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# Using Enterprise Switch Manager Release 5.1.0.0



**NORTEL**

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## Preface

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Enterprise Switch Manager™ is a Java-based graphical network management application used to configure and manage certain Nortel Ethernet Routing Switches, Nortel Ethernet Switches, Legacy BayStack switches and Business Policy Switches 2000™ operating within the same local area network. For more information about the devices supported by Enterprise Switch Manager, see [“Supported devices” on page 47](#).

This guide provides information about installing the Enterprise Switch Manager software and using the features and capabilities of Enterprise Switch Manager’s graphical user interface (GUI).

## Before you begin

This guide is intended for network administrators with the following background:

- Familiarity with the following networking concepts and terminology:
  - Security
  - VLANs
  - STGs
  - MLTs
  - Multicast protocols
- Ability to configure and troubleshoot VLANs, STGs, MLTs, and Multicast groups

## Text conventions

This guide uses the following text conventions:

|                          |  |
|--------------------------|--|
| <b>bold Courier text</b> | Indicates command names and options and text that you need to enter.<br>Example: Use the <b>dinfo</b> command.<br>Example: Enter <b>show ip {alerts routes}</b> .  |
| <i>italic text</i>       | Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore.<br>Example: If the command syntax is <code>show at &lt;valid_route&gt;</code> , <i>valid_route</i> is one variable and you substitute one value for it. |
| plain Courier text       | Indicates command syntax and system output, for example, prompts and system messages.<br>Example: Set Trap Monitor Filters   |
| separator ( > )          | Shows menu paths.<br>Example: Protocols > IP identifies the IP option on the Protocols menu.   |



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## Related publications

For more information about the protocols used in Enterprise Switch Manager or information about using Device Manager, refer to the publications in this list.

- *Installing Enterprise Switch Manager* (210274-G)
- *Configuring Network Management: Passport 8000 Series Software Release 4.0* (314723-D)
- *Configuring IP Routing and Multicast Operations using Device Manager: Ethernet Routing Switch 8300 Software Release 2.2* (317338-B)
- *Configuring and Managing Security: Passport 8000 Series Software Release 4.0* (314724-D)
- *Configuring VLANs, Spanning Tree, and Link Aggregation: Passport 8000 Series Software Release 4.0* (314725-D)
- *Configuring and Managing Security using Device Manager: Ethernet Routing Switch 8300 Software Release 2.2* (317346-B)
- *Configuring VLANs, Spanning Tree, and Static Link Aggregation using Device Manager: Ethernet Routing Switch 8300 Software Release 2.2* (316805-B)
- *Configuring IP Routing Protocols for Nortel Ethernet Routing Switch 5500 Series, Software Release 4.2* (217465-A)
- *Configuring and Managing Security for Nortel Ethernet Routing Switch 5500 Series, Software Release 4.2* (217463-A)
- *Configuring VLANs, Spanning Tree, and Multilink Trunking for Nortel Ethernet Routing Switch 5500 Series, Software Release 4.2* (217464-A)
- *Configuring and Managing Security: Nortel Ethernet Switches 460 and 470 Software Release 3.6* (217104-A)
- *Configuring VLANs, Spanning Tree, and MultiLink Trunking Nortel Ethernet Switches 460 and 470 Software Release 3.6* (217460-A)
- *Reference for the BayStack 350/410/450 Management Software Operations Version 5.0* (210245-C)
- *Networking Concepts for the Passport 1000 Series Switch* (205588-B)
- *Reference for the Passport 1000 Series Management Software Switching Operations, Release 2.1* (211192-A)
- *Reference for the Passport 1000 Series Management Software Routing Operations, Release 2.1* (211193-A)

You can print selected technical manuals and release notes free, directly from the Internet. Go to [www.nortel.com/support](http://www.nortel.com/support). Find the product for which you need documentation. Then locate the specific category and model or version for your hardware or software product. Use Adobe\* Reader\* to open the manuals and release notes, search for the sections you need, and print them on most standard printers. Go to the Adobe Systems web site at [www.adobe.com](http://www.adobe.com) to download a free copy of the Adobe Reader.

## How to get help

This section explains how to get help for Nortel products and services.

### Getting Help from the Nortel web site

The best way to get technical support for Nortel products is from the Nortel Technical Support web site:

[www.nortel.com/support](http://www.nortel.com/support)

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. More specifically, the site enables you to:

- download software, documentation, and product bulletins
- search the Technical Support web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

### Getting Help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

## Getting Help over the phone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support web site, and have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following web site to obtain the phone number for your region:

[www.nortel.com/callus](http://www.nortel.com/callus)

## Getting Help from a specialist by using an Express Routing Code

An Express Routing Code (ERC) is available for many Nortel products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate the ERC for your product or service, go to:

[www.nortel.com/erc](http://www.nortel.com/erc)



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# Chapter 1

## Introducing Enterprise Switch Manager

---

This chapter introduces Nortel Enterprise Switch Manager features and functions, and it includes the following topics:

- [“What is Enterprise Switch Manager?,” next](#)
- [“Enterprise Switch Manager features” on page 46](#)
- [“Supported devices” on page 47](#)
- [“Enterprise Switch Manager submanagers” on page 50](#)
- [“Additional Enterprise Switch Manager tools” on page 54](#)

## What is Enterprise Switch Manager?

Enterprise Switch Manager is a Java-based network management application that lets you discover and view network nodes and their physical links on a topology map. Once your network is discovered, you can monitor, manage, and configure protocols and settings in devices in the network using the following submanagers and tools within Enterprise Switch Manager:

- [Topology Manager](#)
- [VLAN Manager](#)
- [MultiLink Trunking Manager](#)
- [Multicast Manager](#)
- [Security Manager](#)
- [File/Inventory Manager](#)
- [Trap/Log Manager](#)
- [NSNA Manager](#)
- [Tftp Server](#)
- [Smart Diff](#)

- [MIB Browser](#)

In addition to these submanagers and tools, Enterprise Switch Manager has an associated standalone application, [Device Manager](#), that has the ability to completely configure and manage a single device in the network.

Since Enterprise Switch Manager is a Java-based tool, it is platform-independent. Enterprise Switch Manager also allows you to save the topology map, error log, preferences, and communities in the application.

To use ESM, you do not need Java Runtime Environment (JRE). ESM bundles JRE 1.4.2\_06, but OS patches are required, particularly for Solaris.



**Note:** For information on operating systems supported by Enterprise Switch Manager, see *Installing Enterprise Switch Manager*.

---

## Enterprise Switch Manager features

Enterprise Switch Manager has the following features:

- A consistent look across Solaris, Windows, and Linux platforms.
- Spring algorithm that balances distances between devices and minimizes crossing lines when creating the topology map.
- A consistent Graphical User Interface (GUI) across Enterprise Switch Manager and submanagers and a single point of access to the submanagers.
- Access control and security using community strings, SNMPv3 USM, and SSH.
- Network discovery that you can specify to be as large or small as you want.

## Supported devices

Enterprise Switch Manager currently supports the Nortel platforms and software releases that are described in [Table 1](#).

**Table 1** Supported platforms and software releases

| Platform  | Software release  |
|---|---|
| Ethernet Routing Switch 8600, including the following new hardware: 8681XLW module, 8681XLR module, 8616GTE module, 8672ATME MDA, 8608GBM module, 8608GTM module, 8632TXM module, 8648TXM module, 8672ATMM module, 8683POSM module. | 3.0, 3.0.x, 3.1.x, 3.2.0, 3.2.0.2, 3.2.1.0, 3.2.2 (OSM 2.0), 3.3 (OSM 3.0), 3.5, 3.7 (OSM 4.0), 4.0 (ESM 5.0) |
| Ethernet Routing Switch 8600 Web Switching Module   | WebOS 9.x (OSM 2.0), 10.0.x (OSM 3.0)   |
| Ethernet Routing Switch 8100  | 2.0, 2.0.1.1, 3.1.x, 3.2.0, 3.2.0.2, 3.2.1.0, 3.2.2 (OSM 2.0), 3.3 (OSM 3.0)                                  |
| Ethernet Routing Switch 8300  | 2.0 (OSM 4.0) 2.1, 2.2 (ESM 5.0), 2.2.8, 2.3 (ESM 5.1)  |
| Passport 1050/1150/1200/1250  | 2.0.5.6, 2.0.5.7, 2.0.7.2, 2.0.7.3, 2.0.7.4, 2.1.0, 2.1.3 (OSM 2.0, OSM 3.0)                                  |
| Ethernet Routing Switch 1424T   | 2.1 (OSM 3.0)   |
| Ethernet Routing Switch 1612G, 1624G, 1648T   | 1.0 (OSM 3.0), 1.1 (OSM 4.0) 1.2 (ESM5.0)   |
| BayStack 350/410/450  | 3.0, 3.1, 4.0, 4.1 (OSM 2.0), 4.2, 4.3, 4.4 (OSM 3.0)   |
| Business Policy Switch 2000   | 1.0 (OSM 1.0), 1.0.1, 1.1, 1.2, 2.x (OSM 2.0), 3.0 (OSM 3.0), 3.1 (OSM 4.0)                                   |
| BayStack 380-24 T   | 2.0 (OSM 3.0), 3.0 (OSM 4.0)  |
| BayStack 380-24 F   | 2.1.0 (OSM 3.0), 3.0 (OSM 4.0)  |
| BayStack 420  | 1.0 (OSM 1.0), 1.0.2, 1.1 (OSM 2.0), 1.1.1, 1.1.2, 1.1.3 (OSM 3.0), 3.0 (OSM 4.0), 3.1 (OSM 4.1)              |
| Ethernet Switch 460   | 2.3, 3.0 (OSM 3.0), 3.1 (OSM 4.0), 3.5 (OSM 4.1), 3.6 (ESM 5.0)   |
| Ethernet Switch 470-24 T  | 3.0 (OSM 3.0), 3.0 (OSM 4.0), 3.1 (OSM 4.0), 3.5 (OSM 4.1), 3.6 (ESM 5.0)                                     |

**Table 1** Supported platforms and software releases (continued)

| Platform  | Software release  |
|---|---|
| Ethernet Switch 470-48 T                            | 2.1.0 (only standalone supported); 2.2.0, 2.2.1 (stack also supported), 3.0, 3.0 (OSM 4.0), 3.1 (OSM 4.0), 3.5 (OSM 4.1), 3.6 (ESM 5.0) |
| Ethernet Switch 425-24T                             | 2.0, 3.0 (OSM 3.0), 3.0 (OSM 4.0), 3.1 (OSM 4.0), 3.5 (ESM 5.0), 3.6 (ESM 5.1)  |
| Ethernet Switch 425-48T                             | 3.1(OSM4.0), 3.5 (ESM 5.0), 3.6 (ESM 5.1)   |
| Ethernet Routing Switch 5510, 5520                  | 3.0, 3.0.0.1(OSM 3.0), 3.0 (OSM 4.0), 4.0 (OSM 4.0), 4.1 (OSM 4.1), 4.2 (ESM 5.0), 4.3 (ESM 5.1)  |
| Ethernet Routing Switch 5530                        | 4.2 (ESM 5.0), 4.3 (ESM 5.1)  |
| Ethernet Routing Switch 3510                        | 4.0 (ESM 5.0)   |
| OPTera Metro 1200/1400/1450                         | 1.0, 1.2(OSM 3.0), 1.3 (OSM 4.0)  |
| Alteon 2208, 2216, 2224, 2424, 2424 SSL, 3408, 3416 | AOS 21.0  |
| WLAN AP   | 1.3 (OSM 4.0)   |

In addition, Enterprise Switch Manager discovers any device that supports the Bay Networks™ Autotopology Discovery protocol. These devices are visible in the Enterprise Switch Manager topology map, but you can only configure the devices listed in [Table 1](#).

[Table 2](#) shows the devices supported by the various submanagers in Enterprise Switch Manager. For more information about the submanagers, see “[Enterprise Switch Manager submanagers](#)” on page 50.

**Table 2** Enterprise Switch Manager submanagers and devices

| Platform                     | Topology Map | VLAN Manager | MultiLink Trunking Manager | Multicast Manager | Security Manager | File/ Inventory Manager | Trap/Log Manager | NSNA Manager |
|------------------------------|--------------|--------------|----------------------------|-------------------|------------------|-------------------------|------------------|--------------|
| Ethernet Routing Switch 8600 | X            | X            | X                          | X                 | X                | X                       | X                |              |
| Ethernet Routing Switch 8300 | X            | X            | X                          | X                 | X                | X                       | X                | X            |



**Table 2** Enterprise Switch Manager submanagers and devices (continued)

| Platform   | Topology Map | VLAN Manager | MultiLink Trunking Manager | Multicast Manager | Security Manager | File/ Inventory Manager | Trap/Log Manager | NSNA Manager |
|--|--------------|--------------|----------------------------|-------------------|------------------|-------------------------|------------------|--------------|
| Ethernet Routing Switch 8000 Series                | X            | X            | X                          |                   | X                | X                       | X                |              |
| Ethernet Routing Switch 1424T                      | X            | X            | X                          | X                 |                  | X                       | X                |              |
| Ethernet Routing Switch 1612G/1624G/1648T          | X            | X            | X                          | X                 |                  | X                       | X                |              |
| BayStack™ 350/380/410/420/450                      | X            | X            | X                          | X*                | X                | X                       | X                |              |
| Ethernet Switch 325/425/460/470                    | X            | X            | X                          | X                 | X                | X                       | X                |              |
| Ethernet Routing Switch 5510, 5520, 5530           | X            | X            | X                          | X                 | X                | X                       | X                | X            |
| Ethernet Routing Switch 3510                       | X            | X            | X                          | X                 | X                | X                       | X                |              |
| Business Policy Switch 2000™                       | X            | X            | X                          | X                 | X                | X                       | X                |              |
| OpTera Metro                                       | X            |              |                            |                   |                  | X                       |                  |              |
| WLAN AP  | X            |              |                            |                   |                  | X                       |                  |              |
| Alteon 2208, 2216, 2224, 2424, 3408, 3416 switches | X            |              |                            |                   |                  | X                       |                  |              |
| *Except for BayStack 350                           |              |              |                            |                   |                  |                         |                  |              |

## Topology Manager

The main Enterprise Switch Manager window is also referred to as the Topology Manager (TM). The Topology Manager provides a graphical view of a network of devices that support the Bay Networks Auto-Topology Discovery Protocol.

## Enterprise Switch Manager submanagers

Enterprise Switch Manager supports submanagers that provide detailed device information and management capabilities. The submanagers are designed to provide specialized information in an easy-to-use Graphical User Interface that is consistent in layout across the submanagers. A submanager can query Enterprise Switch Manager and instruct the primary application to update the topology view with information relevant to the submanager view. For example, VLAN Manager can instruct Enterprise Switch Manager to color all the devices in the view that include members of a particular VLAN.

The submanagers open in a separate window from Enterprise Switch Manager. You must have the Enterprise Switch Manager window open to access all the submanagers except Device Manager. The submanagers are described in the following sections:

- [“VLAN Manager” on page 51](#)
- [“MultiLink Trunking Manager” on page 51](#)
- [“Multicast Manager” on page 51](#)
- [“Security Manager” on page 52](#)
- [“File/Inventory Manager” on page 53](#)
- [“Trap/Log Manager” on page 53](#)
- [“NSNA Manager” on page 53](#)

## VLAN Manager

VLAN Manager allows you to:

- Create, delete, or modify VLANs and Spanning Tree instances (for Nortel Spanning Tree Groups [STG], Rapid Spanning Tree Protocol [RSTP], and Multiple Spanning Tree Protocol [MSTP]) across one or multiple devices
- View VLAN information, membership, and port configuration information in tabular format
- View Spanning Tree Protocol information such as members of Spanning Tree Groups (STGs) and Spanning Tree Protocol configuration
- View VLAN nodes across the network

For more information on VLAN Manager, see [Chapter 4, “Using VLAN Manager,”](#) on page 113.

## MultiLink Trunking Manager

MultiLink Trunking Manager allows you to:

- Create, delete, or modify MultiLink Trunks (MLTs) and Split Multilink Trunks (SMLTs)
- View MLT configuration information such as port and VLAN membership

For more information on MultiLink Trunking Manager, see [Chapter 5, “Using MultiLink Trunking Manager,”](#) on page 173.

## Multicast Manager

Multicast Manager allows you to:

- View the following multicast configuration and protocols found in the network:
  - IGMP
  - DVMRP
  - PIM-SM
  - MRDISC with Fast Leave

- DVMRP:PIM Gateway
- Display multicast forwarding paths from a selected source or group
- Configure multicast parameters for the following protocols:
  - IGMP and IGMP Snoop
  - DVMRP globals
  - PIM-SM globals
  - MRDISC with Fast Leave
  - DVMRP:PIM

For more information on Multicast Manager, refer to [Chapter 6, “Using Multicast Manager,”](#) on page 213.

## Security Manager

Security Manager allows you to manage access to device and network management functions on network devices discovered by Enterprise Switch Manager. You can set, change, and synchronize security features for the following:

- Command Line Interface (CLI) access
- Web access
- Simple Network Management Protocol (SNMP) access
- Remote Access Dial-In User Services (RADIUS) properties
- SNMPv3 properties
- Access policies
- Secure Shell (SSH) bulk password



**Note:** For Ethernet Routing Switches 8600 v3.2.1 and later, you cannot use Enterprise Switch Manager to modify CLI user and password. For Ethernet Routing Switches 8600 v3.5 and later, you cannot use Enterprise Switch Manager to modify web user name and password.

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You can divide the network into one or more security groups that you manage independently. You use security groups to group together devices that you want to have the same passwords and access features.

For more information, see [Chapter 9, “Using Security Manager,”](#) on page 441.

## File/Inventory Manager

File/Inventory Manager displays information about the devices discovered by Enterprise Switch Manager and allows you to browse information about the image and configuration/boot files that apply to those devices.

You can also use File/Inventory Manager to upload and download image and configuration/boot files to and from devices and to back up, restore, archive, and synchronize image and configuration/boot files for those devices as well. In addition, File/Inventory Manager allows you to upgrade devices.

For more information, see [Chapter 8, “Using File/Inventory Manager,”](#) on page 297.

## Trap/Log Manager

The Trap/Log Manager is a new Enterprise Switch Manager submanager that allows you to configure and view traps, notifications, and the System Log. The Trap/Log Manager combines the functionality of the Trap Receiver and Log Manager submanagers of previous releases, and provides additional capabilities to configure traps, notifications, and syslogs.

For more information, see [Chapter 7, “Using Trap/Log Manager,”](#) on page 267.

## NSNA Manager

NSNA Manager manages the Nortel Secure Network Access (NSNA) solution in a network. The NSNA solution protects an enterprise network by providing a predefined level of clientless access to users, based on credentials and security features.

NSNA Manager lets you manage NSNA on Nortel Ethernet Routing Switch 8300 Series and Ethernet Routing Switch 55xx devices.

For more information, see [Chapter 10, “Using NSNA Manager,”](#) on page 513.

## Additional Enterprise Switch Manager tools

In addition to the submanagers, Enterprise Switch Manager provides additional device and network management tools, including the following:

- [“Tftp Server”](#) on page 54
- [“Smart Diff”](#) on page 54
- [“MIB Browser”](#) on page 54
- [“Device Manager”](#) on page 56

### Tftp Server

Tftp server allows you to:

- transfer files between servers without authentication
- trace information on file transfer when the trace mode feature is enabled

### Smart Diff

Smart Diff allows you to:

- compare two ASCII-based switch configuration files
- support configuration files generated from or created for Ethernet Routing Switches 8000, 1424T, and 1600

### MIB Browser

MIB Browser allows you to manage SNMP-enabled network devices and applications. MIB Browser enables loading, browsing, and searching MIBs, walking the MIB tree, and performing all other SNMP-related functions. MIB Browser also enables viewing and operating the data available through an SNMP agent in a managed device.

For more information, see [Chapter 11, “Using MIB Browser,”](#) on page 539.

## Device Manager

Device Manager is a standalone application that you can launch either from Enterprise Switch Manager or separately. This application allows you to:

- download image and configuration files
- completely manage and configure Layer 2 and, if applicable, Layer 3 protocols and features for a single network device
- monitor traffic flow through the device
- view a device image indicating which ports are active and, for Ethernet Routing Switches, which modules are installed

For more information about Device Manager, refer to the documents listed in [“Related publications” on page 41](#).



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## Chapter 2

# Using Enterprise Switch Manager

---

This chapter describes the basic procedures for using Enterprise Switch Manager. For information on how to install Enterprise Switch Manager, see *Installing Enterprise Switch Manager*.

This chapter includes the following topics:

- “Starting Enterprise Switch Manager,” next
- “Using the Enterprise Switch Manager window” on page 66
- “Working with the network topology map” on page 84
- “Getting help” on page 95

## Starting Enterprise Switch Manager

After you install Enterprise Switch Manager, you can start the application.

To start Enterprise Switch Manager:

➔ Do one of the following:

- From the Windows 95, Windows 98, Windows 2000, Windows 2003, Windows NT, or Windows XP Start menu, choose **Programs > Nortel > Enterprise Switch Manager > Enterprise Switch Manager**.
- In a Windows environment, double-click the Enterprise Switch Manager shortcut icon on your desktop, if it is present.
- In a Solaris/Linux terminal window, enter `./ESM` in the location where Enterprise Switch Manager has been installed.

Enterprise Switch Manager starts.

To continue, go to [“Logging in” on page 58](#).

## Logging in

When the Enterprise Switch Manager starts, it displays the initial login dialog box ([Figure 1](#)).

**Figure 1** Login dialog box



To log in to Enterprise Switch Manager:

- 1 Enter a user name and password.

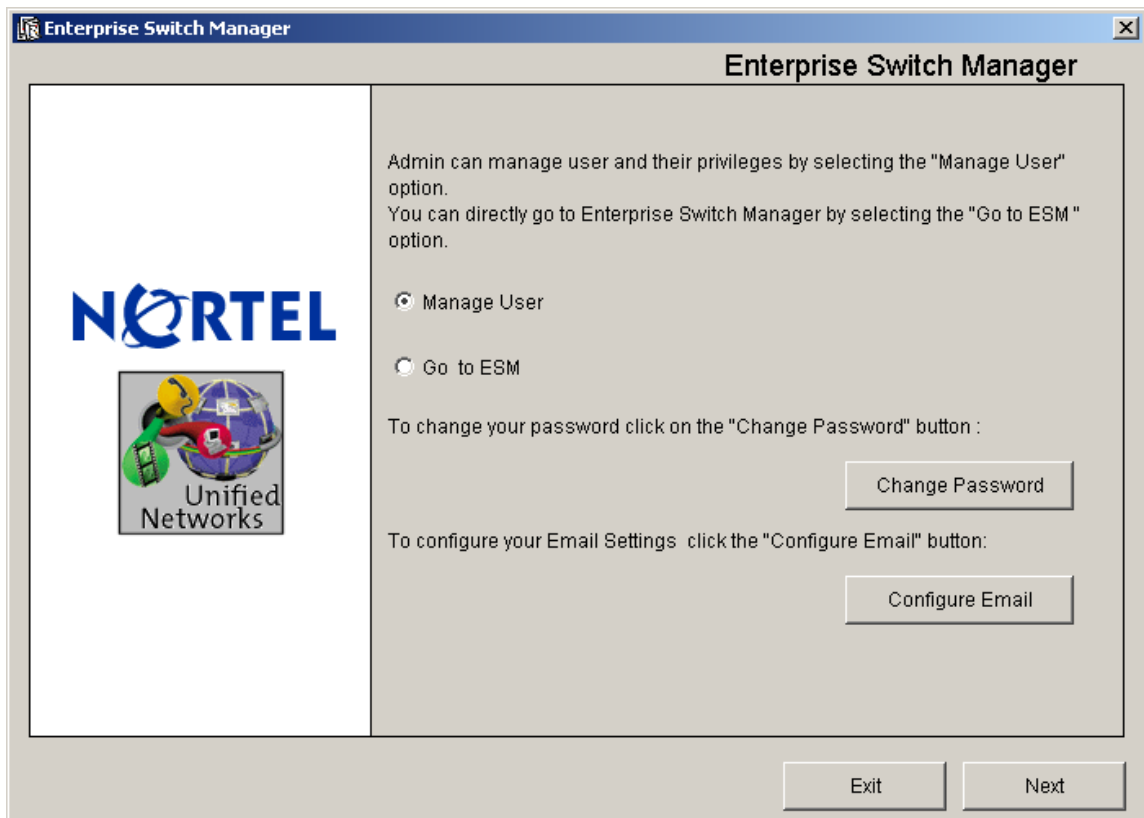


**Note:** Both the default user name and the default password for the Enterprise Switch Manager are admin. To protect the Enterprise Switch Manager from unauthorized access, change the password as soon as possible (see “[Changing password](#)” on page 64).

- 2 Click **Login**.

The Login configuration options dialog box appears ([Figure 2](#)).

**Figure 2** Login configuration options dialog box



- 3** Refer to the following topics for more information on the options provided:
- To manage users, see [“Managing users” on page 60](#).
  - To change your password, see [“Changing password” on page 64](#).
  - To configure your e-mail, see [“Configuring your e-mail settings” on page 65](#).
  - To continue directly to Enterprise Switch Manager, click the Go to ESM radio button, and click Next. (See [“Using the Enterprise Switch Manager window” on page 66](#)).

## Managing users



**Note:** To manage users in ESM, you must have administrator access.

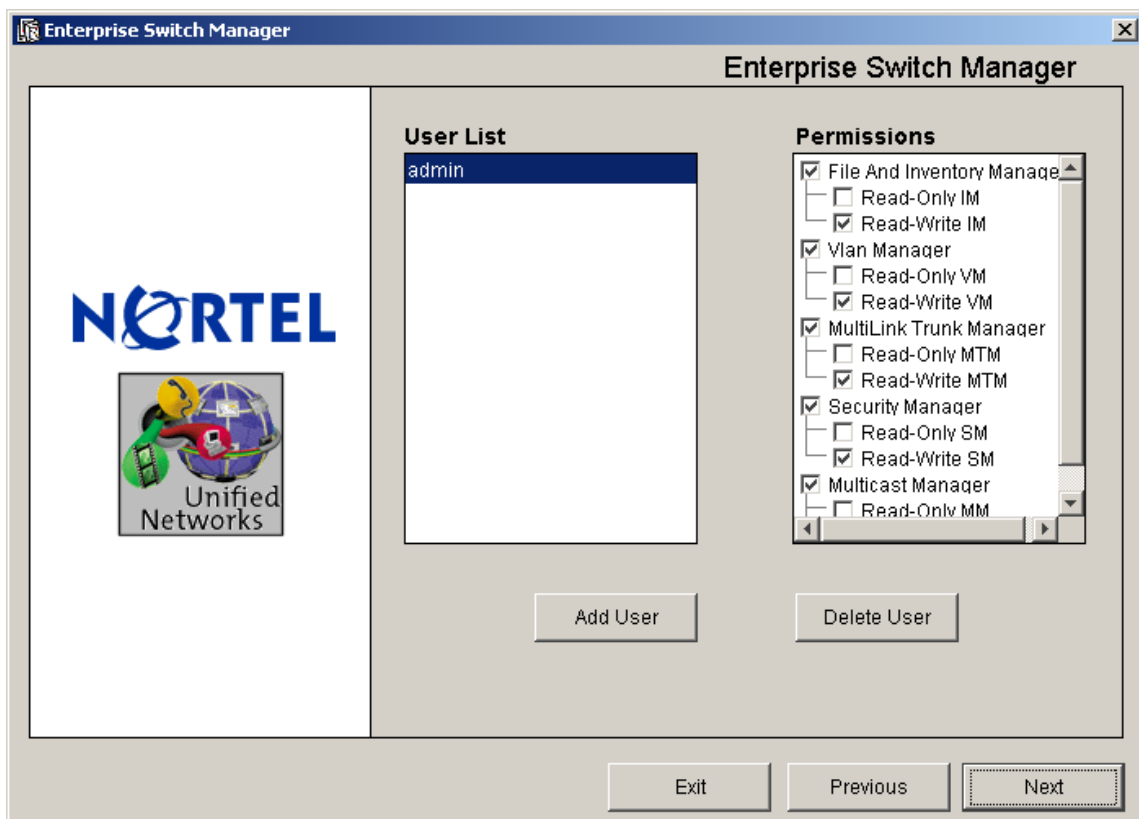
---

To manage users:

- 1** From the Login configuration options dialog box ([Figure 2](#)), click the **Manage User** radio button, and click **Next**.

The **Manage User** dialog box appears (Figure 3).

**Figure 3** Manage User dialog box



**2** Choose one of the following options:

- To add a user, click **Add User** (see [“Adding a user” on page 61](#)).
- To delete a user, click **Delete User** (see [“Deleting a user” on page 63](#)).
- To exit Enterprise Switch Manager, click **Exit**.

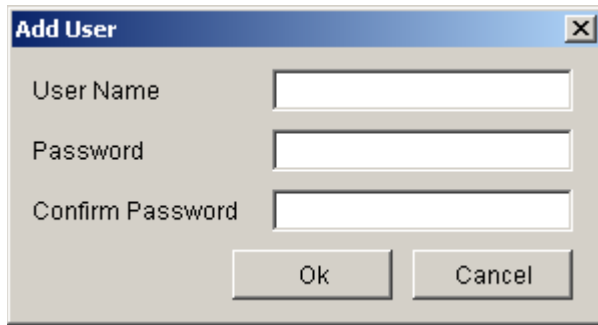
### Adding a user

To add a user:

- 1** Click **Add User**.

The **Add User** dialog box appears (Figure 4).

**Figure 4** Add User dialog box



**2** Enter a user name and password, and confirm the password.

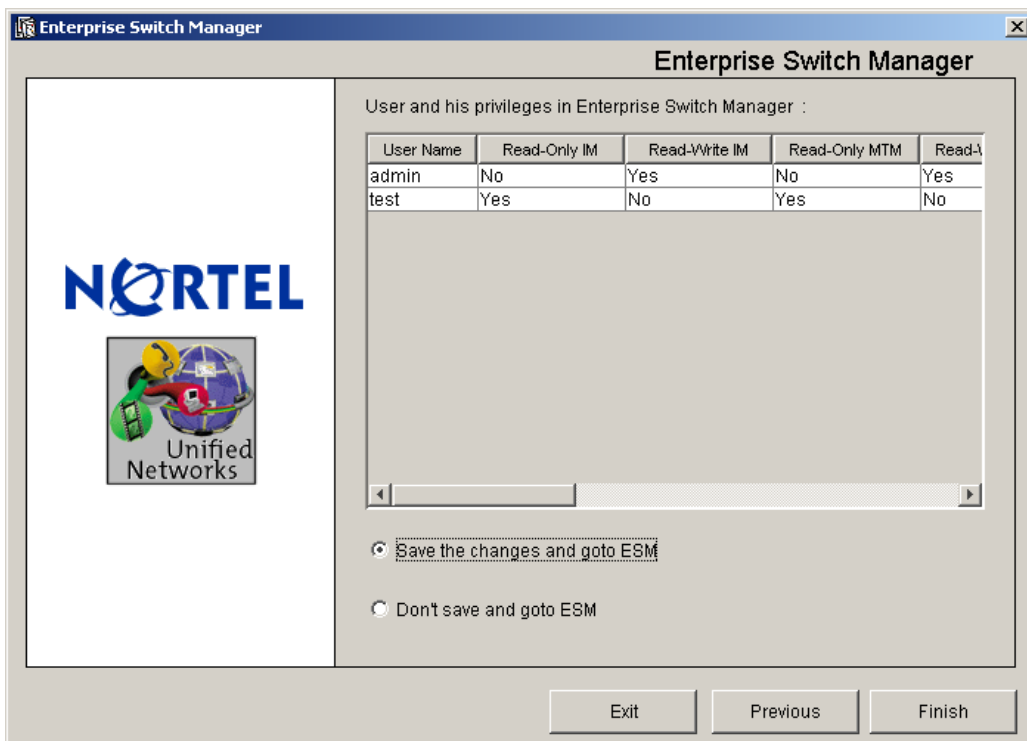
**3** Click **OK**.

The newly created user appears in the User List.

**4** Click **Next**.

The User summary dialog box appears (Figure 5).

**Figure 5** User summary dialog box



**5** Do one of the following:

- To save the most recent changes, click the **Save the changes and goto ESM** radio button, and click **Finish**.
- To discard the most recent changes, click the **Don't Save and goto ESM** radio button, and click **Finish**.

The Enterprise Switch Manager window opens. (See [“Using the Enterprise Switch Manager window”](#) on page 66).

## Deleting a user

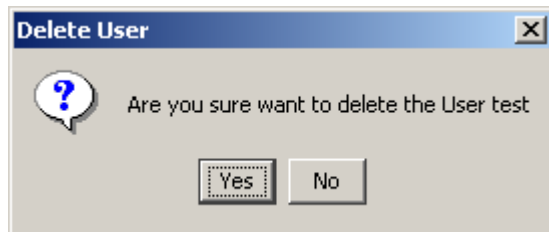
To delete a user:

- 1** In the User List, highlight the User you want to delete.

**2** Click **Delete User**.

A confirmation dialog box appears (Figure 6).

**Figure 6** Delete User confirmation dialog box



**3** Click **Yes**.

The user is removed from the User List.

**4** Click **Next**.

The User summary dialog box appears (Figure 5).

**5** Do one of the following:

- To save the most recent changes, click the **Save the changes and goto ESM** radio button, and click **Finish**.
- To discard the most recent changes, click the **Don't Save and goto ESM** radio button, and click **Finish**.

The Enterprise Switch Manager window opens. (See “Using the Enterprise Switch Manager window” on page 66).

## Changing password

To change your user password:

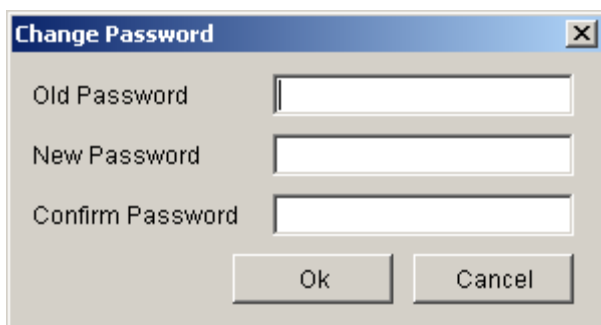
**1** Do one of the following:

- From the Login configuration options dialog box (Figure 2), click **Change Password**.
- From the main menu, choose **File > Password Change**.



The **Change Password** dialog box appears (Figure 7).

**Figure 7** Change Password dialog box

A screenshot of the 'Change Password' dialog box. It has a title bar with the text 'Change Password' and a close button (X). The dialog contains three text input fields: 'Old Password', 'New Password', and 'Confirm Password'. Below the fields are two buttons: 'Ok' and 'Cancel'.

- 2 In the appropriate fields, enter your old password, new password, and confirm the new password.
- 3 Click **OK**.

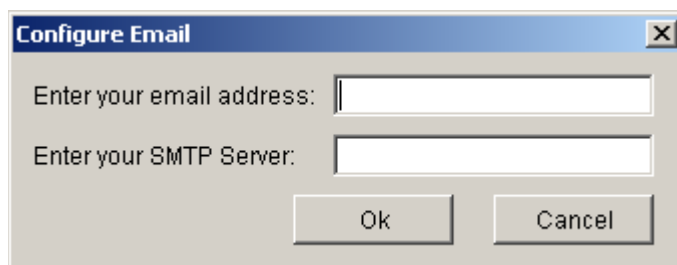
## Configuring your e-mail settings

To configure your e-mail settings for notifications:

- 1 From the Login configuration options dialog box (Figure 2), click **Configure Email**.

The **Configure Email** dialog box appears (Figure 8).

**Figure 8** Configure Email dialog box

A screenshot of the 'Configure Email' dialog box. It has a title bar with the text 'Configure Email' and a close button (X). The dialog contains two text input fields: 'Enter your email address:' and 'Enter your SMTP Server:'. Below the fields are two buttons: 'Ok' and 'Cancel'.

- 2 Enter your e-mail address and your SMTP server.
- 3 Click **OK**.

## Using the Enterprise Switch Manager window

The Enterprise Switch Manager window:

- Displays a logical map of a network showing physical connectivity between devices.
- Provides tools to access other Enterprise Switch Manager features.
- Allows you to launch Enterprise Switch Manager submanagers.



**Note:** To discover and display a network topology, you need to enter an IP address to a device that acts as a “seed,” and you must have permission to access that seed device. See [“Finding devices on the topology map” on page 91](#) for more information.

---

After the initial discovery, other Enterprise Switch Manager submanager applications allow you to manage discovered devices.



**Note:** The Enterprise Switch Manager window remains open and can display highlighted devices after the Enterprise Switch Manager submanager windows open. If you close the Enterprise Switch Manager window while Enterprise Switch Manager submanager windows are open, the submanagers are also closed.

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Figure 9 shows the **Enterprise Switch Manager** window.

