the Status of E300 AC Power Supplies

To verify the operating status of the E300 AC power supplies, check the color of the power supply LEDs on the Primary RPM. The E300 requires a minimum of three AC power supplies to function. If all four power supply LEDs are green (PS0 through PS3), all your AC power supplies are working properly. If not, consult the information in Appendix B, Alarms on page 117.

Figure 55 E300 Primary RPM with Active Power Supply LEDs



Viewing Fan Tray Information

E-Series chassis have one or more hot-swappable fan trays. In the event of a fan tray failure, which Node Manager indicates with a red icon or LED, you must replace the entire unit.

Caution: For help replacing a fan tray, please see the installation and maintains document that Force10 shipped with your chassis.

Checking Fan Tray Status on the E1200 and E600

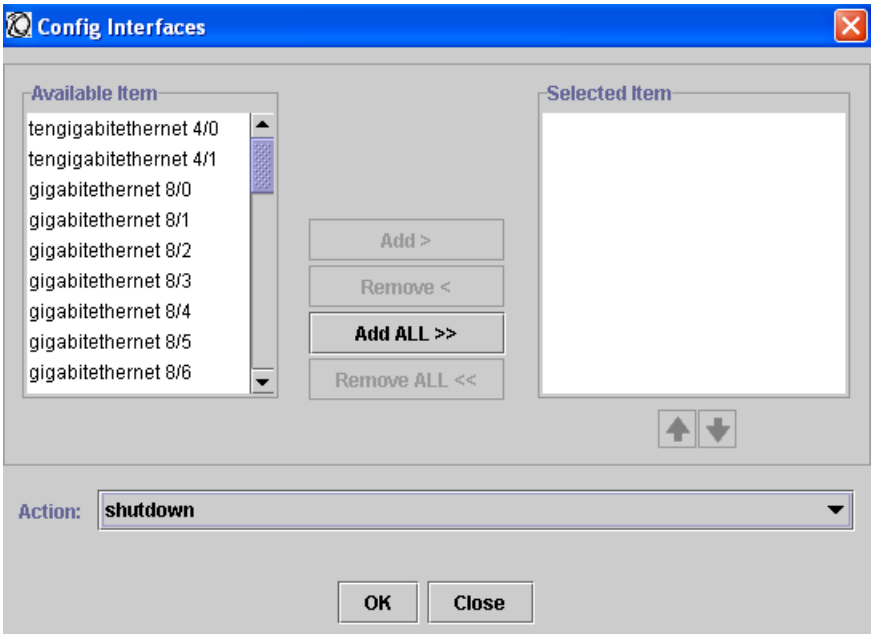
The icon indicators for fan trays on the E1200 and the single fan tray for the E600 appear on the top of the chassis. Refer to Figure 17 on page 40 and Figure 18 on page 41 for help locating these icons.

Checking Fan Tray Status on the E300

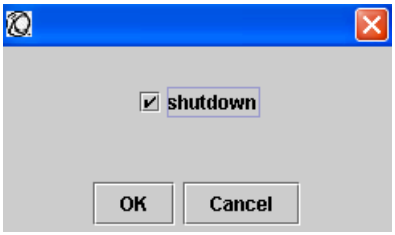
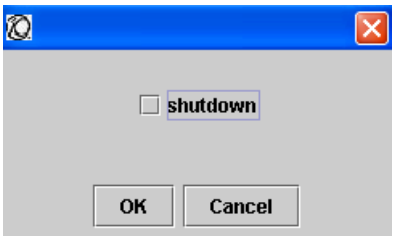
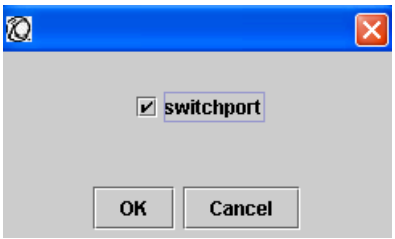
The LED indicator for the E300's fan tray appears on the left side of the chassis image. Refer to Figure 19 on page 42 for help locating this LED.

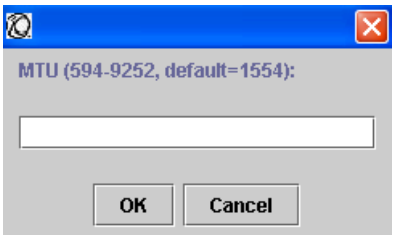
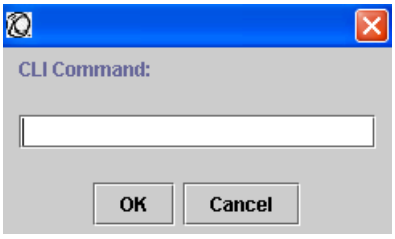
Using Bulk Configuration

The E-Series supports bulk configuration for line card interfaces. To use bulk configuration to set up or modify your chassis:

Step	Task
1	Click **Config → Interfaces**. If you have not previously logged into the CLI, Node Manager prompts you to do so. Node Manager then displays this dialog box: **Figure 56** Bulk Configuration for Line Card Interfaces 
2	To add one interface at a time, select the interface and then click **Add**. To add several interfaces at once, press the **Ctrl** key while clicking on each item with your mouse, and then click **Add**. To configure all the available interfaces, click **Add All**. Node Manager moves the interface or interfaces into the *Selected Item* column.

Step	Task
3	Select the function you want to perform on the interfaces from the *Action* list. You have these options:

Command	Description
`shutdown`	Use this option to disable the interfaces. If you click **shutdown**, Node Manager displays this dialog box: **Figure 57** Shutdown Dialog Box  Leave the box checked and click **OK** to shut down the interfaces.
`no shutdown`	Use this option to enable the interfaces. If you click **no shutdown**, Node Manager displays this dialog box: **Figure 58** Switchport Dialog Box  Leave the box unchecked and click **OK** to start the interfaces.
`switchport`	Use this option to place the interfaces in Layer 2 mode. If you click **switchport**, Node Manager displays this dialog box: **Figure 59** Switchport Dialog Box  To put the interfaces in Layer 2 mode, leave the box checked and click **OK.**

Step	Task	
	`MTU setting`	Use this option to define a link Maximum Transmission Unit (MTU) size for the interface. If you select this option, Node Manager displays this dialog box: **Figure 60** MTU Dialog Box  Enter the Link MTU setting you want to assign to the interfaces. Your permissible range is 594 to 9252 bytes. If you do not enter a value, Node Manager uses a default Link MTU value of 1554 bytes for each interface. Click *OK* to complete the action.
	`command`	Use this option to enter brief CLI commands that apply to all of the interfaces you selected. If you choose this option, Node Manager displays this dialog box: **Figure 61** CLI Command Dialog Box  Enter the text of your CLI command and click **OK** to carry it out.

Chapter 6 Managing the S-Series

This chapter describes how to use Node Manager to manage and monitor S-Series switches.

Note: FTMS adds S-Series software image download capability, which is not part of the Node Manager component.

This chapter covers the following topics:

- Navigating the S-Series Switch
- Displaying S-Series Chassis Information on page 86
- Managing S-Series Switches in a Stack on page 90
- Managing S-Series Interfaces on page 93
- Configuring S-Series Interfaces on page 97
- Managing S-Series Port Channels on page 99
- Using S-Series Bulk Configuration on page 110

Navigating the S-Series Switch

Node Manager displays a unique facsimile icon for each S-Series model (see the list of supported models in the appendix Supported Devices on page 113.) Figure 62 on page 86 shows how an S50 stack appears in Node Manager.

Note: For ease of management through Node Manager, S-Series icons display any rear-mounted 10G modules at the right side of the front panel icon.

Figure 62 S50 Chassis View Example

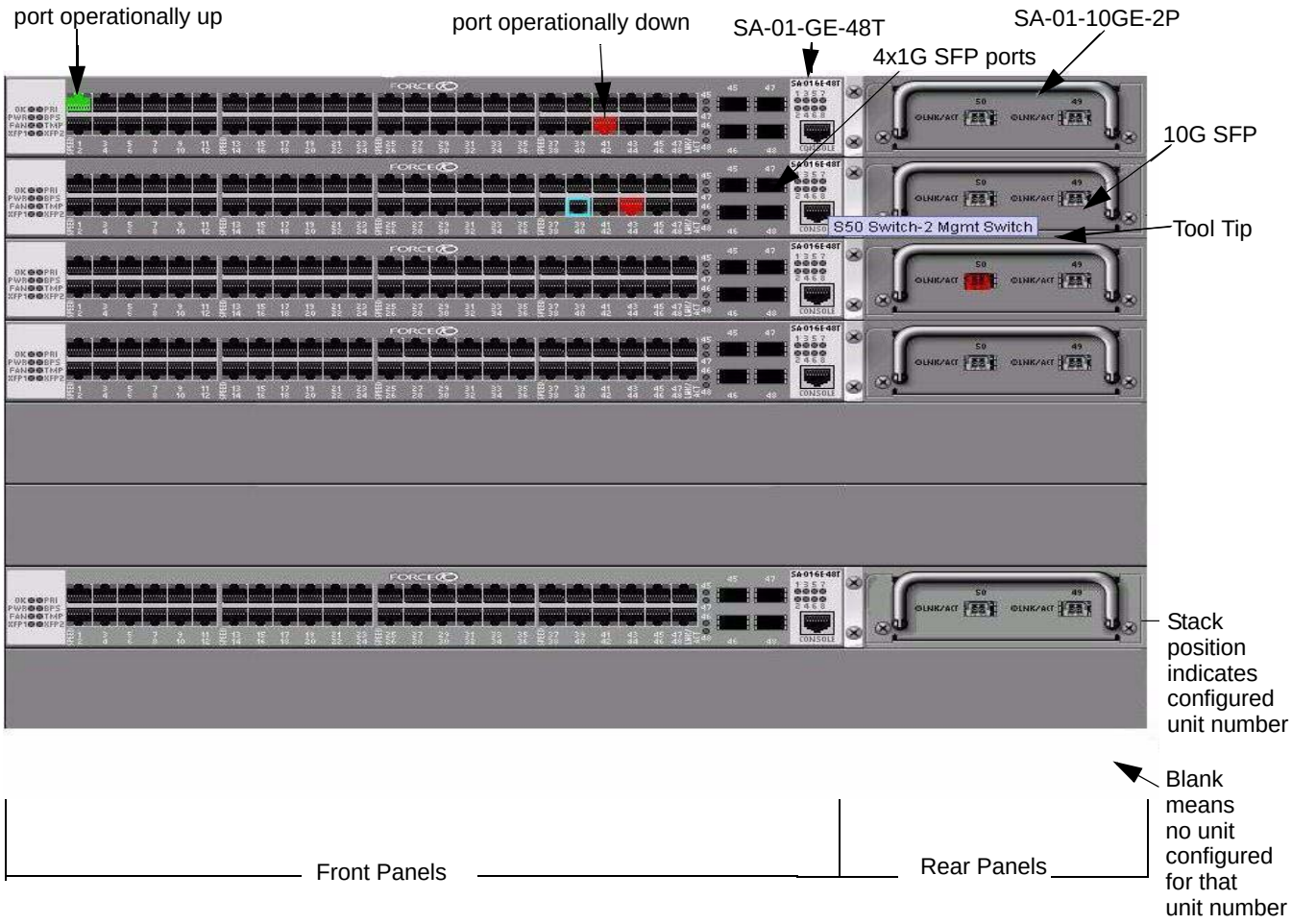


Figure 62 shows five S50 switches in a stack with three blank slots. While the stacking hardware and algorithm support up to eight units in a stack, Force10 does not support more than three. For details on stacking support, see the Stacking chapter in the *SFTOS Configuration Guide*.