**Figure 9** Enterprise Switch Manager window

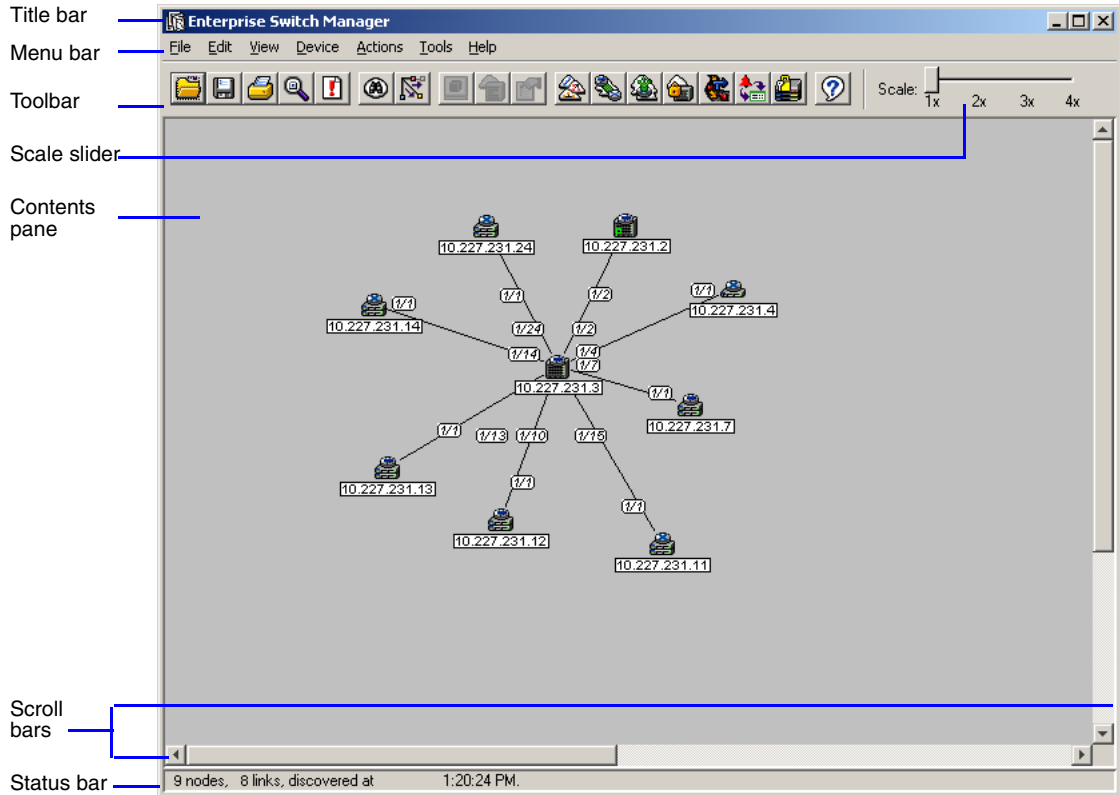


Table 3 describes the parts of the **Enterprise Switch Manager** window.

**Table 3** Parts of the Enterprise Switch Manager window

| Part      | Description  |
|-----------|--|
| Title bar | Displays the application name and software version.  |
| Menu bar  | Provides access to all Enterprise Switch Manager commands. For more information, see <a href="#">“Enterprise Switch Manager menu bar commands and toolbar buttons”</a> on page 68.                 |
| Toolbar   | Provides quick access to commonly-used Enterprise Switch Manager commands. For more information, see <a href="#">“Enterprise Switch Manager menu bar commands and toolbar buttons”</a> on page 68. |

**Table 3** Parts of the Enterprise Switch Manager window (continued)

| Part          | Description  |
|---------------|--|
| Scale slider  | Provides four zoom levels to magnify the network topology map. For more information, see <a href="#">“Using the scale slider” on page 82</a> . |
| Contents pane | Displays the network topology map. For more information, see <a href="#">“Enterprise Switch Manager contents pane icons” on page 80</a> .      |
| Scroll bars   | Provide access to an entire map, table, or other text that spans two pages in the contents pane.   |
| Status bar    | Displays status information and the map legend. For more information, see <a href="#">“Enterprise Switch Manager status bar” on page 77</a> .  |

When you successfully query a device on the network, the Enterprise Switch Manager contents pane presents a logical map of the network displaying a variety of information about the network connections. The specific information available on the network topology map depends on the size of the network discovered. For example, in a very large network topology, the device IP addresses and port numbers are not displayed unless you magnify the network topology map using the scale slider.




## Enterprise Switch Manager menu bar commands and toolbar buttons

The menu bar and toolbar provide menus and commands to operate Enterprise Switch Manager and access the Enterprise Switch Manager submanager applications. When a toolbar button is unavailable for a particular configuration or submanager, it appears dimmed.


When you point to a button, the name of the button and a description of the command function are displayed.

Table 4 lists the Enterprise Switch Manager menus and commands.


**Table 4** Enterprise Switch Manager menu commands and toolbar buttons

| Menu | Command           | Toolbar button  | Shortcut keys | Description  |
|------|-------------------|---|---------------|--|
| File | Open              |  | [Ctrl]+O      | Opens a topology map.  |
|      | Save              |  | [Ctrl]+S      | Saves a topology map.  |
|      | Save As           |   | [Ctrl]+A      | Saves a topology map as the file type you specify (SVG, JPEG, or PNG).   |
|      | Upgrade           |   | [Ctrl]+U      | Opens the upgrade dialog box for upgrading old task files.   |
|      | Print Preview     |   |               | Opens the Print Preview dialog box.  |
|      | Print             |  | [Ctrl]+P      | Opens the Print dialog box, where you set print parameters.  |
|      | Print in one page |   |               | Prints the topology in one page.   |
|      | Password Change   |   |               | Opens the Password Change dialog box, for password updates. See <a href="#">“Changing password” on page 64</a> . |
|      | Exit              |   | [Ctrl]+Q      | Exits Enterprise Switch Manager.   |




**Table 4** Enterprise Switch Manager menu commands and toolbar buttons

| Menu | Command                  | Toolbar button  | Shortcut keys | Description   |
|------|--------------------------|---|---------------|---|
| Edit | Communities/<br>Password |   |               | Edits SNMP communities and CLI passwords accessible by Enterprise Switch Manager. See <a href="#">“Accessing devices with different SNMP communities”</a> on page 109 and <a href="#">“Accessing NSNAS with different CLI user names and passwords”</a> on page 111 for more information. |
|      | Preferences              |   |               | Edits network preferences and identifies seed addresses used by Enterprise Switch Manager. See <a href="#">“Preferences dialog box”</a> on page 98 for more information.  |
|      | Color Preferences        |   |               | Edits the color display in the icon field. See <a href="#">“Configuring color preferences”</a> on page 78 for more information.   |
|      | Hidden Devices           |   |               | Allows you to hide specific devices from the topology. See <a href="#">“Hidden Devices”</a> on page 107 for more information.   |
|      | Clear Map                |   | [Del]         | Deletes the current network topology displayed in the contents pane.  |
|      | Find Device in Map       |  | [Ctrl]+F      | Opens the Find Device dialog box, where you set parameters to find a device in the topology map. For more information, see <a href="#">“Finding devices on the topology map”</a> on page 91.  |
|      | Select All               |   |               | Selects all devices within a supported product family. For more information, see <a href="#">“Selecting devices by type”</a> on page 92.  |

**Table 4** Enterprise Switch Manager menu commands and toolbar buttons




| Menu | Command           | Toolbar button  | Shortcut keys | Description   |
|------|-------------------|---|---------------|---|
| View | Link Speeds       |   |               | Displays network link speeds in color on the network topology map. The status bar provides a color legend for the link speeds (see <a href="#">“Enterprise Switch Manager status bar” on page 77</a> ).   |
|      | Link Duplex       |   |               | Displays half- and full-duplex links in color on the network topology map. The status bar provides a color legend for the link duplex status (see <a href="#">“Enterprise Switch Manager status bar” on page 77</a> ).  |
|      | Link Types        |   |               | Displays the media type (Ethernet or ATM) for the links in the network topology map. Ethernet and ATM media are shown in color. The status bar provides a color legend for the link types (see <a href="#">“Enterprise Switch Manager status bar” on page 77</a> ). |
|      | MultiLink Trunks  |   |               | Displays MultiLink Trunks discovered in the network topology.   |
|      | Show Port Address |   |               | Displays IP addresses of isolated routing ports or brouter ports.   |
|      | Scheduled Task    |   |               | Displays a list of all the system tasks that have been scheduled.   |
|      | Error Log         |  |               | Displays the error log for Enterprise Switch Manager. You can save the error log to a text file.  |

**Table 4** Enterprise Switch Manager menu commands and toolbar buttons








| Menu   | Command              | Toolbar button  | Shortcut keys | Description   |
|--|----------------------|---|---------------|---|
| Device   | Device Manager       |  |               | Launches Device Manager to monitor and configure the selected device.   |
|  | Open Home Page       |   |               | Launches Web-based management to configure the selected device.<br><b>Note:</b> Open Home Page is applicable only for AP devices.                                     |
|  | Telnet               |  |               | Starts a Telnet session with the selected device.   |
|  | Ping                 |   |               | Pings a device to test connectivity.  |
|  | Hide                 |   |               | Hides the selected device from the topology. See <a href="#">“Hidden Devices” on page 107</a> for a description of this feature.                                      |
|  | Report               |   |               | Opens the Report dialog box, which displays the device IP address, name, type, and description.   |
|  | Dump Topology to Log |   |               | Dumps the current topology to the log.  |
|  | Properties           |  |               | Displays the properties of the selected device. See <a href="#">“Using the Enterprise Switch Manager shortcut menu” on page 75</a> for a description of this feature. |
| <b>Note:</b> The commands on the Device menu are only enabled when a device is selected on the Enterprise Switch Manager topology map. |                      |   |               |   |




**Table 4** Enterprise Switch Manager menu commands and toolbar buttons

| Menu    | Command                     | Toolbar button  | Shortcut keys | Description  |
|---------|-----------------------------|---|---------------|--|
| Actions | Discover Map                |  |               | Discovers a seed address in a network. See <a href="#">“Preferences dialog box” on page 98</a> for more information.   |
|         |                             |  |               | Stops the discovery process.<br><b>Note:</b> This button is available only while discovery is in process.  |
|         | Layout Map                  |  |               | Rearranges a topology map for better viewing. For more information, see <a href="#">“Arranging devices on the topology map” on page 93</a> .   |
|         | Find Unsaved Configurations |   |               | Opens the Find Unsaved Configurations dialog box that lists the devices with unsaved changes in their configuration files. The dialog box contains the device IP address, the time/date when the configuration was last changed, and the time/date when the device’s configuration was last saved. For more information, see <a href="#">“Finding unsaved configurations” on page 82</a> . |

**Table 4** Enterprise Switch Manager menu commands and toolbar buttons

| Menu  | Command                    | Toolbar button  | Shortcut keys | Description   |
|-------|----------------------------|---|---------------|---|
| Tools | VLAN Manager               |    | [F2]          | Opens VLAN Manager. See <a href="#">Chapter 4, "Using VLAN Manager,"</a> on page 113, for more information on this application.                             |
|       | MultiLink Trunking Manager |    | [F3]          | Opens MultiLink Trunking Manager. See <a href="#">Chapter 5, "Using MultiLink Trunking Manager,"</a> on page 173, for more information on this application. |
|       | Multicast Manager          |    | [F4]          | Opens Multicast Manager. See <a href="#">Chapter 6, "Using Multicast Manager,"</a> on page 213 for more information on this application.                    |
|       | Security Manager           |    | [F5]          | Opens Security Manager. See <a href="#">Chapter 9, "Using Security Manager,"</a> on page 441 for more information on this application.                      |
|       | File/Inventory Manager     |    | [F6]          | Opens File/Inventory Manager. See <a href="#">Chapter 8, "Using File/Inventory Manager,"</a> on page 297 for more information on this application.          |
|       | Trap/Log Manager           |    | [F7]          | Opens Trap/Log Manager. See <a href="#">Chapter 7, "Using Trap/Log Manager,"</a> on page 267 for more information on this application.                      |
|       | NSNA Manager               |  | [F8]          | Opens NSNA Manager. See <a href="#">Chapter 10, "Using NSNA Manager,"</a> on page 513 for more information on this application.                             |
|       | TFTP Server                |   | [F9]          | Starts the default TFTP server.   |
|       | Smart Diff                 |   | [F10]         | Compares configuration files  |
|       | MIB Browser                |   | [F11]         | Opens MIB Browser. See <a href="#">Chapter 11, "Using MIB Browser,"</a> on page 539 for more information on this application.                               |

**Table 4** Enterprise Switch Manager menu commands and toolbar buttons

| Menu | Command                         | Toolbar button  | Shortcut keys | Description   |
|------|---------------------------------|---|---------------|---|
| Help | Contents                        |  | [F1]          | Starts a Web browser and opens Online Help.                                     |
|      | Online Support                  |   |               | Starts a Web browser and opens the Nortel Customer Support Web page.            |
|      | Legend                          |   |               | Displays a key to the icons used in the Enterprise Switch Manager topology map. |
|      | About Enterprise Switch Manager |   |               | Displays Enterprise Switch Manager application information.                     |

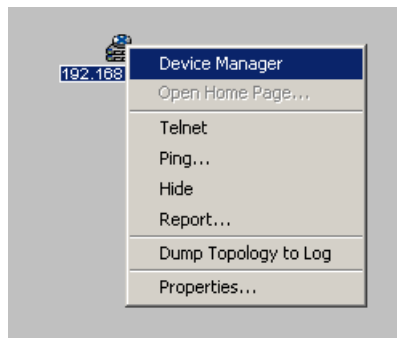
## Using the Enterprise Switch Manager shortcut menu

Use the shortcut menu ([Figure 10](#)) to start device-related tasks for a selected device. The shortcut menu commands are similar to those found in the Device menu and include launching the standalone Device Manager application.

To access the shortcut menu:

- ➔ Right-click a device on the topology map to open the shortcut menu.

The shortcut menu appears ([Figure 10](#)).

**Figure 10** Shortcut menu



**Note:** The **Open Home Page** option is applicable only for AP devices.

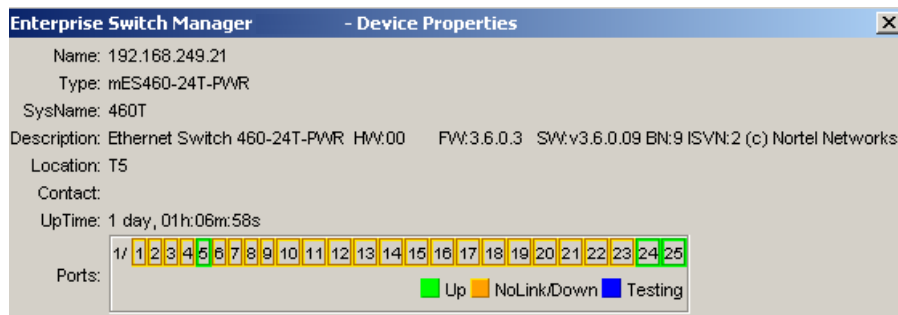
## Viewing device properties

To view properties for a device on the topology map, do one of the following:

- Select the device. From the Enterprise Switch Manager menu bar choose **Device > Properties**.
- Right-click the device and choose **Properties** from the shortcut menu.

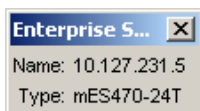
For devices with active (undimmed) icons on the topology map, the **Device Properties** dialog box (Figure 11) includes the name, type, and location of the device. The bottom of the Device Properties dialog box shows the port status of the device.

**Figure 11** Device Properties dialog box (devices with active icons)



For devices with disabled (dimmed) icons on the topology map, the **Device Properties** dialog box shows only the name and device type (Figure 12). For more information about device icons, see [“Enterprise Switch Manager contents pane icons”](#) on page 80.

**Figure 12** Device Properties dialog box (devices with disabled icons)



[Table 5](#) describes the items in the full size **Device Properties** dialog box.

**Table 5** Device Properties dialog box items

| Item        | Description   |
|-------------|---|
| Name        | The IP address, system name, or host name of the device.  |
| Type        | The chassis type.   |
| SysName     | The name of the device.   |
| Description | The system assigned name.   |
| Location    | The physical location of the device.  |
| Contact     | The contact information for the system administrator. This item reflects the contact information entered as part of the system information for this device in Device Manager. |
| UpTime      | The time elapsed since the device was last booted.  |
| Ports       | The device's port status. The color of the box representing each port indicates if the port is up (green), has no link (is down) (orange), or is being tested (blue).         |

## Enterprise Switch Manager status bar

The Enterprise Switch Manager status bar is at the bottom of the Enterprise Switch Manager main window (see [Figure 9 on page 67](#)). [Table 6](#) describes the fields in the status bar.

**Table 6** Status bar fields

| Field   | Description  |
|---------|--|
| Message | Located on the left, the message field displays information about: <ul style="list-style-type: none"> <li>• Menu commands and toolbar buttons</li> <li>• Enterprise Switch Manager and submanager operations</li> </ul>  |
| Icon    | Located on the right, the icon field displays a legend for color-coded information of Enterprise Switch Manager and submanagers. Depending on what selections are made from the View menu, this legend shows the following default information for Enterprise Switch Manager: <ul style="list-style-type: none"> <li>• Link Speeds—10Mb/s (purple), 100Mb/s (orange), or 1Gb/s (green) 10 Gb/s (red)</li> <li>• Link Duplex—Half-duplex (green) or full duplex (orange)</li> <li>• Link types—Ethernet (purple) or ATM (orange)</li> </ul> If none of these items is selected from the View menu, this field is blank. To modify the default color display in this field, refer to “ <a href="#">Configuring color preferences</a> ” . |

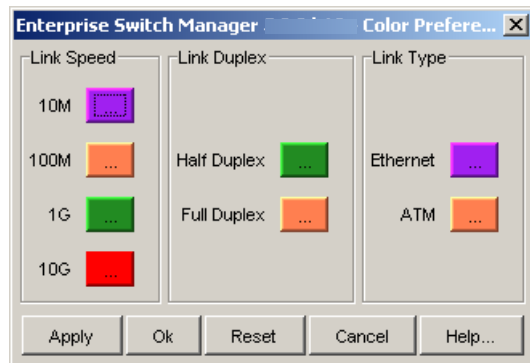
## Configuring color preferences

Enterprise Switch Manager allows you to modify the color display in the icon field.

To modify the color display in the icon field:

- 1 From the menu bar, choose **Edit > Color Preferences**.

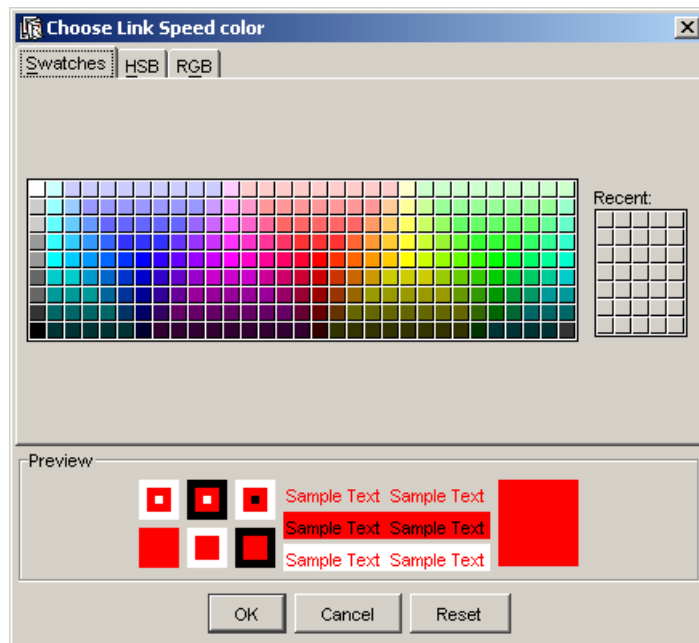
The **Color Preferences** dialog box appears ([Figure 13](#)).

**Figure 13** Color Preferences dialog box

- 2 To change a color preference, click the desired property.

The **Choose property** color dialog box appears (Figure 14).

**Figure 14** Choose property color dialog box



- 3 Using the tabs and options provided, choose the desired color for the specified property.
- 4 Click **OK**.  
In the **Color Preferences** dialog box, the new color appears next to the property.
- 5 Do one of the following:
  - To apply the color change, click **Apply**.
  - To cancel the color change, click **Cancel**.
  - To reset the properties to their original colors, click **Reset**.
- 6 Click **OK**.

## Enterprise Switch Manager contents pane icons







The Enterprise Switch Manager topology map uses icons to represent the types of network devices discovered. Some of the devices are supported by Enterprise Switch Manager; others are not supported but connect supported devices.

To access a legend with these icons and their names:

➔ From the Enterprise Switch Manager menu bar, choose **Help > Legend**.









Table 7 describes the device icons.

**Table 7** Device icons

| Icon  | Name                   | Description  |
|---|------------------------|--|
|    | Bus                    | Network bus or hub not supported by Enterprise Switch Manager or its submanagers. You can view ports connected to Nortel Ethernet Switches or Nortel Ethernet Routing Switches by choosing View > Show Port Address. |
|    | Passport 1K            | Passport (legacy) 1050, 1150, 1200, or 1250 switch. These devices can be configured and monitored by Enterprise Switch Manager and its submanagers.  |
|   | ERS 8K                 | Ethernet Routing Switch 8000 series. This device can be configured and monitored by Enterprise Switch Manager and its submanagers.   |
|  | ERS 8K with WSM module | Ethernet Routing Switch 8000 series with an Alteon Web Switch Module. This device can be configured and monitored by Enterprise Switch Manager and its submanagers.  |
|  | ERS 8300               | Ethernet Routing Switch Series 8300. This device can be configured and monitored by Enterprise Switch Manager and its submanagers.   |
|  | ERS 1424 and 16xx      | Ethernet Routing Switches 1424, 1612, 1624, or 1648. These devices can be configured and monitored by Enterprise Switch Manager and its submanagers.   |



**Table 7** Device icons (continued)

| Icon  | Name                              | Description   |
|---|-----------------------------------|---|
|    | Ethernet Switch                   | Ethernet Switches 325, 425, 460, and 470. These devices can be configured and monitored by Enterprise Switch Manager and its submanagers.   |
|    | Ethernet Routing Switch 55xx/35xx | Ethernet Routing Switch 5510, 5520, 5530, and 3510. These devices can be configured and monitored by Enterprise Switch Manager and its submanagers.   |
|    | Baystack (legacy)                 | BayStack 310, 350, 380, 420 and 450 switches, Business Policy Switch 2000, or OPTera Metro 1200, 1400, or 1450 Ethernet service module. These devices are partially supported by Enterprise Switch Manager and its submanagers. |
|    | Alteon                            | Alteon switch. This device can be configured and monitored by Enterprise Switch Manager and its submanagers.  |
|    | Wireless AP                       | Wireless AP Series switch. This device can be configured and monitored by Enterprise Switch Manager and its submanagers.  |
|    | Other switch                      | A switch not supported by Enterprise Switch Manager or its submanagers.   |
|  | Other router                      | A router not supported by Enterprise Switch Manager or its submanagers.   |
|  | SNMPv3 device                     | SNMPv3 device. This device can be configured and monitored by Enterprise Switch Manager and its submanagers.  |

When the icons of supported devices are dimmed, it means the device was listed in the topology table of a neighboring device, but that it did not respond to SNMP (Simple Network Management Protocol) queries from Enterprise Switch Manager. You may be able to get SNMP responses from such devices by adding appropriate community strings. For more information, see [“Accessing devices with different SNMP communities” on page 109](#).

## Using the scale slider

To adjust the scale of the topology map:

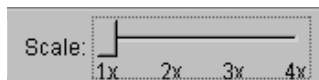
- ➔ Move the scale slider (Figure 15) to the right to magnify the map or to the left to make it smaller.



**Note:** When you use Enterprise Switch Manager in a Solaris environment, you can click the number on the scale slider or drag the slider.

---

**Figure 15** Scale slider



You can display the map up to four times larger.



**Note:** The larger the topology map is, the more system resources it consumes. You may find that your system runs slower when you select the larger map scales.

---

You may find it easier to use **Edit > Find Device in Map** to easily locate a device before you resize a specific region of the map. For more information, see [“Finding devices on the topology map”](#) on page 91.

## Finding unsaved configurations

You can find devices that have unsaved configuration files or changed configuration files.

To find unsaved configuration files:

- ➔ From the Enterprise Switch Manager menu bar, choose **Actions > Find Unsaved Configurations**.

The **Find Unsaved Configurations** dialog box appears (Figure 16).

**Figure 16** Find Unsaved Configurations dialog box

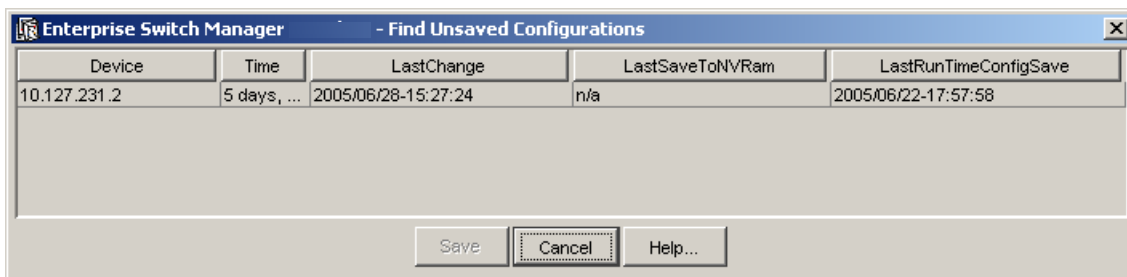


Table 8 describes the items in the **Find Unsaved Configurations** dialog box.

**Table 8** Find Unsaved Configurations dialog box items

| Item                              | Description  |
|-----------------------------------|--|
| Device                            | The IP address, system name, or host name of the device.   |
| Time                              | Total uptime of the system.  |
| LastChange                        | The date and time when the configuration of the device was last changed.   |
| LastSavedToNVRam<br>(Passport 1k) | The date and time when the configuration of the device was last saved. If the device configuration was never saved, this text box reads "none."                    |
| LastRunTimeConfigSave<br>(ERS 8k) | The date and time when the configuration of the device was last saved. If the device configuration was never saved since switch reset, this text box reads "none." |

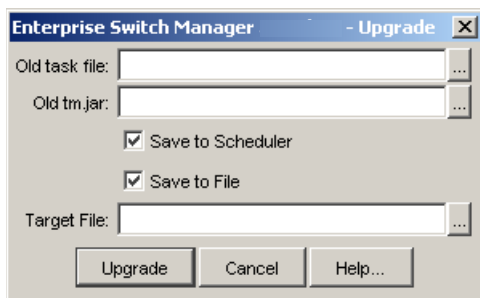
## Upgrading old task files

To upgrade old task files:

- 1 From the Enterprise Switch Manager menu bar, click **File > Upgrade**.

The **Upgrade** dialog box appears (Figure 17).

**Figure 17** Upgrade old task file dialog box



- 2 Enter the file path to the old task file to be upgraded (click the ellipsis to browse).
- 3 Enter the file path to the older version of tm.jar (click the ellipsis to browse).
- 4 To save the task file to the scheduler, click the **Save to Scheduler** check box.
- 5 To save a copy of the task file, click the **Save to File** check box.
- 6 In the **Target File** field, enter the path for the new file (click the ellipsis to browse).
- 7 Click **Upgrade**.

## Working with the network topology map

After a network topology map is loaded into the Enterprise Switch Manager contents pane, you can save it and reload it.

The following sections describe how to use the topology map:

- “Saving a topology map” on page 85
- “Exporting a topology map” on page 86

- “Loading a saved network topology map” on page 86
- “Printing a topology map” on page 88
- “Printing a specific area of the topology map” on page 90
- “Finding devices on the topology map” on page 91
- “Selecting devices by type” on page 92
- “Arranging devices on the topology map” on page 93

## Saving a topology map

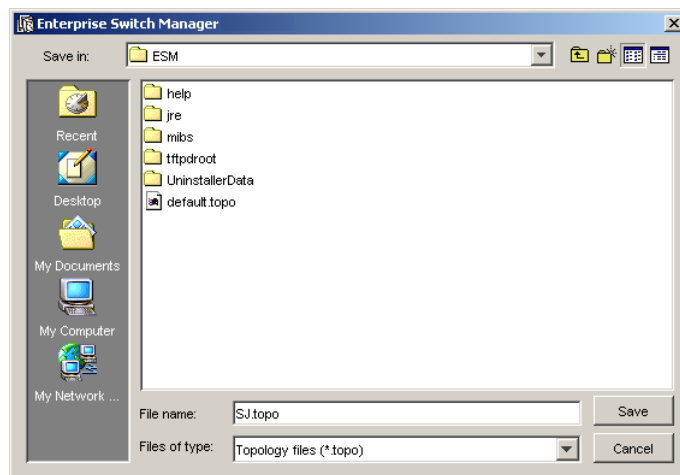
When you save a topology map, it is stored with a .topo file extension. If you do not save a topology with a specific file name, Enterprise Switch Manager attempts to save the current map to the default.topo file.

To save a topology map with another name:

- 1 Do one of the following:
  - From the Enterprise Switch Manager menu bar, choose **File > Save**.
  - On the keyboard, press **[Ctrl]+S**.
  - On the Enterprise Switch Manager toolbar, click **Save**.

The Save dialog box appears (Figure 18).

**Figure 18** Save dialog box—saving a topology map



- 2 Type the file name with a .topo file extension.

- 3 Click **Save**.

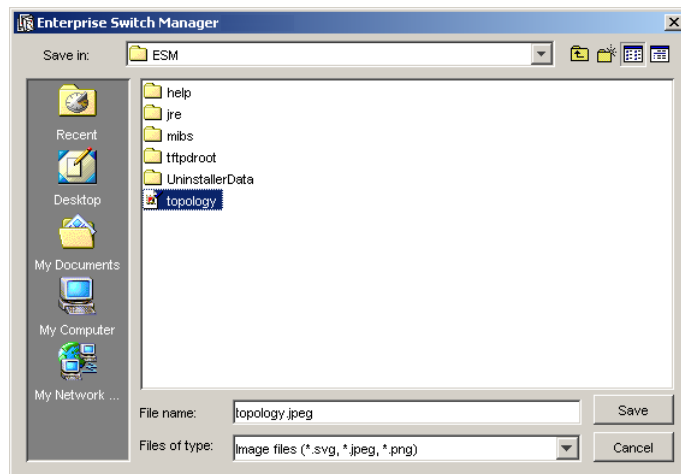
## Exporting a topology map

You can save a topology map as an image file that you can open with an external graphics application.

To save a topology map as an SVG, JPEG, or PNG file:

- 1 From the Enterprise Switch Manager menu bar, choose **File > Save As**.
- 2 In the Save dialog box (see [Figure 19](#)), select the filename you want to replace or enter a new filename in the File name field. Add the SVG, JPEG, or PNG suffix.

**Figure 19** Save dialog files box—exporting a topology map



- 3 Click **Save**.

## Loading a saved network topology map

You can reload a saved topology map. If you do not have a specific topology map saved, the application loads the previously discovered topology map. This map is stored in the default.topo file.

To open a new topology map, you must use the discovery process described in “Preferences dialog box” on page 98.

To reload a saved topology map:

- 1 Do one of the following:
  - From the Enterprise Switch Manager menu bar, choose **File > Open**.
  - On the keyboard, press **[Ctrl]+O**.
  - On the Enterprise Switch Manager toolbar, click **Open**.

The Open File dialog box appears (Figure 20).

**Figure 20** Open File dialog box



- 2 Select the filename (with a .topo extension) that contains your saved network topology.
- 3 Click **Open**.

The topology map is displayed in the contents pane.

## Printing a topology map

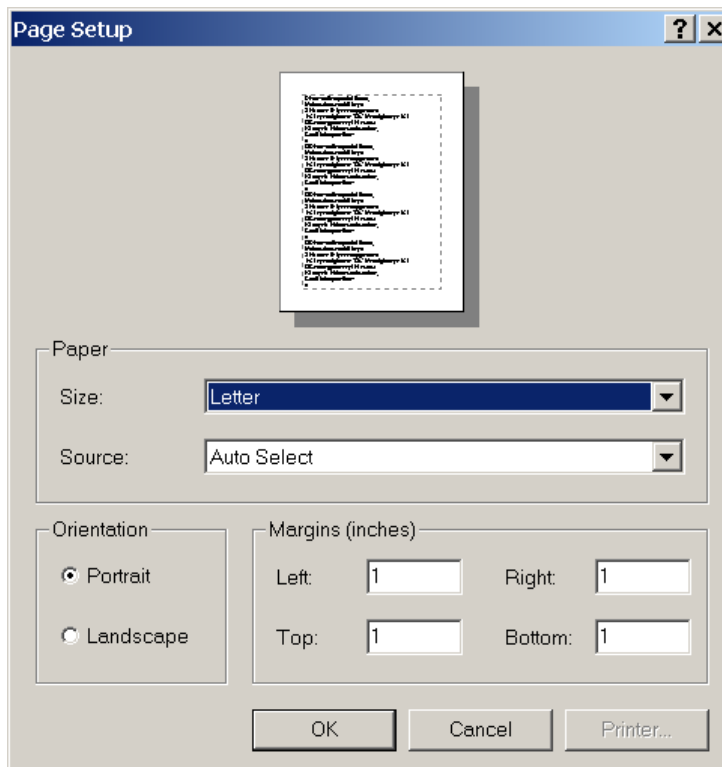
To print an entire topology map:

→ Do one of the following:

- From the Enterprise Switch Manager menu bar, choose **File > Print**.
- On the keyboard, press **[Ctrl]+P**.
- From the Enterprise Switch Manager toolbar, click **Print**.

If you chose **File > Print**, the **Page Setup** dialog box appears (Figure 21). Click **OK** to open the Print dialog.

**Figure 21** Page Setup dialog box





## Printing a topology map in one page

To print an entire topology map in one page:

- ➔ From the Enterprise Switch Manager menu bar, choose **File > Print** in one page.

The **Page Setup** dialog box appears (Figure 21). Click **OK** to open the Print dialog.

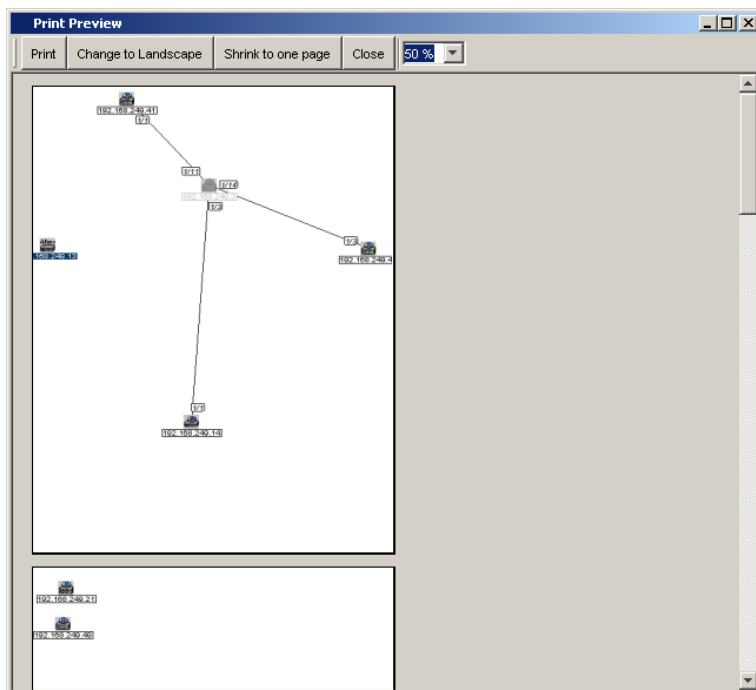
## Print preview

To preview your output before printing:

- ➔ From the Enterprise Switch Manager menu bar, choose **File > Print Preview**.

The **Print Preview** dialog box appears (Figure 22).

**Figure 22** Print Preview dialog box



→ Do one of the following:

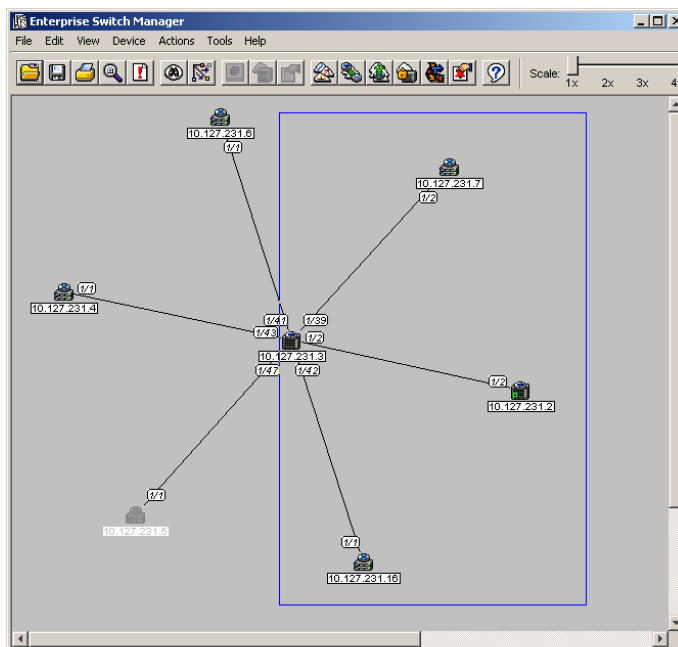
- To change the view to landscape, click **Change to Landscape**.
- To fit all content into one page, click **Shrink to Page**.
- To alter the on-screen display size, choose a percentage from the drop-down list.
- To Print the view as shown, click **Print**.
- To close the dialog box without printing, click **Close**.

## Printing a specific area of the topology map

To print a specific area of the topology map:

- 1 Select the area that you want to print by holding down the Ctrl key while dragging the mouse on the topology map (Figure 23).

**Figure 23** Area of interest printing



- 2 Print as usual. Only the area inside the blue rectangle is printed.

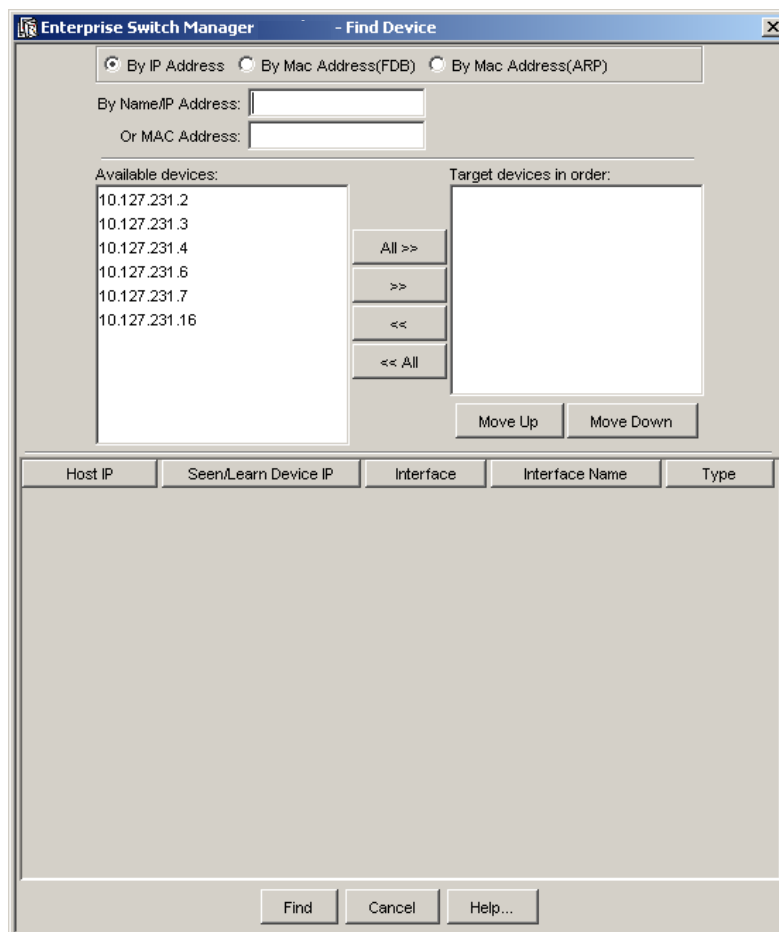
## Finding devices on the topology map

To locate a device in the network topology map:

- 1 Do one of the following:
  - From the Enterprise Switch Manager menu bar, choose **Edit > Find Device in Map**.
  - On the keyboard, press **[Ctrl]+F**.
  - On the Enterprise Switch Manager toolbar, click **Find**.

The **Find Device** dialog box appears (Figure 24).

**Figure 24** Find Device dialog box



- 2 Click the **By IP Address** radio button if find IP is required.
- 3 Enter the IP Address/Name in the **By Name/IP Address** field. If no device is selected in the target device list, ESM tries to find the device on the topology map to match the IP Address/Name and highlights the device, if found.
- 4 If the device is not found, select the target devices list to query the ARP table for these device(s).
- 5 Select **By Mac Address(FDB)** or **By Mac Address(ARP)** radio button if find MAC address is desired.
- 6 Make sure that a device is selected in the target device list before entering the MAC Address in the **OR MAC Address** field.
- 7 **By Mac Address(FDB)** will query FDB table (layer 2).
- 8 **By Mac Address(ARP)** will query ARP table (layer 3).
- 9 Click **Find**. The search result is displayed in the table, and either the devices are highlighted or an address not found message is displayed.

## Selecting devices by type

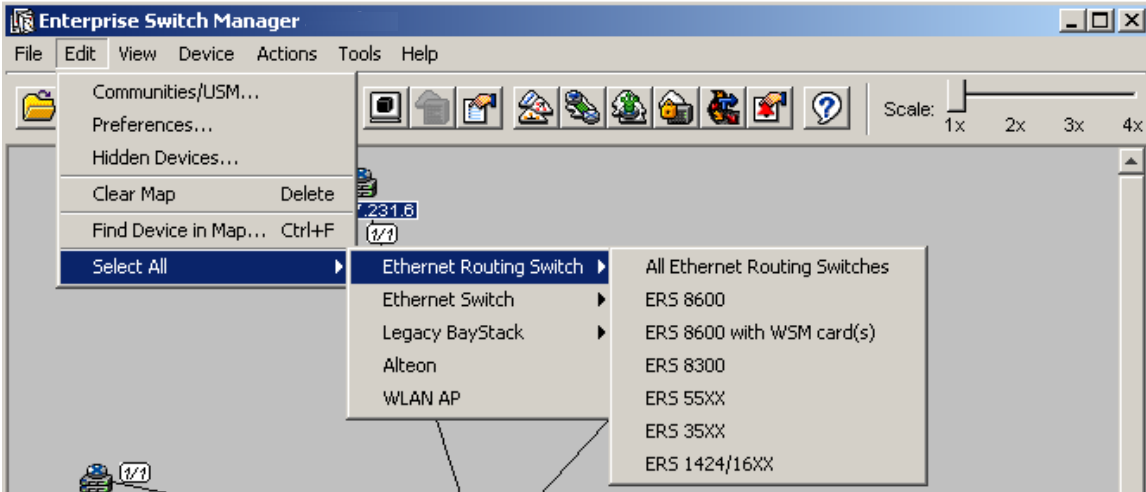
Enterprise Switch Manager lets you select all of the devices on the network map that are of a certain type. You can use this feature to identify devices on the network map, and to locate devices of the available device types.

To select devices by type:

- 1 On the Enterprise Switch Manager menu bar, choose **Edit > Select All**.  
A submenu appears.
- 2 Choose the device type that you want to select.

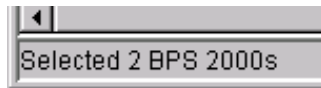
Other submenus may appear that let you refine your selection (Figure 25).

**Figure 25** Select All devices menu and submenus



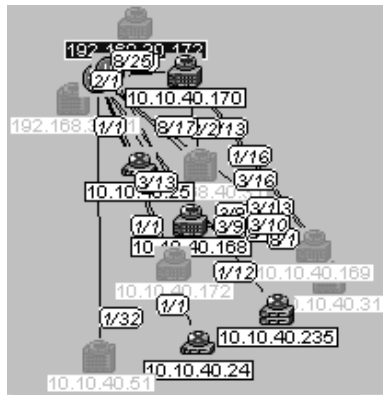
Enterprise Switch Manager highlights the icons for the devices of the selected type on the network map. Also, the status bar displays the results of the selection operation (Figure 26).

**Figure 26** Select all devices status bar message



## Arranging devices on the topology map

As Enterprise Switch Manager discovers devices, they are arranged by default in a column (top to bottom/left to right) on the topology map. Figure 27 shows the Enterprise Switch Manager contents pane after a seed address was located. The devices icons are crowded together, and the port numbers and IP addresses overlap each other. To improve readability of the map, you can automatically or manually adjust the layout.

**Figure 27** Enterprise Switch Manager display before Layout command

To automatically arrange the topology map:

➔ Do one of the following:

- From the Enterprise Switch Manager menu bar, choose **Actions > Layout Map**.
- On the Enterprise Switch Manager toolbar, click **Layout Map**.

The nodes are automatically arranged on the map. You may also need to manually adjust nodes on the map until you have the desired layout.

To manually arrange the devices discovered in the network topology:

➔ Drag selected devices to desired locations on the topology map.

To move multiple devices in the topology map:

- 1 Select the devices by performing one of the following:
  - Click and drag a selection box around the desired devices.
  - Press **Ctrl** and click the desired devices.
- 2 To move the highlighted group, press **Ctrl** and click one of the highlighted devices, then drag the group to the desired position.

## Getting help

Help in Enterprise Switch Manager is arranged by subject. A Web browser, such as Netscape Navigator or Microsoft Internet Explorer, opens to display Help files. You can use the contents frame or the Help index to locate information.

To access Help:

➔ Do one of the following:

- From the Enterprise Switch Manager menu bar, choose **Help > Contents**.
- On the keyboard, press **[F1]**.
- On the Enterprise Switch Manager toolbar, click **Help**.

The Help files open in a Web browser.





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## Chapter 3

# Configuring Enterprise Switch Manager

---


This chapter describes configuration tools for Enterprise Switch Manager, and includes the following topics:

- [“Discovering your network,” next](#)
- [“Accessing devices with different SNMP communities” on page 109](#)

## Discovering your network

Enterprise Switch Manager builds its logical map of the network by querying the topology table of the seed device, using the Bay Autotopology Protocol (BTP). A seed device is a device from which you start learning about the topology of the network. After getting the information about neighbors of the seed device from the seed devices topology table, Enterprise Switch Manager queries the neighbor devices for their own topology tables. Enterprise Switch Manager then selects the appropriate icon to represent each device, determines the links between devices, and represents the device and link information on a network topology map.

Discovery continues until no more devices can be reached within the maximum number of hops specified. By default, Enterprise Switch Manager does not query neighbors more than five hops away from the seed device. You can set the number of hops, up to a maximum of 20 hops.

While the discovery process is occurring, the Discover Map button on the Enterprise Switch Manager toolbar becomes the Stop Discovery button (). You can stop the discovery process at any time by clicking this button.

## Preferences dialog box

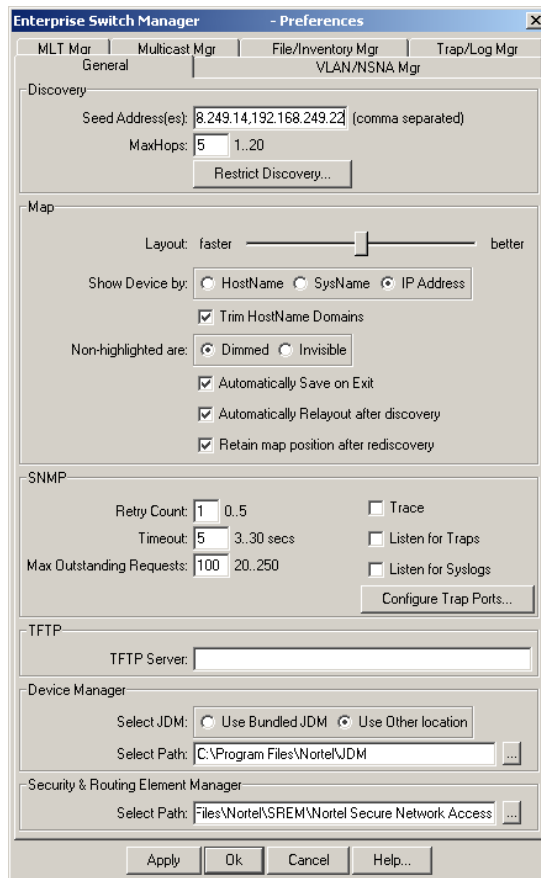
The topology discovery process begins when you supply Enterprise Switch Manager with one or more network device seed addresses and the application queries the addresses. The Preferences dialog box specifies the seed address and defines the scope of the discovery process.

To discover a network:

- 1 From the Enterprise Switch Manager menu bar, choose **Edit > Preferences**.

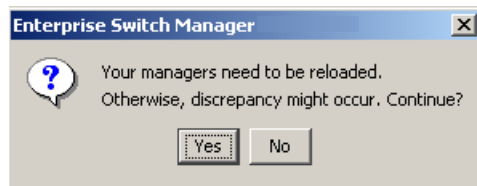
The **Preferences** dialog box appears, with the **General** tab displayed (Figure 28).

**Figure 28** Preferences dialog box



- 2 In the **Seed Address(es)** textbox, type the IP address of one or more devices in the network.  
Separate multiple IP addresses with commas.
- 3 In the **MaxHops** textbox, type the maximum number of hops.
- 4 Use the **Layout** slider to indicate whether greater speed or better accuracy is more important.
- 5 Select other options in the dialog box to control the appearance of the topology map.  
See [“Preferences dialog box items” on page 100](#) for a description of the available options.
- 6 Click **Apply**.
- 7 Click **OK**.
- 8 On the Enterprise Switch Manager toolbar, click **Discover Map**.  
Or, from the Enterprise Switch Manager menu bar, choose **Actions > Discover Map**.
- 9 If a submanager window is already open, an alert box opens to advise you that the submanagers must be reloaded, and prompts you to continue or not ([Figure 29](#)).

**Figure 29** Discovery alert box



- 10 Click **Yes** to proceed.

Enterprise Switch Manager reloads topology information from the network devices, and refreshes the topology map.

[Table 9](#) describes the items in the **Preferences** dialog box.

**Table 9** Preferences dialog box items

| Section   | Item               | Description   |
|-----------|--------------------|---|
| Discovery | Seed Address(es)   | The IP address(es) of one or more devices that Enterprise Switch Manager queries using SNMP to start the discovery process. For a list of supported devices, see <i>Installing Enterprise Switch Manager</i> .<br><b>Note:</b> If the devices you want to monitor and configure are not connected to the same network, you can specify multiple seed addresses, separated by commas. Separate networks do not appear to be connected in the network topology map. |
|           | Max Hops           | The number of hops, between 1 and 20, that a data packet travels from one router or intermediate point to another in the network. (Default is 5 hops.)  |
|           | Restrict Discovery | Opens the Restrict Discovery dialog box to restrict device discovery to only the devices in the subnets entered. Refer to <a href="#">“Restricting discovery” on page 106</a> for more information.   |

**Table 9** Preferences dialog box items (continued)

| Section | Item                                   | Description   |
|---------|--|---|
| Map     | Layout                                 | Drag the slider to the right (better) or to the left (faster) to indicate how you want Enterprise Switch Manager to lay out devices in the network topology map. Refer to “ <a href="#">Layout slider</a> ” on page 108 for more information.             |
|         | Show Device by                         | Determines how a device is identified in the network topology map. The selections are: <ul style="list-style-type: none"> <li>• HostName</li> <li>• SysName</li> <li>• IP Address (Default)</li> </ul>  |
|         | Trim HostName Domains                  | Truncates Internet host name domains.<br>Example: nortel.com becomes nortel   |
|         | Non-highlighted are                    | Lets you select an option for viewing inactive devices. The options are: <ul style="list-style-type: none"> <li>• Dimmed–Non-highlighted items are shaded. (Default)</li> <li>• Invisible–Removes non-highlighted items from the topology map.</li> </ul> |
|         | Automatically Save on Exit             | If checked, the current network topology map is automatically saved to the default.topo file.   |
|         | Automatically Relayout after discovery | If checked, the network topology map is adjusted for better viewing as it is loaded in Enterprise Switch Manager.   |
|         | Retain map position after discovery    | If checked, the map position retains the position of the old nodes after rediscovery. If there is a newly discovered device, it redraws the map without affecting the SavedNodes.   |

**Table 9** Preferences dialog box items (continued)

| Section                            | Item                     | Description  |
|------------------------------------|--------------------------|--|
| SNMP                               | Retry Count              | The number of times, between 0 and 5, Enterprise Switch Manager tries to connect to a device using SNMP. (The default is 1.)   |
|                                    | Timeout                  | The amount of time, between 3 and 10 seconds, Enterprise Switch Manager waits before trying to connect to a device again. (The default is 5.)  |
|                                    | Max Outstanding Requests | The number of SNMP requests, between 20 and 250, that Enterprise Switch Manager maintains as open or outstanding. (The default is 100.)  |
|                                    | Trace                    | If checked, additional SNMP information is written to the Enterprise Switch Manager error log, and can provide assistance in troubleshooting.<br><b>Note:</b> Selecting Trace could slightly slow down performance as extra information is gathered. |
|                                    | Listen for Traps         | If checked, Enterprise Switch Manager receives traps for all the devices managed through ESM.  |
|                                    | Listen for Syslog        | If checked, Enterprise Switch Manager receives logs for all the devices managed through ESM.   |
| TFTP                               | TFTP Server              | Allows you to enter the IP address of the default TFTP server used by submanager applications.   |
| Device Manager                     | Select JDM               | When Device Manager is launched from ESM, this option specifies whether ESM uses the bundled JDM or another existing JDM version.  |
|                                    | Select Path              | Specifies the path of the folder containing the JDM version to use when Select JDM is set to Use Other Location.   |
| Security & Routing Element Manager | Select Path              | Specifies the path of the folder containing the Security & Routing Element Manager (SREM) version to use when a Nortel Secure Network Access Switch (NSNAS) icon is double-clicked from the topology view.   |

## Submanager preferences

The **Preferences** dialog box also contains tabs to configure preferences for the submanagers. To access these preferences in each submanager's menu, click **Edit > Preferences**.

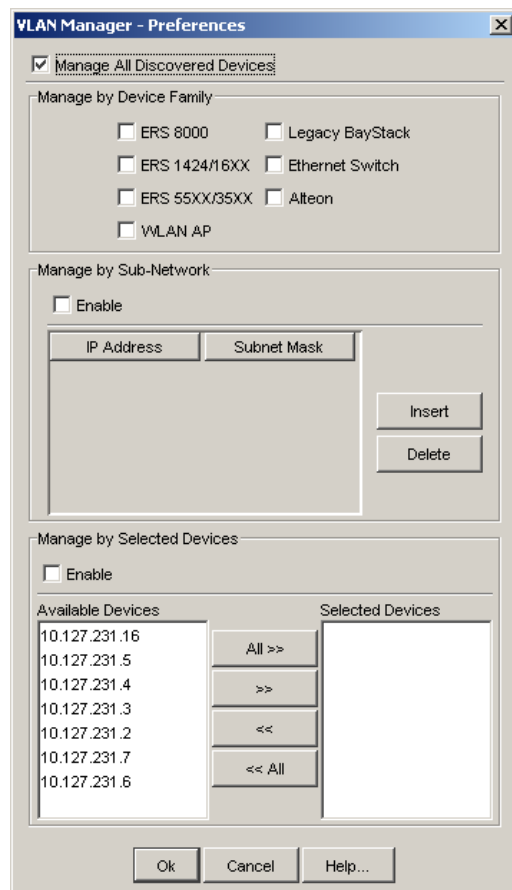
These preferences allow you to select, for each submanager, specific devices to configure and manage, based on device family, subnet, or individual device. Therefore, the preferences allow you to configure a small group of devices within a larger network.

The submanager preferences that you set are independent of one another.

To configure submanager preferences:

- 1 Do one of the following:
  - From the main menu, choose **Edit > Preferences**. Then, from the **Preferences** dialog box, choose the appropriate tab for the submanager you want to configure.
  - From a submanager menu, choose **Edit > Preferences**.

The submanager **Preferences** dialog box opens ([Figure 30](#) shows the **Preferences** dialog box for VLAN manager).

**Figure 30** Submanager Preferences dialog box

**2** For more information on the options available in the submanager preferences dialog box, refer to the following:

- [“Manage All Discovered Devices” on page 105](#)
- [“Manage devices by Device Family” on page 105](#)
- [“Manage devices by sub-network” on page 105](#)
- [“Manage selected devices” on page 105](#)



## Manage All Discovered Devices

To manage all devices, choose **Manage All Discovered Devices**. This option is mutually exclusive from the other options: if this option is selected, all other options are deselected, and if any other option is selected, this option is deselected.

## Manage devices by Device Family

To manage devices by Device Family, choose the appropriate product families in the **Manage by Device Family** pane.

## Manage devices by sub-network

To manage devices by sub-network, choose **Enable** in the **Manage by Sub-Network** pane and click Insert. In the **IP address** and **Subnet Mask** cells, enter the appropriate addresses for the subnets you want to manage. This action selects all the devices belonging to that subnet.

If the **Enable** option is selected and no IP and subnet mask are specified, then no devices are selected (managed) based on sub-network.

## Manage selected devices

To manage selected devices, select **Enable** in the **Manage by Selected Devices** pane, and use the arrows to move devices from the **Available Devices** box to the **Selected Devices** box. The **Available Devices** box contains the list of devices discovered by each submanager.

If the **Enable** option is checked and no device is selected in the **Selected Devices** box, then this means no device is selected (managed).

## Rediscovering the network map

After you have specified discovery preferences on the **Preferences** dialog box, you can rediscover the network at any time using those settings.

To rediscover the network:

- 1 On the Enterprise Switch Manager toolbar, click **Discover Map**.  
Or, from the Enterprise Switch Manager menu bar, choose **Actions > Discover Map**.

An alert box appears to advise you that the submanagers must be reloaded, and to prompt whether you want to continue (Figure 29).

- 2 Click **Yes** to proceed.  
Enterprise Switch Manager reloads topology information from the network devices, and refreshes the topology map with it.

See “Enterprise Switch Manager menu bar commands and toolbar buttons” on page 68 for more information.

## Stopping the discovery process

Once you have started a discovery process, you can stop it at any time. Stopping the process discards the results of the incomplete discovery.

To stop a discovery process:

- ➔ Click **Stop** on the Enterprise Switch Manager toolbar.

See “Enterprise Switch Manager menu bar commands and toolbar buttons” on page 68 for more information.

## Restricting discovery

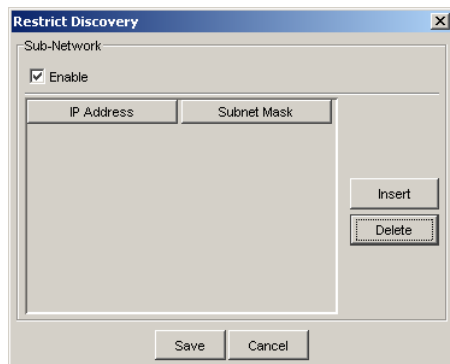
You can restrict the discovery process to specific devices or specific subnets. Use the Restrict Discovery dialog box to enter IP addresses or subnets that are available for discovery by Enterprise Switch Manager. Only devices within the listed IP addressees or subnets are displayed in the Enterprise Switch Manager contents pane.

To restrict discovery to certain subnets or devices:

- 1 From the Enterprise Switch Manager menu bar, choose **Edit > Preferences**.
- 2 Click **Restrict Discovery**.

The Restrict Discovery dialog box appears (Figure 31).

**Figure 31** Restrict Discovery dialog box



**3** Click **Insert**.

A new row appears under the **IP address** heading.

**4** Click the new row, and do one of the following:

- To restrict discovery to a specific subnet, type the IP address and subnet mask of the subnet.
- To restrict discovery to a specific device, type the device IP address and leave the subnet mask blank.

**5** Repeat steps 3 and 4 for each device or subnet that you want to discover.

**6** Click **Enable**.

**7** Click **Save**.

## Hidden Devices

ESM provides a **Hidden Device** menu that allows the user to hide specific devices from the topology.



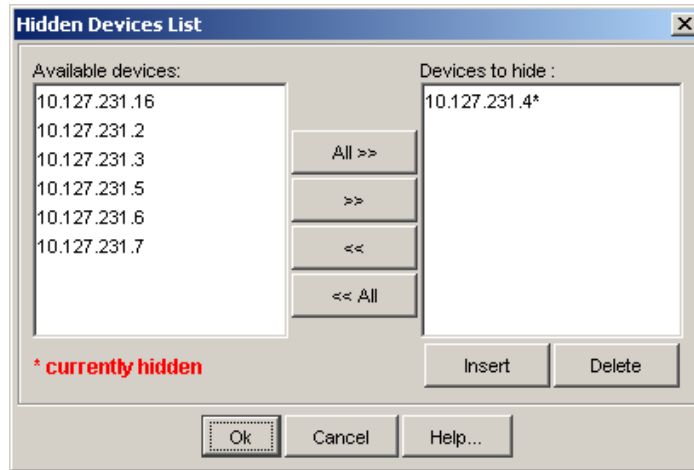
**Note:** In the **Device** menu, the **Delete** option from OSM 4.1 has been changed to **Hide**.

To open the Hidden Devices dialog box:

- 1 From the main menu, choose **Edit > Hidden Devices**.

The **Hidden Devices** dialog box appears (Figure 32).

**Figure 32** Hidden Devices dialog box



- 2 To hide devices, use the arrows to move them from the **Available devices** box to the **Devices to hide** box.

The devices identified by an asterisk (\*) are currently hidden.

- 3 Click **Ok**.

Enterprise Switch Manager redraws the topology according to the Hidden Devices list.

## Layout slider

Use the layout slider to improve the readability of the topology map. It adjusts the layout of the devices in the network topology using the Spring algorithm, which balances the distances between devices and minimizes the number of crossing lines.

To use the layout slider:

- 1 Choose **Edit > Preferences**.

The **Preferences** dialog box appears ([Figure 28 on page 98](#)).

- 2 In the **Map** area, slide the ruler between faster and better to adjust the layout display.

Enterprise Switch Manager retains the locations of nodes until you rediscover the network.

- 3 Click **Apply**.
- 4 To rediscover the network topology map with a new layout, do one of the following:
  - From the Enterprise Switch Manager menu bar, choose **Actions > Discover Map**.
  - On the Enterprise Switch Manager toolbar, click **Discover Network**.

## Accessing devices with different SNMP communities

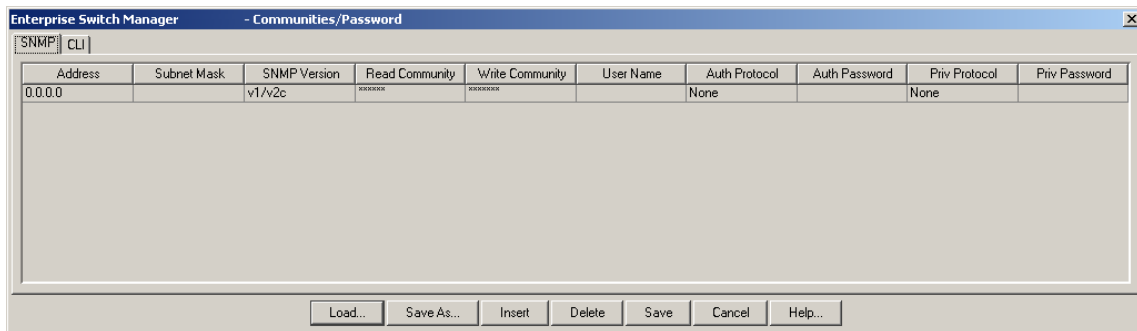
SNMP community passwords can provide a level of protection by limiting access to devices. In Enterprise Switch Manager, you can access devices or subnets with different communities by adding the correct SNMP passwords in the Communities/Password dialog box. ESM supports all SNMP versions including v1/v2c and v3. SNMPv3 allows network administrators to securely configure and manage their network devices. SNMP devices, which include those devices supported by Enterprise Switch Manager, typically have two passwords or communities for read and write operations on that device. The default passwords are *public* (open access) and *private* (restrictive access).

You cannot access devices that are configured with different SNMP community passwords unless you know their passwords and enter those passwords into the Enterprise Switch Manager using the Communities/Password dialog box.

To assign a different SNMP community password to a group or single device:

- 1 From the Enterprise Switch Manager menu bar, choose **Edit > Communities/Password**.

The **Communities/Password** dialog box appears, with the **SNMP** tab displayed ([Figure 33](#)).

**Figure 33** Communities/Password dialog box

**2** Click **Insert**.

An empty row is added to the table.

**3** Click on the empty row and enter the IP address, subnet mask, and communities.

**4** Click **Save**.

The changes are saved to the snmpcomm.properties file.

Table 10 describes the parts of the **Communities/Password - SNMP** tab.

**Table 10** Parts of the Communities/Password - SNMP tab

| Part          | Descriptions  |
|---------------|---|
| Address       | The subnet address of a group of devices or the IP address of a single device. (Default is 0.0.0.0 to include all devices.)<br><b>Note:</b> Enterprise Switch Manager uses zero (0) as a wildcard to associate SNMP communities with groups of devices. You can place a zero anywhere in the IP address. For example, the address 10.10.0.0 refers to all addresses in the 10.10. subnet. |
| Subnet Mask   | An IP address with all the network bits set to 1 and all the hosts bits set to 0.   |
| Read          | The level of permission to view or read configuration information on a group of devices or a single device.<br><br>The community string default is public (open access).  |
| Write         | The level of permission to change configuration information on a group of devices or single device.<br><br>The default community string is private (restrictive access).  |
| User Name     | The name of a user. This can be a string 1 to 32 characters in length.  |
| Auth Protocol | The authentication protocol used to support User-based security model. Options available are None, HMAC-MD5-96, and HMAC-SHA-96.  |
| Auth Password | The authentication password if authentication protocol is used.   |
| Priv Protocol | The privacy protocol used to support User-based security model. Options available are None, DES, and AES.   |
| Priv Password | The privacy password if privacy protocol is used.   |

## Accessing NSNAS with different CLI user names and passwords

CLI user names and passwords can provide a level of protection by limiting access to Nortel Secure Network Access Switches (NSNAS). In Enterprise Switch Manager, you can access the Security & Routing Element Manager (SREM) for NSNAS with different CLI user names and passwords by adding the correct CLI

user names and passwords in the Communities/Password dialog box.

To specify a different CLI user name and password for access to an NSNAS:

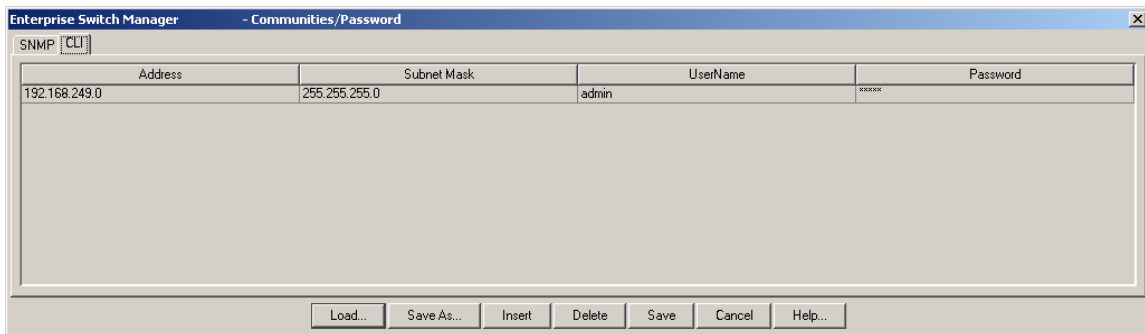
- 1 From the Enterprise Switch Manager menu bar, choose **Edit > Communities/Password**.

The **Communities/Password** dialog box appears, with the **SNMP** tab displayed (Figure 33).

- 2 Click the **CLI** tab.

The **CLI** tab appears (Figure 34).

**Figure 34** CLI tab



- 3 Click **Insert**.

An empty row is added to the table.

- 4 Click on the empty row and enter the IP address, subnet mask, CLI user name and CLI password for the NSNAS.

- 5 Click **Save**.

ESM saves the user name and password information for the NSNAS.

To access the SREM for an NSNAS, go to the topology view and double-click the NSNAS icon. For the operation to succeed, you must also specify in the ESM **Preferences** dialog box the correct path to the folder that contains the SREM software (see “[Preferences dialog box](#)” on page 98).



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## Chapter 4

# Using VLAN Manager

---

VLAN Manager manages Spanning Tree Groups (STG), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSTP), and VLANs across devices in a network. Enterprise Switch Manager is the starting point for VLAN Manager, and Enterprise Switch Manager must be open to use VLAN Manager.

This chapter describes using VLAN Manager to manage VLANs on Nortel Ethernet Switches and Nortel Ethernet Routing Switches. It includes the following information:

- [“What is VLAN Manager?,” next](#)
- [“Starting VLAN Manager” on page 117](#)
- [“VLAN Manager window” on page 117](#)
- [“Working with VLAN Manager” on page 125](#)
- [“Managing Spanning Tree Groups \(STGs\)” on page 140](#)
- [“Managing VLANs” on page 145](#)
- [“Highlighting STGs and VLANs on the topology map” on page 161](#)
- [“Managing Rapid Spanning Tree Protocol \(RSTP\)” on page 166](#)
- [“Managing Multiple Spanning Tree Protocol” on page 167](#)

## What is VLAN Manager?

VLAN Manager enables you to manage VLAN and STG configurations across a single device or multiple devices. It supports the rcVlan and rcStg MIBs. The following sections describe VLAN Manager conventions and features:

- [“VLAN” on page 114](#)
- [“NSNA” on page 114](#)

- [“Spanning Tree Protocol” on page 115](#)
- [“VLAN Manager features” on page 116](#)

## VLAN

VLAN is a collection of ports on one or more switches that defines a broadcast domain. You can assign ports to a VLAN or you can create a policy VLAN, which determines the port’s membership in the VLAN based on the traffic entering that port. For example, in an IP subnet-based VLAN, the port belongs to the VLAN only if the traffic passing through the port is on the specified IP subnet.

You control path redundancy for VLANs by implementing the Spanning Tree Protocol (STP).

## NSNA

With ESM 5.1, you can also use VLAN Manager to configure VLAN properties for networks and devices that support the Nortel Secure Network Access (NSNA) solution. The NSNA solution protects an enterprise network by providing a predefined level of clientless access to users, based on credentials and security features.

For more information about configuring NSNA with ESM, refer to [“Configuring VLANs for NSNA” on page 138](#) and [Chapter 10, “Using NSNA Manager,” on page 513](#).

For detailed information about the NSNA solution and deployment scenarios, refer to *Nortel Secure Network Access Solution Guide (320817-A)*. For information about configuring the NSNAs, refer to *Nortel Secure Network Access Switch 4050 User Guide (320818-A)*. For switch-specific configuration information, refer to your switch documentation.

## Spanning Tree Protocol

As defined in the IEEE 802.1D standard, the Spanning Tree Protocol detects and eliminates logical loops in a bridged or switched network. When multiple paths exist, the spanning tree algorithm configures the network so that a bridge or switch uses only the most efficient path. If that path fails, the protocol automatically reconfigures the network to activate another path, thus sustaining network operations.

The collection of ports in one spanning tree is called a Spanning Tree Group (STG) and a network may include multiple instances of STGs. All the devices supported by Enterprise Switch Manager support at least one STG. The Passport 1000 Series switch and the Ethernet Routing Switch 8600 modules support multiple spanning trees, thus multiple Spanning Tree Groups.

[Table 11](#) lists the maximum number of STGs and VLANs supported by the different switches.

**Table 11** Maximum STGs and VLANs supported by switches

| Switch   | Maximum number of STGs          | Maximum number of VLANs |
|--|---------------------------------|-------------------------|
| Passport 1000 Series switch                          | 25                              | 101                     |
| Ethernet Routing Switch 1424/1612/1624/1648 switches | 1                               | 2048                    |
| Ethernet Routing Switch 8100 modules                 | 1                               | 2000                    |
| Ethernet Routing Switch 8300 modules                 | 64                              | 2000                    |
| Ethernet Routing Switch 8600 modules                 | 25 (in versions 3.3 and higher) | 1980                    |
| BayStack 380 3.0                                     | 1                               | 512                     |
| BayStack 420   | 1                               | 32                      |
| Ethernet Switch 410/450                              | 1                               | 64                      |
| Ethernet Switch 325/425                              | 1                               | 255                     |
| Ethernet Switch 460/470                              | 16                              | 256                     |

**Table 11** Maximum STGs and VLANs supported by switches (continued)

| Switch   | Maximum number of STGs | Maximum number of VLANs |
|--|------------------------|-------------------------|
| Ethernet Routing Switch 5510, 5520, 5530, 3510 | 8                      | 256                     |
| Business Policy Switch 2000 v 2.x, 3.0         | 8                      | 256                     |

For more information about VLANs and Spanning Tree Protocol, refer to the device-specific documentation.

## VLAN Manager features

VLAN Manager allows you to:

- Configure and monitor VLANs and STGs across one or multiple devices.
- View and edit port membership information for:
  - ports not belonging to an STG
  - ports belonging to multiple STGs
  - individual routing ports and brouter ports.
- View Spanning Tree configuration information in the Enterprise Switch Manager topology map, such as the ports that are blocking or forwarding. You can also see which device is the root of the Spanning Tree configuration. For more information, see [“Highlighting STGs and VLANs on the topology map” on page 161](#).