Displaying S-Series Chassis Information

As shown in the S50 graphic above, the icon emulates the front panel, including using the LED colors used by the switch in the left status panel (fans, power, etc.). One difference is that the whole port is colored, rather than just the port LEDs (Node Manager also uses this method for E-Series ports (see Managing the E-Series on page 39):

- Gray—indicates the port is administratively down
- Red—indicates the port is operationally down
- Green—indicates the port is operationally up

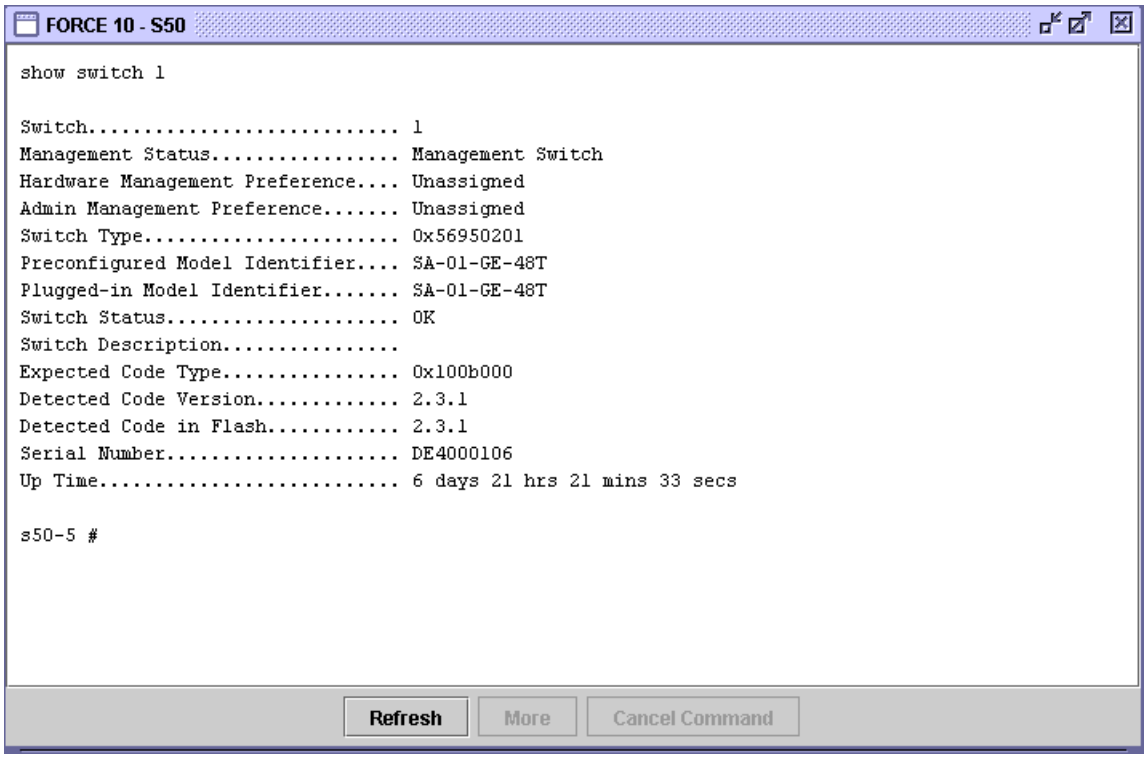
See also Labels, Status Colors, and Indicator LEDs on page 31.

Node Manager enables you to invoke commands that display message boxes that provide information at the chassis level and at the interface level (For interface information, see Displaying S-Series Interface Information on page 93.)

For chassis information, right-click the chassis graphic to invoke the following popup menu:

- **Module Info**: This menu item invokes the **show switch** CLI command (Figure 63).
- **Show**: This menu item opens a submenu of CLI show commands (see Using the Show Submenu for the S-Series Chassis on page 87.)
- **Priority**: This menu item is for managing the succession of management units in a stack. For details, see Setting Priority on a Switch Member in an S50 Stack on page 92.

Figure 63 S50 Chassis Info (Module Info Menu Item Invokes show switch Command)



Using the Show Submenu for the S-Series Chassis

In addition to the Module Info (**show switch** CLI command) report shown above, Node Manager can display the reports of many other SFTOS “show” commands. To access these commands:

Step	Task
1	Right-click the S-Series graphic. Do not click the port icon or your results will be different. If you have not yet logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays a pop-up menu of available options (as detailed above in Displaying S-Series Chassis Information on page 86).

<table>
<tr><th>Step</th><th>Task</th></tr>
<tr><td>2</td><td>Click Show. Node Manager displays a submenu of report types (each invokes a particular show command):
<table>
<tr><th>Command</th><th>Description</th></tr>
<tr><td>SysInfo</td><td>Displays system information, including system up time.</td></tr>
<tr><td>Switch</td><td>Displays the output of the switch command, which reports summary information about all units in the stack. (See Figure 64 on page 89.)</td></tr>
<tr><td>Switch [unit number]</td><td>Shows switch details for the selected switch.</td></tr>
<tr><td>Network</td><td>Displays configuration for in-band connectivity.</td></tr>
<tr><td>Hardware</td><td>Displays vital product data.</td></tr>
<tr><td>Slot</td><td>Displays information about the “slots”. The front of the switch is treated as one slot, and any rear-mounted 10G module is treated as another slot.</td></tr>
<tr><td>Interface</td><td>Submenu choices are:
Ethernet Switchport (invokes the show interface ethernet switchport command — see Figure 65 on page 89).
Switchport (invokes the show interface switchport command).</td></tr>
<tr><td>Port all</td><td>Displays port mode and settings; display port status.</td></tr>
<tr><td>Running-config</td><td>Displays the running configuration.</td></tr>
<tr><td>Logs</td><td>Submenu choices are:
Logging: Displays logging and eventlog parameters.
Buffered: Displays buffered (in-memory) log entries.
Trap Logs: Displays trap logs.</td></tr>
<tr><td>stack-port</td><td>Submenu choices are:
stack-ports: Displays stack port information.
diagnostic: Displays stack port diagnostic information.
counters: Displays stack port counter information.</td></tr>
<tr><td>switchtypes</td><td>Displays the product catalog number of the switch.</td></tr>
<tr><td>cardtypes</td><td>Displays the product catalog number of the switch and any installed 10G modules.</td></tr>
</table></td></tr>
<tr><td>3</td><td>Select the name of the command. Node Manager displays a window containing the output for the command. See Figure 64 on page 89 for an example.</td></tr>
</table>

Samples of reports displayed include the following: **show switch** (Figure 64) and **show interface ethernet switchport** (Figure 65):

Figure 64 S-Series show switch Example Output

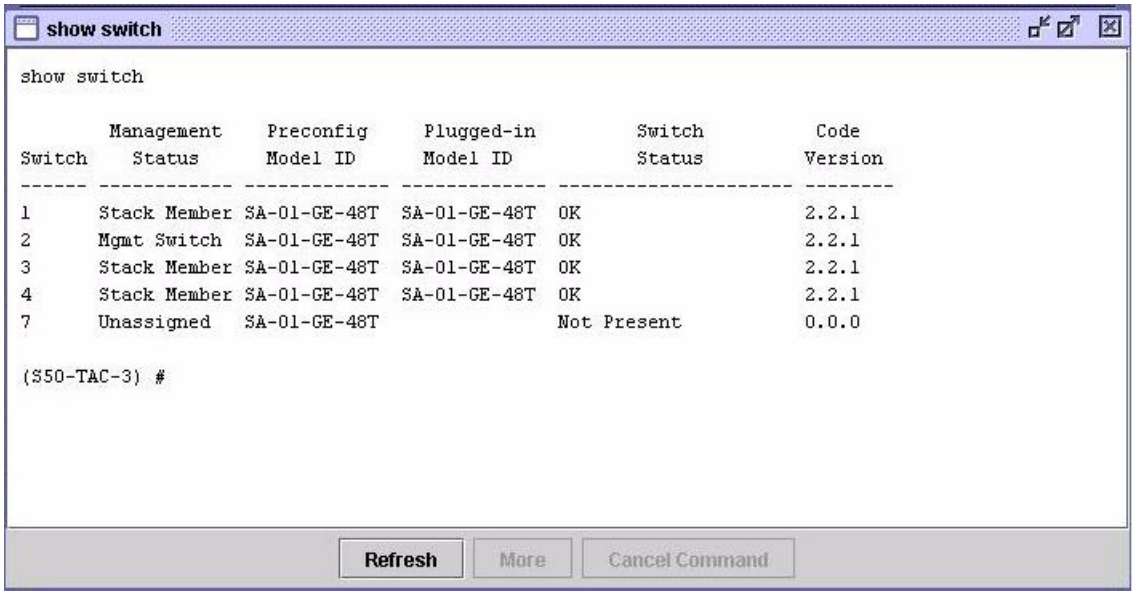
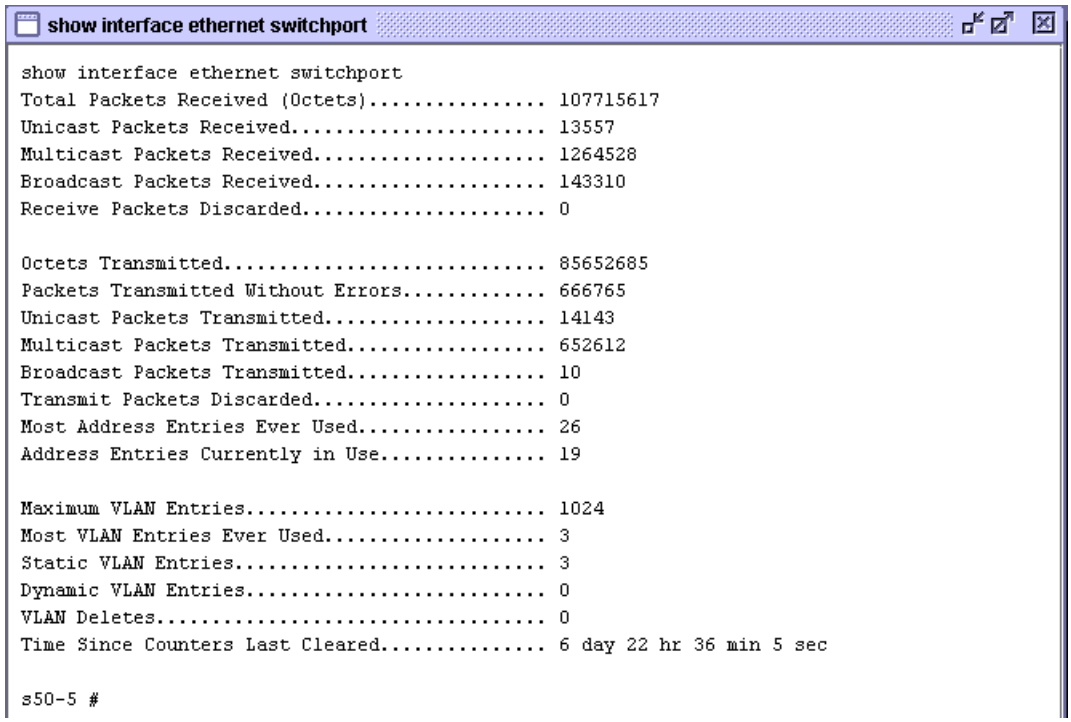