The following sections describe the VLAN Manager window and available management functions

## Starting VLAN Manager

To start VLAN Manager:

➔ Do one of the following:

- From the Enterprise Switch Manager menu bar, choose **Tools > VLAN Manager**.
- On the keyboard, press [F2].
- On the Enterprise Switch Manager toolbar, click **VLAN Manager**.

The VLAN Manager window opens (Figure 35).

## VLAN Manager window

The VLAN Manager window contains the parts identified in Figure 35.

**Figure 35** VLAN Manager window

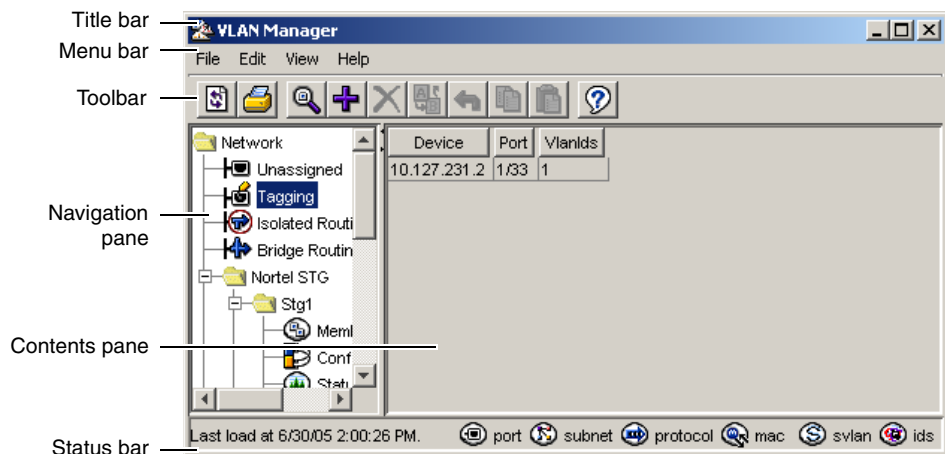


Table 12 describes the parts of the VLAN Manager window.

**Table 12** VLAN Manager window parts



| Part            | Description  |
|-----------------|--|
| Title bar       | Displays the submanager name.  |
| Menu bar        | Provides access to all VLAN Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons”</a> .                              |
| Toolbar         | Provides quick access to commonly used VLAN Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons”</a> .              |
| Navigation pane | Provides a navigation tree showing VLAN Manager network folder resources. For more information, see <a href="#">“Navigation pane” on page 120</a> .            |
| Contents pane   | Displays information selected in the navigation pane. For more information, see <a href="#">“Contents pane” on page 122</a> .                                  |
| Status bar      | Displays status information, including the type of device highlighted and command status. For more information, see <a href="#">“Status bar” on page 122</a> . |

## Menu bar commands and toolbar buttons









The menu bar and toolbar provide menus and toolbar buttons for operating VLAN Manager.

[Table 13](#) lists the VLAN Manager menus and toolbar buttons.

**Table 13** VLAN Manager menu commands and toolbar buttons

| Menu | Command | Toolbar button  | Shortcut Key | Description   |
|------|---------|---|--------------|---|
| File | Refresh |   |              | Queries devices for information about tagging and unassigned ports. This button is only available when Tagging or Unassigned is selected.                       |
|      | Reload  |  | [Ctrl]+R     | Rediscovered the network and reloads VLAN Manager with the latest information. For more information, see <a href="#">“Reloading VLAN Manager” on page 124</a> . |
|      | Print   |  | [Ctrl]+P     | Opens the Print dialog box, where you enter print parameters.   |
|      | Close   |   |              | Closes the VLAN Manager window.   |

**Table 13** VLAN Manager menu commands and toolbar buttons (continued)

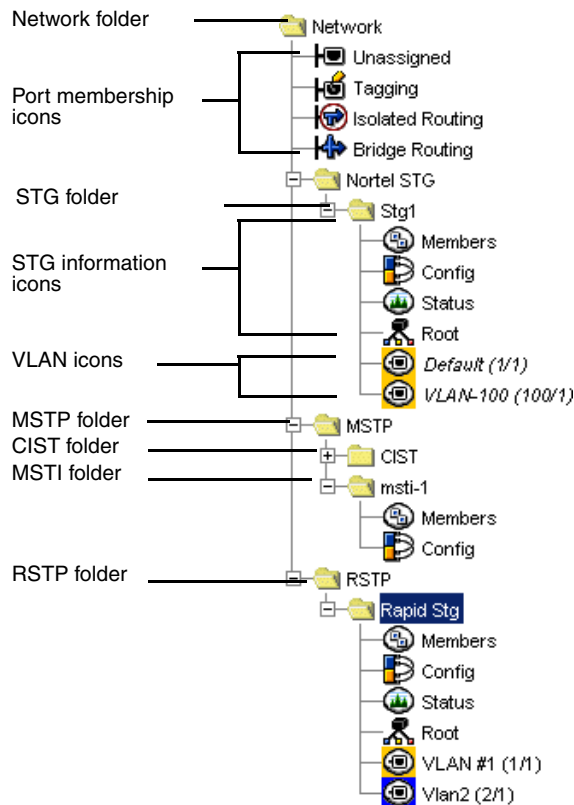
| Menu | Command               | Toolbar button  | Shortcut Key | Description   |
|------|-----------------------|---|--------------|---|
| Edit | Undo Changes          |    | [Ctrl]+Z     | Reverses any changes you made to an item or field.  |
|      | Preferences           |   |              | Identifies specific devices for Enterprise Switch Manager to configure and manage. See <a href="#">“Submanager preferences” on page 103</a> for more information. |
|      | Copy                  |    | [Ctrl]+C     | Copies the contents of a selected cell.   |
|      | Paste                 |    | [Ctrl]+V     | Pastes the cell contents to a new location.   |
|      | Insert                |    | [Ctrl]+I     | Opens the Insert dialog box, where you insert an STG or VLAN on selected devices.   |
|      | Delete                |    | [Ctrl]+D     | Removes a selection and displays a message to confirm deletion of the selected VLAN.  |
|      | Apply Changes         |    |              | When you have made changes to your VLAN configuration, this command applies these changes to the devices in the network.  |
|      | Edit MAC Address      |   |              | Lets you insert the text file containing the MAC addresses for MAC-based VLANs.   |
|      | Synchronize VLAN name |   |              | Synchronizes VLAN names across devices.   |
|      | Find                  |   | [Ctrl]+F     | Opens the Find dialog box, where you set parameters to find matching entries in your network.   |
| View | Highlight Topology    |   |              | Highlights the VLAN topology map in the Enterprise Switch Manager contents pane.  |
|      | Audit                 |   |              | Queries the network configuration to report any discrepancies.  |
| Help | Using                 |  | F1           | Opens a Web browser and loads the Help files.   |
|      | Online Support        |   |              | Opens a Web browser that loads the Nortel Customer Support Web page.  |
|      | About VLAN Manager    |   |              | Displays information about VLAN Manager.  |

## Navigation pane

The VLAN Manager navigation pane (Figure 36) is located on the left side of the window. It contains a network folder for each Spanning Tree Group found in the network. When you click a Spanning Tree folder, the folder expands to display the Spanning Tree configuration information and then lists the VLANs associated with that Spanning Tree.

In the navigation pane, select the folder for which you want to view Spanning Tree or VLAN information, or choose Edit > Print to print the navigation tree.

**Figure 36** VLAN Manager navigation pane





[Table 14](#) describes the parts of the VLAN Manager navigation pane.

**Table 14** Parts of the VLAN Manager navigation pane

| Part                  | Description  |
|-----------------------|--|
| Network folder        | Contains all of the icons and folders in the navigation pane   |
| Port membership icons | Represent the types of port membership. See <a href="#">“Port membership” on page 126</a> for more information.  |
| STG folders           | Represent Spanning Tree Groups on the discovered devices. Double-click an STG folder to toggle between open and closed. See <a href="#">“Viewing Spanning Tree Groups (STGs)” on page 128</a> for more information.  |
| STG information icons | Show you information about STGs. Click one of the icons to view information about that aspect of the STG in the content pane. See <a href="#">“Viewing Spanning Tree Groups (STGs)” on page 128</a> for more information.  |
| VLAN icons            | Show you information about VLANs. Click one of the icons to view information about that VLAN in the content pane. See <a href="#">“VLAN icons” on page 134</a> for more information.   |
| MSTP folder           | Show you information about MSTP. Click one of the icons to view information about that aspect of the MSTP in the content pane. See <a href="#">“Editing MSTP properties” on page 171</a> for more information.   |
| CIST folder           | Show you information about the MSTP Common and Internal Spanning Tree (CIST). Click one of the icons to view information about that aspect of the CIST in the content pane. See <a href="#">“Editing MSTP properties” on page 171</a> for more information.        |
| MSTI folder           | Show you information about Multiple Spanning Tree instances (MSTI). Click one of the icons to view information about that aspect of the MSTI in the content pane. See <a href="#">“Adding an MSTI in Multiple Spanning Tree” on page 168</a> for more information. |
| RSTP folder           | Show you information about STGs. Click one of the icons to view information about that aspect of the RSTP in the content pane. See <a href="#">“Editing Rapid Spanning Tree properties” on page 166</a> for more information.                                      |

## Contents pane

When you select a network resource in the navigation pane, a table appears in the contents pane ([Figure 37](#)).

**Figure 37** Default (1) folder view in the contents pane

| Device        | Name    | PortMembers       | HighPriority | QosLevel | DsField | IfIndex | IpAddress     | NetMask       |
|---------------|---------|-------------------|--------------|----------|---------|---------|---------------|---------------|
| 10.127.231.2  | Default | 1/6-1/46,4/1-4/24 |              | 1        | 0       | 2049    | 10.127.231.2  | 255.255.255.0 |
| 10.127.231.15 | Default | 4/1-4/30          |              | 1        | 0       | 2049    | 0.0.0.0       | 255.0.0.0     |
| 10.128.100.2  | Default |                   | false        |          |         | 257     | 0.0.0.0       | 255.0.0.0     |
| 10.128.100.12 | VLAN #1 | 1/1-1/25          |              |          |         | 0       | 0.0.0.0       | 255.0.0.0     |
| 10.128.100.22 | default | 1/1-1/26          |              |          |         | 256     | 10.128.100.22 | 255.255.255.0 |
| 10.128.100.11 | VLAN #1 | 1/1-1/26          |              |          |         | 0       | 0.0.0.0       | 255.0.0.0     |
| 10.128.100.17 | VLAN #1 | 1/1-1/24          |              |          |         | 0       | 0.0.0.0       | 255.0.0.0     |
| 10.128.100.13 | VLAN #1 | 1/1-1/25          |              |          |         | 0       | 0.0.0.0       | 255.0.0.0     |

To view the VLAN information in the contents pane:

➔ In the navigation pane, select an STG or VLAN icon.

The example in [Figure 37](#) shows the VLAN membership information for the Default VLAN. The Default (1) folder appears in the contents pane when you select Default (1) from the navigation tree.

## Status bar

The VLAN Manager status bar ([Figure 35 on page 117](#)) is located at the bottom of the VLAN Manager window and contains two fields. [Table 15](#) describes the VLAN Manager status bar fields.

**Table 15** VLAN Manager status bar fields

| Field   | Description   |
|---------|---|
| Message | Located on the left, the message field displays information about VLAN Manager operations.  |
| Icon    | Located on the right, the icon field provides a legend for different types of VLANs found in the network. See <a href="#">“VLAN icons” on page 134</a> for more information about VLAN icons. |

## Finding network resources

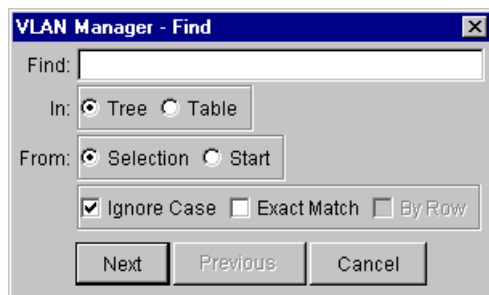
You can locate an entry in a field that contains a particular item of information, such as text, seed address, or VLAN ID number.

To find a network resource:

- 1 Click any device in the navigation tree or contents pane, and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Find**.
  - On the VLAN Manager toolbar, click **Find**.

The **Find** dialog box appears (Figure 38).

**Figure 38** Find dialog box



- 2 In the **Find** text box, type the text or number for your search.
- 3 In the **In** section, click the **Tree** option to search the navigation tree, or click the **Table** option to search the contents pane.
- 4 Click **Next**.

VLAN Manager starts its search and highlights the first match that it finds or displays a message that it found no matches.

- 5 If a first match was found, click **Next** to find each subsequent match, or click **Previous** to go back to the last match.

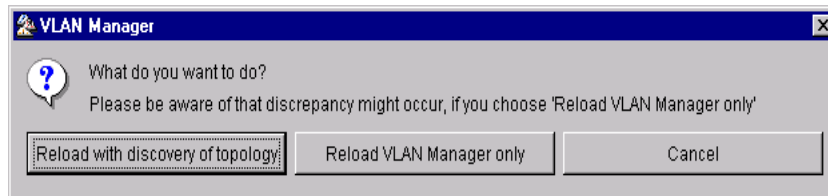
## Reloading VLAN Manager

VLAN Manager lets you refresh the information in the window with VLAN information polled from the network devices. You can use this feature to load any updated information that took effect since you opened VLAN Manager.

To reload the VLAN information:

- 1 On the VLAN Manager toolbar, click **Reload**.  
Or, from the VLAN Manager menu bar, choose **File > Reload**.  
An alert box appears to ask how you want to continue (Figure 39).

**Figure 39** VLAN Manager reload dialog box



- 2 Do one of the following:
  - Click **Reload with discovery of topology** to rediscover the network topology and reload the Enterprise Switch Manager topology map and all of the submanagers.
  - Click **Reload VLAN Manager only** to reload only VLAN Manager. Enterprise Switch Manager polls devices for VLAN settings and features, but does not perform a full network topology discovery.

- Click **Cancel** to abandon the reload operation.



---

**Note:** Reloading just VLAN Manager takes less time than reloading with topology discovery. However, if there are any changes in network topology, it might result in discrepancies between the information in VLAN Manager and the information on the topology map. Such discrepancies might cause incorrect operation when you perform operations (such as highlighting the network map) that involve interactions between the submanagers and the topology map.

If you observe such incorrect operation, reload the network map. For more information, see [“Rediscovering the network map” on page 105](#).

---

Enterprise Switch Manager reloads topology information from the network devices, and refreshes the VLAN Manager window with it.

## Working with VLAN Manager

Using VLAN Manager, you can monitor, configure, and troubleshoot STGs and VLANs found in the network.





This section includes the information about the following topics:

- [“Port membership,” next](#) (ports not belonging to STGs or ports belonging to multiple STGs)
- [“Viewing Spanning Tree Groups \(STGs\)” on page 128](#)
- [“Viewing the Default VLAN” on page 136](#)
- [“Viewing VLAN ports” on page 137](#)
- [“Configuring VLANs for NSNA” on page 138](#)

## Port membership

In the navigation pane, the top four icons represent the port memberships described in [Table 16](#).

**Table 16** Port membership types and STGs

| Icon  | Port type                      | Description  |
|---|--------------------------------|--|
|  | Unassigned                     | A port that do not belong to any STG. If no devices in the network contain unassigned ports, a table does not open in the contents pane. For more information, see <a href="#">“Viewing the unassigned ports,”</a> next.   |
|  | Tagging                        | A port that has tagging enabled and can belong to multiple STGs. If a tagged frame is received on a tagged port, with a VLAN ID specified in the tag, the switch directs it to that VLAN, if it is present. For more information, see <a href="#">“Viewing tagged ports”</a> on page 127.  |
|  | Isolated Routing Port (IRP)    | A port that can only route IP packets and does not belong to any STG or VLAN. For more information, see <a href="#">“Viewing isolated router ports (IRPs)”</a> on page 127.<br><b>Note:</b> IRPs are applicable only to the Passport 1000 Series switch.   |
|  | Bridge Routing (brouter ports) | A port that can route IP packets as well as bridge all non-routable traffic. The routing interface is not subjected to the Spanning Tree Protocol. For more information, see <a href="#">“Viewing bridge routing ports”</a> on page 128.<br><b>Note:</b> Bridge routing ports, or brouter ports, are available only on the Passport 1000 Series switch and the Ethernet Routing Switch 8600. |

### Viewing the unassigned ports

To view the table associated with the unassigned ports:

➔ In the navigation pane, select **Unassigned**.

The **Unassigned Ports** table appears in the contents pane.

[Table 17](#) describes the **Unassigned Ports** table fields.

**Table 17** Unassigned Ports table fields

| Field  | Description  |
|--------|--|
| Device | IP address, system name, or host name of the device. |
| Ports  | Ports not currently assigned to an STG.              |

## Viewing tagged ports

To view the devices and ports associated with tagged ports:

➔ In the navigation pane, select **Tagging**.

The **Tagging Ports** table appears in the contents pane.

[Table 18](#) describes the fields in the **Tagging Ports** table.

**Table 18** Tagging Ports table fields

| Field   | Description  |
|---------|--|
| Device  | IP address, system name, or host name of the device. |
| Port    | Ports on which tagging is enabled.                   |
| VlanIds | VLAN ID(s) of which the port is a member.            |

## Viewing isolated router ports (IRPs)

To view IRPs on Passport 1000 Series switch:

➔ In the navigation pane, select **Isolated Routing**.

The **Isolated Routing Ports** table appears in the contents pane.

[Table 19](#) describes the fields in the **Isolated Routing Ports** table.

**Table 19** Isolated Routing Ports table fields

| Field  | Descriptions   |
|--------|--|
| Device | IP address, system name, or host name of the device. |
| Ports  | Ports that route only IP packets.                    |

## Viewing bridge routing ports

To view bridge routing (brouter) ports on Passport 1000 Series switches and Ethernet Routing Switch 8000 Series:

➔ In the navigation pane, select **Bridge Routing**.

The **Bridge Routing Ports** table appears in the contents pane.

[Table 20](#) describes the fields in the **Bridge Routing Ports** table.

**Table 20** Bridge Routing Ports table fields

| Field  | Descriptions   |
|--------|--|
| Device | IP address, system name, or host name of the device.   |
| Ports  | Port numbers of the port on which frames are received. |

## Viewing Spanning Tree Groups (STGs)

All devices supported by Enterprise Switch Manager support the IEEE 802.1D Spanning Tree Protocol and at least one instance of a Spanning Tree Group. Refer to [“Spanning Tree Protocol” on page 115](#) for the maximum STGs supported by each switch.



To view an STG:

➔ Click the folder for the STG you want to view.

The folder expands to show four icons representing types of information available about the STG and a list of VLANS in the STG (Figure 40).

**Figure 40** Typical STG folder tree

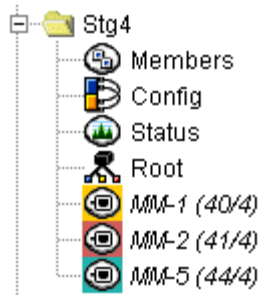


Table 21 describes the STG icons displayed in the VLAN Manager navigation pane.

**Table 21** STG information icons

| Icon | Name    | Description   |
|------|---------|---|
|      | Members | Devices and ports that are part of the STG. For more information, see <a href="#">“Viewing port members” on page 130</a> .                      |
|      | Config  | STG configuration information. For more information, see <a href="#">“Viewing and configuring STG parameters” on page 131</a> .                 |
|      | Status  | STG status information, including STG topology change information. For more information, see <a href="#">“Viewing STG status” on page 132</a> . |
|      | Root    | Devices that are the STG root. For more information, see <a href="#">“Viewing STG root status” on page 133</a> .                                |

## Viewing port members

Use the **Port Members** table to view the ports that are members of the specified STG. To open the **Port Members** table:

→ In the navigation pane, open an STG and select **Members**.

The **Port Members** table appears in the contents pane.

[Table 22](#) describes the fields in the **Port Members** table.

**Table 22** Port Members table fields

| Field       | Description  |
|-------------|--|
| Device      | IP address, system name, or host name of the device. |
| PortMembers | Ports on the device that are members of the STG.     |

## Adding port members



**Note:** On Ethernet Switch, Ethernet Routing Switch 55xx/35xx and Legacy BayStack devices, port members cannot be added from the STG Port Members table. This table can only display ports that are members of the VLANs belonging to the STG. With these switches, you must add or remove the port members using the VLAN tables.

---

To add ports to an STG:

- 1 In the **Port Members** table, select a device in the list.
- 2 Double-click in the **PortMembers** cell for the device to which you want to add port membership.

The **PortMembers** dialog box appears ([Figure 41](#)).

**Figure 41** PortMembers dialog box

- 3 Select the port number(s) or click **All** for all the ports.
- 4 Click **Ok**.

### Viewing and configuring STG parameters

Use the **Configuration** table to view and configure STG parameters.

To open the **Configuration** table:

- ➔ In the navigation pane, open an STG and select **Config**.

The **Configuration** table appears in the contents pane.

[Table 23](#) describes the fields in the **Configuration** table.

**Table 23** Configuration table fields

| Field            | Description  |
|------------------|--|
| Device           | IP address, system name, or host name of the device.   |
| Priority         | The Spanning Tree Protocol (STP) bridge priority, in decimal. The range is 0 (highest priority) to 65535 (lowest priority). The default is 32768.  |
| BridgeMax Age    | The value in hundredths of a second that all bridges use for MaxAge when this bridge is acting as the root.<br><b>Note:</b> The 802.1D-1990 standard specifies that the range for this parameter is related to the value of dot1dStp\Time. The default is 2000 (20 seconds). |
| BridgeHello Time | The value in hundredths of a second that all bridges use for Hello Time when this bridge is acting as the root. The granularity of this timer is specified by the IEEE 802.1D-1990 standard to be in increments of 1/100 of a second. The default is 200 (2 seconds).        |

**Table 23** Configuration table fields (continued)

| Field               | Description  |
|---------------------|--|
| BridgeForward Delay | The value in hundredths of a second that all bridges use for Forward Delay when this bridge is acting as the root. The default is 1500 (15 seconds).     |
| EnableStp           | Enables or disables the spanning tree algorithm for the Spanning Tree Group.   |
| StpTrap Enable      | Enables or disables SNMP traps to be sent to trace receiver every time an STP topology change occurs.  |
| TaggedBpdu Address  | A MAC address; specifically for tagged BPDUs.  |
| TaggedBpdu VlanId   | The VLAN tag associated with the Spanning Tree Group. This ID is used to tag BPDUs through a non-IEEE tagging bridge to another Ethernet Routing Switch. |

## Viewing STG status

Use the read-only Status table to view the status of the Spanning Tree Protocol for the selected STG that is associated with the network.

To open the **Status** table:

➔ In the navigation pane, open an STG and select **Status**.

The **Status** table appears in contents pane.

[Table 24](#) describes the fields in the **Status** table.

**Table 24** Status table fields

| Field                     | Description   |
|---------------------------|---|
| Device                    | IP address of the bridge.   |
| NumPorts                  | Number of ports controlled by this bridging entity.   |
| Protocol Specification    | An indication of which version of the Spanning Tree Protocol (STP) is operating. The IEEE 802.1d implementations display ieee8021d. |
| TimeSince Topology Change | Time in hundredths of a second since the last time a topology change was detected by the bridge entity or STG.                      |

**Table 24** Status table fields (continued)

| Field        | Description (continued)   |
|--------------|---|
| TopChanges   | The number of topology changes detected by this bridge since the management entity was last reset or initialized.   |
| MaxAge       | Maximum age of STP information learned from the network on any port before it is discarded, in units of hundredths of a second. This is the actual value that the bridge is currently using. The default value is 2000 (20 seconds).  |
| HelloTime    | Amount of time in hundredths of a second between transmission of configuration bridge protocol data units (BPDUs) by this device on any port when it is the root of the spanning tree. The default value is 200 (2 seconds).  |
| HoldTime     | Time interval in hundredths of a second during which no more than two configuration BPDUs are transmitted by this device. The default value is 100 (1 second).  |
| ForwardDelay | Time interval in hundredths of a second that controls how fast a port changes its spanning state when moving toward the Forwarding state. This value determines how long the port stays in each of the Listening and Learning states, which precede the Forwarding state. This value is also used when a topology change is detected and is under way, to age all dynamic entries in the Forwarding Database. The default value is 1500 (15 seconds). |

## Viewing STG root status

Use the read-only **Root** table to view information about the device acting as root within a selected STG.

To view the **Root** table:

➔ In the navigation pane, open an STG and select **Root**.

The **Root** table appears in the contents pane.

Table 25 describes the fields in the **Root** table.

**Table 25** Root table fields

| Field           | Description  |
|-----------------|--|
| Device          | IP address of a device in the STG.   |
| Bridge Address  | MAC address used by this bridge when it must be identified in a unique fashion.  |
| Designated Root | Bridge identifier of the root of the spanning tree as determined by the Spanning Tree Protocol (as executed by this device). This value is used as the Root Identifier parameter in all configuration BPDUs originated by this device. |
| RootCost        | Cost of the path to the root as seen from this bridge.   |
| RootPort        | Port number of the port that offers the lowest cost path from this bridge to the root bridge.  |

## VLAN icons







The VLAN icons in the navigation pane represent the VLANs that are part of an STG. Figure 42 shows elements of VLAN icons.

**Figure 42** VLAN Icon elements



Table 26 describes the elements of a VLAN icon.

**Table 26** Parts of a VLAN icon

| Part        | Description   |  |
|-------------|---|--|
| Icon symbol | Shows the type of VLAN.   |  |
|             | Symbol  | Description  |
|             |    | Port based—a VLAN in which the ports are explicitly assigned to the VLAN.  |
|             |    | Subnet based—a VLAN in which ports are dynamically added to the VLAN based on source IP subnet.                                    |
|             |    | Protocol based—a VLAN in which ports are dynamically added to the VLAN based on a network protocol.                                |
|             |    | MAC SA based—a VLAN in which ports are dynamically added to the VLAN based on the source MAC address.                              |
|             |    | Stacked VLAN—a VLAN in which packets are transparently tunneled through the sVLAN domain by adding a 4-byte header to each packet. |
|             |    | ID-based VLAN—a VLAN in which ports are dynamically added to the VLAN based on the VLAN ID.  |
| Icon color  | Shows the color applied when highlighting the VLAN on the topology map. See <a href="#">“Highlighting STGs and VLANs on the topology map” on page 161</a> for more information. |  |
| Icon label  | Shows information about the VLAN.   |  |
|             | Label part  | Description  |
|             | VLAN name   | The name of the VLAN.  |
|             | VLAN ID   | The ID number of the VLAN.   |
|             | STG ID  | The ID of the STG to which the VLAN belongs.   |
|             | Typeface (italic or normal)   | An italic icon label indicates that an IP address has been defined for the VLAN, and that the VLAN is routable.                    |

## Viewing the Default VLAN

The following devices are factory configured with all ports contained in a port-based VLAN called the default VLAN:

- Ethernet Routing Switch 8000 Series
- Passport (legacy) 1050/1100/1150/1200/1250 switches
- Ethernet Routing Switches 1424/1648/1612/1624
- BayStack 380/420
- Ethernet Switches 350/410/450/460/470
- Business Policy Switch 2000

The VLAN ID of the default VLAN is always 1/1, and it is always a port-based VLAN. You cannot delete the default VLAN, although you can remove ports from it.

To view the Default Ports table:

➔ From the navigation tree, select **Default(1)**.

The **General** tab appears in the contents pane and displays the **Default VLAN** table.

[Table 27](#) describes the fields in the **Default VLAN** table.

**Table 27** Default VLAN table fields

| Field        | Description  |
|--------------|--|
| Device       | IP address, system name, or host name of the device.   |
| Name         | VLAN name.   |
| PortMembers  | Ports that are assigned to the VLAN.   |
| HighPriority | In Passport 1000 Series switch, you can select HighPriority mode for all traffic in the VLAN.  |
| QoSLevel     | In a Ethernet Routing Switch 8000 Series, you can set the QoS (Quality of Service) level for traffic in the VLAN to a level between 0 and 7. |
| DsField      | DiffServ (Ds) field value for a VLAN   |



**Table 27** Default VLAN table fields (continued)

| Field     | Description  |
|-----------|--|
| IfIndex   | Logical interface index assigned to the VLAN. This value can be in one of the following ranges: <ul style="list-style-type: none"> <li>Passport (legacy) 1050/1100/1150/1200/1250 switch: 257 to 512</li> <li>Ethernet Routing Switch 8000 series: 2049 to 4096</li> </ul> <b>Note:</b> This field does not apply to Ethernet Switch, Legacy BayStack or Business Policy Switch 2000 switches. |
| IpAddress | IP address, if any, assigned to the VLAN for routing.  |
| NetMask   | Subnet Mask associated with the VLAN IP address.   |

## Viewing VLAN ports

Ports in a VLAN are always members of a Spanning Tree Group (STG). A VLAN can include all the ports in a given STG, and there can be multiple VLANs in an STG, but a VLAN will never have more ports than that existing in the STG.

In an STG, VLAN information is displayed in the contents pane when that VLAN is selected.

The icon that precedes the VLAN name identifies the type of VLAN. The icons are described in [“Status bar” on page 122](#).



**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Refer to the documentation that was shipped with your switch for more information.

To view VLANs:

➔ In the navigation pane, select a VLAN.

The **General** tab appears in the contents pane displaying the **VLAN** table.

Table 28 describes the fields in the **VLAN** table.

**Table 28** VLAN table fields

| Field        | Description   |
|--------------|---|
| Device       | IP address, system name, or host name of the device.  |
| Name         | VLAN name   |
| PortMembers  | Ports that are assigned to the VLAN.  |
| HighPriority | In Passport 1000 Series switch, you can select HighPriority mode for all traffic in the VLAN.   |
| QosLevel     | In an Ethernet Routing Switch 8000 Series device, you can set the Quality of Service level for traffic in the VLAN to a level between 1 and 8.  |
| DsField      | DiffServ (Ds) field value for a VLAN.   |
| IfIndex      | Logical interface index assigned to the VLAN. This value can be in one of the following ranges: <ul style="list-style-type: none"> <li>Passport (legacy) 1050/1100/1150/1200/1250 switch: 257 to 512</li> <li>Ethernet Routing Switch 8000 series: 2049 to 4096</li> <li>Ethernet Switch, Ethernet Routing Switch 55xx/35xx, Legacy BayStack or Business Policy Switch 2000: 1 to 4094</li> </ul> |
| IpAddress    | IP address, if any, assigned to the VLAN for routing.   |
| NetMask      | Subnet mask associated with the VLAN IP address.  |

## Configuring VLANs for NSNA

With ESM 5.1, you can also use VLAN Manager to configure VLAN properties for networks and devices that support the Nortel Secure Network Access (NSNA) solution.

To configure a VLAN for NSNA on Nortel Ethernet Routing Switch 8300 or Ethernet Routing Switch 55xx devices:

- 1 In the navigation pane, select a VLAN.  
The **General** tab appears in the contents pane and displays the **VLAN** table.
- 2 Click the **Nsna** tab.  
The **Nsna** tab appears (see [Figure 43](#)).

Figure 43 Nsna tab

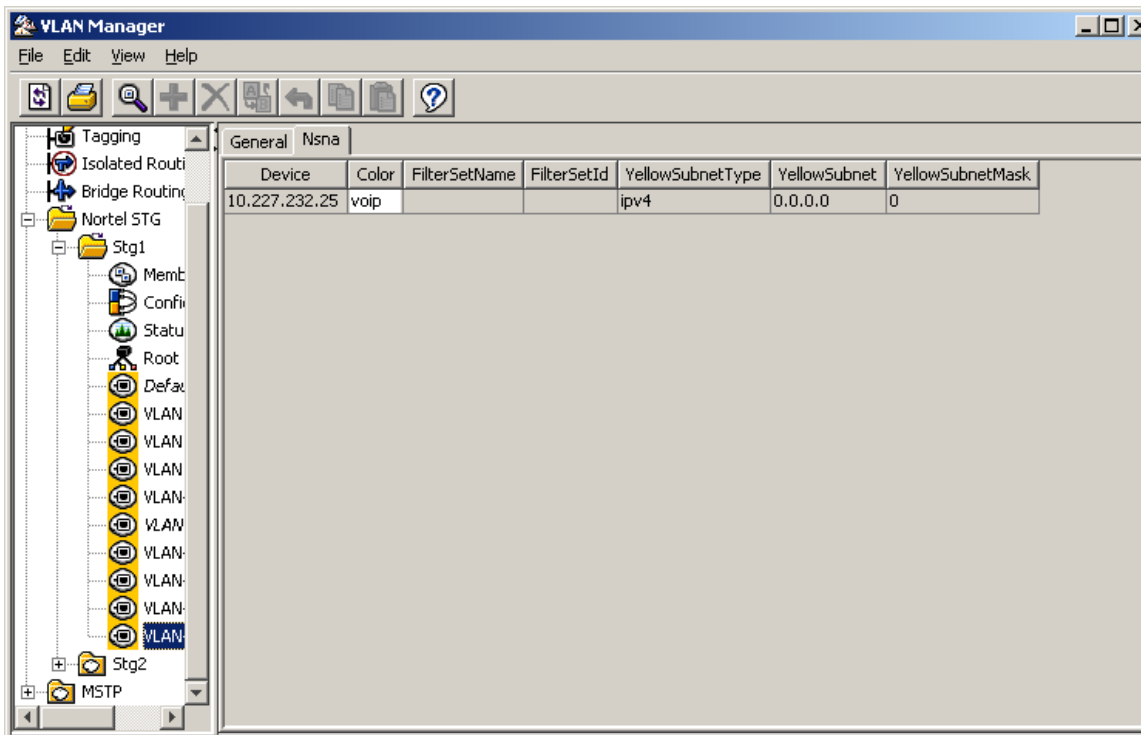


Table 29 describes the fields in the **Nsna** tab.

Table 29 Nsna tab fields

| Field         | Description  |
|---------------|--|
| Device        | Specifies devices by IP address.   |
| Color         | Specifies the color of the NSNA VLAN (red, yellow, green, voip, or none).  |
| FilterSetName | Specifies the name of the filter set.<br><b>Note:</b> This field is applicable only when the Color field is set to red, yellow, or green.  |
| FilterSetId   | Specifies the NSNA filter ID. Values are in the range 1–1024.<br><b>Note:</b> This field is applicable only to Ethernet Routing Switch 8300 devices. Further, this field is not allowed for configuration of a VoIP VLAN. VoIP filters are part of the Red/Yellow filter sets. |

**Table 29** Nsna tab fields (continued)

| Field            | Description  |
|------------------|--|
| YellowSubnetType | Specifies the Ethernet type for the Yellow VLAN subnet (IPv4 is currently the only available option).<br><b>Note:</b> This field is applicable only when the Color field is set to yellow. |
| YellowSubnet     | Specifies the subnet of the Yellow VLAN.<br><b>Note:</b> This field is applicable only when the Color field is set to yellow.  |
| YellowSubnetMask | Specifies the mask for the Yellow VLAN subnet.<br><b>Note:</b> This field is applicable only when the Color field is set to yellow.  |

- 3 Click the **Color** field for each VLAN to select the color from the drop-down menu (create, select, and configure the VLANs based on your network design).
- 4 Click the **FilterSetName** field for each VLAN to enter the filter set name of your choice.
- 5 Click **Apply Changes**.



**Note:** You must have only one Red VLAN per switch. You can, however, have multiple Yellow and Green VLANs per switch. Currently, five Yellow and five Green VLANs per switch are supported.

---

## Managing Spanning Tree Groups (STGs)

The following sections describe how to edit STG and gives information about STG membership:

- [“Creating a Spanning Tree Group,”](#) next
- [“Editing a Spanning Tree Group”](#) on page 142
- [“Deleting a Spanning Tree Group”](#) on page 143
- [“Adding members to a Spanning Tree Group”](#) on page 144
- [“Deleting members from a Spanning Tree Group”](#) on page 144

- “Editing Spanning Tree Group port membership” on page 145

## Creating a Spanning Tree Group

To create a new Spanning Tree Group:

- 1 From the navigation tree, select the **Network** folder and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Insert**.
  - On the VLAN Manager toolbar, click **Insert**.

The **New STG** dialog box appears (Figure 44).

**Figure 44** New STG dialog box

The screenshot shows a dialog box titled "VLAN Manager - New STG". It contains the following fields and options:

- Id:** 2
- TaggedBpduAddress:** 01:80:c2:00:00:00
- TaggedBpduVlanId:** 4002
- Priority:** 32768
- BridgeMaxAge:** 2000
- BridgeHelloTime:** 200
- BridgeForwardDelay:** 1500
- Enable Stp
- Enable Stp Traps
- A list box containing the IP address: 192.168.150.75
- A "Clear all" button is positioned above the list box.
- At the bottom are "Ok", "Cancel", and "Help..." buttons.

- 2 Insert values or select options in the option boxes.
- 3 Click **Ok**.

Table 30 describes the items in the **New STG** dialog box.