Figure 65 show interface ethernet switchport Command Output (S50)



Managing S-Series Switches in a Stack

You can use Node Manager to manage the stacking of S-Series switches, which enables up to three switches to act as a single managed switch. Of the various S-Series models, only the S2410 models do not stack. Also, the S50 model stacks only with the same model. All other models — S50V, S25P, S50N, etc. — can coexist in the same stack.

The master switch, called the management unit, manages the stack. For details on the algorithm that determines which is the management unit, see the Stacking chapter in the *SFTOS Configuration Guide*.

Each switch has a unique switch ID/unit number that the management unit uses to identify it as a stack member, just as if it were a numbered line card in a large switch. Likewise, Node Manager identifies ports partly by their switch ID. For example, port 2/0/30 identifies port 30 in member unit 2 (SFTOS uses the middle number to identify slot numbers, but does not use it for the S50.)

S50 switches can be pre-provisioned. You can logically add, delete, or renumber a member unit in Node Manager. For stacking details not included in this section, see the stacking chapters in the SFTOS CLI and configuration guides, which are on the CD-ROM that accompanies the S50.

You can perform these switch management activities with Node Manager:

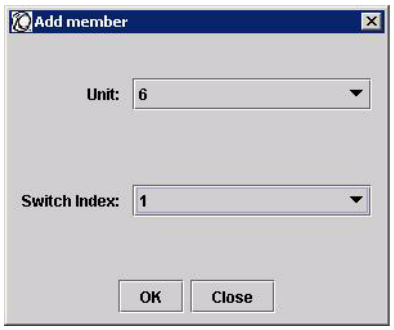
- Adding S-Series Switches to a Stack
- Deleting Member Switches from an S50 Stack on page 91
- Renumbering a Switch Member in an S50 Stack on page 92
- Setting Priority on a Switch Member in an S50 Stack on page 92

Adding S-Series Switches to a Stack

You can use Node Manager to pre-configure the management unit of an S-Series stack with a new stack member. Unassigned members are those that only exist in the software but do not yet exist physically in the stack.

To add a member switch in Node Manager:

Step	Task
1	Right-click the graphic of any empty “slot” in the stack. Node Manager indicates these by displaying a picture of a blank panel.

Step	Task
2	In the pop-up menu, click **Add member**. If you have not previously logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays this dialog box: 
3	This dialog box is the equivalent of the **member** command. Use the **Unit** list to select the logical location in the stack where you want to add the unit. Choose a different member number if you wish to have the unit appear in a different part of the stack other than the selected one.
4	Use the **Switch Index** list to select the switch index value that you want to assign the new unit. Switch index is the index of the switch reported by **show supported switch type**. After you make your selections and click **OK**, Node Manager displays a grayed-out graphic representing the unit in the designated location in the stack: **Figure 66** S50 Front Panel
5	Configure the switch. Refer to Managing S-Series Interfaces for more information about this process.

Deleting Member Switches from an S50 Stack

You can delete an unassigned member switch in Node Manager. To delete a member switch in Node Manager:

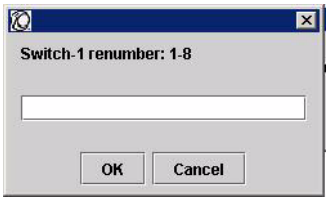
Step	Task
1	Right-click the picture of the grayed-out switch member you wish to delete. (Do not click a port icon or your results will be different.) Node Manager displays a pop-up menu of available options.
2	Select **Delete member**. If you have not previously logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays this dialog box:
3	Click **Yes**. Node Manager removes the member from the stack.

Renumbering a Switch Member in an S50 Stack

You can renumber a stack member unit in Node Manager.

Note: Renumbering of the management unit is disabled, because renumbering the management unit would break the connection to the box from the management plane.
Note: The member unit must exist physically, not simply in the Node Manager graphic.

To renumber a switch in Node Manager:

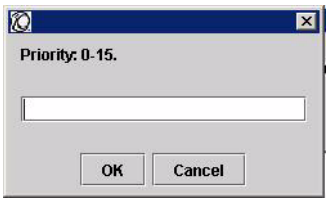
Step	Task
1	Right-click the picture of the switch member you wish to renumber. (Do not click a port icon or your results will be different.) Then, Node Manager displays a pop-up menu of available options.
2	Select **renumber**. If you have not previously logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays this dialog box: **Figure 67** Switch Renumber Dialog Box (S50 Stack) 
3	Set the new switch index value, then click **OK**. Node Manager renumbers the member on the stack.

Setting Priority on a Switch Member in an S50 Stack

You can set the priority value of a stack member unit in Node Manager. This value is used in the management unit election algorithm.

To set the priority value of a member unit in Node Manager:

Step	Task
1	Right-click the graphic of the member unit for which you want to set a new priority value. (Do not click a port icon or your results will be different.) Node Manager displays a pop-up menu.

Step	Task
2	Click **Priority**. If you have not previously logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays this dialog box, which executes the **switch priority** command: **Figure 68** Priority Dialog Box (S50 Switch Priority) 
3	Enter a value from 0 to 15; the highest value is given the highest priority. Click **OK**.

Managing S-Series Interfaces

You can use Node Manager to manage S-Series interfaces. You can perform the following interface management activities in the Node Manager:

- Displaying S-Series Interface Information on page 93
- Analyzing S-Series Interface Performance on page 96
- Configuring S-Series Switch Interfaces on page 97

Displaying S-Series Interface Information

To view the status of an interface:

Step	Task	
1	Right-click a port icon. If you have not yet logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays a pop-up menu of available options.	
2	**Show → Port**	Displays port mode and settings and port status (invokes the **show port** *unit/slot/port* command). See Figure 69.
	Show → Interface Ethernet	Displays detailed statistics for that port. See Figure 70 on page 95.
	Interface info	Displays summary statistics. See Figure 71 on page 96.