**Table 30** New STG dialog box items

| Item               | Description  |
|--------------------|--|
| Id                 | A number between 1 and 64 that identifies the new Spanning Tree Group (STG) configured on the network.   |
| TaggedBpduAddress  | A MAC address, specifically for tagged BPDUs.  |
| TaggedBpduVlanId   | The VLAN tag associated with the STG. This ID is used to tag BPDUs through a non-IEEE tagging bridge to another Nortel Ethernet Switch or Ethernet Routing Switch.   |
| Priority           | STP bridge priority, in decimal. The range is 0 (highest priority) to 65535 (lowest priority). The default is 32768.   |
| BridgeMaxAge       | Value in hundredths of a second that all bridges use for MaxAge when this bridge is acting as the root.<br><b>Note:</b> The 802.1D-1990 standard specifies that the range for this parameter is related to the value of dot1dStpBridgeHelloTime. The default is 2000 (20 seconds). |
| BridgeHelloTime    | Value in hundredths of a second that all bridges use for Hello Time when this bridge is acting as the root. The granularity of this timer is specified by the IEEE 802.1D-1990 standard to be in increments of 1/100 of a second. The default is 200 seconds.                      |
| BridgeForwardDelay | Value in hundredths of a second that all bridges use for Forward Delay when this bridge is acting as the root. The default is 1500 (15 seconds).   |
| Enable Stp         | Enables or disables the spanning tree algorithm for the Spanning Tree Group.   |
| Enable Stp Traps   | Enables SNMP traps to be sent to trace receiver every time an STP topology change occurs.  |
| Clear All          | Deselects all of the devices on the device list.   |
| OK                 | Applies your settings and closes the dialog box.   |
| Cancel             | Discards your settings and closes the dialog box.  |
| Help               | Opens Enterprise Switch Manager Online Help in a Web browser.  |

## Editing a Spanning Tree Group

To edit a Spanning Tree Group:

- 1 Select an STG folder.
- 2 Click **Config**.

- 3 In the **STG** table in the contents pane, click the item that you want to edit.  
The field is highlighted, and you can edit directly in the table.
- 4 Type information in the text boxes, or select from a list.  
The changes appear in bold.
- 5 On the VLAN Manager toolbar, click **Apply Changes**.

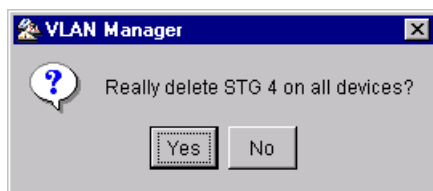
## Deleting a Spanning Tree Group

To delete a Spanning Tree Group:

- 1 In the navigation pane, select an STG folder except STG 1, and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Delete**.
  - On the VLAN Manager toolbar, click **Delete**.

The **Delete** dialog box (Figure 45) appears, asking you to confirm the deletion of the STG.

**Figure 45** Delete STG dialog box



- 2 Do one of the following:
  - Click **Yes** to confirm the deletion and return to the table view.
  - Click **No** to cancel the deletion and return to the table view.



**Note:** Multiple STGs are supported only on Passport 1000 and Ethernet Routing Switch 8600.

## Adding members to a Spanning Tree Group

To add members to an existing Spanning Tree Group:

- 1 Under an existing STG, click the **Members** folder and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Insert**.
  - On the VLAN Manager toolbar, click **Insert**.The **New STG** dialog box appears ([Figure 44](#)).
- 2 Select the desired additional members from the device list.
- 3 Insert values or select options in the option boxes, as required.
- 4 Click **Ok**.
- 5 The new members are added to the STG.

## Deleting members from a Spanning Tree Group

To delete members from an existing Spanning Tree Group

- 1 Under an existing STG, click the **Members** folder.
- 2 In the contents pane, select the device to remove, and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Delete**.
  - On the VLAN Manager toolbar, click **Delete**.The **Delete** dialog box ([Figure 45](#)) appears, asking you to confirm the removal of the device from the STG.
- 3 Do one of the following:
  - Click **Yes** to confirm the deletion and return to the table view.
  - Click **No** to cancel the deletion and return to the table view.



## Editing Spanning Tree Group port membership

To edit port membership in a Spanning Tree Group:

- 1 From the navigation tree, select the STG folder.
- 2 Click **Members**.
- 3 In the contents pane, the port members for each device in the STG appear.
- 4 To change the port membership for a device, double-click the associated **PortMembers** entry, and choose the ports to include.
- 5 Click **Ok**.
- 6 Click **Apply Changes**.

## Managing VLANs

This section contains information about common operations you can perform when managing VLANs with VLAN Manager.

The following sections tell you how to perform the following operations:

- [“Creating VLANs,” next](#)
- [“Synchronizing the VLAN Name” on page 160](#)
- [“Deleting a VLAN” on page 161](#)

## Creating VLANs

When you create VLANs using VLAN Manager, follow these rules:

- VLANs must have unique VLAN IDs and names.
- Trunk (tagged) ports can belong to multiple VLANs and multiple Spanning Tree Groups.
- VLANs cannot belong to multiple Spanning Tree Groups.
- An access (untagged) port can belong to one and only one port-based VLAN or it can belong to one and only one policy-based VLAN for the given protocol.

- If you enable tagging on a port that is in a VLAN, the Spanning Tree Group configuration for that port is lost.
- A frame's VLAN membership is determined by the following order of precedence:
  - VLAN ID
  - Source MAC-based VLAN
  - IP subnet-based VLAN
  - Protocol-based VLAN
  - Port-based VLAN
  - ID-based VLAN

Table 31 describes the items in the New VLAN dialog box.

**Table 31** New VLAN dialog box items

| Item          | Description  |
|---------------|--|
| Id            | A number between 1 and 4094 that identifies the new VLAN configured on the network.  |
| Name          | Name given to the VLAN.  |
| QosLevel      | For an Ethernet Routing Switch 8000 Series device, you can set the Quality of Service level for traffic in the VLAN to a level between 0 and 7.  |
| High Priority | For a Passport 1000 Series switch, you can select HighPriority mode for all traffic in the VLAN.   |
| Type          | Type of VLAN: <ul style="list-style-type: none"> <li>• Port-based VLAN</li> <li>• Source IP subnet-based VLAN</li> <li>• Protocol-based VLAN</li> <li>• Source MAC address-based VLAN</li> <li>• sVLAN</li> <li>• ID-based VLAN</li> </ul> |
| Clear All     | Deselects all of the devices on the device list.   |
| OK            | Applies your settings and closes the dialog box.   |
| Cancel        | Discards your settings and closes the dialog box.  |
| Help          | Opens Enterprise Switch Manager online Help in a Web browser window.   |

Refer to the following sections for additional information about specific VLAN types:

- [“Creating a port-based VLAN”](#)
- [“Creating a source IP subnet-based VLAN” on page 149](#)
- [“Creating a protocol-based VLAN” on page 151](#)
- [“Creating a source MAC address-based VLAN” on page 154](#)
- [“Creating an sVLAN” on page 157](#)
- [“Creating an ID-based VLAN” on page 158](#)

### **Creating a port-based VLAN**

To create a port-based VLAN:

- 1** In the navigation pane, select an STG.
- 2** Do one of the following:
  - From the menu bar, choose **Edit > Insert**.
  - On the toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 46).

**Figure 46** New VLAN dialog box with byPort selected

The screenshot shows the 'VLAN Manager - New VLAN' dialog box. The 'Id' field contains the value '7' and the text '1..4094'. The 'Name' field is empty. The 'QoS Level (8K)' is set to '0' with radio buttons for 0 through 7. The 'High Priority (1K)' checkbox is unchecked. The 'Type' is set to 'byPort' with radio buttons for 'byPort', 'bySubnet', 'byProtocolId', 'bySrcMac', 'bySvlan', and 'byIids'. The 'ProtocolId' dropdown is open, showing a list of protocols: 'ip', 'ipx802dot3', 'ipx802dot2', 'ipxSnap', 'ipxEthernet2', 'appleTalk', 'decLat', 'decOther', 'sna802dot2', 'snaEthernet2', 'netBios', 'xns', 'vines', 'ipV6', 'usrDefined', and 'rarp'. The 'Subnet' and 'Mask' fields are empty. The 'ARP-Classification-Id' field is empty. The 'UsrDefinedPId' field is set to 'hex'. Below this field is a list of IP addresses: '10.128.100.22', '10.127.231.2', '10.127.231.15', '10.128.100.2', and '10.128.100.11'. The 'Clear all' button is to the left of the list. At the bottom are 'Ok', 'Cancel', and 'Help...' buttons.

- 3 In the **ID** field, type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

- 4 In the **Name** field, type the VLAN name (optional).

If no name is entered, a default is created.

- 5 For an Ethernet Routing Switch 8600, select the QoS Level (optional).

- 6 For Passport 1000 Series switch, specify whether the VLAN traffic will be tagged as High Priority (optional).

- 7 Select the **byPort** Type option.

Other items in the dialog box that apply to a port-based VLAN are activated.

- 8 Select the device to be configured on the VLAN by doing one of the following:
  - Select from the device list.
  - Click the **Clear all** button to toggle between all devices selected and all devices deselected.



**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Devices that do not support port-based VLANs will be absent from the device list.

---

- 9 Click **Ok**.

## Creating a source IP subnet-based VLAN

Source IP subnet-based VLANs are supported only on Passport (legacy) 1050/1100/1150/1200/1250 and Ethernet Routing Switch 8000 series.

To create a source IP subnet-based VLAN:

- 1 In the navigation pane, select an STG.
- 2 Do one of the following:
  - From the menu bar, choose **Edit > Insert**.
  - On the toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 47).

**Figure 47** New VLAN dialog box with bySubnet selected

- 3 In the **ID** field, type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1).

- 4 In the **Name** field, type the VLAN name (optional).

If no name is entered, a default is created.

- 5 For an Ethernet Routing Switch 8600, select the QoS Level (optional).

- 6 For Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).

**7** Select the **by Subnet** Type option.

Other items in the dialog box that apply to a subnet-based VLAN are activated.

**8** In the **Subnet** text box, type the source IP subnet address.

**9** In the **Mask** text box, type the IP subnet mask.

**10** Select the device to be configured on the VLAN by doing one of the following:

- Select from the device list.
- Click the **Clear all** button to toggle between all selected devices and all deselected devices.



**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Devices that do not support source IP subnet-based VLANs will be absent from the device list.

---

**11** Click **Ok**.

## Creating a protocol-based VLAN

To create a protocol-based VLAN:

**1** In the navigation pane, select an STG.

**2** Do one of the following:

- From the menu bar, choose **Edit > Insert**.
- On the toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 48).

**Figure 48** New VLAN dialog box with **byProtocolId** selected

- 3 In the **ID** field, type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

- 4 In the **Name** field, type the VLAN name (optional).

If no name is entered, a default is created.

- 5 For an Ethernet Routing Switch 8600, select the QoS Level (optional).

- 6 For Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).

- 7 In the **Type** box, select **byProtocolId**.



Other items in the dialog box that apply to protocol based VLANs are activated.

- 8 In the **ProtocolId** box, select the protocol.

If you select **UsrDefined**, refer to [“User-defined protocols in a protocol-based VLAN” on page 153](#) for more information.

- 9 Select the device to be configured on the VLAN by doing one of the following:
  - Select from the device list.
  - Click the **Clear all** button to toggle between all devices selected and all devices deselected.



**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Devices that do not support protocol-based VLANs will be absent from the device list.

---

- 10 Click **Ok**.
- 11 In the Ports table, specify the port membership by clicking on one or all of the following columns and specifying ports:
  - **ActiveMember**
  - **PotentialMembers**
  - **StaticMembers**
  - **NotAllowedToJoin**

## User-defined protocols in a protocol-based VLAN

You can create a protocol-based VLAN with a user-defined protocol for integration into existing networks where nonstandard protocols are used.

In the **UserDefinedPid** text box, enter the PID of the protocol in the format 0x (protocol type in decimal value).

- For an Ethernet Routing Switch 8600 and Passport 1000 Series switch, the 16-bit PID assigned to a protocol-based VLAN specifies either an Ethertype, a DSAP/SSAP, or a SNAP PID, depending on whether the frame encapsulation is Ethernet 2, 802.2, or LLC-SNAP, respectively.

- For an Ethernet Routing Switch 8100, the 16-bit PID assigned to a protocol-based VLAN specifies only an Ethertype for Ethernet 2 frame encapsulation.

Refer to the section on user-defined protocols in *Networking Concepts for the Passport 1000 Series Switch (205588-B)* and *Configuring VLANs, Spanning Tree, and Link Aggregation: Passport 8000 Series Software Release 4.0 (314725-D)* for more information about this topic or to see the actual values and how they are assigned.

The following PIDs are not valid:

- PID0x0000 through 0x05dc: overlap with the 802.3 frame length
- PIDs of predefined protocols (for example, IP, IPX, AppleTalk)
- PID 0x8100: reserved by 802.1Q to identify tagged frames
- PID0x9000: used by the diagnostic loopback frames
- PID0x8808: used by 802.3x pause frames
- PID0x4242: overlaps with the BPDU DSAP/SSAP

## Creating a source MAC address-based VLAN

To create a source Media Access Control (MAC) address-based VLAN:

- 1 In the navigation pane, select an STG.
- 2 Do one of the following:
  - From the menu bar, choose **Edit > Insert**.
  - On the VLAN Manager toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 49).

**Figure 49** New VLAN dialog box with bySrcMac selected

The screenshot shows the 'VLAN Manager - New VLAN' dialog box. The 'Id' field contains the value '7' and a range '1..4094'. The 'Name' field is empty. The 'QoS Level (8K)' is set to '0'. The 'High Priority (1K)' checkbox is unchecked. The 'Type' is set to 'bySrcMac'. The 'ProtocolId' is set to 'ip'. The 'Subnet' and 'Mask' fields are empty. The 'ARP-Classification-Id' field is empty. The 'UsrDefinedPid' field is set to 'hex'. A list of IP addresses is shown, with '10.128.100.2' selected. The 'Clear all' button is visible. The 'Ok', 'Cancel', and 'Help...' buttons are at the bottom.

- 3 In the **ID** field, type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

- 4 In the **Name** field, type the VLAN name (optional).

If no name is entered, a default is created.

- 5 For an Ethernet Routing Switch 8600 switch, select the QoS Level (optional).

- 6 For Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).

- 7 Select the **bySrcMac** Type option.

Other items in the dialog box that apply to source MAC address-based VLANs are activated.

- 8 Select the device to be configured on the VLAN by doing one of the following:
  - Select from the device list.
  - Click the **Clear all** button to toggle between all devices selected and all devices deselected.



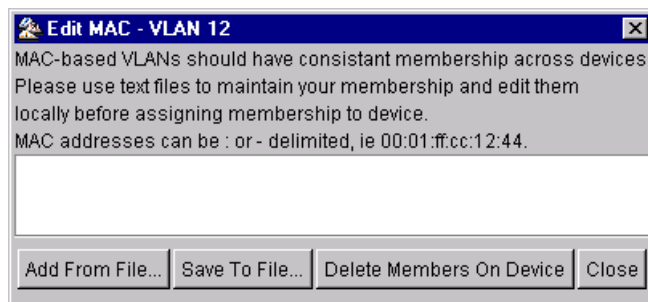
**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Devices that do not support source MAC address-based VLANs will be absent from the device list.

---

- 9 Click **Ok**.
- 10 Select the newly created MAC-based VLAN, and choose **Edit > Edit MAC Addresses**.

The **Edit MAC - VLAN** dialog box appears (Figure 50).

**Figure 50** Edit MAC - VLAN dialog box



- 11 Select **Add From File** and enter the file name of the text file containing the MAC addresses to added to the new MAC-based VLAN.

You can create this file earlier and remember where you saved the text file. You can use colons (:) or dashes (-) to delineate the MAC address.

- 12 Click **Close**.
- 13 Click **Reload**.

## Creating an sVLAN

To create an sVLAN:

- 1 In the navigation pane, select an STG.
- 2 Do one of the following:
  - From the menu bar, choose **Edit > Insert**.
  - On the toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 51).

**Figure 51** New VLAN dialog box with bySvlan selected

The dialog box titled "VLAN Manager - New VLAN" contains the following fields and options:

- Id:** 3 (range 1..4094)
- Name:** [Empty text box]
- QOS Level (8K):** Radio buttons for 0, 1, 2, 3, 4, 5, 6, 7. 0 is selected.
- High Priority (1K):** [Unchecked checkbox]
- Type:** Radio buttons for byPort, bySubnet, byProtocolId, bySrcMac, **bySvlan** (selected), and byIids.
- ProtocolId:** A grid of radio buttons for various protocols: ip (selected), ipx802dot3, ipx802dot2, ipxSnap, ipxEthernet2, appleTalk, decLat, decOther, sna802dot2, snaEthernet2, netBios, xns, vines, ipV6, usrDefined, and rarp.
- Subnet:** [Empty text box]
- Mask:** [Empty text box]
- ARP-Classification-Id:** [Empty text box]
- UsrDefinedPid:** [Empty text box] hex
- Buttons:** Clear all, Ok, Cancel, Help...

- 3 In the **Id** field, type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

- 4 In the **Name** field, type the VLAN name (optional).  
If no name is entered, a default is created.
- 5 For an Ethernet Routing Switch 8600, select the QoS Level (optional).
- 6 For Passport 1000 Series switch, specify whether the VLAN traffic will be tagged as High Priority (optional).
- 7 Select the **bySvlan** Type option.  
Other items in the dialog box that apply to a Svlan-based VLAN are activated.
- 8 Select the device to be configured on the VLAN by doing one of the following:
  - Select from the device list.
  - Click the **Clear all** button to toggle between all devices selected and all devices deselected.



**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Devices that do not support port-based VLANs will be absent from the device list.

---

- 9 Click **Ok**.

## Creating an ID-based VLAN

To create an ID-based VLAN:

- 1 In the navigation pane, select an STG.
- 2 Do one of the following:
  - From the menu bar, choose **Edit > Insert**.
  - On the toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 52).

**Figure 52** New VLAN dialog box with byldts selected

The screenshot shows the 'VLAN Manager - New VLAN' dialog box. The 'Id' field contains the number '7' and a range indicator '1..4094'. The 'Name' field is empty. The 'QoS Level (8K)' is set to '0' with radio buttons for levels 0 through 7. The 'High Priority (1K)' checkbox is unchecked. The 'Type' is set to 'byldts' with radio buttons for 'byPort', 'bySubnet', 'byProtocolId', 'bySrcMac', 'bySvlan', and 'byldts'. The 'ProtocolId' section is expanded, showing a list of protocols: 'ip', 'ipx802dot3', 'ipx802dot2', 'ipxSnap', 'ipxEthernet2', 'appleTalk', 'decLat', 'decOther', 'sna802dot2', 'snaEthernet2', 'netBios', 'xns', 'vines', 'ipV6', 'usrDefined', and 'rarp'. The 'Subnet', 'Mask', and 'ARP-Classification-Id' fields are empty. The 'UsrDefinedPId' field is empty with a 'hex' label. A 'Clear all' button is located on the left side. At the bottom, there are 'Ok', 'Cancel', and 'Help...' buttons.

- 3 In the **ID** field, type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

- 4 In the **Name** field, type the VLAN name (optional).

If no name is entered, a default is created.

- 5 For an Ethernet Routing Switch 8600, select the QoS Level (optional).

- 6 For Passport 1000 Series switch, specify whether the VLAN traffic will be tagged as High Priority (optional).

- 7 Select the **byID** Type option.

Other items in the dialog box that apply to an ID-based VLAN are activated.

- 8 Select the device to be configured on the VLAN by doing one of the following:
  - Select from the device list.
  - Click the **Clear all** button to toggle between all devices selected and all devices deselected.



**Note:** Not all VLAN types are available on all devices that Enterprise Switch Manager supports. Devices that do not support port-based VLANs will be absent from the device list.

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- 9 Click **OK**.

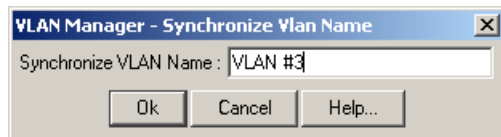
## Synchronizing the VLAN Name

To synchronize the VLAN Name of VLANs on different switches:

- 1 Select the VLAN you want to synchronize.
- 2 Click **Edit > Synchronize VLAN Name**.

The **Synchronize VLAN Name** dialog box appears ([Figure 53](#)).

**Figure 53** Synchronize VLAN Name dialog box



- 3 Enter the desired VLAN Name in the dialog box.
- 4 Click **OK**.
- 5 Click **Apply changes**.



## Deleting a VLAN

To delete a VLAN:

- 1 Do one of the following:
  - To delete a VLAN from all devices, select the VLAN in the navigation pane.
  - To delete a VLAN from one or more specific devices, select the VLAN in the navigation pane, then highlight the devices in the contents pane.
- 2 Do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Delete**.
  - On the VLAN Manager toolbar, click **Delete**.

The **Delete** dialog box appears.
- 3 Click **Yes**.

## Highlighting STGs and VLANs on the topology map

Enterprise Switch Manager provides dynamic discovery of active STG devices in a network. From Enterprise Switch Manager, you can view the following information about:

- Ports in the network that are configured as unassigned, tagging, or Isolated Routing Ports (IRPs) and brouter ports
- Ports that are assigned to a particular Spanning Tree Group (STG)
- Ports that are in the forwarding and blocking states and device that has the root of an STG
- Ports that are members of a VLAN or multiple VLANs.

For more information, see the following sections:

- [“Viewing VLAN members in Enterprise Switch Manager,”](#) next
- [“Viewing STG port members”](#) on page 163
- [“Viewing STG root configuration”](#) on page 164

## Viewing VLAN members in Enterprise Switch Manager

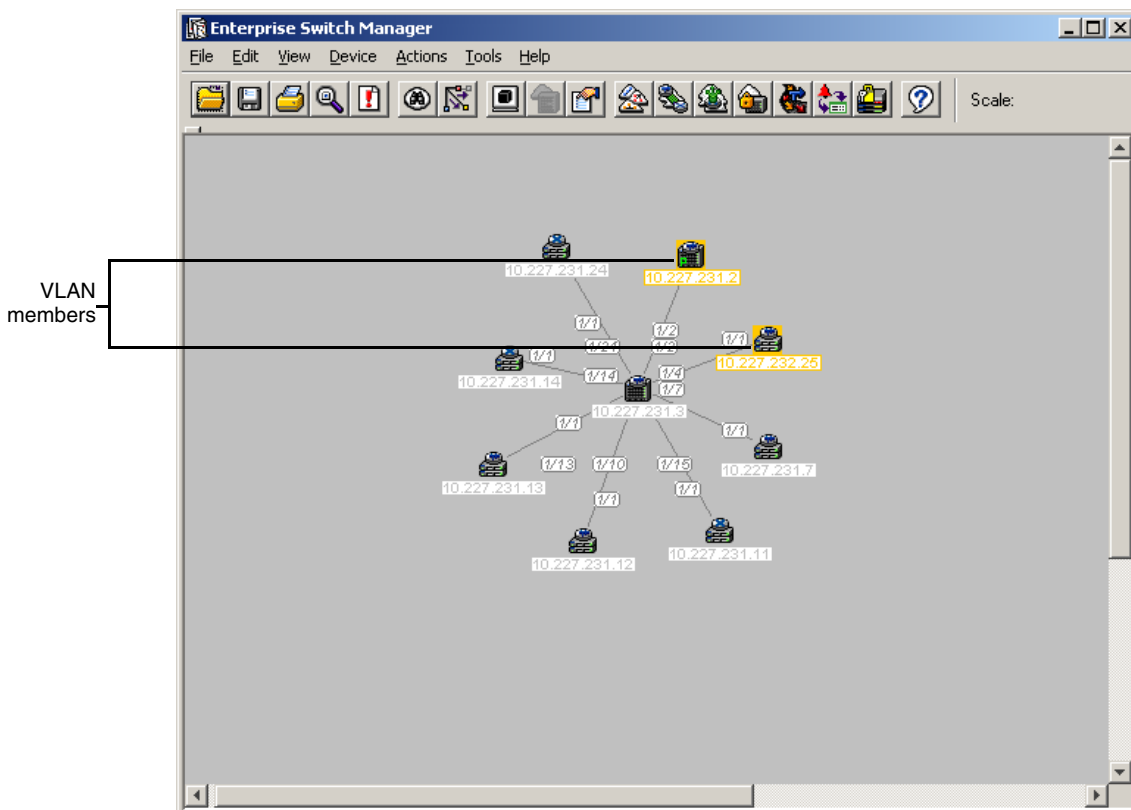
To view the members of a VLAN in Enterprise Switch Manager:

- 1 In the navigation pane, choose a VLAN.  
The **Ports** table appears in the VLAN Manager contents pane.
- 2 From the VLAN Manager menu bar, choose **View > Highlight Topology**.
- 3 Return to the Enterprise Switch Manager window.

The highlighted topology view appears in the Enterprise Switch Manager contents pane.

[Figure 54](#) shows two highlighted members of the same VLAN.

**Figure 54** VLAN topology in the Enterprise Switch Manager contents pane



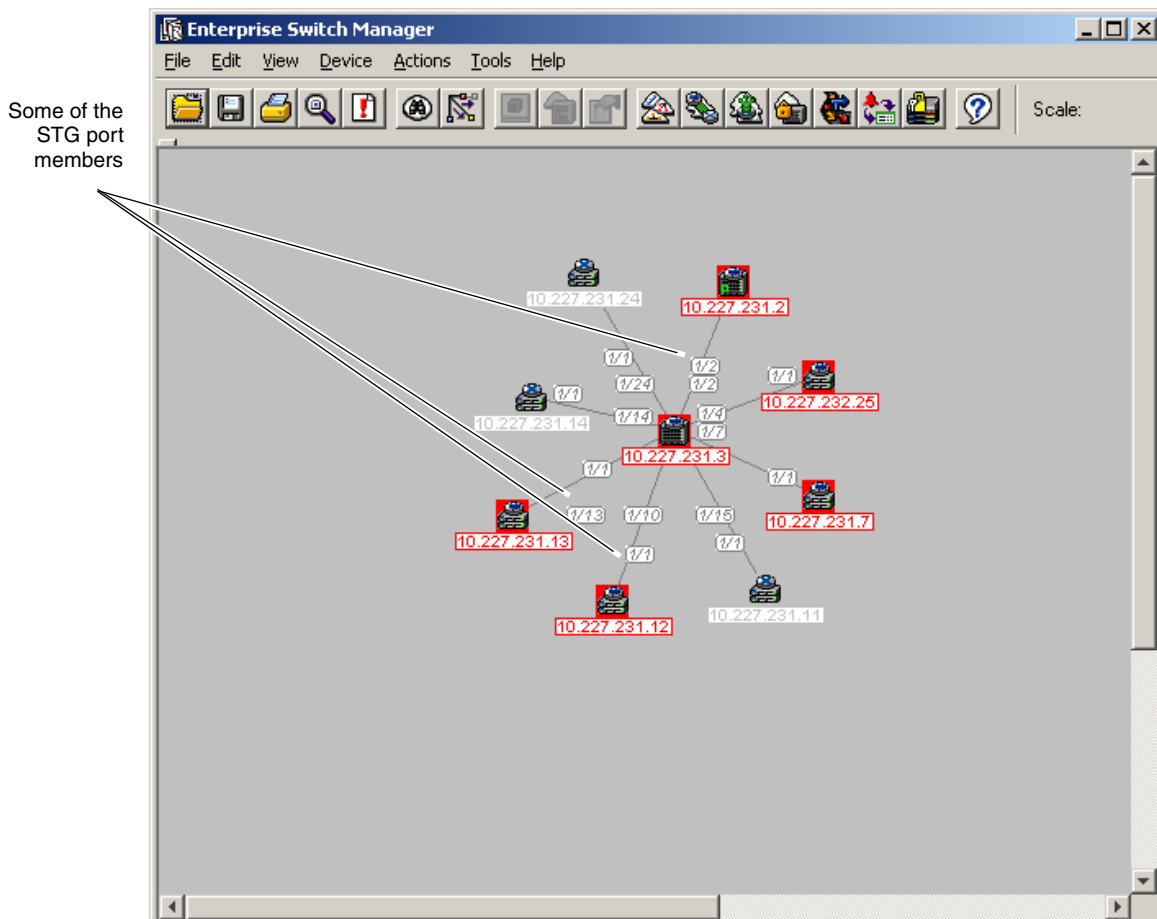
## Viewing STG port members

When you select an STG in the VLAN Manager navigation pane, you can view the devices and ports associated with that STG in the Enterprise Switch Manager network topology map. This view can assist you in troubleshooting by identifying which ports are already members of the STG selected.

To view STG ports:

- 1** In the VLAN Manager navigation pane, choose an STG Members icon.  
The STG Members table appears in the VLAN Manager contents pane.
- 2** From the VLAN Manager menu bar, choose **View > Highlight Topology**.
- 3** Return to the Enterprise Switch Manager window.

The devices containing STG ports are highlighted ([Figure 55](#)) with a color and the device IP address.

**Figure 55** Viewing STG port members

## Viewing STG root configuration

You can get a quick view of which device is the root of the Spanning Tree Group and which ports are in the forwarding and blocking state by selecting the STG root icon.

To view STG root configuration in Enterprise Switch Manager:

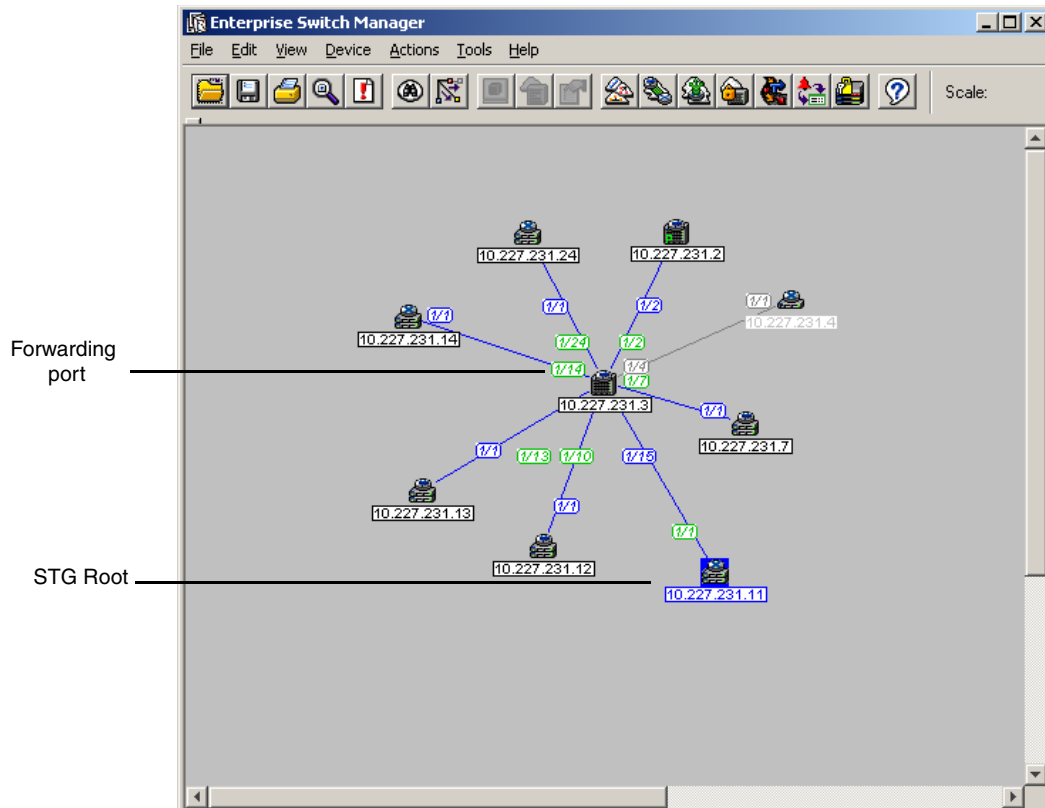
- 1 In the navigation pane, select an STG **Root**.  
The **Root** table appears in the contents pane.

- 2 From the VLAN Manager menu bar, choose **View > Highlight Topology**.
- 3 Return to the Enterprise Switch Manager window.

The highlighted topology view (Figure 56) appears in the Enterprise Switch Manager contents pane with the root displayed.

In Figure 56, the root port of the STG is 10.227.231.11 and the port in forwarding state is port 14 on slot 1 of 10.227.231.3.

**Figure 56** Root topology in the Enterprise Switch Manager contents pane



## Managing Rapid Spanning Tree Protocol (RSTP)

The following sections describe how to edit RSTP and gives information about RSTP membership:

- [“Adding a VLAN to the Rapid Spanning Tree”](#)
- [“Editing Rapid Spanning Tree properties” on page 166](#)
- [“Deleting a VLAN from Rapid Spanning Tree” on page 167](#)



**Note:** In release 5.1.0.0, ESM support for RSTP and MSTP is applicable only for Ethernet Switches 325, 425, 460, and 470.

---

### Adding a VLAN to the Rapid Spanning Tree

To add a VLAN to the RSTP:

- 1 From the navigation tree, select the **RSTP** folder.
- 2 Highlight the **CIST** folder and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Insert**.
  - On the VLAN Manager toolbar, click **Insert**.

The **New VLAN** dialog box appears ([Figure 46](#)).

- 3 Insert values or select options in the option boxes (see [“Creating VLANs” on page 145](#) for details).
- 4 Click **Ok**.

### Editing Rapid Spanning Tree properties

To edit the Rapid Spanning Tree properties:

- 1 Under the **CIST** folder, select the **Config** item.
- 2 In the contents pane, click the item that you want to edit.

The field is highlighted, and you can edit directly in the table.

- 3 Type information in the text boxes, or select from a list.

The changes appear in bold.

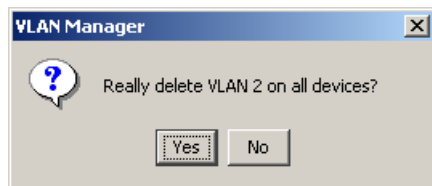
- 4 On the VLAN Manager toolbar, click **Apply Changes**.

## Deleting a VLAN from Rapid Spanning Tree

To delete a VLAN from the Rapid Spanning Tree:

- 1 In the navigation pane, select a **VLAN** folder (except VLAN 1), and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Delete**.
  - On the VLAN Manager toolbar, click **Delete**.The **Delete** dialog box (Figure 57) appears, asking you to confirm the deletion of the VLAN.

**Figure 57** Delete VLAN dialog box



- 2 Do one of the following:
  - Click **Yes** to confirm the deletion and return to the table view.
  - Click **No** to cancel the deletion and return to the table view.

## Managing Multiple Spanning Tree Protocol

The following sections describe how to edit Multiple Spanning Tree Protocol (MSTP) and provide information about MSTP membership:

- [“Adding an MSTI in Multiple Spanning Tree,”](#) next
- [“Adding a VLAN in Multiple Spanning Tree”](#) on page 169
- [“Deleting a VLAN in Multiple Spanning Tree”](#) on page 171
- [“Editing MSTP properties”](#) on page 171

- [“Editing MSTI properties” on page 172](#)



**Note:** In release 5.1.0.0, ESM support for RSTP and MSTP is applicable only for Ethernet Switches 325, 425, 460, and 470.

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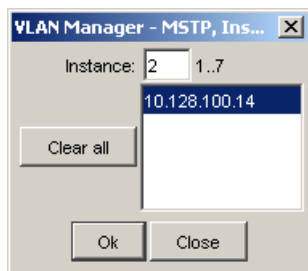
## Adding an MSTI in Multiple Spanning Tree

To add an MSTI instance:

- 1 From the navigation tree, select the **MSTP** folder, and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Insert**.
  - On the VLAN Manager toolbar, click **Insert**.

The **MSTP, Insert MSTI** instance dialog box appears ([Figure 58](#)).

**Figure 58** MSTP, Insert MSTI instance dialog box



- 2 In the **Instance** field, enter the desired MSTI identifier.
- 3 Click **Ok**.

## Deleting an MSTI

To delete an MSTI instance:

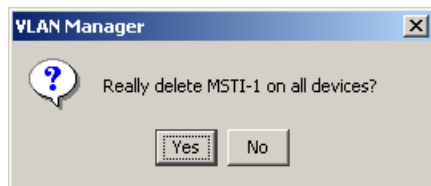
- 1 Under the **MSTP** folder, select the MSTI instance to delete, and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Delete**.



- On the VLAN Manager toolbar, click **Delete**.

The **Delete** dialog box (Figure 59) appears, asking you to confirm the deletion of the MSTI.

**Figure 59** Delete MSTI dialog box



- 2 Do one of the following:
  - Click **Yes** to confirm the deletion and return to the table view.
  - Click **No** to cancel the deletion and return to the table view

## Adding a VLAN in Multiple Spanning Tree

To add a VLAN to the CIST or MSTI:

- 1 From the navigation tree, select the **MSTP** folder.
- 2 Highlight the **CIST** folder or an **MSTI** folder and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Insert**.
  - On the VLAN Manager toolbar, click **Insert**.

The **New VLAN** dialog box appears (Figure 46).