Figure 69 Example Result of Show → Port

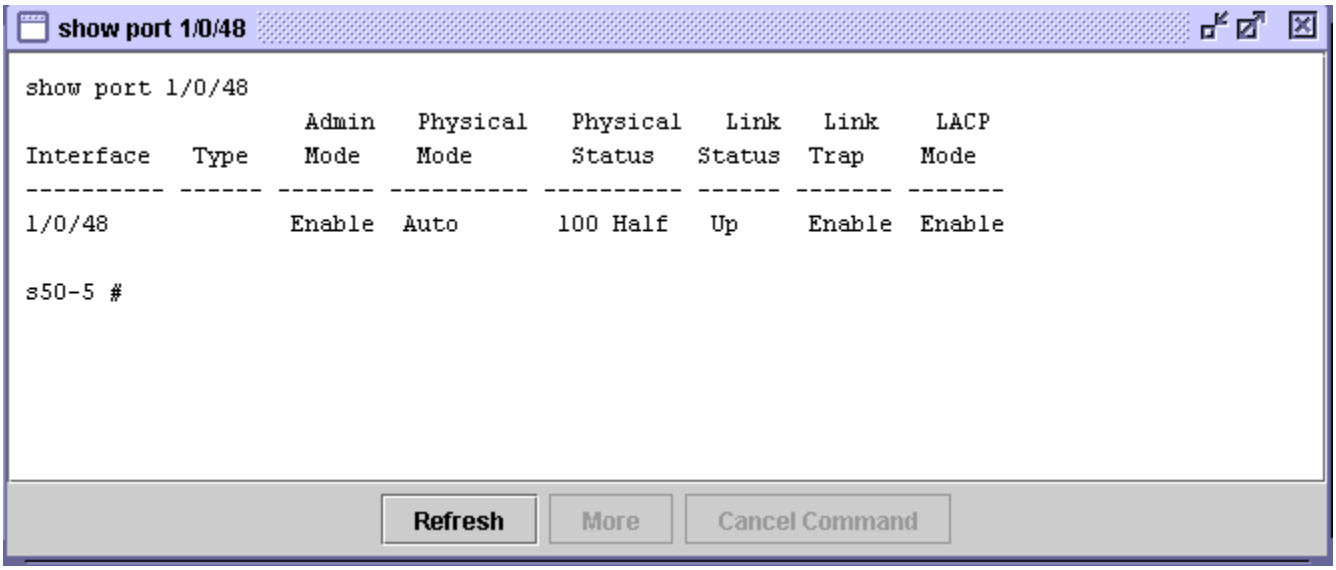
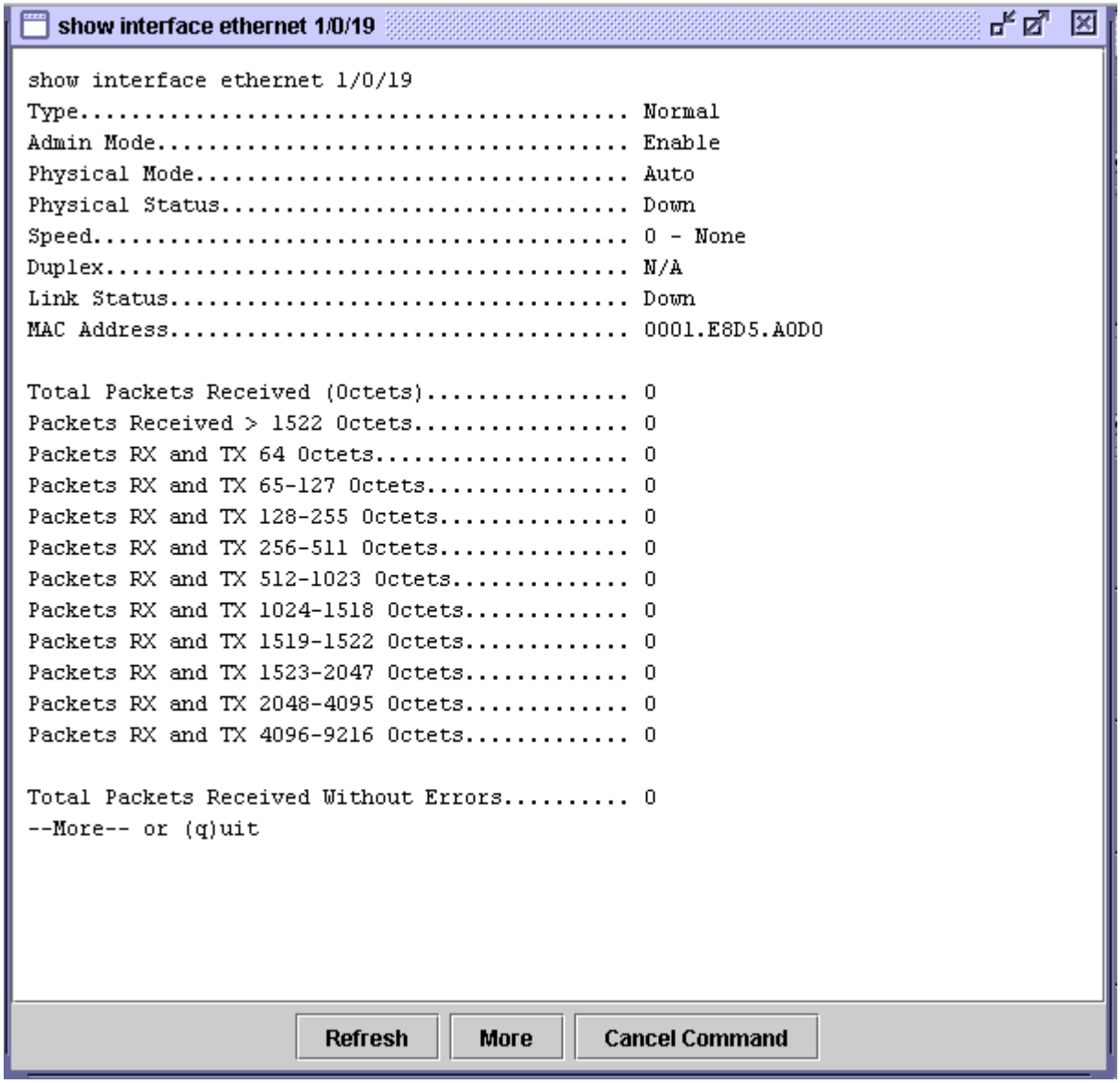
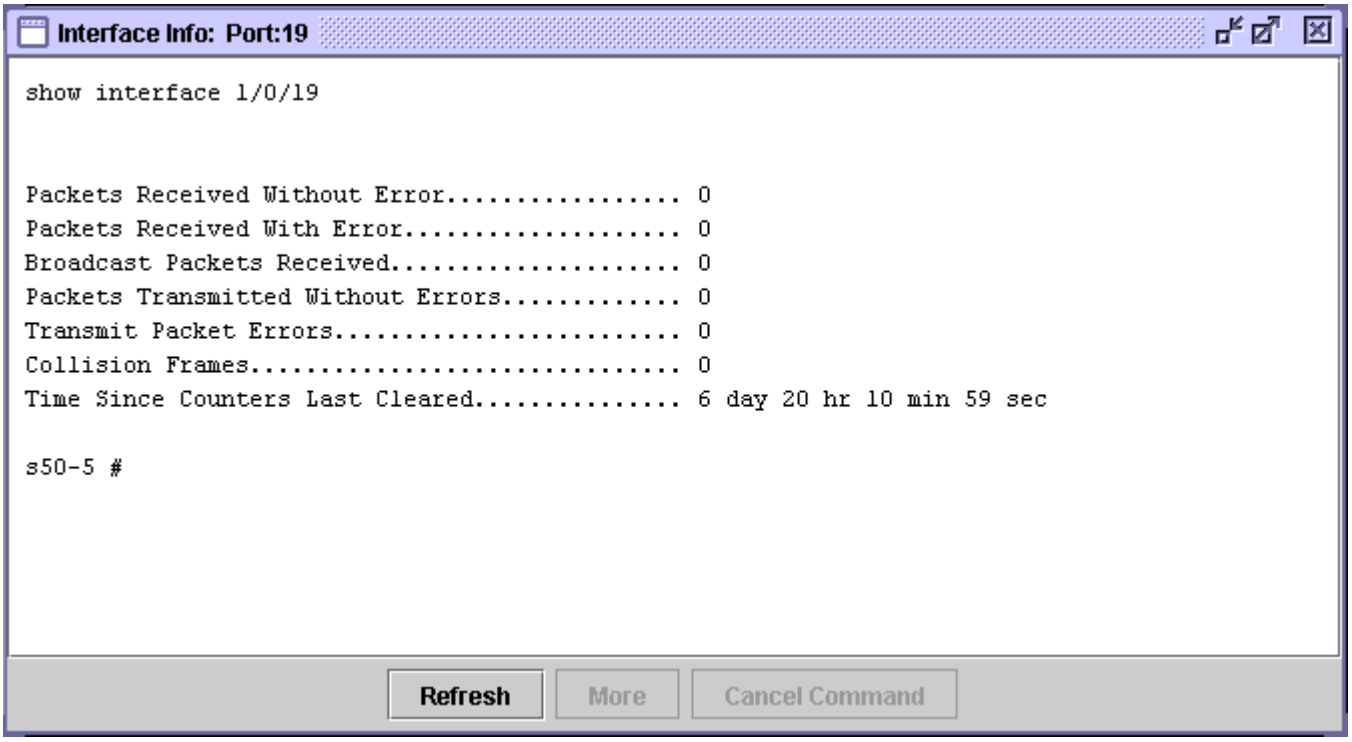


Figure 70 Example Result of Show → Interface Ethernet



Note: In Figure 70, note that the report contains "`--More-- or (q)uit`". That instruction is for use from the CLI. To accomplish the same results in Node Manager, click the **More** or **Cancel Command** buttons, respectively, at the bottom of the window.

Figure 71 Example Report for Interface Info (for the Selected Port)



Analyzing S-Series Interface Performance

Node Manager enables you to plot the performance of each port graphically using a variety of techniques. To do so:

Step	Task
1	Right-click the icon of the port you wish to examine. If you have not yet logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays a pop-up menu of available options.
2	Click **Current Statistics → Port Traffic Statistics**. The Performance Current Data Viewer window opens, which is the same used for the E-Series (see Figure 21 on page 44). The window is just as described for use with the E-Series components (see Displaying E-Series Chassis Information on page 42); it displays an empty bar chart at first, but then begins to display data based upon the default settings for the selected report. You can select an alternate chart type from the Chart Options section at the bottom of the window, along with a variety of input parameters.

Note: See also Managing Performance Templates on page 45.

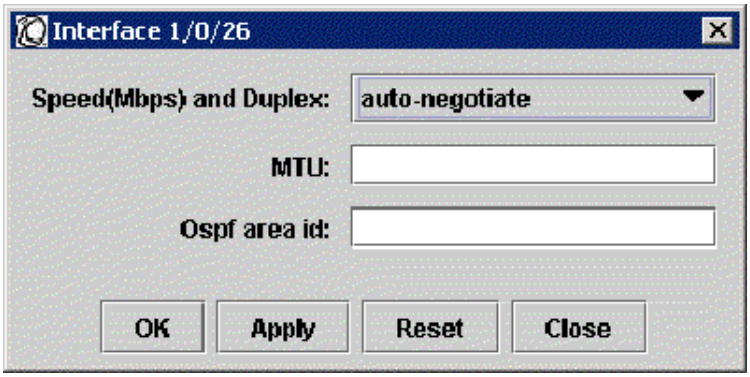
Configuring S-Series Interfaces

Node Manager enables you to perform these management activities on interfaces:

- Configuring S-Series Switch Interfaces
- Enabling and Shutting Down S-Series Ports
- Telneting to an S-Series Switch Interface
- Managing S-Series Port Channels on page 99
- Using S-Series Bulk Configuration on page 110

Configuring S-Series Switch Interfaces

To configure a switch interface:

Step	Task
1	Right-click the icon of the port you wish to configure. If you have not yet logged into the CLI, Node Manager prompts you to do so. Node Manager displays a pop-up menu of available options.
2	Click **Config**. Node Manager displays this dialog box: **Figure 72** Interface Dialog Box (S-Series Port Configuration) 
3	Enter your selections. The following table contains a description of each field:

Field Name	Usage
Speed and Duplex	Sets the speed and duplex setting for the interface.
MTU	Enables you to enter a link Maximum Transmission Unit (MTU) size for the interface. Range: 1518 to 9216 bytes.
OSPF area ID	Assign the interface to an OSPF area. This feature is not available when only the Layer 2 package of SFTOS is installed on the subject switch.

4	Click **Apply** or **OK** to make your change(s), or click **Reset** to reload the default settings.
5	Choose **OK** or **Close** to exit.

Note: You can also set the MTU for more than one port at once. See Using S-Series Bulk Configuration on page 110.

Enabling and Shutting Down S-Series Ports

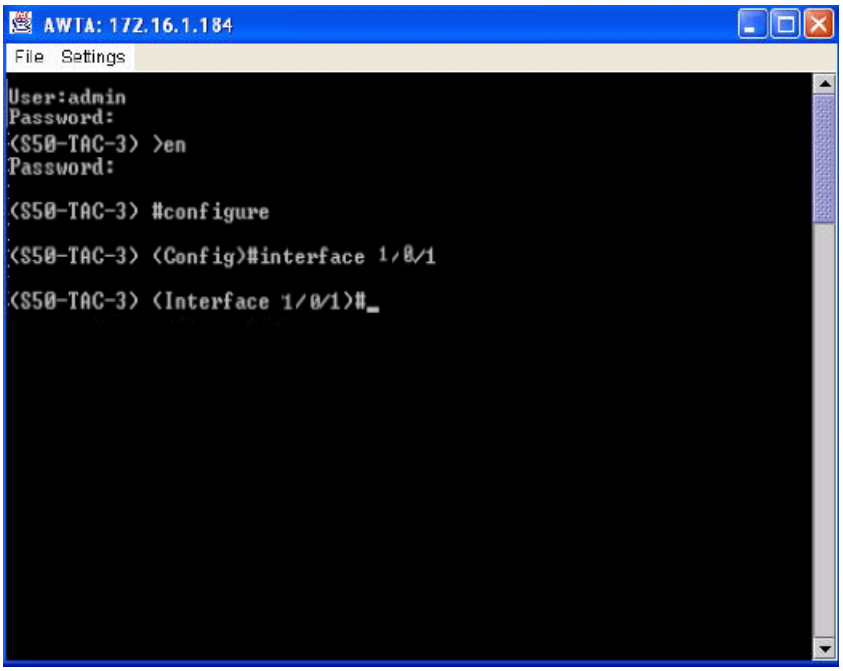
To enable or shut down a port:

Step	Task
1	Right-click the icon of the port that you wish to enable or shut down. Node Manager displays a pop-up menu of available options. If the port is shut down, the Node Manager menu option is **No Shutdown**. If the port is enabled, the Node Manager menu option is **Shutdown**.
2	If you want to enable the port, click **No Shutdown**. Or If the port is enabled and you want to shut it down, click **Shutdown**. **Note:** You can also do this in bulk mode. See Using S-Series Bulk Configuration on page 110.
3	In both cases, if you have not logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays a confirmation box. Click **Yes**. Node Manager returns you to the main application window. The switch graphic now displays the port either as shut down (grayed out) or enabled, depending on your selection. If the port is enabled, but not operationally up, the icon is red. When the port is also operationally up (phyically connected to another port), the icon is green.

Telneting to an S-Series Switch Interface

To telnet to a switch interface:

Step	Task
1	Right-click the icon of the port that you wish to manage. If you have not yet logged into the CLI, Node Manager prompts you to do so. Node Manager displays a pop-up menu of available options.

Step	Task
2	From the pop-up menu, click **Telnet to Device**. Node Manager displays a Telnet window and automatically invokes the CLI commands that enable you to manage the selected port. **Figure 73** Telnetting to an S50 Port  **Note:** You can do anything in this Telnet window that you can do by telnetting into the switch in a more conventional way. In other words, you can manage ports, run global show commands, etc.
3	Make your changes using the CLI.
4	To terminate the Telnet session, click **File → Disconnect**. To close the window, click **File → Exit**.

Managing S-Series Port Channels

You can use Node Manager to add and remove port channels. A port channel is a method of grouping multiple physical interfaces into a single logical interface. In IEEE 802.3ad, a port channel is referred to as a Link Aggregation Group (LAG).

Port channels provide redundancy by enabling you to aggregate up to eight physical interfaces of the same interface type and speed interfaces into one logical interface. This enables the S50 to have one physical interface carry the traffic of another if the former goes down in a port channel. You can configure up to 32 port channels per switch.

You can perform the following port channel management activities in Node Manager:

- Viewing S-Series Port Channel Information on page 100
- Adding S-Series Port Channels on page 104
- Deleting S-Series Port Channels on page 106
- Configuring S-Series Port Channels on page 107

- Starting S-Series Port Channels on page 107
- Shutting Down S-Series Port Channels on page 108
- Telneting to an S50 Port Channel on page 108

Viewing S-Series Port Channel Information

You can use Node Manager to research port channel information in several ways. This section contains the following subsections:

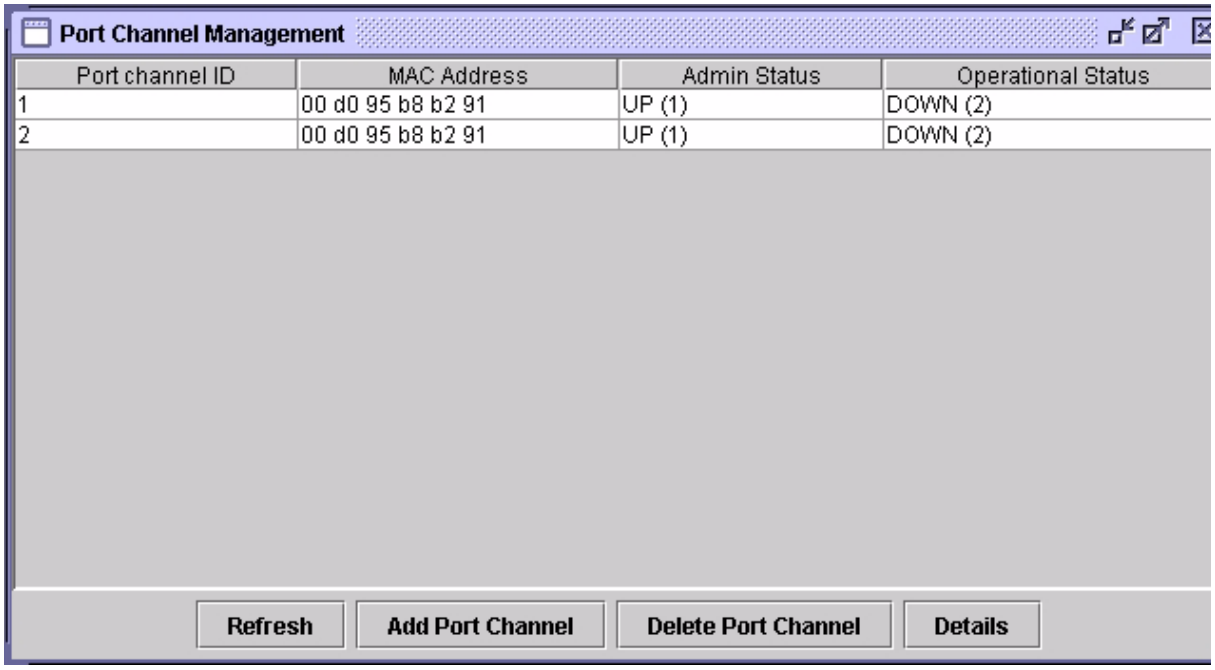
- Displaying S-Series Port Channel Interface Information on page 101
- Examining S-Series Port Channel Configuration Information on page 103
- Analyzing S-Series Port Channel Performance on page 104

Displaying S-Series Port Channel Interface Information

To display interface information for a particular port channel:

Step	Task
1	Select **Config** → **Port Channel**. Node Manager displays the Port Channel Management window, which is the same as used by Node Manager for the E-Series:

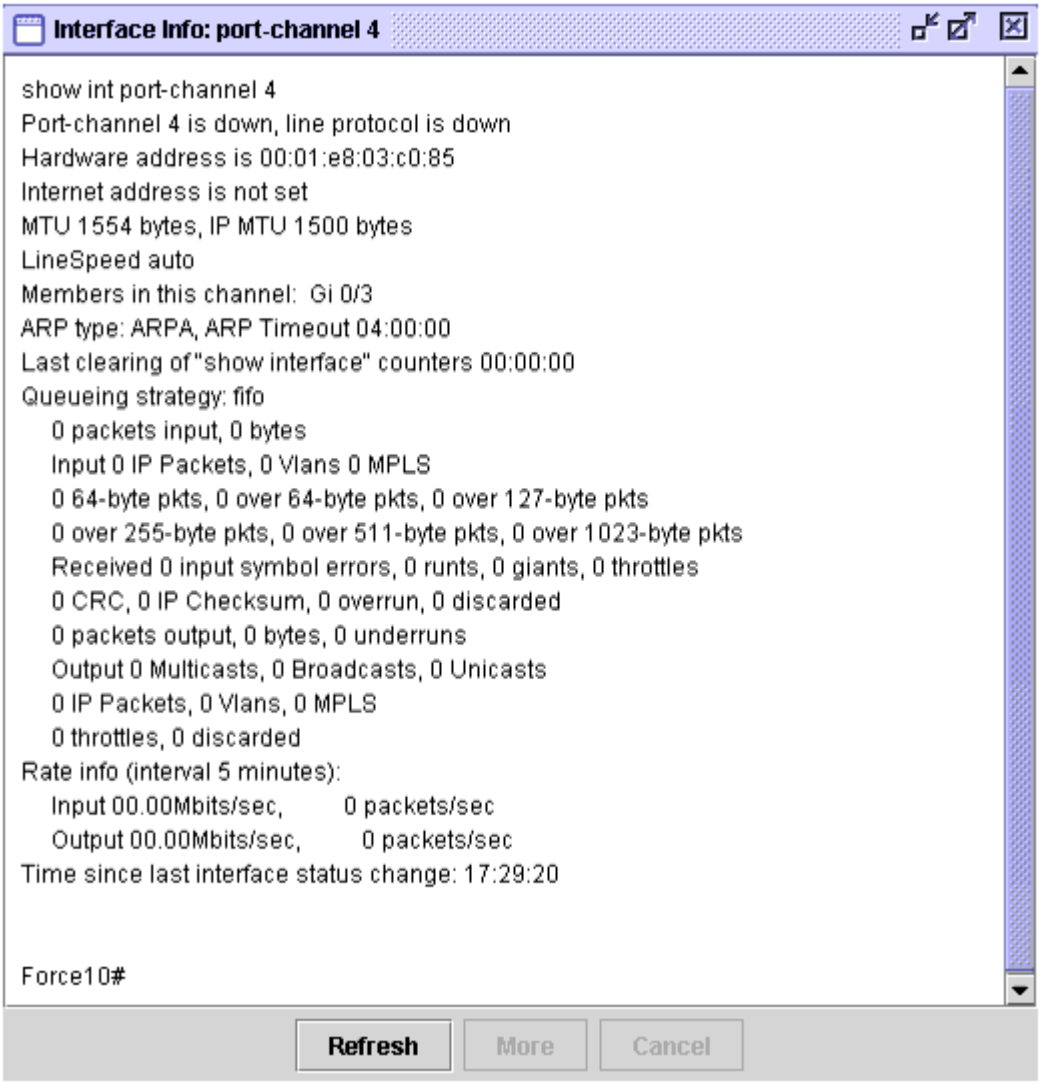
Figure 74 Port Channel Management Window (S50)