- 3 Insert values or select options in the option boxes (see [“Creating VLANs” on page 145](#) for details).
- 4 Click **Ok**.

## Viewing VLAN Port Members in MSTP

Use the **Port Members** table to view the ports that are members of the specified MSTI or CIST instance. To open the **Port Members** table:

- ➔ In the navigation pane, open the **CIST** folder or an **MSTI** folder and select a VLAN.

The **Members** table appears in the contents pane.

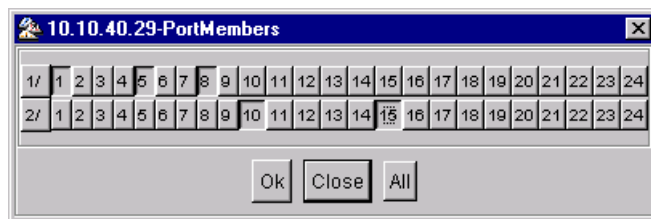
### Adding port members

To add ports to an MSTI or CIST:

- 1 In the **Port Members** table, select a device in the list.
- 2 Double-click in the **PortMembers** cell for the device to which you want to add port membership.

The **PortMembers** dialog box appears (Figure 60).

**Figure 60** PortMembers dialog box



- 3 Select the port number(s) or click **All** for all the ports.
- 4 Click **Ok**.

## Deleting a VLAN in Multiple Spanning Tree

To delete a VLAN in Multiple Spanning Tree:

- 1 Under the **CIST** or **MSTI** folder, select the VLAN to delete, and do one of the following:
  - From the VLAN Manager menu bar, choose **Edit > Delete**.
  - On the VLAN Manager toolbar, click **Delete**.The **Delete VLAN** dialog box (Figure 57) appears, asking you to confirm the deletion of the VLAN.
- 2 Do one of the following:
  - Click **Yes** to confirm the deletion and return to the table view.
  - Click **No** to cancel the deletion and return to the table view

## Editing MSTP properties

To edit the MSTP properties:

- 1 Under the **CIST** folder, select the **Config** item.
- 2 Choose one of the following:
  - To edit the MSTP properties, choose the **MSTP** tab.
  - To edit the CIST properties, choose the **CIST** tab.
  - To edit the MSTI Region properties, choose the **MSTI Region** tab.
- 3 In the contents pane, click the item that you want to edit.

The field is highlighted, and you can edit directly in the table.
- 4 Type information in the text boxes, or select from a list.

The changes appear in bold.
- 5 On the VLAN Manager toolbar, click **Apply Changes**.

## Editing MSTI properties

To edit the MSTI properties:

- 1** Under the **MSTI** folder, select the **Config** item.
- 2** In the contents pane, click the item that you want to edit.  
The field is highlighted, and you can edit directly in the table.
- 3** Type information in the text boxes, or select from a list.  
The changes appear in bold.
- 4** On the VLAN Manager toolbar, click **Apply Changes**.

---

## Chapter 5

# Using MultiLink Trunking Manager

---

MultiLink Trunking is a point-to-point connection that aggregates multiple ports so that they logically act like a single port with the aggregated bandwidth. Grouping multiple ports into one logical link allows you to achieve higher aggregate throughput on a switch-to-switch or server-to-server application.

MultiLink Trunking Manager manages MultiLink Trunks (MLTs) across devices in a network. You can also use MultiLink Trunking Manager to manage Split MultiLink Trunking (SMLT).

This chapter describes using MultiLink Trunking Manager to manage single and multiple device configurations on switches. It includes the following information:

- [“What is MultiLink Trunking Manager?,” next](#)
- [“Starting MultiLink Trunking Manager” on page 175](#)
- [“MultiLink Trunking Manager window” on page 176](#)
- [“Viewing MultiLink Trunking configurations” on page 183](#)
- [“Managing MultiLink Trunks” on page 190](#)
- [“Managing SMLT configurations” on page 200](#)
- [“Highlighting devices and MLT links on the topology map” on page 209](#)

For more information about MLT concepts, refer to *Networking Concepts for the Passport 1000 Series Switch (205588-B)* and *Configuring VLANs, Spanning Tree, and Link Aggregation: Passport 8000 Series Software Release 4.0 (314725-D)*.

## What is MultiLink Trunking Manager?

MultiLink Trunking Manager enables you to configure and monitor MultiLink Trunks (MLTs) across a single device or two adjacent devices. In MultiLink Trunking Manager, you can configure an MLT either before or after you physically connect the ports.

The following sections describe Multilink trunk types and features:

- [“MultiLink Trunks in different switch types,”](#) next
- [“MultiLink Trunking Manager features”](#) on page 174

### MultiLink Trunks in different switch types

[Table 32](#) lists the number of MLTs available with each supported switch type.

**Table 32** Maximum number of MLTs supported in different switches

| Switch   | Maximum number of MLTs |
|--|------------------------|
| Passport 1000 Series switch                    | 8                      |
| Ethernet Routing Switches 1424T/1648/1612/1624 | 6                      |
| Ethernet Routing Switch 8100                   | 6                      |
| Ethernet Routing Switch 8600                   | 32                     |
| BayStack 350/380/410/420/450/460/470           | 6                      |
| Business Policy Switch 2000                    | 6                      |
| Ethernet Switch 325/425/460/470                | 6                      |
| Ethernet Routing Switch 5510, 5520, 5530, 3510 | 6                      |
| OM 1000  | 1                      |

### MultiLink Trunking Manager features

MultiLink Trunking Manager supports devices that implement the rcVlan and rcMlt MIB groups.

MultiLink Trunking Manager allows you to:

- Create, delete, or modify MLTs across one or two devices.
- View MLT configuration information such as port and MLT membership.
- View MLT links in the network topology map.

## Starting MultiLink Trunking Manager

To start MultiLink Trunking Manager:

➔ Do one of the following:

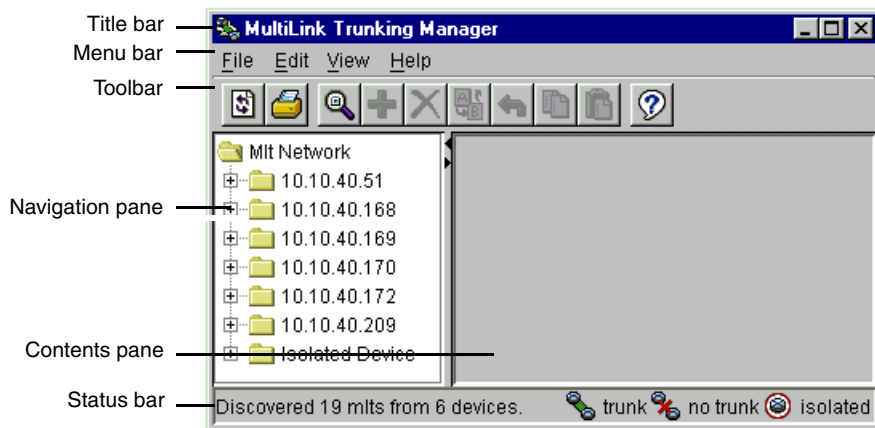
- From the Enterprise Switch Manager menu bar, choose **Tools > MultiLink Trunking Manager**.
- On the keyboard, press [F3].
- On the Enterprise Switch Manager toolbar, click the **MultiLink Trunking Manager** toolbar button.

The MultiLink Trunking Manager window appears ([Figure 61](#)).

## MultiLink Trunking Manager window

The MultiLink Trunking Manager window contains the parts identified in [Figure 61](#).

**Figure 61** MultiLink Trunking Manager window



[Table 33](#) describes the parts of the MultiLink Trunking Manager window.

**Table 33** MultiLink Trunking Manager window parts

| Part            | Description  |
|-----------------|--|
| Title bar       | Displays the submanager name.  |
| Menu bar        | Provides access to all MultiLink Trunking Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons,” next</a> .                            |
| Toolbar         | Provides quick access to commonly-used MultiLink Trunking Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons,” next</a>              |
| Navigation pane | Provides a navigation tree showing MultiLink Trunking Manager network folder resources. For more information, see <a href="#">“Navigation pane” on page 178</a> .                |
| Contents pane   | Displays MultiLink Trunking Manager tables. For more information, see <a href="#">“Contents pane” on page 179</a> .  |
| Status bar      | Displays status information, including discovery information, type of node highlighted, and command status. For more information, see <a href="#">“Status bar” on page 180</a> . |












## Menu bar commands and toolbar buttons


The menu bar and toolbar provide menus and commands for operating MultiLink Trunking Manager. Many commands have associated shortcut keys also.

[Table 34](#) lists the MultiLink Trunking Manager menu commands and toolbar buttons.

**Table 34** MultiLink Trunking Manager submenus

| Menu | Command       | Toolbar button  | Shortcut key | Description  |
|------|---------------|---|--------------|--|
| File | Reload        |    | [Ctrl]+R     | Rediscovered the network and reloads MultiLink Trunking Manager with the latest information. For more information, see <a href="#">“Reloading MultiLink Trunking Manager” on page 181</a> .      |
|      | Print         |    | [Ctrl]+P     | Opens the Print dialog box, where you enter print parameters.  |
|      | Close         |   |              | Closes MultiLink Trunking Manager.   |
| Edit | Undo Changes  |    | [Ctrl]+Z     | Reverses any changes you made to a record.   |
|      | Preferences   |   |              | Identifies specific devices for Enterprise Switch Manager to configure and manage. See <a href="#">“Submanager preferences” on page 103</a> for more information.                                |
|      | Copy          |  | [Ctrl]+C     | Copies the contents of the selected cell.  |
|      | Paste         |  | [Ctrl]+V     | Pastes the cell contents when you select a new location.   |
|      | Insert        |  | [Ctrl]+I     | Opens the Insert dialog box, where you insert an MLT on a selected device. For more information, see <a href="#">“Creating MLTs on ERS 1424/16xx and ERS 8000 devices” on page 190</a> .         |
|      | Delete        |  | Ctrl]+D      | Removes a selection and displays a message box to confirm deletion of the selected MLT. For more information, see <a href="#">“Deleting an MLT from ERS 1424/16xx or ERS 8000” on page 199</a> . |
|      | Apply Changes |  |              | Applies any changes you have made to your MLT configuration.   |
|      | Find          |  | [Ctrl]+F     | Opens the Find dialog box, where you set parameters to find matching entries in your network. For more information, see <a href="#">“Finding network resources” on page 180</a> .                |

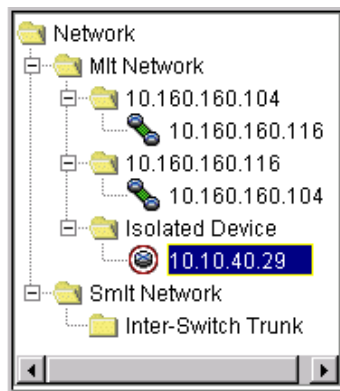
**Table 34** MultiLink Trunking Manager submenus (continued)

| Menu | Command                          | Toolbar button  | Shortcut key | Description   |
|------|----------------------------------|---|--------------|---|
| View | Highlight Topology               |   |              | Highlights MLT items in the Enterprise Switch Manager contents pane. <a href="#">“Highlighting devices and MLT links on the topology map” on page 209</a> |
|      | Audit                            |   |              | Queries the network topology to report any discrepancies.   |
| Help | Using                            |  | F1           | Opens a Web browser and loads help files.   |
|      | Online Support                   |   |              | Opens a Web browser that loads the Nortel Customer Support Web page.  |
|      | About MultiLink Trunking Manager |   |              | Displays information about MultiLink Trunking Manager.  |

## Navigation pane

MultiLink Trunking Manager displays devices and adjacent devices in a tree structure. The MultiLink Trunking Manager navigation tree ([Figure 61 on page 176](#)) is located on the left side of the window and contains branches with the IP address of devices discovered by Enterprise Switch Manager.

[Figure 62](#) shows an example of the MultiLink Trunking Manager navigation pane.

**Figure 62** MultiLink Trunking Manager navigation pane

From the navigation tree in the navigation pane, select the folder for which you want to view MLT information, or use the Edit > Print command to print the navigation tree.

## Contents pane

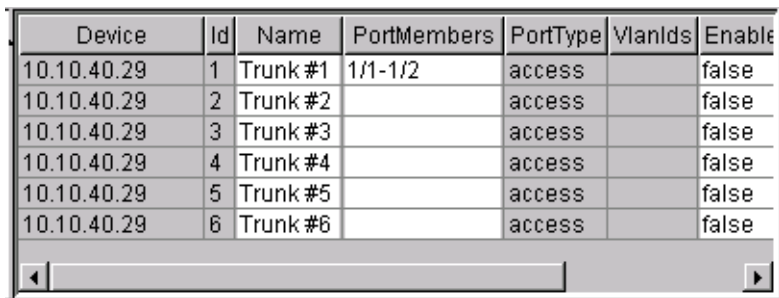
When you choose a folder in the navigation pane, its contents are shown in the contents pane.

To view the folder in the contents pane:

→ In the navigation pane, select a **Network** folder.

The contents of the folder are displayed as a table in the contents pane, as shown in the example in [Figure 63](#).

**Figure 63** MultiLink Trunking Manager contents pane






| Device      | Id | Name     | PortMembers | PortType | VlanIds | Enable |
|-------------|----|----------|-------------|----------|---------|--------|
| 10.10.40.29 | 1  | Trunk #1 | 1/1-1/2     | access   |         | false  |
| 10.10.40.29 | 2  | Trunk #2 |             | access   |         | false  |
| 10.10.40.29 | 3  | Trunk #3 |             | access   |         | false  |
| 10.10.40.29 | 4  | Trunk #4 |             | access   |         | false  |
| 10.10.40.29 | 5  | Trunk #5 |             | access   |         | false  |
| 10.10.40.29 | 6  | Trunk #6 |             | access   |         | false  |

## Status bar

The MultiLink Trunking Manager status bar is located at the bottom of the MultiLink Trunking Manager window and contains two fields. [Table 35](#) describes fields in the MultiLink Trunking Manager status bar.

**Table 35** MultiLink Trunking Manager status bar fields

| Field   | Description   |
|---|---|
| Message   | Located on the left, the message field displays information about the following: <ul style="list-style-type: none"> <li>Enterprise Switch Manager and submanager operations</li> <li>MLT discovery information</li> </ul> |
| Icon  | Located on the right, the icon field provides a legend for different types of trunks and devices found in the network.  |
|   |  Trunk   |
|   |  No trunk  |
|  Isolated device |   |

## Finding network resources

To find a network resource in the navigation or contents pane:

- 1 Click any device in the navigation pane or any text box in the contents pane, and do one of the following:
  - From the MultiLink Trunking Manager menu bar, choose **Edit > Find**.
  - On the keyboard, press **[Ctrl]+F**.
  - On the MultiLink Trunking Manager toolbar, click **Find**.

The **Find** dialog box appears (Figure 64).

**Figure 64** MultiLink Trunking Manager Find dialog box



- 2 In the **Find** text box, type the text or number you are searching for.
- 3 In the **In** section, click **Tree** to search the navigation tree or **Table** to search the contents pane.
- 4 Click **Next**.

MultiLink Trunking Manager starts its search and highlights the first match that it finds, or displays a message that it found no matches.

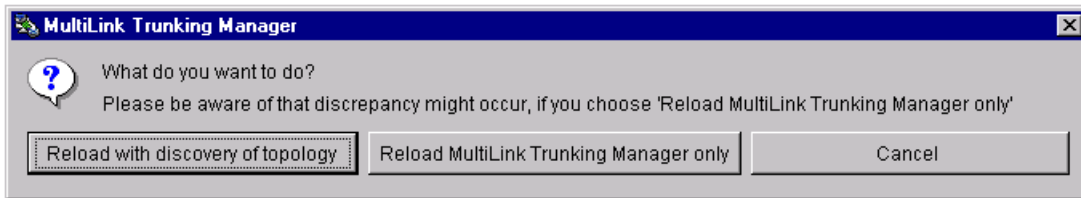
- 5 If a first match is found, click **Next** to find each subsequent match, or click **Previous** to go back to the last match.

## Reloading MultiLink Trunking Manager

MultiLink Trunking Manager allows you to refresh the information in the window with multilink trunk information polled from the network devices. You can use this feature to load any updated information that took effect since you opened MultiLink Trunking Manager.

To reload the multilink trunk information:

- 1 On the MultiLink Trunking Manager toolbar, click **Reload**.  
Or, from the MultiLink Trunking Manager menu bar, choose **File > Reload**.  
An alert box appears to ask how you want to continue (Figure 65).

**Figure 65** MultiLink Trunking Manager reload dialog box**2** Do one of the following:

- Click **Reload with discovery of topology** to rediscover network topology and reload the Enterprise Switch Manager topology map and all of the submanagers.
- Click **Reload MultiLink Trunking Manager only** to just reload MultiLink Trunking Manager. Enterprise Switch Manager polls devices for multilink trunk settings and features, but does not perform a full network topology discovery.
- Click **Cancel** to abandon the reload operation.



**Note:** Reloading just MultiLink Trunking Manager takes less time than reloading with topology discovery. However, if there are any changes in network topology, it might result in discrepancies between the information in MultiLink Trunking Manager and the information on the topology map. Such discrepancies might cause incorrect operation when you perform operations (such as highlighting the network map) that involve interactions between the submanagers and the topology map.

If you observe such incorrect operation, reload the network map. For more information, see [“Rediscovering the network map” on page 105](#).

Enterprise Switch Manager reloads topology information from the network devices and refreshes the MultiLink Trunking Manager window.

## Viewing MultiLink Trunking configurations

In the MultiLink Trunking Manager navigation pane, the navigation tree shows the IP addresses of discovered devices. Icons associated with IP addresses on the branches indicate the following types of MLTs:

- Trunk—a switch that links to another device in the network and has MLT configurations.
- No trunk—a switch that links to another device in the network but does not have an active MLT configured.
- Isolated—a switch connected only to a hub.

The following sections describe how to use MultiLink Trunking Manager:

- [“Viewing trunk connections,” next](#)
- [“Viewing no trunk configurations” on page 185](#)
- [“Viewing isolated devices” on page 186](#)
- [“Viewing inter-switch trunks” on page 187](#)
- [“Viewing SMLTs” on page 188](#)
- [“Viewing single-port SMLTs” on page 189](#)

### Viewing trunk connections

You can view the trunk connections for an MLT and configure new trunks to increase bandwidth.

To view trunk connections:

- ➔ In the navigation pane, select a device that is represented by a trunk icon.

The **Trunk** table appears in the contents pane.

[Table 36](#) describes the fields in the **Trunk** table.

**Table 36** Trunk table fields

| Field       | Description  |
|-------------|--|
| Device      | IP address, system name, or host name of the device.   |
| Id          | Number of the MLT (assigned by MultiLink Trunking Manager).  |
| Name        | Allows you to enter a name for the MLT.  |
| PortMembers | Ports that are assigned to the MLT.  |
| PortType    | Type of port on the MLT (access or trunk).   |
| VlanIds     | VLAN(s) to which the ports belong.   |
| Enable      | Indicates whether the MLT is enabled (true) or disabled (false).   |
| IfIndex     | Interface index, a number from 96 to 4097, that identifies the MLT to the software.  |
| MltType     | One of the following types of MLT links: <ul style="list-style-type: none"><li>• normalMLT—Use for normal MLT that do not use SMLT features.</li><li>• istMLT— Use for IST (inter-switch trunk) links between peer devices in SMLT configurations.</li><li>• splitMLT—Use for SMLT links between peer devices and non-peer devices in SMLT configurations.</li></ul> |
| SmltId      | Shows the SMLT ID number for split MLTs.   |
| RunningType | Read only field displaying the MLT operational type: <ul style="list-style-type: none"><li>• normalMLT</li><li>• istMLT</li><li>• splitMLT</li></ul>   |



## Viewing no trunk configurations

No trunk configurations are links between two devices that are not MLTs. To have an MLT or trunk connection, there must be more than one connection between two devices. Often No trunk configurations are single links between two devices.

To view No trunk configurations:

- ➔ In the MultiLink Trunking Manager navigation pane, select a device IP address above the IP address represented by a no trunk icon.

The **No Trunk** table appears in the contents pane.

[Table 37](#) describes the fields in the **No Trunk** table.

**Table 37** No Trunk table fields

| Fields      | Description  |
|-------------|--|
| Device      | IP address, system name, or host name of the device.   |
| Id          | Number of the MLT.   |
| Name        | Name given to the MLT.   |
| PortMembers | Ports that are assigned to the MLT.  |
| PortType    | Type of port on the MLT (access or trunk).   |
| VlanIds     | VLAN(s) to which the ports belong.   |
| Enable      | Whether the MLT is enabled (true) or disabled (false).   |
| IfIndex     | Interface index, a number that identifies the MLT to the software. The range is: <ul style="list-style-type: none"> <li>• 512–519 for Passport (legacy) 1050, 1150, 1200, and 1250 devices</li> <li>• 4096–4127 for Ethernet Routing Switch 8000 family devices</li> </ul>   |
| MltType     | For SMLT configurations, shows one of the following types of MLT links: <ul style="list-style-type: none"> <li>• normalMLT—Use for normal MLT that do not use SMLT features.</li> <li>• istMLT—Use for IST (inter-switch trunk) links between peer devices in SMLT configurations.</li> <li>• splitMLT—Use for SMLT links between peer devices and non-peer devices in SMLT configurations.</li> </ul> |

**Table 37** No Trunk table fields (continued)

| Fields      | Description  |
|-------------|--|
| SmltId      | Shows the SMLT ID number for split multilink trunk links.  |
| RunningType | Read only field displaying the MLT operational type: <ul style="list-style-type: none"> <li>• normalMLT</li> <li>• istMLT</li> <li>• splitMLT</li> </ul> |

## Viewing isolated devices

Isolated devices have one or more connections to a hub or bus, but are not connected to another switch.

To view the isolated devices:

- ➔ In the MultiLink Trunking Manager navigation pane, select an isolated device.

The **Isolated Device** table appears in the contents pane.

[Table 38](#) describes the fields in the **Isolated Device** table.

**Table 38** Isolated Device table fields

| Field       | Description  |
|-------------|--|
| Device      | IP address, system name, or host name of the device.   |
| Id          | Number of the MLT.   |
| Name        | Name given to the MLT.   |
| PortMembers | Ports that are assigned to the MLT.  |
| PortType    | Type of port on the MLT (access or trunk).   |
| VlanIds     | VLAN(s) to which the ports belong.   |
| Enable      | Indicates whether the MLT is enabled (true) or disabled (false).   |
| IfIndex     | Interface index, a number that identifies the MLT to the software. The range is: <ul style="list-style-type: none"> <li>• 512–519 for Passport (legacy) 1050, 1150, 1200, and 1250 devices</li> <li>• 4096–4127 for Ethernet Routing Switch 8000 family devices</li> </ul> |

**Table 38** Isolated Device table fields (continued)

| Field       | Description  |
|-------------|--|
| MltType     | For SMLT configurations, shows one of the following types of MLT links: <ul style="list-style-type: none"> <li>• normalMLT—Use for normal MLT that do not use SMLT features.</li> <li>• istMLT—Use for IST (inter-switch trunk) links between peer devices in SMLT configurations.</li> <li>• splitMLT—Use for SMLT links between peer devices and non-peer devices in SMLT configurations.</li> </ul> |
| SmltId      | Shows the SMLT ID number for split multilink trunk links.  |
| RunningType | Read only field displaying the MLT operational type: <ul style="list-style-type: none"> <li>• normalMLT</li> <li>• istMLT</li> <li>• splitMLT</li> </ul>   |

## Viewing inter-switch trunks

Inter-switch trunks are links between peer devices in SMLT configurations. For more information about SMLT configurations, see [“Managing SMLT configurations” on page 200](#).

To view inter-switch trunks:

- ➔ In the MultiLink Trunking Manager navigation pane, select the **Inter-Switch Trunk** folder.

The **Inter-Switch Trunk** table appears in the contents pane.

[Table 39](#) describes the fields in the **Inter-Switch Trunk** table.

**Table 39** Inter-Switch Trunk table fields

| Field            | Description   |
|------------------|---|
| Device           | Identifies the device on which the IST is configured.                         |
| IstSessionEnable | Lets you enable or disable the IST session.                                   |
| IstPeerIp        | Lets you enter the IP address of the peer device at the other end of the IST. |
| IstVlanId        | Lets you enter the VLAN ID for the IST.                                       |

## Viewing SMLTs

An SMLT improves the reliability of a layer 2 (L2) network operating between a building's user access switches and the network center aggregation switch. It does so by providing loadsharing among all the links and fast failover in case of link failures.

For more information about SMLT configurations, see [“Managing SMLT configurations” on page 200](#).

To view SMLTs:

- ➔ In the MultiLink Trunking Manager navigation pane, select the **SMLT** folder.

The **SMLT** table appears in the contents pane.

[Table 40](#) describes the fields in the **SMLT** table.

**Table 40** SMLT table fields

| Field       | Description  |
|-------------|--|
| Device      | IP address, system name, or host name of the device.   |
| Id          | Number of the MLT (assigned by MultiLink Trunking Manager).  |
| MltType     | One of the following types of MLT links: <ul style="list-style-type: none"> <li>• normalMLT—Use for normal MLT that do not use SMLT features.</li> <li>• istMLT— Use for IST (inter-switch trunk) links between peer devices in SMLT configurations.</li> <li>• splitMLT—Use for SMLT links between peer devices and non-peer devices in SMLT configurations.</li> </ul> |
| SmltId      | Shows the SMLT ID number for split MLTs.   |
| RunningType | Read only field displaying the MLT operational type: <ul style="list-style-type: none"> <li>• normalMLT</li> <li>• istMLT</li> <li>• splitMLT</li> </ul>   |

## Viewing single-port SMLTs

For more information about single-port SMLT configurations, see [“Configuring a single port SMLT” on page 208](#).

To view single-port SMLTs:

- ➔ In the MultiLink Trunking Manager navigation pane, select the **Single-port SMLT** folder.

The **Single-port SMLT** table appears in the contents pane.

[Table 41](#) describes the fields in the **Single-port SMLT** table.

**Table 41** Single-port SMLT table fields

| Field    | Description  |
|----------|--|
| Device   | IP address, system name, or host name of the device.   |
| Smlt Id  | The Split MLT ID, an integer from 1 to 512. <ul style="list-style-type: none"> <li>• A read-only field with a value of 1-512 indicates the port's single port SMLT ID assignment.</li> <li>• A blank field indicates the port is not configured for single port SMLT. Find an unused SMLT ID by viewing the currently-used IDs.</li> </ul> |
| Port     | The slot/port number for the port.   |
| OperType | Read only field displaying the MLT operational type: <ul style="list-style-type: none"> <li>• normalMLT</li> <li>• istMLT</li> <li>• splitMLT</li> </ul>   |
| VlanIds  | VLAN IDs for the single-port SMLT.   |

## Managing MultiLink Trunks

This following sections describe common operations you can perform using MultiLink Trunking Manager:

- [“Creating MLTs on ERS 1424/16xx and ERS 8000 devices”](#)
- [“Viewing MLT port information” on page 197](#)
- [“Editing a port on an MLT” on page 198](#)
- [“Deleting an MLT from ERS 1424/16xx or ERS 8000” on page 199](#)
- [“Editing an MLT” on page 199](#)

### Creating MLTs on ERS 1424/16xx and ERS 8000 devices

To create an MLT on Ethernet Routing Switch 1424/16xx and Ethernet Routing Switch 8000 devices, the device must have more than one connection to another device. With MultiLink Trunking Manager, you can create an MLT on a device and then physically connect the ports, or you can connect the ports first and then configure the MLT.



**Note:** The procedures in this section do not apply to Ethernet Switch, Ethernet Routing Switch 55xx/35xx, or Legacy BayStack devices which are preconfigured with six MLTs. You cannot delete or add MLTs to these switches. To edit MLTs on these switches, see [“Editing an MLT” on page 199](#) and [“Editing a port on an MLT” on page 198](#).

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### Insert MLT dialog box

The appearance of the Insert MLT dialog box differs depending on how you open it.

- If you select a device folder and click Insert, the single-node Insert MLT dialog box appears. For more information, see [“Creating an MLT with one device for ERS 8000,” next](#).

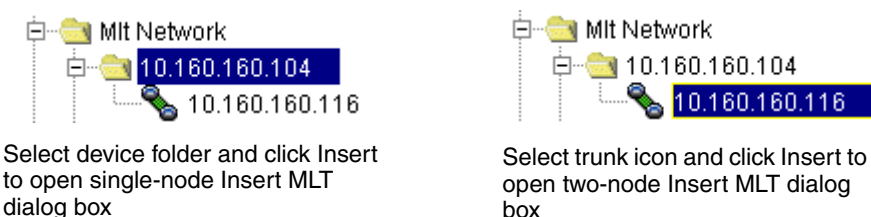
You can use the single-node **Insert MLT** dialog box to create MLT configurations even in situations where the physical connections are absent or have not been detected by Enterprise Switch Manager.

- If you select a trunk icon and click Insert, the two-node **Insert MLT** dialog box appears. For more information, see [“Creating a new MLT on a pair of devices” on page 195](#).

You can use the two-node **Insert MLT** dialog box to quickly configure both ends of MLT links where Enterprise Switch Manager has already detected the physical connections.

[Figure 66](#) shows what to select in the navigation pane to open single-node and two-node **Insert MLT** dialog boxes.

**Figure 66** Opening single-node and two-node Insert MLT dialog boxes



The following sections describe how to create MLTs on single devices and pairs of devices:

- [“Creating an MLT with one device for ERS 8000”](#)
- [“Creating an MLT with one device for ERS 1424/16xx”](#)
- [“Creating a new MLT on a pair of devices” on page 195](#)

## Creating an MLT with one device for ERS 8000

When you create an MLT with one device, MultiLink Trunking Manager considers only the ports that are available on the one device. After you create an MLT on one device, you must also configure and connect the ports in the second device before enabling the MLT.

To configure a new MLT with one Ethernet Routing Switch 8000 device selected:

- 1 Select a device from the first (folder) level of the MultiLink Trunking Manager navigation pane.

The **Device** table appears in the contents pane.

- 2 For Ethernet Routing Switch 8000 devices, do one of the following:
  - From the MultiLink Trunking Manager menu bar, choose **Edit > Insert**.
  - On the MultiLink Trunking Manager toolbar, click **Insert**.



**Note:** This step is unnecessary for Ethernet Switch, Ethernet Routing Switch 55xx/35xx, and Legacy BayStack devices, since they are preconfigured with six MLTs.

The **Insert MLT dialog box** appears (Figure 67).

**Figure 67** Insert MLT dialog box — one device selected (ERS 8000)

MultiLink Trunking Manager - Insert Mlt

Node 1

Node: 10.140.24.16

Id: 1 1..32

Name: MLT-1

|    |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1/ | 1 | 3 | 5 | 7 | 9  | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 |
| 2/ | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 |

Ports:

|    |   |   |   |   |
|----|---|---|---|---|
| 2/ | 1 | 3 | 5 | 7 |
|    | 2 | 4 | 6 | 8 |

Port Type:  access  trunk

Vlanids:

Mlt Type:  normalMLT  istMLT  splitMLT

SMLT Id: 1 1..32

Ok Cancel Help...

- 3 In the **Id** text box, select the Id number for the MLT.
- 4 In the **Name** text box, type the name of the MLT.
- 5 In the **Ports** box, select the ports to be added to the MLT.  
Inactive ports appear dimmed in the **Ports** box.
- 6 Select the **Port Type** option.  
The default is **access**.



- 7 In the **VlanIds** field, select the VLAN IDs that belong to the MLT port.
- 8 For **MLT Type**, choose **normalMLT**.  
The **istMLT** and **splitMLT** types, and also the **SMLT Id** value, are used only for split multilink trunks. For more information, see [“Managing SMLT configurations” on page 200](#).
- 9 Click **Ok**.

[Table 42](#) describes the items in the **Insert MLT** dialog box.

**Table 42** Insert MLT dialog box items for ERS 8000

| Item     | Description   |
|----------|---|
| Node     | IP address of the first network device configured on the MLT.   |
| Id       | Unique identifier for the MLT, which is automatically assigned by MultiLink Trunking Manager.   |
| Name     | User-defined name of the node on the MLT.   |
| Ports    | Ports in the MLT.   |
| Type     | One of the following types of MLT: <ul style="list-style-type: none"> <li>• Access</li> <li>• Trunk</li> </ul> The default is Access.   |
| VlanIds  | VLAN IDs found on the device.   |
| MLT type | One of the following types of MLT links: <ul style="list-style-type: none"> <li>• normalMLT—Use for normal MLT that do not use SMLT features.</li> <li>• istMLT—Use for IST (inter-switch trunk) links between peer devices in SMLT configurations.</li> <li>• splitMLT—Use for SMLT links between peer devices and non-peer devices in SMLT configurations.</li> </ul> |
| SMLT Id  | Sets the SMLT ID number for IST links.  |

### Creating an MLT with one device for ERS 1424/16xx

When you create an MLT with one device, MultiLink Trunking Manager considers only the ports that are available on the one device. After you create an MLT on one device, you must also configure and connect the ports in the second device before enabling the MLT.

To configure a new MLT with one Ethernet Routing Switch 1424/16xx device selected:

- 1 Select a device from the first (folder) level of the MultiLink Trunking Manager navigation pane.  
The **Device** table appears in the contents pane.
- 2 For Ethernet Routing Switch 1424/16xx devices, do one of the following:
  - From the MultiLink Trunking Manager menu bar, choose **Edit > Insert**.
  - On the MultiLink Trunking Manager toolbar, click **Insert**.



**Note:** This step is unnecessary for Ethernet Switch, Ethernet Routing Switch 55xx/35xx, and Legacy BayStack devices, since they are preconfigured with six MLTs.

The **Insert MLT dialog box** appears (Figure 68).

**Figure 68** Insert MLT dialog box — one device selected (ERS 1424/16xx)

MultiLink Trunking Manager - Insert Mlt

Node 1

Node: 10.128.100.24

Id:  ..8

Name:

|        |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1/     | 1 | 3 | 5 | 7 | 9  | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 | 49 | 51 |
| Ports: | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 |

Master Port  ..52 (one of the above added port)

Ok Cancel Help...

- 3 In the **Id** text box, select the Id number for the MLT.
- 4 In the **Name** text box, type the name of the MLT.
- 5 In the **Ports** box, select the ports to be added to the MLT.  
Inactive ports appear dimmed in the **Ports** box.
- 6 In the **Master Port** text box, type the master port number.

7 Click **Ok**.

[Table 43](#) describes the items in the **Insert MLT** dialog box.

**Table 43** Insert MLT dialog box for ERS 1424/16xx

| Item        | Description   |
|-------------|---|
| Node        | IP address of the first network device configured on the MLT.                                 |
| Id          | Unique identifier for the MLT, which is automatically assigned by MultiLink Trunking Manager. |
| Name        | User-defined name of the node on the MLT.   |
| Ports       | Ports in the MLT. The maximum number of ports for one trunk is four.                          |
| Master Port | Identifies the master port number of the port trunk entry.                                    |

## Creating a new MLT on a pair of devices

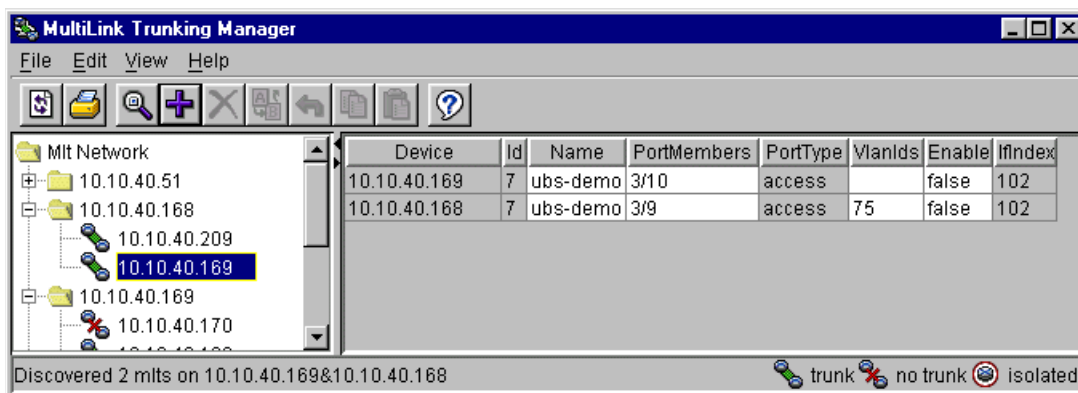
You can configure an MLT between two adjacent devices and MultiLink Trunking Manager considers port availability, type of port, and current links between both devices.

To create a new MLT between two devices:

- 1 Select a device from the second level of the MultiLink Trunking Manager navigation pane.

The **Trunk** table appears in the contents pane ([Figure 69](#)).