Each row in the table shows a separate port channel. The table headers are the following:

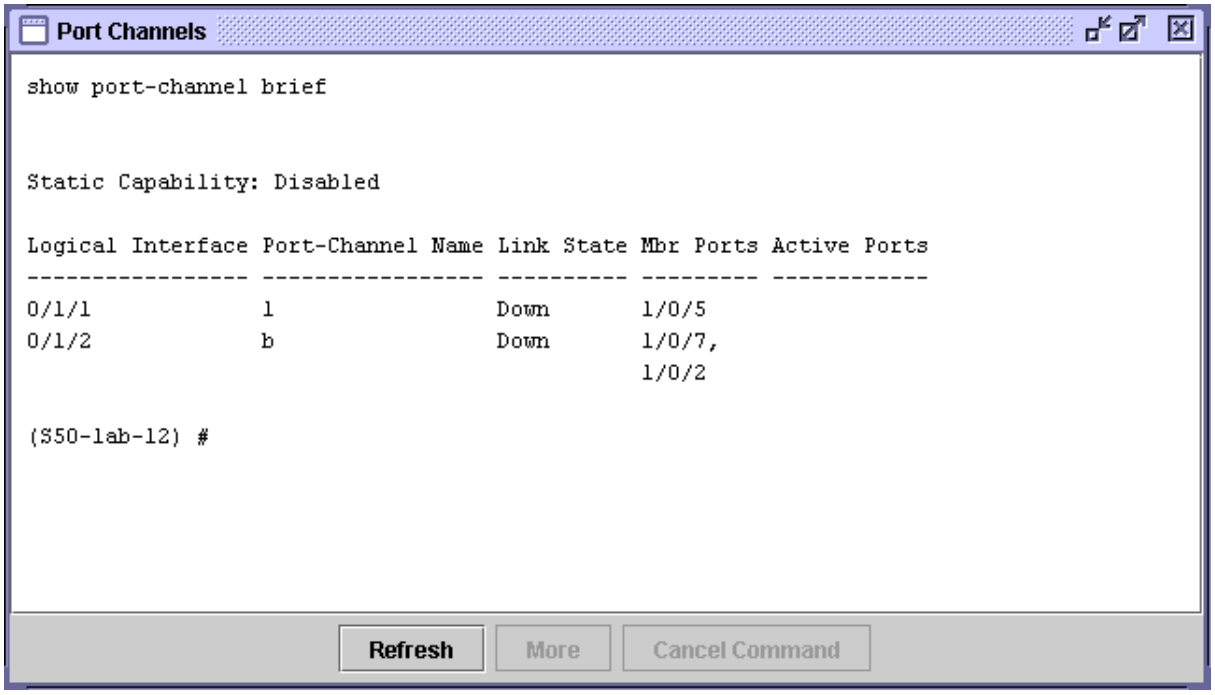
- *Port channel ID*: The identification number of the port channel
- *MAC Address*: The Medium Access Control address of the port channel
- *Admin Status*: The port channel's administrative status. This can be either UP or DOWN. The MIB value status appears after the administrative status in parentheses (1 for up, 2 for down).
- *Operational Status*: The operational status of the port channel. This can be either UP or DOWN. The MIB value status appears after the operational status in parentheses (1 for up, 2 for down).

2	Right-click the display line of the port channel you wish to examine. Node Manager displays a pop-up menu of available options.

Step	Task
3	Click **Interface Info**. If you have not yet logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays a dialog box containing the output from the **show interfaces port-channel** *number* command for the port channel.  **Note:** You can also double-click the port channel to access this window.
4	Click the close box (top right) to close the window. Or, to keep the window open and move back to the Port Channel window or main application window, click **Window → Port Channel Management** or **Window → Chassis View**, respectively.

Examining S-Series Port Channel Configuration Information

To review configuration information for all port channels:

Step	Task
1	On the main menu, click **Config** → **Port Channel**. Node Manager displays the Port Channel Management window, as described in Displaying S-Series Port Channel Interface Information on page 101.
2	Click the **Details** button. If you have not yet logged into the CLI, Node Manager prompts you to do so. After you have logged in, Node Manager displays a dialog box containing the output from the **show port-channel brief** command. Some sample output for this command appears below: **Figure 75** Port Channels Window (S50 show port-channel brief Command) 
3	Click the **close** box (top right) to close the window. Or, to keep the window open and move back to the Port Channel window or main application window, click **Window** → **Port Channel Management** or **Window** → **Chassis View**, respectively.

Analyzing S-Series Port Channel Performance

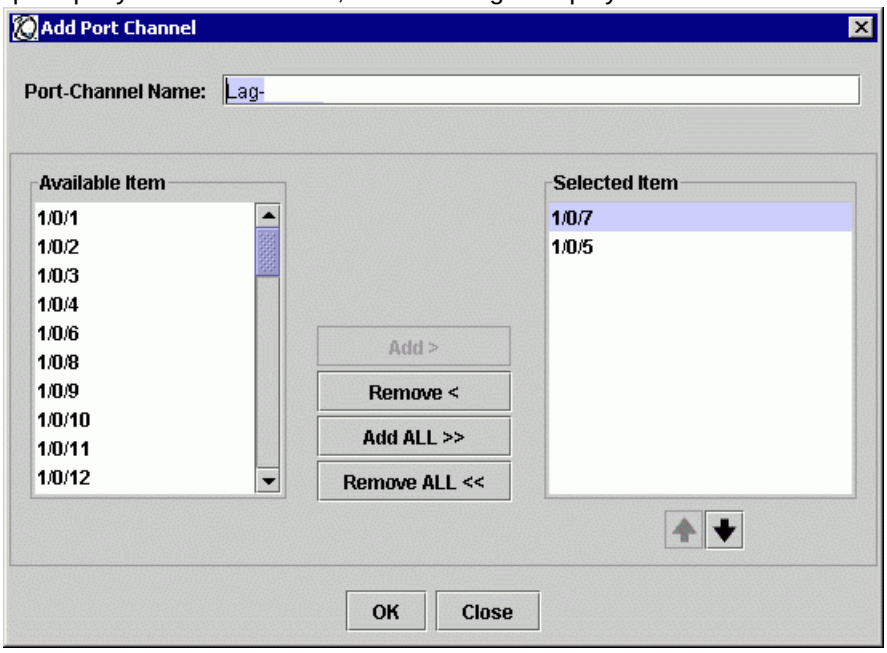
You can use Node Manager to plot graphically the performance of each port channel.

Step	Task
1	On the main menu, click **Config → Port Channel**. Node Manager displays the Port Channel Management window, as described in Displaying S-Series Port Channel Interface Information on page 101.
2	Right-click the display line of the port channel you wish to examine. Node Manager displays a pop-up menu.
3	Click **Current Statistics → Port Traffic Statistics**. The Performance Current Data Viewer window opens (see Figure 21 on page 44). The chart window is the same one used for displaying the performance of S50 chassis and ports, and all E-Series components. The window displays an empty bar chart at first, but then begins to display data based upon the default settings for the selected report. You can select an alternate chart type from the Chart Options section at the bottom of the window, along with a variety of input parameters. For details on using the window, see Displaying E-Series Chassis Information on page 42.

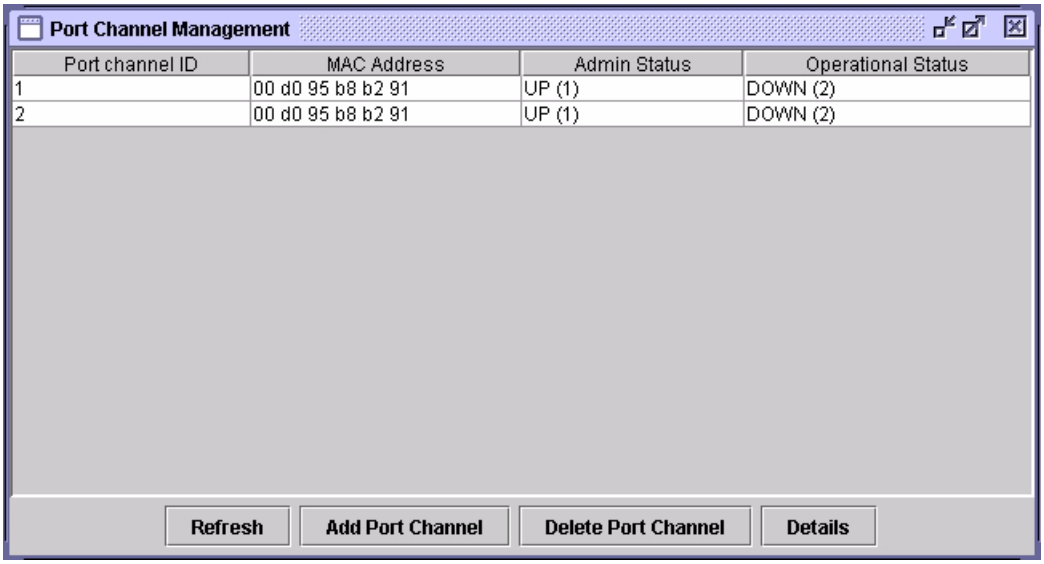
Adding S-Series Port Channels

To add a port channel:

Step	Task
1	On the main menu, click **Config → Port Channel**. Node Manager displays the Port Channel Management window, as described in Displaying S-Series Port Channel Interface Information on page 101.

Step	Task
2	Click the **Add Port Channel** button. If you have not previously logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays this Add Port Channel dialog box: 
3	Enter the port channel name you wish to assign the port channel in the **Port Channel Name** field. **Note**: The port channel name is displayed when you click **Details** on the Port Channel Management window. The port channel ID shown on the Port Channel Management window is an automatically generated ID, as an integer increment of the current set.
4	Select the description of the interface and port from the **Available Item** field. The Add button becomes active.
5	Click **Add**. Node Manager moves the switch to the Selected Item field.

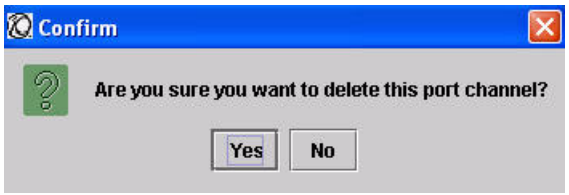
Step	Task
6	When you are finished adding ports, click **OK**. Node Manager adds the port channel to the list in the Port Channel Management window.



Deleting S-Series Port Channels

To delete a port channel:

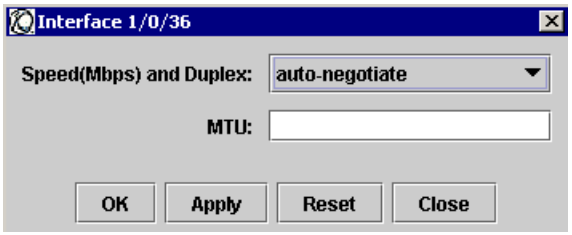
Step	Task
1	On the main menu, click **Config** → **Port Channel**. Node Manager displays the Port Channel Management window, as described in Displaying S-Series Port Channel Interface Information on page 101.
2	Select the display line of the port channel that you wish to delete.
3	Click **Delete Port Channel**. If you have not previously logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays this confirmation dialog box:



4	Click **Yes** to delete the port channel and return to the Port Channel Management window.

Configuring S-Series Port Channels

To configure a port channel:

Step	Task
1	On the main menu, click **Config** → **Port Channel**. Node Manager displays the *Port Channel Management* window, as described in Displaying S-Series Port Channel Interface Information on page 101.
2	Right-click on the display line of the port channel you wish to configure. Node Manager displays a pop-up menu of available options.
3	Click **Config**. Node Manager displays this dialog box: **Figure 76** Interface Dialog Box (Configure S50 Port Channel Speed and MTU) 
4	Enter your selections. You have these options:

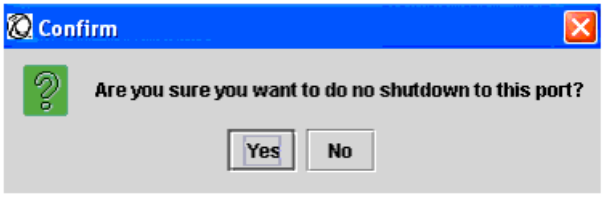
Field Name	Usage
Speed (Mbps) and Duplex	Sets the speed and duplex setting for the interface.
MTU	Enables you to define a link Maximum Transmission Unit (MTU) size for the port channel. Range: 1518 to 9216 bytes.

5	Click **Apply** to make your change, or click **Reset** to reload the default settings.
6	Click **OK** to accept the changes and exit, or click **Close** to exit without accepting the changes.

Starting S-Series Port Channels

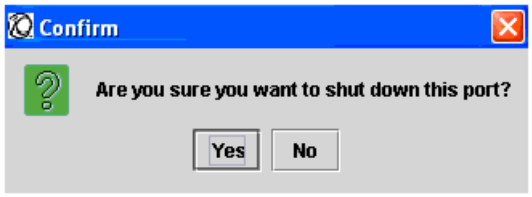
To start a port channel;

Step	Task
1	On the main menu, click **Config** → **Port Channel**. Node Manager displays the *Port Channel Management* window, as described in Displaying S-Series Port Channel Interface Information on page 101.
2	Right-click on the display line of the port channel you wish to start. Node Manager displays a pop-up menu of available options.

Step	Task
3	Select **No Shutdown**. If you have not logged into the CLI, Node Manager prompts you to do so. Node Manager displays this dialog box to confirm your wish to start the port channel: 
4	Choose **Yes** to start the port channel and return to the *Port Channel Management* window.

Shutting Down S-Series Port Channels

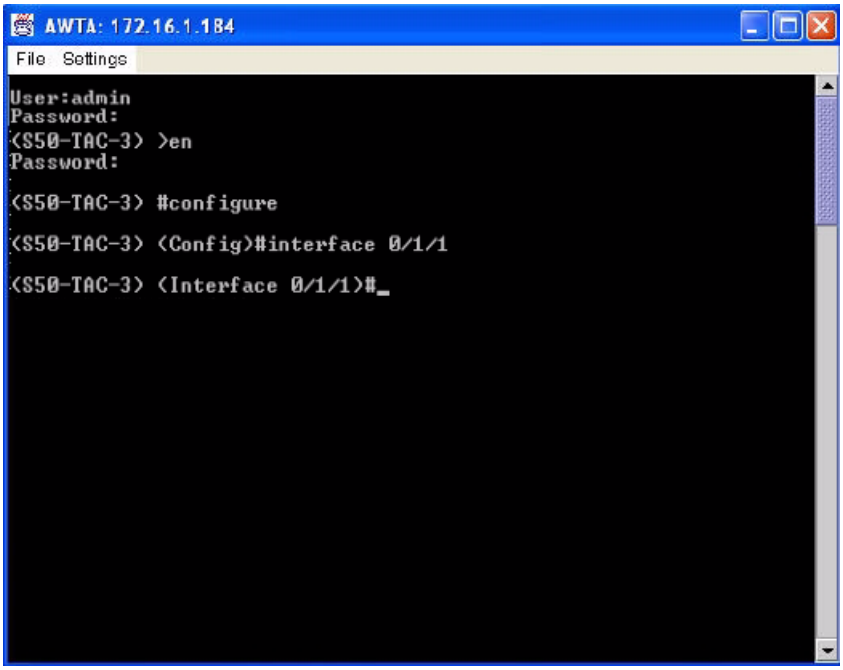
To shut down a port channel:

Step	Task
1	On the main menu, click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window, as described in Displaying S-Series Port Channel Interface Information on page 101.
2	Right-click on the display line of the port channel you wish to shut down. Node Manager displays a pop-up menu of available options.
3	Click **Shutdown**. If you have not logged into the CLI, Node Manager prompts you to do so. Then, Node Manager displays this dialog box to confirm your wish to shut down the port channel: 
4	Click **Yes** to shut down the port channel and return to the *Port Channel Management* window.

Telneting to an S50 Port Channel

To Telnet to a port channel:

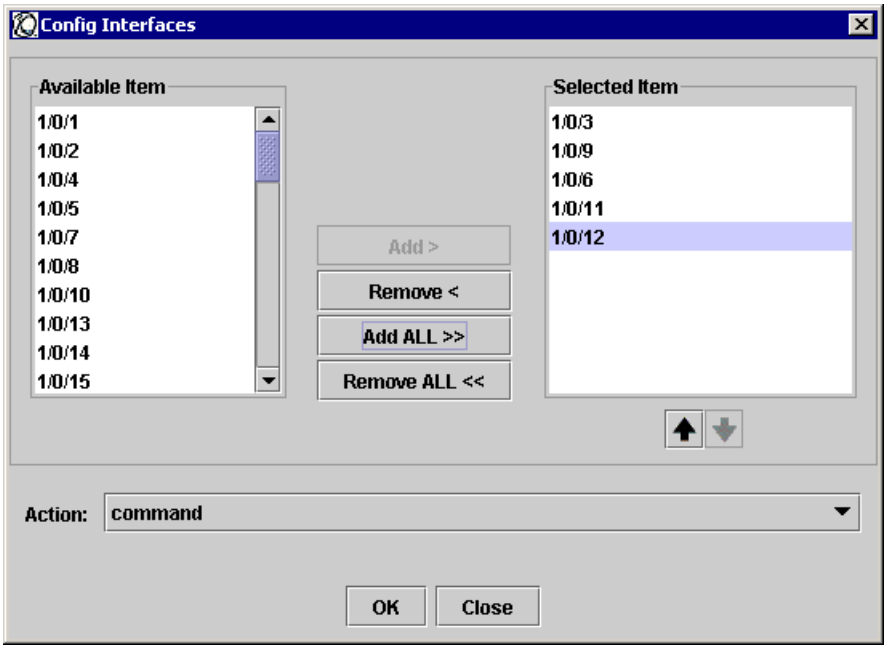
Step	Task
1	On the main menu, click **Config → Port Channel**. Node Manager displays the *Port Channel Management* window, as described in Displaying S-Series Port Channel Interface Information on page 101.

Step	Task
2	Right-click the display line of the port channel that you want to manage through Telnet. Node Manager displays a pop-up menu of available options.
3	Click **Telnet to Device**. Node Manager displays this Telnet window and automatically logs you onto the chassis. **Figure 77** Telnetting to an S50 Port Channel 
4	Make your changes using the CLI.
5	To terminate the session and close the Telnet window, click **File → Exit**.

Using S-Series Bulk Configuration

The S50 supports bulk configuration for switch interfaces. To use bulk configuration to set up or modify your switch:

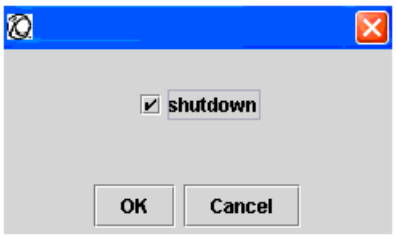
Step	Task
1	On the main menu, click **Config** → **Interfaces**. If you have not previously logged into the CLI, Node Manager prompts you to do so. Node Manager displays this Config Interfaces dialog box:



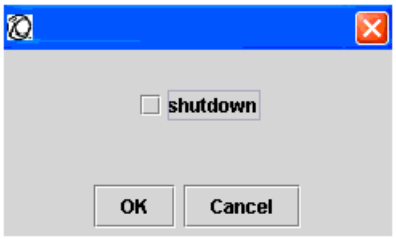
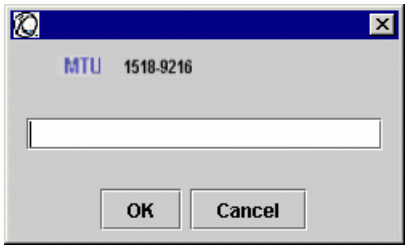
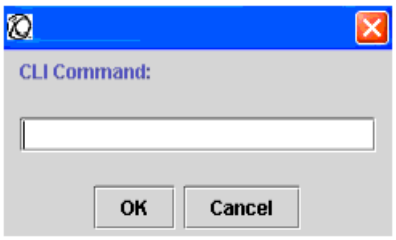
2	Select the interfaces you want to configure by pressing the **Ctrl** key while clicking on each item with your mouse. To configure all the available interfaces, click **Add All**. Node Manager moves the interface or interfaces into the Selected Item column.
3	Select the function you want to perform on the interfaces from the **Action** drop-down. You have these options:

Command	Description
shutdown	Use this option to disable the interfaces. If you choose **shutdown**, Node Manager displays this dialog box:

Figure 78 Shutdown Dialog Box (S50 Ports)



Leave the box checked and click **OK** to shut down the interfaces.