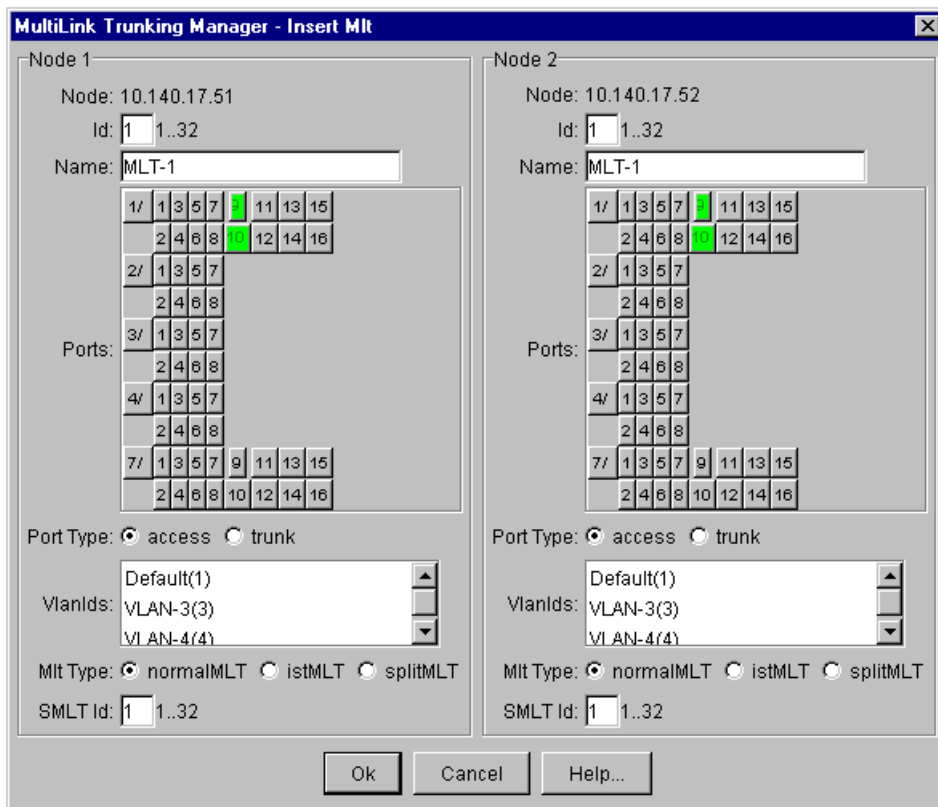
**Figure 69** Trunk table for a pair of devices



- 2 Do one of the following:
  - From the MultiLink Trunking Manager menu bar, choose **Edit > Insert**.
  - On the MultiLink Trunking Manager toolbar, click **Insert**.

The **Insert MLT** dialog box appears (Figure 70).

**Figure 70** Insert MLT dialog box — pair of devices selected



- 3 In the **Id** field for both nodes, select the same Id number for the MLT.
- 4 In one of the **Name** fields, type the name of the MLT.  
The text you type appears in both node **Name** fields.
- 5 In the **Ports** text box, select the ports to be added to the MLT.

In the **Insert MLT** dialog box, port numbers are highlighted in green to indicate that the ports are already connected between the two devices. Inactive ports are indicated by dimmed port numbers.

- 6 Select the **Port Type** option.  
The default is **access**.
- 7 Select the VLAN IDs for both nodes to be included in the MLT port.



**Note:** Both nodes must belong to the same VLAN ID list.

---

- 8 For **MLT Type**, choose **normalMLT**.  
The **istMLT** and **splitMLT** types, and also the **SMLT Id** value, are used only for split multilink trunks. For more information, see [“Managing SMLT configurations” on page 200](#).
- 9 Click **Ok**.

For information about the fields in the Insert MLT dialog box, refer to [“Insert MLT dialog box items for ERS 8000” on page 193](#) or [“Insert MLT dialog box for ERS 1424/16xx” on page 195](#), as required.

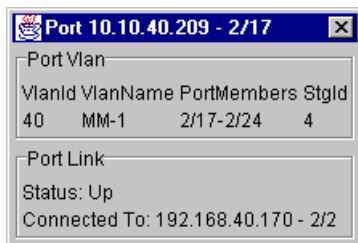
## Viewing MLT port information

To view port information as you configure an MLT:

- ➔ In the Insert MLT dialog box, point to a port number.

The **Port** dialog box appears ([Figure 71](#)).

**Figure 71** Port dialog box



To open the **Insert MLT** dialog box, refer to [“Creating an MLT with one device for ERS 8000” on page 191](#).

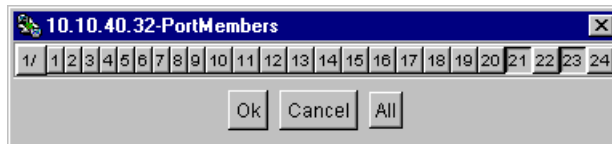
The information displayed in the dialog box includes the VLAN(s) and STG(s) to which the port belongs and the port link status. The port link status information includes whether the port is up or down and what other device/ports the port is connected to.

## Editing a port on an MLT

To edit a port on an existing MLT:

- 1 In the navigation pane, select an MLT.  
The **MLT** table appears in the contents pane.
- 2 In the table, double-click the **PortMembers** field.  
The **PortMembers** dialog box appears ([Figure 72](#)).

**Figure 72** PortMembers dialog box



- 3 Click the port numbers that you want to add or delete from the MLT.  
Port numbers that appear to be pressed in are already being used, and port numbers that are dimmed are inactive.
- 4 Click **Ok**.

## Deleting an MLT from ERS 1424/16xx or ERS 8000



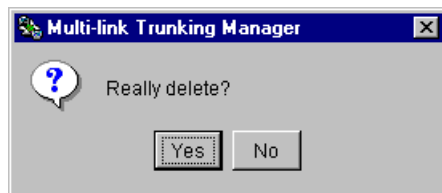
**Note:** This procedure does not apply to Ethernet Switch, Ethernet Routing Switch 55xx/35xx, or Legacy BayStack devices, which are preconfigured with six MLTs. You cannot delete or add MLTs to these switches. To edit MLTs on these switches, see [“Editing an MLT” on page 199](#), and [“Editing a port on an MLT” on page 198](#).

To delete an MLT from an Ethernet Routing Switch 1424/16xx or 8000:

- 1 In the navigation pane, select a device and do one of the following:
  - From the MultiLink Trunking Manager menu bar, choose **Edit > Delete**.
  - On the MultiLink Trunking Manager toolbar, click **Delete**.

The **Delete** dialog box appears, asking you to confirm the deletion ([Figure 73](#)).

**Figure 73** Delete MLT dialog box



- 2 Click **Yes**.

## Editing an MLT

To edit an MLT:

- 1 In the navigation pane, select a device.  
The **MLT** table appears in the contents pane.
- 2 Double-click the field in the table.
- 3 Type information in the text boxes, or select from a list.  
Your changes are displayed in bold.

- 4 On the MultiLink Trunking Manager toolbar, click **Apply Changes**.

## Managing SMLT configurations

Mission critical networks require resiliency, and as a result, must be designed with a number of redundancy features. Within the Passport 8000 Series switch, such features include CPU redundancy and link redundancy using MLT.

In order to provide device redundancy, most enterprise networks are designed with redundant connections between aggregation (core) switches and user access switches. For networks with just one aggregation switch, MLT provides redundancy and load sharing.

SMLT improves the reliability of a layer 2 (L2) network operating between a building's user access switches and the network center aggregation switch. It does so by providing loadsharing among all the links and fast failover in case of link failures.

An Inter Switch Trunk (IST) operates between the aggregation switches and allows them to exchange information. This permits the rapid detection of any faults and the modification of forwarding paths.



**Note:** Although SMLT is primarily designed for layer 2 networks, it provides benefits for layer 3 networks as well.

---

For more information about SMLT, see *Configuring VLANs, Spanning Tree, and Link Aggregation: Passport 8000 Series Software Release 4.0 (314725-D)*.

To configure SMLT, you must establish three sets of configurations on the devices:

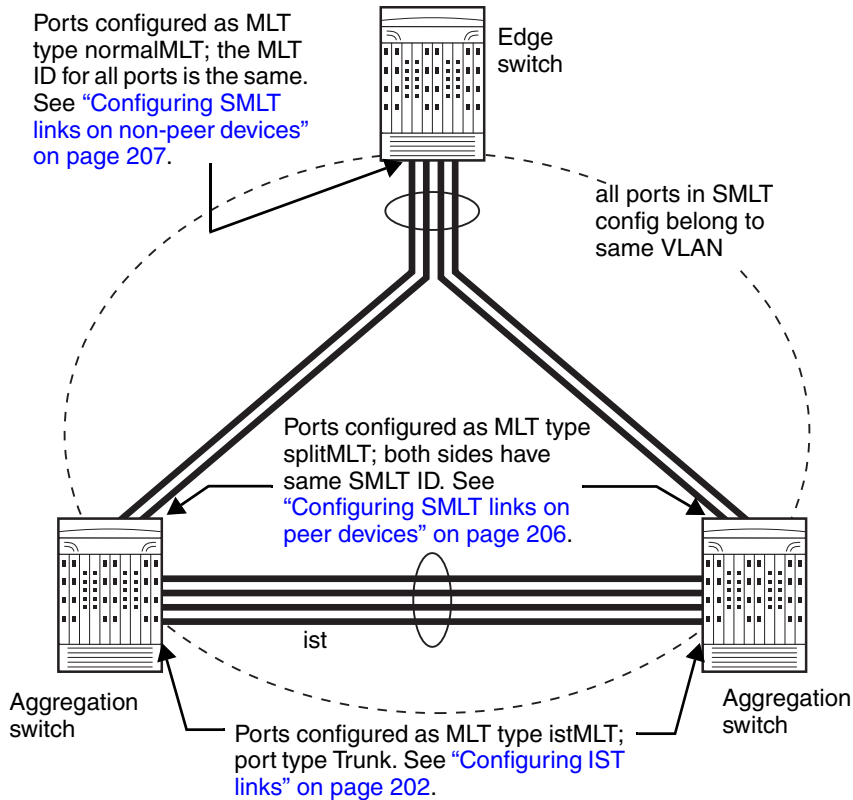
- On the two peer aggregation switches, you configure an IST (inter-switch trunk). For more information, see [“Configuring IST links,” next](#).
- On the two peer aggregation switches, you configure SMLT links to the edge switch. For more information, see [“Configuring SMLT links on peer devices” on page 206](#).



- On the non-peer device, you configure normal MLT links to the two peer devices. For more information, see [“Configuring SMLT links on non-peer devices” on page 207.](#)
- On the two peer devices, you configure the IST peers. For more information, see [“Configuring IST peers” on page 207.](#)

Figure 74 shows a typical triangle SMLT configuration.

**Figure 74** Typical triangle SMLT configuration



## Configuring IST links

You can configure IST links in SMLT configurations in either of two ways:

- On a pair of devices. For more information, see [“Configuring IST links on pairs of devices” on page 202](#).
- On a single device. For more information, see [“Configuring IST links on a single device” on page 204](#).

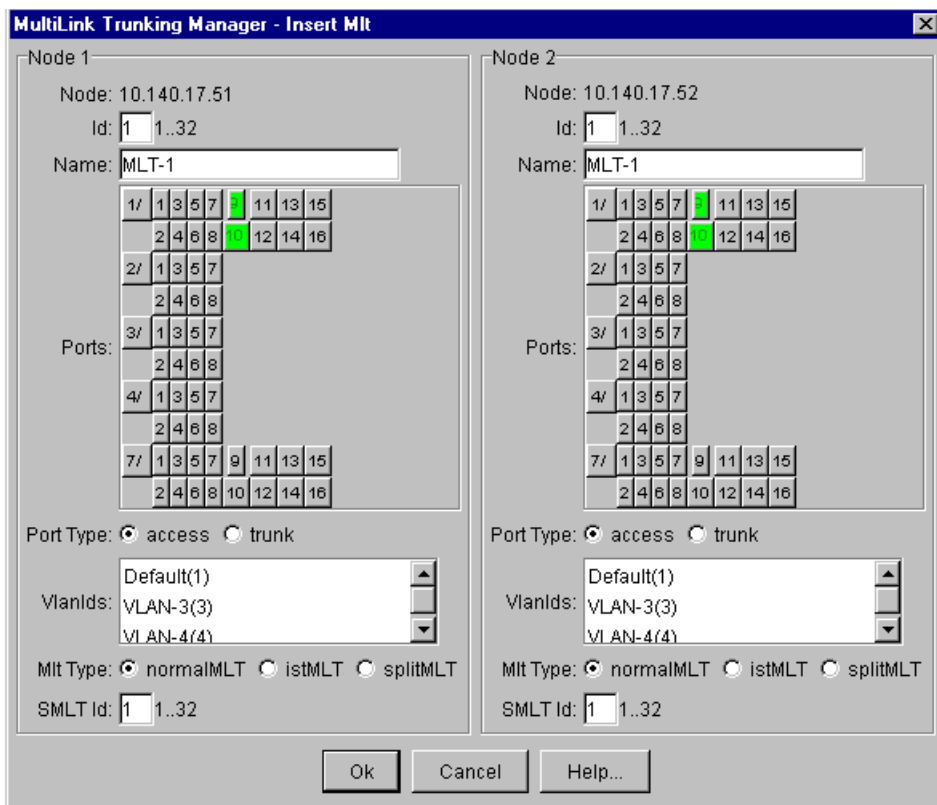
When you configure IST links on a single device, you must also repeat the same procedure to configure the IST links on the device at the other end of the IST.

### Configuring IST links on pairs of devices

If Enterprise Switch Manager determines that the physical connections you are configuring as an IST already exist, you can configure both ends of the IST at the same time. However, if you have not yet established the network connections that will constitute the IST, you must configure each end of the IST separately. For more information, see [“Configuring IST links on a single device” on page 204](#).

To configure IST links on a pair of devices:

- 1 In the MultiLink Trunking Manager navigation pane, open a folder for one of the devices on which you want to configure the IST.
- 2 In the folder, select the device at the other end of the IST.
- 3 On the MultiLink Trunking Manager [toolbar](#), click **Insert**.
- 4 The **Insert MLT** dialog box for a pair of nodes appears ([Figure 75](#)).

**Figure 75** Insert MLT dialog box, creating an IST on two devices

- 5 In the **Id** boxes, enter an ID number.
- 6 In the **Name** boxes, enter a name for the IST.
- 7 In the **Ports** areas, select the ports that will be part of the IST.
- 8 For **Port Type**, select **trunk**.
- 9 In the **VlanIds** boxes, select the same VLAN. All ports on the SMLT configuration must belong to the same VLAN.
- 10 In the **MLT Type** boxes, choose **istMLT**.
- 11 Click **Ok**.

## Configuring IST links on a single device

The following procedure describes how to configure an IST link on a single device. You must also perform this procedure to configure the other end of the IST.

Alternatively, you may be able to use the procedure described in [“Configuring IST links on pairs of devices” on page 202](#) to configure both ends of the IST at the same time. However, you can only do that if Enterprise Switch Manager determines that the physical connections you are configuring as an IST already exist.

To configure an IST link on a single device:

- 1 In the MultiLink Trunking Manager navigation pane, select a folder for one of the devices on which you want to configure the IST.
- 2 On the MultiLink Trunking Manager [toolbar](#), click **Insert**.
- 3 The **Insert MLT** dialog box for a single node appears ([Figure 76](#)).

**Figure 76** Insert MLT dialog box, creating an IST on one device

MultiLink Trunking Manager - Insert MLT

Node 1  
Node: 10.160.160.104  
Id: 6 1..32  
Name: IST-5

|    |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1/ | 1 | 3 | 5 | 7 | 9  | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 |
|    | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 |
| 2/ | 1 | 3 | 5 | 7 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|    | 2 | 4 | 6 | 8 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3/ | 1 | 3 | 5 | 7 | 9  | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 |
|    | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 |
| 4/ | 1 | 3 | 5 | 7 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|    | 2 | 4 | 6 | 8 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

Ports:

Port Type:  access  trunk

VlanId: Default(1)  
VLAN-2(2)  
VLAN-24(24)

Mlt Type:  normalMLT  istMLT  splitMLT

SMLT Id: 6 1..32

Ok Cancel Help...

- 4 In the **Id** box, enter an ID number.
- 5 In the **Name** box, enter a name for the IST. Use the same name as for the other end of the IST.
- 6 In the **Ports** areas, select the ports that will be part of the IST.
- 7 For **Port Type**, select **trunk**.
- 8 In the **VlanId** box, select the VLAN. All ports on the SMLT configuration must belong to the same VLAN.
- 9 In the **Mlt Type** box, choose **istMLT**.
- 10 Click **Ok**.

## Configuring SMLT links

When you configure SMLT links, you must configure the two ends of the link separately:

- You configure a splitMLT link on the peer device. For more information, see [“Configuring SMLT links on peer devices,” next](#).
- You configure a normalMLT link on the non-peer device. For more information, see [“Configuring SMLT links on non-peer devices” on page 207](#).

### Configuring SMLT links on peer devices

To configure SMLT links on peer devices:

- 1 In the MultiLink Trunking Manager navigation pane, select a folder for the peer device on which you are configuring the link.
- 2 On the MultiLink Trunking Manager [toolbar](#), click **Insert**.
- 3 The **Insert MLT** dialog box for a single node appears. For more information, see [“Insert MLT dialog box items for ERS 8000” on page 193](#).
- 4 In the **Id** box, enter a MLT ID. For SMLT links on peer devices, the **MLT ID** is ignored.
- 5 In the **Smlt Id** box, enter an SMLT ID number.  
The SMLT ID for the SMLT links on both peer devices must be the same.
- 6 In the **Name** box, enter a name for the MLT.
- 7 In the **Ports** area, select the ports on the peer device that will be part of the SMLT link.
- 8 In the **VlanIds** box, select the VLAN. All ports on the SMLT configuration must belong to the same VLAN.
- 9 For the **MLT Type**, choose splitMLT.
- 10 Click **Ok**.

## Configuring SMLT links on non-peer devices

You can configure all of the ports for both SMLT links of an SMLT configuration at the same time. For the MLT type, you choose **normalMLT**.

To configure SMLT links on a non-peer device:

- 1 In the MultiLink Trunking Manager navigation pane, select a folder for the non-peer device on which you are configuring the link.
- 2 On the MultiLink Trunking Manager [toolbar](#), click **Insert**.
- 3 The **Insert MLT** dialog box for a single node appears. For more information, see [See “Insert MLT dialog box items for ERS 8000” on page 193](#).
- 4 In the **Id** box, enter an MLT ID.
- 5 In the **Name** box, enter a name for the MLT.
- 6 In the **Ports** area, select all of the ports on the non-peer device that will be part of the SMLT configuration.
- 7 In the **VlanIds** box, select the VLAN. All ports on the SMLT configuration must belong to the same VLAN.
- 8 For the **MLT Type**, choose **normalMLT**.
- 9 Click **Ok**.

## Configuring IST peers

After configuring the IST links using the procedure in [“Configuring IST links” on page 202](#), you must configure the IST peers.

To configure IST peers:

- 1 In the MultiLink Trunking Manager navigation pane, open the **Smlt Network** folder.
- 2 In the **Smlt Network** folder, click the **Inter-Switch Trunk** folder.  
The contents pane shows all of the devices with inter switch trunks configured.
- 3 For the **IstPeerIp** of each peer device, enter the IP address associated with the VLAN on the other peer in the SMLT configuration.

- 4 For the **IstVlanId** of both peer devices, enter the VLAN ID of the SMLT configuration.
- 5 All ports in an SMLT configuration must be in the same VLAN.
- 6 Click **Apply**.
- 7 For the **IstSessionEnable** of both peer devices, click the entry to select true.
- 8 Click **Apply**.

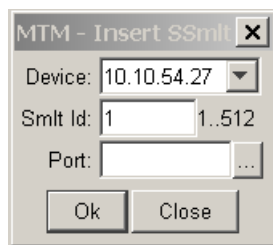
## Configuring a single port SMLT

Ports that are already configured as MLT or MLT-based SMLT cannot be configured as single port SMLT. You must first remove the split trunk and then reconfigure the ports as a single port SMLT.

To configure a single port SMLT:

- 1 In the MultiLink Trunking Manager navigation pane, under the **SMLT Network** folder, select the **Single-Port Smlt** folder.
- 2 On the MultiLink Trunking Manager toolbar, click **Insert**.
- 3 The **Insert SSmlt** dialog box appears.

**Figure 77** Insert SSmlt



- 4 Choose a Device from the drop-down list.
- 5 Enter an SMLT Id.
- 6 Choose a Port.
- 7 Click **OK**.



Table 44 describes the items in the Insert SSmlt dialog box.

**Table 44** Insert SSmlt dialog box items

| Item    | Description  |
|---------|--|
| Device  | IP address of the network device.  |
| Smlt Id | The Split MLT ID, an integer from 1 to 512. <ul style="list-style-type: none"> <li>• A read-only field with a value of 1-512 indicates the port's single port SMLT ID assignment.</li> <li>• A blank field indicates the port is not configured for single port SMLT. Find an unused SMLT ID by viewing the currently-used IDs.</li> </ul> |
| Port    | The slot/port number for the port.   |

## Deleting a single-port SMLT

To delete a single-port SMLT:

- 1 In the navigation pane, select the **single-port SMLT** folder.
- 2 In the contents pane, select a device and do one of the following:
  - From the MultiLink Trunking Manager menu bar, choose **Edit > Delete**.
  - On the MultiLink Trunking Manager toolbar, click **Delete**.

The **Delete** dialog box appears, asking you to confirm the deletion.
- 3 Click **Yes**.

## Highlighting devices and MLT links on the topology map

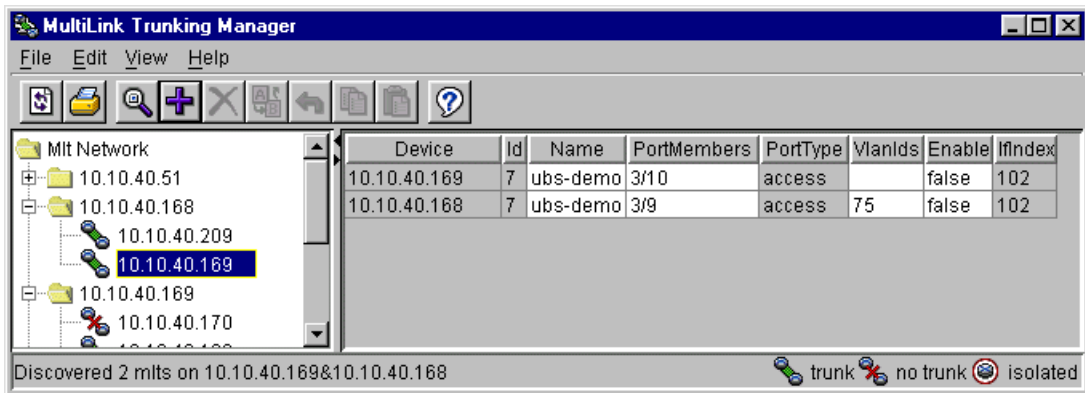
Enterprise Switch Manager displays the topology information from MultiLink Trunking Manager in the contents pane.

To highlight devices and their MLTs in Enterprise Switch Manager:

- 1 In the navigation pane, select a device with a trunk connection.

The **Trunk** table appears in the MultiLink Trunking Manager contents pane (Figure 78).

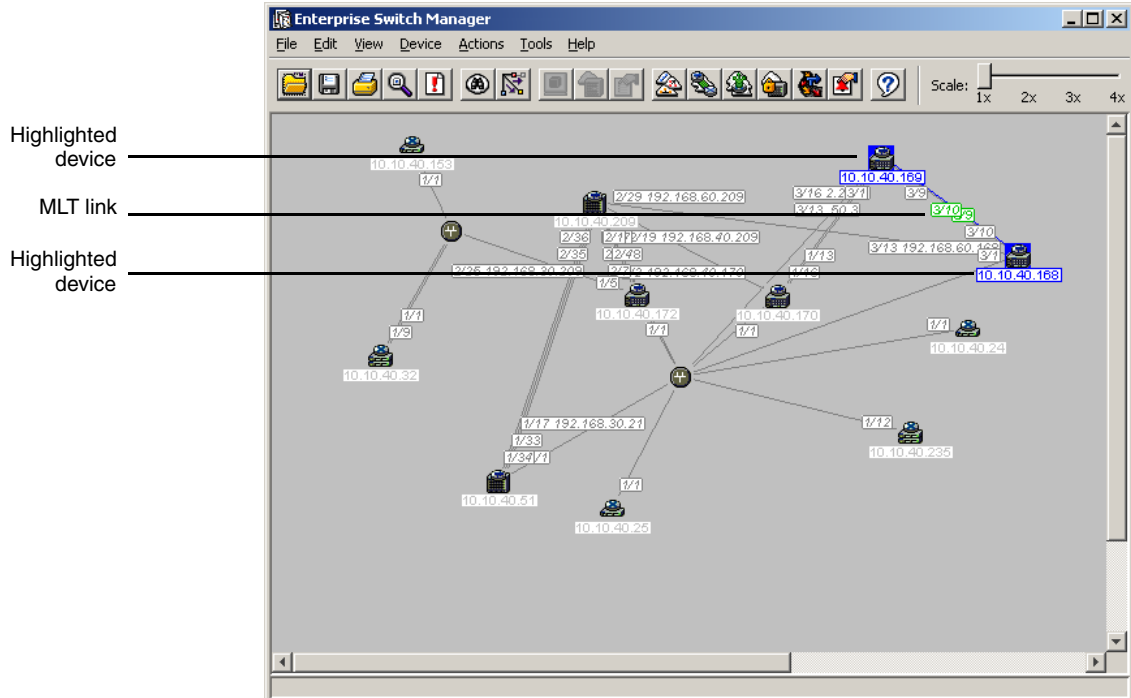
Figure 78 Trunk table



- 2 From the MultiLink Trunking Manager menu bar, choose **View > Highlight Topology**.
- 3 Return to the Enterprise Switch Manager window.

The topology view appears in the Enterprise Switch Manager contents pane with devices connected to the MLT highlighted in blue and the ports in the MLT or SMLT highlighted in green (Figure 79).

If you select either a no trunk or an isolated device from the MultiLink Trunking Manager navigation pane, only the highlighted device appears in the Enterprise Switch Manager contents pane.

**Figure 79** Highlight topology view in Enterprise Switch Manager



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## Chapter 6

# Using Multicast Manager

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This chapter describes Multicast Manager, which you can use to monitor multicast protocols deployed across Ethernet Routing Switch 8600, Ethernet Routing Switch 55xx/35xx, Ethernet Routing Switch 1424/16xx, Ethernet Switch, and Legacy BayStack devices discovered by Enterprise Switch Manager.



**Note:** Multicast Manager only allows you to monitor existing multicast configurations. To configure or modify multicast settings, you must use other management tools such as Device Manager.

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The chapter includes information about the following topics:

- [“What is Multicast Manager?,” next](#)
- [“Starting Multicast Manager” on page 217](#)
- [“Multicast Manager window” on page 218](#)
- [“Working with Multicast Manager” on page 228](#)
- [“Understanding the Multicast Manager navigation tree” on page 238](#)

## What is Multicast Manager?

Multicast Manager allows you to view devices within a network that are configured to run or use multicast protocols. Multicast Manager also allows you to view multicast delivery trees as well as devices that participate in the delivery. In addition, you can use Multicast Manager to configure multicast parameters. Internet Group Management Protocol (IGMP) is fully configurable and Distance Vector Multicast Routing Protocol (DVMRP) and Protocol Independent Multicast-Sparse Mode (PIM-SM) are partially configurable.

## Multicast protocols

Ethernet Routing Switch 8600 supports the following multicast protocols:

- Internet Group Management Protocol (IGMP) and IGMP Snooping—see [“IGMP and IGMP Snooping”](#)
- IGMP with Fast Leave—see [“IGMP with Fast Leave” on page 215](#)
- Distance Vector Multicast Routing Protocol—see [“DVMRP” on page 215](#)
- PIM-SM—see [“PIM-SM” on page 215](#)
- PMBR (PIM Multicast Border Router) —see [“PMBR \(PIM Multicast Border Router\)” on page 216](#)

Ethernet Routing Switches 1600 support the following multicast protocols and features:

- IGMP and IGMP snooping—see [“IGMP and IGMP Snooping”](#)
- Distance Vector Multicast Routing Protocol—see [“DVMRP” on page 215](#)
- Multicast Route

Ethernet Switch, Ethernet Routing Switch 55xx/35xx, and Legacy BayStack support IGMP and IGMP snooping—see [“IGMP and IGMP Snooping”](#) .

At its most basic, IP multicast is the communication of data and services to multiple destinations with a single transmission. Refer to *Networking Concepts for the Passport 8000 Series Switch* for more information about multicast and multicast protocols.

### IGMP and IGMP Snooping

IGMP allows a host to register group memberships with the local querying router to receive any datagrams sent to this router and targeted to a group with a specific IP Multicast address. The protocol also allows a router to learn the existence of group members on its directly attached networks. The router periodically sends a general query message to each of its local networks. Any host that is a member of any multicasting group identifies itself by a sending a response.

IGMP Snooping uses IGMP messages to prune group membership per port within a VLAN. The switch listens to group reports for each port and builds a database of multicast group members per port. Only those ports that are specified in the database receive multicast traffic, instead of all ports in the VLAN.

## **IGMP with Fast Leave**

IGMP with Fast Leave Mode is an added proprietary feature to the existing IGMP behavior. This mode allows a switch to immediately stop forwarding a specific group- Multicast traffic as soon as an IGMPv2 Leave Group message is received on interface. This either assumes that there is only receiver for this group on this interface or that all receivers agree to stop receiving traffic for the group when one of them leaves the group. Only when configured on a port, Fast Leave Mode changes the normal behavior of the existing IGMP protocol for that port. Using the fast leave Mode appropriately allows the reduction of unnecessary multicast traffic on the port. When used with IGMPv3, the mode remains valid, but stopping traffic will be based on the group state at the switch's interface.

To facilitate the configuration Fast Leave Mode should be configurable on a VLAN and /or port basis. Enabling the feature for a given VLAN enables the feature on all ports of that VLAN.

## **DVMRP**

Distance Vector Multicast Routing Protocol (DVMRP) advertises shortest-path routes to multicasting source networks (any network containing hosts with the capability to issue multicast datagrams). When DVMRP is coupled with IGMP membership, a multicast stream is learned from both the routers and directly attached hosts.

## **PIM-SM**

Protocol Independent Multicast-Sparse Mode (PIM-SM), as defined in RFC 2362, was designed to support multicast groups spread out across large areas of a company or the Internet. PIM-SM routes multicast packets to multicast groups, and establishes distribution trees across wide area networks.

Unlike dense mode protocols, such as DVMRP, that initially flood multicast traffic to all routers over an entire internetwork, PIM-SM sends multicast traffic only to routers that have specifically joined a multicast group. This technique reduces traffic flow over WAN links and overhead costs for processing unwanted multicast packets.

Dense-mode protocols use a “flood-and-prune” technique, which is efficient where receivers are densely populated. However, for sparsely populated networks, PIM-SM is more efficient because it sends multicast traffic only to those routers that belong to a specific multicast group and that choose to receive the traffic. PIM-SM is independent of any specific unicast routing protocol, but it does require the presence of a unicast routing protocol, such as RIP or OSPF. PIM-SM uses the information from the unicast routing table to create and maintain multicast trees that enables PIM-enabled routers to communicate.

### **PMBR (PIM Multicast Border Router)**

A PMBR (PIM Multicast Border Router) is a router that sits at the boundary of a PIM-SM (Sparse Mode) domain and inter-operates with other types of multicast routers such as those that run DVMRP (Distance Vector Multicast Routing Protocol). That is, in order to inter-operate with networks that run dense-mode, broadcast and prune, protocols such as DVMRP, all packets generated within a PIM-SM region must be pulled out to that region’s PIM Multicast Border Routers (PMBRs).

Generally a PMBR would use both protocols (PIM-SM and DVMRP) and implement inter-operability functions that are not required by regular PIM routers. To support inter-operability, a special entry type, referred to as (\*,\*,RP), must be supported by all PIM routers. PMBRs are also responsible for delivering externally generated packets to routers within the PIM domain. All PIM routers must be capable of supporting (\*,\*,RP) state and interpreting associated Join/Prune messages.



## Multicast Manager features

Multicast Manager allows you to:

- View and configure multicast parameters supported by devices discovered by Enterprise Switch Manager.
- Highlight all devices in the topology network map if the multicast protocol is selected from the Multicast Manager navigation tree.
- Provide information about multicast groups with active members, including information about group address, source subnet, and last reporters.
- Display the multicast forwarding path for a selected source/group to all destination devices or to a selected intermediate device.

The following sections describe the Multicast Manager window and the monitoring features available:

- [“Starting Multicast Manager,”](#) next
- [“Multicast Manager window”](#) on page 218
- [“Working with Multicast Manager”](#) on page 228
- [“Viewing Multicast Manager information on topology map”](#) on page 234

## Starting Multicast Manager

To start Multicast Manager:

➔ Do one of the following:

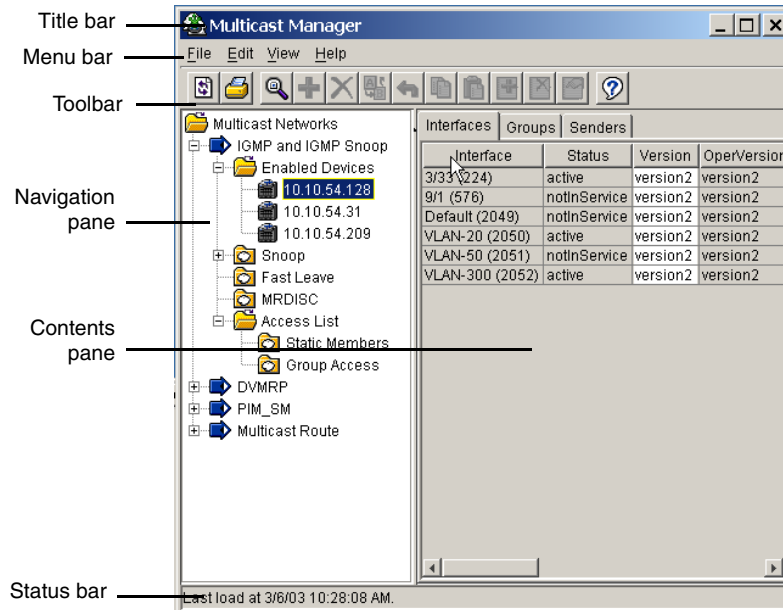
- From the Enterprise Switch Manager menu bar, choose **Tools > Multicast Manager**.
- On the keyboard, press **[F4]**.
- On the Enterprise Switch Manager toolbar, click **Multicast Manager**.

The Multicast Manager window opens ([Figure 80](#)).

## Multicast Manager window

The Multicast Manager window contains the parts identified in [Figure 80](#).

**Figure 80** Multicast Manager window



[Table 45](#) describes the parts of the Multicast Manager window.



**Table 45** Multicast Manager window parts

| Part            | Description  |
|-----------------|--|
| Title bar       | Displays the submanager name.  |
| Menu bar        | Provides access to all Multicast Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons,” next</a> .   |
| Toolbar         | Provides quick access to commonly-used Multicast Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons,” next</a> .   |
| Navigation pane | Provides a navigation tree showing Multicast Manager protocols. For more information, see <a href="#">“Navigation pane” on page 221</a> .  |
| Contents pane   | Displays information selected in the navigation pane. For more information, see <a href="#">“Contents pane” on page 224</a> .  |
| Status bar      | Displays status information, including the command description from a tool tip, and a key to the type of Multicast groups discovered. For more information, see <a href="#">“Status bar” on page 224</a> . |











## Menu bar commands and toolbar buttons

The menu bar and toolbar provide commands for operating the Multicast Manager. [Table 46](#) describes the Multicast Manager menus and toolbar buttons.