Step	Task	
	no shutdown	Use this option to enable the interfaces. If you choose **no shutdown**, Node Manager displays this dialog box:  Leave the box unchecked and click **OK** to start the interfaces.
	MTU setting	Use this option to define a link Maximum Transmission Unit (MTU) size for the interface. If you select this option, Node Manager displays this dialog box: **Figure 79** MTU Dialog Box (S50 Ports)  Enter the Link MTU setting you want to assign to the interfaces. Your permissible range is 1518 to 9216 bytes. Click **OK** to complete the action.
	command	Use this option to enter brief CLI commands that apply to all of the interfaces you selected. If you choose this option, Node Manager displays this dialog box: **Figure 80** CLI Command Dialog Box (S50)  Enter the text of your CLI command and click **OK** to carry it out.

Appendix A Supported Devices

Node Manager 1.5 supports the line cards and switches listed in this appendix. With few exceptions, Node Manager supports the line cards supported by the version of FTOS or SFTOS running on the subject machine. The sections in this chapter are:

- C300 and Line Cards on page 113
- E1200, E600, E600i, and Line Cards on page 113
- E300 and Line Cards on page 114
- S-Series Devices on page 115

C300 and Line Cards

Table 6 C300 and Line Cards

Catalog Number	Card Indicator	Description
LC-C-BLNK-LC		Blank line card panel
LC-CB-GE-48T	E48TB	48-port 10/100/1000Base-T line card with RJ-45 interface
LC-CB-GE-48V	E48VB	48-port 10/100/1000Base-T line card with RJ-45 interface with inline power
LC-CB-10G-4P	EX4PB	4-port 10 GbE line card with pluggable XFP optics
CC-C-BLNK-RPM		C300 Route Processor Module Blank Panel

E1200, E600, E600i, and Line Cards

Table 7 E1200, E600, E600i, and Line Cards

Catalog Number	Card Type	Description
LC-EE-10GEL-2E	EX2YE	2-Port 10-Gigabit Ethernet with LAN PHY up to 10 km with 256K FIB support
LC-ED-1GE-24P	E24PD	24-port Gigabit Ethernet line card with SFP optics.
LC-ED-FE/GE-24T	E24TD	24-port 100/1000 Base-T Ethernet line card with RJ-45 connectors.

Table 7 E1200, E600, E600i, and Line Cards (Continued)

Catalog Number	Card Type	Description
LC-ED-10GEL-2Y	EX2YD	2-port 10 Gigabit Ethernet LAN PHY line card with 10Km (1310nm) optics.
LC-ED-1GEFLX-12P	F12PD	12-port Gigabit Ethernet with SFP
LC-EE-1GE-24P	E24PE	24-Port Gigabit Ethernet with SFP and 256K FIB Support
LC-EF-10GE-4P	EXW4PF	4-port 10GE LAN/WAN PHY line card with XFP optics (EF)
LC-EF-10GE-16P	EXW16PF	16-Port 10-Gigabit Ethernet LAN/WAN PHY
LC-EF-1GE-48P	E48PF	48-port Gigabit Ethernet line card with SFP optics (EF)
LC-EF-GE-48T	E48TF	48-port 10/100/1000Base-T line card with RJ-45 interfaces (EF)
LC-EF-GE-90M	E90MF	90-Port 10/100/1000 BASE-T Ethernet
LC-EG-10GE-4P	EXW4PG	4-port 10GE LAN/WAN PHY line card with XFP optics (EG)
LC-EG-1GE-48P	E48PG	48-port GE line card with SFP optics (EG)
LC-EG-GE-48T	E48TG	48-port 10/100/1000Base-T line card with RJ-45 interfaces (EG)
LC-EG-OC48-4P	S48P4G	4-port OC48c/12c/3c line card with SFP optics (EG)

E300 and Line Cards

Table 8 E300 and Line Cards

Catalog Number	Card Type	Description
LC-ED3-10GEL-1Y	EX1YD3	1-port 10-Gigabit Ethernet LAN PHY line card with 1310nm serial 10Km optics (series ED3).
LC-ED3-FE/GE-12T	E12TD3	12-port 100/1000Base-T line card with RJ-45 interfaces.
LC-ED3-1GE-12P	E12PD3	24-port Gigabit Ethernet line card - SFP optics required (series ED3).
LC-EE3-10GEY-1Y	EX1YE3	1-port 10-Gigabit Ethernet LAN PHY line card with 1310nm serial 10 Km optics (series EE3)
LC-EE3-1GE-12P	E12PE3	12-port Gigabit Ethernet line card - SFP optics required (series EE3)
LC-EF3-1GE-24P	E24PF3	24-port Gigabit Ethernet line card with SFP optics
LC-EF3-10GE-2P	EXW2PF3	2-port 10GE LAN/WAN PHY line card with SFP optics
LC-EF3-GE-48T	E48TF3	48-port 10/100/1000Base-T line card with RJ-45 interfaces
LC-EF3-10GE-2P	EXW2PF3	2-Port 10-Gigabit Ethernet LAN/WAN PHY
LC-EF-GE-24T	E24TG3	24-port 10/100/1000Base-T line card with RJ-45 interfaces (EG3)
LC-EG3-OC48-4P	S48P4G3	4-port OC48c/12c/3c line card with SFP optics (EG3)

S-Series Devices

Table 9 S-Series Devices

Catalog Number[1]	Card ID[2]	Model and Description
SA-01-GE-48T[3]	3	S50 switch: 48-port Gigabit Ethernet with SFP optics and RJ45 ports
S25-01-GE-24P	7	S25P switch: 24-port 10Gigabit Ethernet with SFP optics and four shared 10/100/1000 RJ45 ports
S25-01-GE-24P-DC	8	S25P switch, as above, except DC power only
S50-01-GE-48T-V	4	S50V switch: 48-port Gigabit Ethernet with SFP optics, RJ45 ports, and Power over Ethernet (PoE) functionality on all copper ports
S50-01-GE-48T-AC	5	S50N switch (S50N-DC shown with same icon): Same as S50V, except without PoE
S50-01-GE-48T-DC	6	S50N switch, as above, except DC power only
S2410-01-10GE-24CP	3	S2410CP switch: 20 line rate 10GBase-CX4 ports plus four 10 GbE pluggable XFP interfaces
S2410-01-10GE-24P	4	S2410P switch: 24 line rate 10 GbE XFP ports

[1]The optional modules that can be inserted in the back of S-Series switches are represented by dummy cards as place holders.

[2]The ”Card ID” (CID) is displayed in SFTOS by the **show supported cardtype** and **show supported switchtype** commands.

[3]Node Manager 1.4 and 1.5 support SFTOS 2.5.x. Use Node Manager 1.3 for earlier versions of SFTOS.

Appendix B Alarms

Overview

Force10 Node Manager uses simulations of LEDs to indicate major and minor alarms for these conditions:

- fan tray status
- power supply status
- RPM status
- high temperature on RPMs
- line card status
- high temperature on line cards
- SFM status
- high temperature on SFMs

A major alarm is any fault that would render the chassis non-functional.

A minor alarm is any fault that threatens the operation of the chassis.

You also can configure audible alarms on the chassis itself and configure the chassis to send an SNMP trap. For more information about these features, please see the *FTOS Command Line Interface Reference.*

Alarm Logging and Multiple Alarm Occurrences

The E-Series logs alarms for each occurrence, but it may not send an event log for multiple occurrences. For example, whenever a module exceeds the shutdown threshold, the module shuts down. If more than one module exceeds the warning or high temperature thresholds within a five-minute period, the system generates one event for all effected modules, but logs alarms for each occurrence. If the modules temperature falls to 5° lower than the warning threshold temperature, the system clears the alarm and an SNMP trap.

Table 10 Alarm Events and Reporting.

Module	Alarm Event	Alarm LED	Reported in event log	Status LED on Module	Audible Alarm?
Fan tray	More than one fan within the module fails or hardware failure in the module	major (red)	major	amber	yes
	One fan within the module fails	minor (amber)	minor	amber	no
AC Power Supplies	Hardware failure in a non-redundant power configuration (3 power supplies)	major (red)	major	red or unlit	yes
	Hardware failure in a redundant power configuration (4 power supplies)	minor (amber)	minor	red or unlit	no
Line Card	Hardware failure	major (red)	major	amber	no
	Exceeds high temperature limit	major (red)	major	unlit	yes
	Exceeds warning temperature limit	minor (amber)	minor	green	yes
	Individual interface fails	minor (amber)	reported	amber[1]	no
RPM (Non-redundant Configuration with 1 RPM)					
	Exceeds high temperature limit	major (red)	major	unlit	yes
	Exceeds warning temperature limit	minor (amber)	minor	green	no
	RPM fails but CP is ok	major (red)	major	amber	yes
SFMs (Redundant Configuration with 2 SFMs)					
	Exceeds high temperature limit	major (red)	major	unlit	yes
	Exceeds warning temperature limit	minor (amber)	minor	green	no
	Any card fails	minor (amber)	minor	amber	no
	Any card removed	minor (amber)	minor	unlit	no
1 SFM (Non-Redundant Configuration)					
	Exceeds high temperature limit	major (red)	major	unlit	yes
	Exceeds warning temperature limit	minor (amber)	minor	green	no
	Any card fails	major (red)	major	amber	yes
	Any card removed	major (red)	major	unlit	yes

1. The interface's Link LED is unlit.

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