**Table 46** Multicast Manager menus and commands

| Menu | Command | Toolbar button  | Shortcut key | Purpose   |
|------|---------|---|--------------|---|
| File | Reload  |  | [Ctrl]+R     | Rediscovered the network and reloads Multicast Manager with the latest information. For more information, see <a href="#">“Reloading Multicast Manager” on page 226</a> . |
|      | Print   |  | [Ctrl]+P     | Opens the Print dialog box, where you set parameters to print.  |
|      | Close   |   |              | Closes Multicast Manager.   |

**Table 46** Multicast Manager menus and commands (continued)

| Menu       | Command          | Toolbar button  | Shortcut key   | Purpose   |
|------------|------------------|---|--|---|
| Edit       | Undo Changes     |    | [Ctrl]+Z   | Reverses any changes you made to a record.  |
|            | Preferences      |   |  | Identifies specific devices for Enterprise Switch Manager to configure and manage. See <a href="#">“Submanager preferences” on page 103</a> for more information. |
|            | Insert Tree Node |    | [Ctrl]+I   | Opens the Insert dialog box.  |
|            | Delete Tree Node |    | [Ctrl]+D   | Removes a selection and displays a message box to confirm deletion.   |
|            | Copy             |    | [Ctrl]+C   | Copies the contents of the selected cell.   |
|            | Paste            |    | [Ctrl]+V   | Pastes the cell contents into a new location.   |
|            | Add Table Row    |    | [Ctrl]+S   | Opens a dialog box that lets you add a new row to the table.  |
|            | Modify           |    | [Ctrl]+M   | Opens a dialog box that lets you modify multiple table cells at one time.   |
|            | Remove Table Row |   | [Ctrl]+X   | Deletes the selected row from the table.  |
|            | Apply Changes    |  |  | Applies changes made to your multicast configuration to the device configuration file.  |
|            | Find             |  | [Ctrl]+F   | Opens the Find dialog box, where you set parameters to find matching entries in your network.   |
| Find Route |                  | [Ctrl]+R  | Opens the Find dialog box, which allows you to find the routing interface for an IP address. See <a href="#">“Finding a routing interface” on page 226</a> for more information. |   |

**Table 46** Multicast Manager menus and commands (continued)

| Menu | Command                 | Toolbar button  | Shortcut key | Purpose  |
|------|-------------------------|---|--------------|--|
| View | Highlight Topology      |   |              | Highlights the devices running the multicast protocol within the topology map in the Enterprise Switch Manager contents pane, and highlights the multicast forwarding path from the source subnet.<br><br>To view source subnets or forwarding devices, you must select the IP address associated with the subnet or device. |
| Help | Using                   |  | F1           | Opens a Web browser and loads the online Help system for Multicast Manager.  |
|      | Online Support          |   |              | Opens a Web browser and loads the Nortel Customer Support Web page.  |
|      | About Multicast Manager |   |              | Displays information about Multicast Manager.  |

## Navigation pane

The Multicast Manager navigation pane ([Figure 81](#)) is on the left side of the window. It contains the protocol folders in the navigation tree. In the navigation pane, you can select the folder for which you want to view multicast information, or use the Print command to print the navigation tree.

The folders in the navigation tree contain devices or elements relating to multicast protocols. Click on a folder to open it and view its contents. Most of the folders contain devices, but some contain route trees or other types of elements.

Within a folder, click on a device or element icon to view more information in the content pane. The content pane will not show any information or column headers if there are no elements in the folder.

For more information about the folders and elements in the navigation pane, see [“Understanding the Multicast Manager navigation tree” on page 238](#).

Figure 81 shows the parts of the Multicast Manager navigation pane.

**Figure 81** Multicast Manager navigation pane

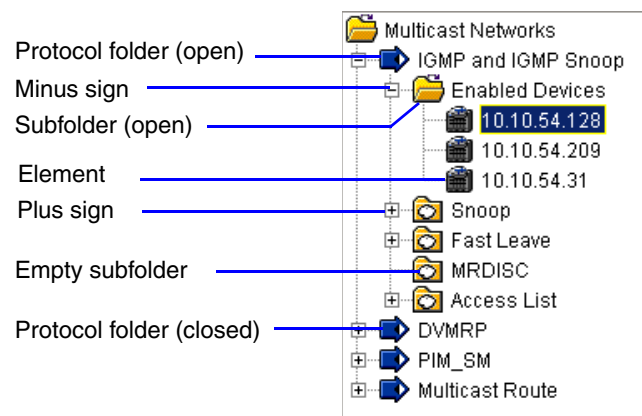






Table 47 describes the parts of the Multicast Manager navigation pane.

**Table 47** Parts of the Multicast Manager navigation pane

| Part            | Description  |
|-----------------|--|
| Protocol folder | Contains subfolders for elements and features of a multicast protocol.   |
| Subfolder       | Contains subfolders or elements. Click on a subfolder to open it, or click on an element to view its contents in the content pane. |
| Empty subfolder | A folder with neither a plus sign or a minus sign is empty, and contains neither subfolders nor elements.                          |
| Plus sign       | Indicates that a closed folder or subfolder contains folders or elements. Click the plus sign to open the folder.                  |
| Minus sign      | Click the minus sign to close the folder.  |

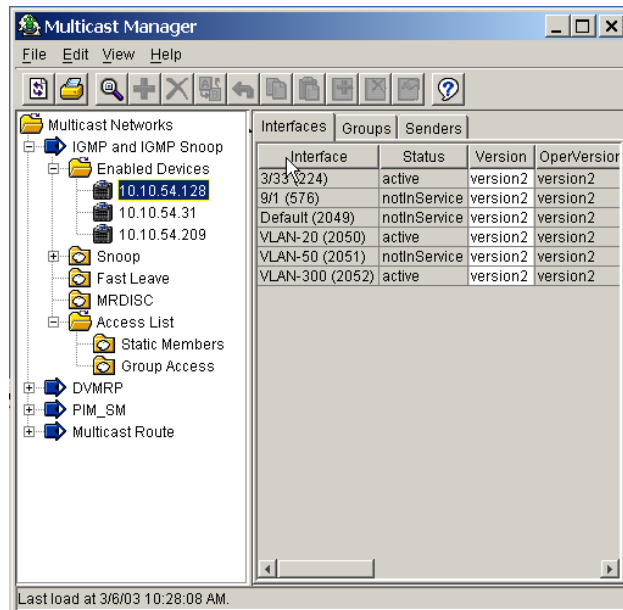
**Table 47** Parts of the Multicast Manager navigation pane (continued)

| Part  | Description   |                  |
|---|---|------------------|
| Element   | Click on an icon to view information about the element in the content pane. Some typical element icons are described below: |                  |
|   | Icon  | Description      |
|   |    | Table of devices |
|   |    | Multicast tree   |
|   |    | Multicast group  |
|  | Device  |                  |

## Contents pane

When you select a network resource in the navigation pane, a table appears in the contents pane (Figure 82).

**Figure 82** Enabled Devices folder in the contents pane



To view the multicast information in the contents pane:

- ➔ In the navigation pane, select a device or element icon from the list inside the folder for a protocol or feature.

Information about the device, protocol, or feature appears in the contents pane.

## Status bar

The Multicast Manager status bar is located at the bottom of the Multicast Manager window. The status bar displays status information about operation results.



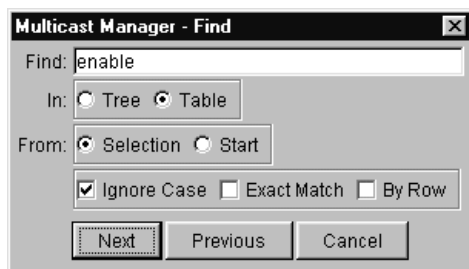
## Finding a network resource

To find a network resource:

- 1 Click any device in the navigation pane, or in the table view, and do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Find**.
  - On the Multicast Manager toolbar, click **Find**.

The **Find** dialog box appears (Figure 83).

**Figure 83** Multicast Manager - Find dialog box



- 2 In the **Find** text box, type the text or number for your search.
- 3 In the **In** section, click the **Tree** option to search the navigation pane, or click the **Table** option to search the contents pane.
- 4 Click **Next**.

Multicast Manager starts its search and highlights the first match it finds or displays a message that it found no matches.

- 5 If a first match was found, click **Next** to find each subsequent match, or click **Previous** to go back to the last match.

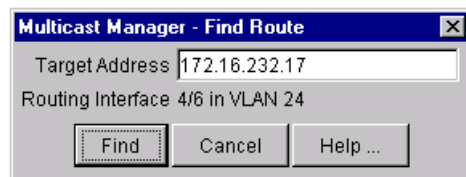
## Finding a routing interface

Multicast Manager allows you to check whether there is a routing interface between the selected device and a target address.

To find a routing interface:

- 1 In the Multicast Manager navigation pane, choose one of the following:
  - [DVMRP protocol folder](#) > [Routes folder](#)
  - [Multicast Route protocol folder](#) > [Routes folder](#)
- 2 In the **Routes** folder, select a device.
- 3 From Multicast Manager menu bar, choose **Edit > Find Route**.
- 4 The **Find Route** dialog box appears.
- 5 In the **Target Address** box, enter the IP address of the target address to which you want to find the routing interface.
- 6 Click **Find**.
- 7 The Routing Interface text in the **Find** dialog box shows the routing interface, if one is found ([Figure 84](#)).

**Figure 84** Multicast Manager - Find Route dialog box



## Reloading Multicast Manager

Multicast Manager lets you refresh the information in the window with multicast information polled from the network devices. You can use this feature to load any updated information that took effect since you opened Multicast Manager.

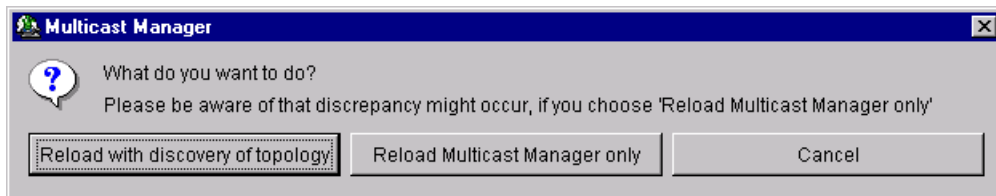
To reload the multicast information:

- 1 On the Multicast Manager toolbar, click **Reload**.

Or, from the Multicast Manager menu bar, choose **File > Reload**.

An alert box appears to ask how you want to continue (Figure 85).

**Figure 85** Multicast Manager reload dialog box



**2** Do one of the following:

- Click **Reload with discovery of topology** to rediscover network topology and reload the Enterprise Switch Manager topology map and all of the submanagers.
- Click **Reload Multicast Manager only** to just reload Multicast Manager. Enterprise Switch Manager polls devices known to use multicast protocols for multicast protocol settings and features, but does not perform a full network topology discovery.
- Click **Cancel** to abandon the reload operation.



**Note:** Reloading just the Multicast Manager takes less time than reloading with topology discovery. However, if there are any changes in network topology, it might result in discrepancies between the information in Multicast Manager and the information about the topology map. Such discrepancies might cause incorrect operation when you perform operations (such as highlighting the network map) that involve interactions between the submanagers and the topology map.

If you observe such incorrect operation, reload the network map. For more information, see [“Rediscovering the network map” on page 105](#).

Enterprise Switch Manager reloads topology information from the network devices, and refreshes the Multicast Manager window with it.

## Working with Multicast Manager

Multicast Manager displays the following multicast protocols supported on the devices discovered in the network topology:

- IGMP and IGMP Snoop
- DVMRP
- PIM-SM
- Multicast Route

See the following sections for more information about viewing and configuring multicast protocols:

- [“Configuring DVMRP globals” on page 231](#)
- [“Configuring PIM-SM globals” on page 232](#)
- [“Configuring IGMP and IGMP Snoop on a device” on page 232](#)
- [“Viewing IGMP and IGMP Snoop information,” next](#)
- [“Viewing DVMRP information” on page 233](#)
- [“Viewing PIM-SM information” on page 233](#)
- [“Viewing MRoute information” on page 234](#)
- [“Viewing Multicast Manager information on topology map” on page 234](#)

### Inserting a tree node

To insert a tree node into a protocol folder in the tree view:

- 1 Select the folder into which you want to insert the tree node.
- 2 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Insert Tree Node**.
  - Click the **Insert Tree Node** button on the Multicast Manager toolbar.The **Insert** dialog box for the selected folder appears.
- 3 Select the IP address of the tree node you want to insert.
- 4 Click **OK**.

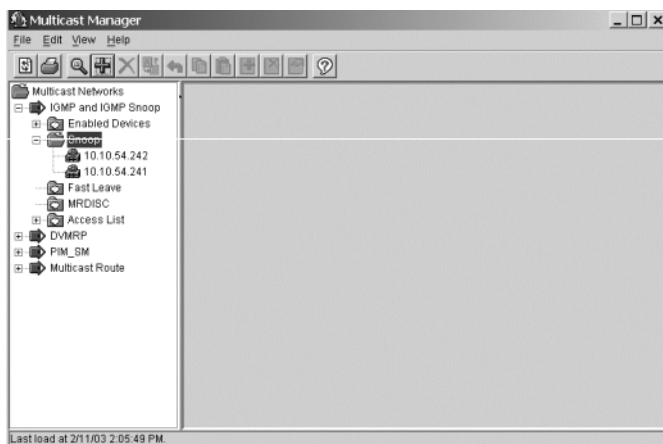
The new tree node appears in the navigation pane tree view under the folder into which you inserted the tree node.

## Deleting a tree node

To delete a tree node from a protocol folder in the tree view:

- 1 Select the tree node that you want to delete.
- 2 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Delete Tree Node**.
  - Click the **Delete Tree Node** button on the Multicast Manager toolbar.
- 3 Multicast Manager removes the node from the navigation pane tree view

**Figure 86** Tree Editing—adding or deleting a node from the navigation tree



## Inserting a table row

To insert a row into a table in the contents pane:

- 1 Click in the table in which you want to insert a row.
- 2 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Add Table Row**.
  - On the Multicast Manager toolbar, click the **Add Table Row** button.

The insertion dialog box for that table appears.

- 3 Enter the information for the new table row.
- 4 Click **Ok**.

Multicast Manager adds the new row to the table.

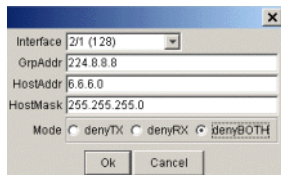
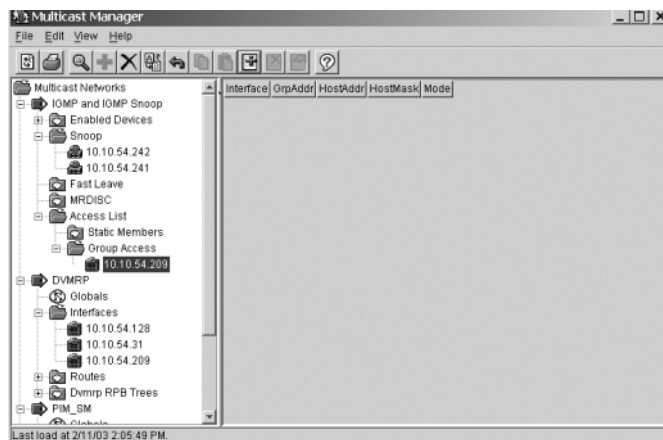
## Deleting a table row

To delete a row from a table in the contents pane:

- 1 Select the table row that you want to delete.
- 2 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Remove Table Row**.
  - On the Multicast Manager toolbar, click the **Remove Table Row** button.

Multicast Manager removes the selected row from the table.

**Figure 87** Table Editing—inserting or deleting table rows or modifying cell values



## Editing table cells

To edit a table cell:

- 1 Double-click the cell you want to edit in the table.

The edit dialog box for the table appears.

- 2 Make the changes in the dialog box.
- 3 Click **Ok**.

Multicast Manager applies the changes to the cell.

## Editing multiple table cells

To edit multiple table cells:

- 1 Select the cells you want to edit in the table.
- 2 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Modify**.
  - On the Multicast Manager toolbar, click the **Modify** button.

The table modification dialog box appears.

- 3 Make the changes in the dialog box.
- 4 Click **Ok**.

Multicast Manager applies the changes to all the selected cells.

## Configuring DVMRP globals

DVMRP routers listen to all IGMP host membership reports, even if they are not the designated querier, and keep a local database of every host membership reporter.

To configure DVMRP globals:

- 1 In the Multicast Manager navigation pane tree view, click **Globals** under the **DVMRP** folder.

- 2 In the **Enabled** column of the table on the right, change the value for the selected device to **Enabled**.
- 3 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Apply Changes**.
  - On the Multicast Manager toolbar, click the **Apply Changes** button.

The enabled devices appear in the **Interfaces** folder of the **DVMRP** tree and in the **Enabled Devices** folder of the **IGMP** and **IGMP Snoop** tree.

See [“DVMRP protocol folder” on page 252](#) for more information.

## Configuring PIM-SM globals

Protocol Independent Multicast-Sparse Mode (PIM-SM) routes multicast packets to multicast groups, and establishes distribution trees across wide area networks.

To configure PIM-SM globals:

- 1 In the Multicast Manager navigation pane tree view, click **Globals** under the **PIM-SM** folder.
- 2 In the **Enable** column of the table on the right, change the value for the selected device to **Enabled**.
- 3 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Apply Changes**.
  - On the Multicast Manager toolbar, click the **Apply Changes** button.

The devices appear in the **Enabled Devices** folder in the tree view.

See [“PIM-SM protocol folder” on page 257](#) for more information.

## Configuring IGMP and IGMP Snoop on a device

Internet Group Management Protocol (IGMP) allows an IP Multicast router to learn the existence of host group members on their directly connected subnets.

To configure IGMP or IGMP Snoop for a device:

- 1 Select the device in the **Enabled Devices** folder.



If the device does not appear in the **Enabled Devices** folder, ensure that DVMRP or PIM-SM is enabled for that device (see [“Configuring DVMRP globals” on page 231](#) or [“Configuring PIM-SM globals” on page 232](#)).

- 2 Use the table cells in the right pane to configure IGMP or IGMP Snoop on the device. You can modify all table cells that are not dimmed.
- 3 Do one of the following:
  - From the Multicast Manager menu bar, choose **Edit > Apply Changes**.
  - On the Multicast Manager toolbar, click the **Apply Changes** button.

See [“IGMP and IGMP Snoop protocol folder” on page 239](#) for more information.

## Viewing IGMP and IGMP Snoop information

To view the information associated with IGMP and IGMP Snoop:

- ➔ Select a subfolder listed under the [IGMP and IGMP Snoop protocol folder](#).

See [“IGMP and IGMP Snoop protocol folder” on page 239](#) for more information.

## Viewing DVMRP information

To view (Distance Vector Multicast Routing Protocol) DVMRP information:

- ➔ Select a subfolder listed under the [DVMRP protocol folder](#).

See [“DVMRP protocol folder” on page 252](#) for more information.

## Viewing PIM-SM information

To view the information associated with PIM-SM (Protocol Independent Multicast-Sparse Mode):

- ➔ Select a subfolder listed under the [PIM-SM protocol folder](#).

See [“PIM-SM protocol folder” on page 257](#) for more information.

## Viewing MRoute information

Multicast Route (MRoute) information contains the details about the multicast routes found in the network.

To view Multicast Route information:

- ➔ Select a subfolder listed under the [Multicast Route protocol folder](#).

See [“Multicast Route protocol folder” on page 262](#) for more information.

## Viewing Multicast Manager information on topology map

While the Multicast Manager window is open, you can highlight the following information on the topology map in the Enterprise Switch Manager main window:

- Location of a particular multicast device
- Multicast tree from a source subnet to all multicast nodes within a group
- Devices actively using a selected multicast protocol

The following sections describe procedures for viewing Multicast Manager information on the topology map:

- [“Highlighting a multicast device,” next](#)
- [“Highlighting a multicast forwarding tree” on page 235](#)

### Highlighting a multicast device

To highlight a multicast device:

- 1 In the Multicast Manager navigation pane, do one of the following:

- Select a subfolder under a protocol folder.
- Select a single device.

Devices supported by the protocol are highlighted.

- 2 From Multicast Manager menu bar, choose **View > Highlight Topology**.

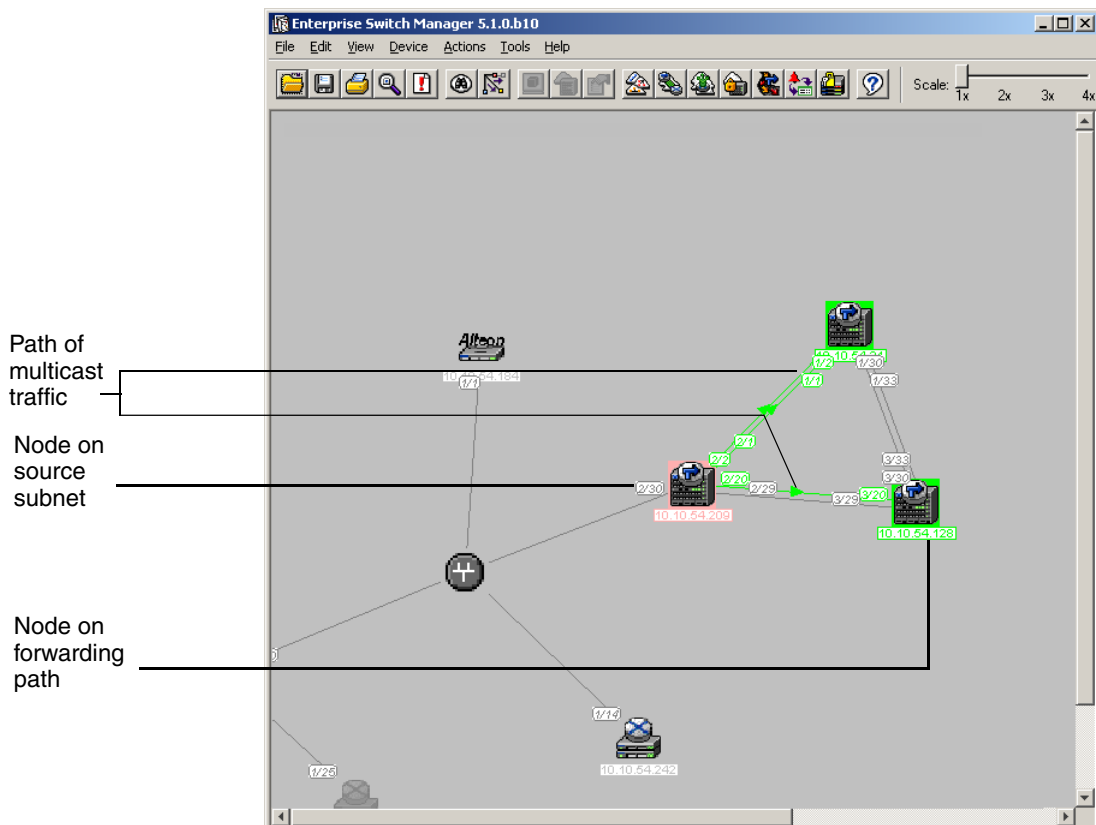
The **Highlight Topology** option remains selected until you deselect it.

- 3 Return to the Enterprise Switch Manager window.
  - If you selected a subfolder under a protocol folder, all devices that support the feature are highlighted.
  - If you selected a single device, the device is highlighted.

### Highlighting a multicast forwarding tree

To highlight a multicast tree rooted at a source subnet within a multicast group:

- 1 In the Multicast Manager navigation pane, select a tree icon in either the [Dvmrp RPB Trees folder](#) or the [MRoute RPM Trees folder](#).  
See “[Dvmrp RPB Trees folder](#)” on page 257 and “[MRoute RPM Trees folder](#)” on page 266 for more information.
- 2 From Multicast Manager menu bar, choose **View > Highlight Topology**.
- 3 Return to the Enterprise Switch Manager window.  
The devices and forwarding path are highlighted ([Figure 88](#)).

**Figure 88** Enterprise Switch Manager with forwarding node highlighted

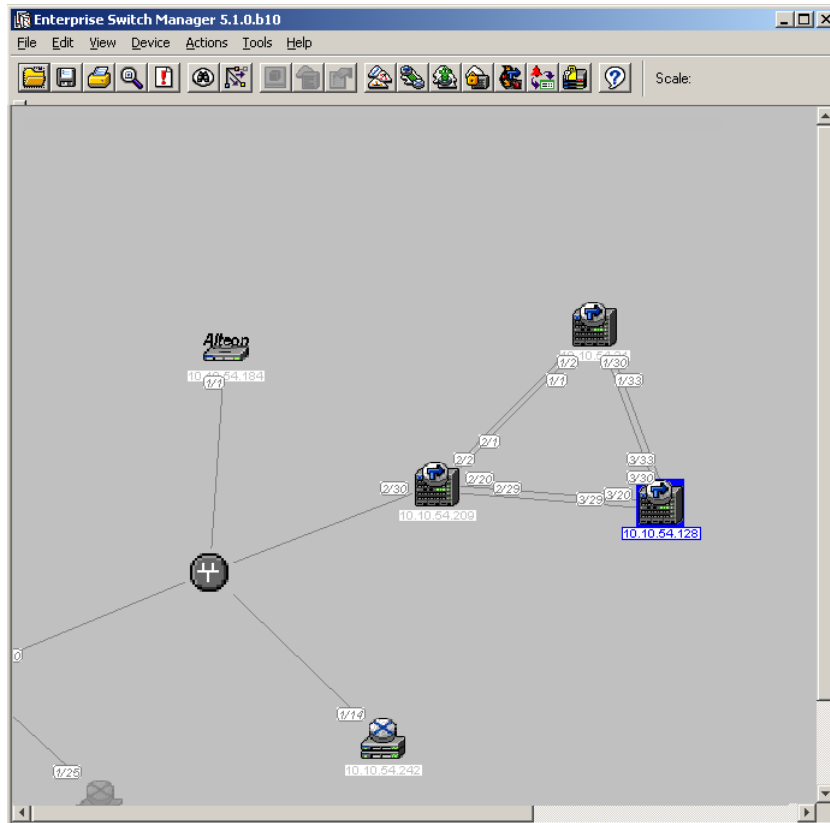
You can also select a multicast protocol feature in Multicast Manager and view in Enterprise Switch Manager the devices that are actively using that feature.

To view devices using multicast protocol features:

- 1 In the Multicast Manager navigation pane, select a multicast protocol feature icon from the folders and subfolders of the navigation tree.
- 2 Return to the Enterprise Switch Manager window.

The devices using DVMRP are highlighted (Figure 89).

**Figure 89** Enterprise Switch Manager with devices using DVMRP highlighted



## Understanding the Multicast Manager navigation tree

Multicast Manager shows information about multicast protocols with folders, tabs, and tables in the navigation pane and contents pane of the Multicast Manager window.

Figure 90 shows the Multicast Manager navigation tree.

**Figure 90** Multicast Manager navigation tree hierarchy

- ▶ IGMP and IGMP Snoop protocol folder
  - 📁 Devices folder
    - Interface tab
    - Cache tab for ERS 1424/16xx
    - Groups tab for ERS 8600 devices
    - Senders tab for ERS 8600 devices
  - 📁 Snoop folder
    - Snoop Globals tab for ERS 1424/16xx
    - Snoop Control tab for ERS 1424/16xx
    - Snoop Group tab for ERS 1424/16xx
    - Snoop Forward tab for ERS 1424/16xx
    - Snoop Router Ports tab for ERS 1424/16xx
  - 📁 Fast Leave folder
  - 📁 MRDISC folder
  - 📁 Access List folder
    - Static Members folder
    - Group Access folder
- ▶ DVMRP protocol folder
  - 🌐 Globals
  - 📁 Interfaces folder
  - 📁 Routes folder
    - Routes tab
    - Neighbors tab
    - Next Hops tab
  - 📁 Dvmrp RPB Trees folder

- ▶ PIM-SM protocol folder
  - 🌐 Globals
  - 📁 Interfaces folder
  - 📁 Candidate RPs folder
  - 📁 Static RPs folder
  - 📁 Redundant RPs folder
  - 📁 Bootstrap Switches folder
    - 📁 Mismatched Switches subfolder
- ▶ Multicast Route protocol folder
  - 📁 PIM-DVMRP Gateway folder
  - 📁 Timed Prune folder
  - 📁 Routes folder
    - Routes tab
    - Next Hops tab
  - 📁 MRoute RPM Trees folder

The following sections describe the folders, subfolders, and tabs of the Multicast Manager navigation tree.

## IGMP and IGMP Snoop protocol folder

You configure IGMP and IGMP Snooping using Device Manager. All devices supported by Enterprise Switch Manager can be configured for IGMP Snooping.

The **IGMP and IGMP Snoop** protocol folder contains subfolders for devices that have various IGMP and IGMP Snoop protocol features enabled.

Click a device icon to view more information in the content pane. The content pane does not show any information or column headers if there are no devices in the folder.

[Table 48](#) describes the parts of the **IGMP and IGMP Snoop** protocol folder.

**Table 48** Parts of the IGMP and IGMP Snoop protocol folder

| Part                           | Description  |
|--------------------------------|--|
| <a href="#">Devices folder</a> | Displays those switches that have either DVMRP or PIM enabled globally.                            |
| <a href="#">Snoop folder</a>   | Displays devices that have either Snoop or proxy snoop enabled on one or more of their interfaces. |
| <a href="#">MRDISC folder</a>  | Displays devices that have Multicast Route Discovery enabled.                                      |

**Table 48** Parts of the IGMP and IGMP Snoop protocol folder (continued)

| Part                               | Description  |
|------------------------------------|--|
| <a href="#">Fast Leave folder</a>  | Displays devices that have one or more interfaces with Fast Leave enabled. |
| <a href="#">Access List folder</a> | Displays the Static Members and Group Access folders.                      |

## Devices folder

The **Devices** folder of the [IGMP and IGMP Snoop protocol folder](#) contains those switches that have either DVMRP or PIM enabled globally.

[Table 49](#) describes the parts of the **Devices** folder.

**Table 49** Parts of the Devices folder

| Part  | Description  |
|---|--|
| <a href="#">Interface tab</a>               | Displays information about the IGMP interfaces used. |
| <a href="#">Cache tab for ERS 1424/16xx</a> | Contains information about multicast groups.         |

## Interface tab

The **Interface** tab of the [Devices folder](#) displays information about the IGMP interfaces used.

[Table 50](#) describes the parts of the **Interface** tab.

**Table 50** Parts of the Interface tab

| Part           | Description   |
|----------------|---|
| Interface      | Interface on which IGMP is enabled.   |
| Status         | Active or Not In Service  |
| Version        | Version of IGMP that is configured on the interface. For IGMP to function correctly, all routers on a LAN must be configured to run the same version of IGMP on that LAN. |
| OperVersion    | Version of IGMP that is running on this interface.  |
| Query Interval | Frequency with which IGMP Host-Query packets are transmitted on this interface.   |



**Table 50** Parts of the Interface tab (continued)

| Part                 | Description  |
|----------------------|--|
| Querier              | Address of the IGMP querier on the IP subnet to which the interface is attached.   |
| QueryMaxResponseTime | Maximum query response time advertised on this interface.  |
| WrongVersionQueries  | Number of queries received whose IGMP versions do not match the IGMP version of this interface.  |
| Joins                | Number of times a group membership has been added on this interface; that is, the number of times an entry for this interface has been added to the cache table. This number gives an indication of the amount of IGMP activity over time. |
| Robustness           | Variable that allows tuning for the expected packet loss on a subnet.  |
| LastMembQueryIntrvl  | Max Response Time in Group-Specific Queries sent in response to Leave Group messages. Also, the amount of time between Group-Specific Query messages.  |

### Cache tab for ERS 1424/16xx

The **Cache** tab contains information about multicast groups, such as the interfaces where they are required to be received, the last host that sent a report for those groups, and the expected expiry time for those groups.

[Table 51](#) describes the parts of the **Cache** tab.

**Table 51** Parts of the Cache tab

| Part         | Description   |
|--------------|---|
| Address      | The IP Multicast group address for which this entry contains information.   |
| IfIndex      | The interface from which the corresponding multicast group address is heard.  |
| UpTime       | The time elapsed since this entry was created.  |
| Self         | Sets whether to advertise local routes to neighbors.  |
| LastReporter | The IP address of the source of the last membership report received for this IP Multicast group address on this interface. If no membership report has been received, the object has the value 0.0.0.0. |
| ExpiryTime   | The amount of time (in seconds) remaining before this entry is aged out.  |

**Table 51** Parts of the Cache tab (continued)

| Part              | Description   |
|-------------------|---|
| Status            | The IGMP row status. When an interface has an IP address and DVMRP or PIM-SM is enabled, status is shown as active. Otherwise, it is shown as notInService.   |
| Version1HostTimer | The time remaining until the local router assumes that there are no longer any IGMP version 1 members on the IP subnet attached to the interface. Upon hearing any IGMPv1 membership report, this value is reset to the group membership timer. When the time remaining is nonzero, the local router ignores any IGMPv2 Leave messages for this group that it receives on this interface. |

## Groups tab for ERS 8600 devices

[Table 52](#) describes the parts of the **Groups** tab.

**Table 52** Parts of the Groups tab

| Part       | Description  |
|------------|--|
| IpAddress  | Multicast group Address (Class D) that members can join. A group address can be the same for many incoming ports.                  |
| Members    | IP address of a member that has issued a group report for this group.  |
| InPort     | A unique value to identify a brouter interface or a logical interface (VLAN) that has received Group reports from various members. |
| Expiration | Time left before the group report expires on this port. This variable is updated upon receiving a group report.                    |

## Senders tab for ERS 8600 devices

Table 53 describes the parts of the **Senders** tab.

**Table 53** Parts of the Senders tab

| Part       | Description  |
|------------|--|
| GrpAddr    | Enter the Multicast group address of the multicast stream. Within the indicated valid range (224.0.1.0 to 239.255.255.255), the following are invalid addresses: 244.0.0.x and the corresponding 31 multicast addresses that map to the IP MAC addresses. If you try to select them, you receive an invalid message. |
| IfIndex    | The interface on which IGMP entry is enabled.  |
| MemberAddr | The IP address of a host for which this entry contains information.  |
| TPort      | Identifies the T Port.   |

## Snoop folder

The **Snoop** folder of the [IGMP and IGMP Snoop protocol folder](#) contain devices that have either Snoop or proxy snoop enabled on one or more of their interfaces.

Table 54 describes the parts of the **Snoop** folder.

**Table 54** Parts of the Snoop folder

| Part                   | Description  |
|------------------------|--|
| rcVlanId               | The VLAN ID for the VLAN.  |
| SnoopEnable            | Enables (true) or disables (false) IGMP snooping. IGMP snooping works only when a multicast router exists in the VLAN.   |
| SnoopReportProxyEnable | Indicates whether the IGMP report proxy feature is enabled. When this feature is enabled, reports are forwarded from hosts to the multicast router once per group per query interval or when there is new group information.<br><br>When this feature is disabled, all reports from different hosts are forwarded to multicast routers, and more than one group report may be forwarded for the same multicast group per query interval. The default is enabled. |

**Table 54** Parts of the Snoop folder (continued)

| Part                   | Description   |
|------------------------|---|
| SnoopMRouterPorts      | Ports that have been configured as multicast router ports. Such ports are directly attached to a multicast router so the multicast data and group reports will be forwarded to the router.<br><br>Caution: Configure this field only when there are multiple multicast routers that are not directly attached to one another but are directly attached to the VLAN (technically an invalid configuration). If multicast routers have a route between them (the valid configuration) and this field is configured, a multicast loop forms. |
| SnoopActiveQuerier     | This is the IP address of a multicast querier router.   |
| SnoopQuerierPort       | The port on which the multicast querier router was heard.   |
| SnoopMRouterExpiration | Time remaining before the multicast router is aged out. If the switch does not receive any queries before this time expires, it flushes out all group memberships known to the VLAN. The Query Max Response Interval (obtained from the queries received) is used as the timer resolution.  |

## Snoop folder for ERS 1424/16xx

[Table 55](#) describes the parts of the **Snoop** folder for Ethernet Routing Switch 1424/16xx.

**Table 55** Parts of the Snoop folder for ERS 1424/16xx

| Part   | Description   |
|--|---|
| <a href="#">Snoop Globals tab for ERS 1424/16xx</a>      | Enables and disables IGMP snooping and multicast routing.                                 |
| <a href="#">Snoop Control tab for ERS 1424/16xx</a>      | Controls the IGMP function of the VLAN.   |
| <a href="#">Snoop Group tab for ERS 1424/16xx</a>        | Displays the current IGMP information captured by the device.                             |
| <a href="#">Snoop Forward tab for ERS 1424/16xx</a>      | Displays the current IGMP forwarding information captured by the device.                  |
| <a href="#">Snoop Router Ports tab for ERS 1424/16xx</a> | Allows you to designate a range of ports as being connected to multicast-enabled routers. |

## Snoop Globals tab for ERS 1424/16xx

The **Snoop Globals** tab is used to enable and disable IGMP snooping and multicast routing.

[Table 56](#) describes the parts of the **Snoop Globals** tab.

**Table 56** Parts of the Snoop Globals tab

| Part                     | Description   |
|--------------------------|---|
| DevCtrlIGMP Snooping     | Indicates whether the Layer 2 IGMP snoop function is enabled or disabled. When IGMP snoop is enabled, the switch learns multicast group membership from IGMP reports received by hosts attached to it.                          |
| IGMPMulticast RouterOnly | Indicates the status of multicasting. When it is enabled, the 1600 Series switch forwards multicast traffic to multicast routers only. When it is disabled, the 1600 Series switch forwards multicast traffic to any IP router. |

## Snoop Control tab for ERS 1424/16xx

The **Snoop Control** tab controls the IGMP function of the VLAN.

[Table 57](#) describes the parts of the **Snoop Control** tab.

**Table 57** Parts of the Snoop Control tab

| Part             | Description   |
|------------------|---|
| CtrlVid          | Indicates the VLAN ID of the individual IGMP VLAN.  |
| QueryInterval    | The frequency (in seconds) at which IGMP host query packets are transmitted on the interface. The range is from 1 to 65535, and the default is 125.   |
| MaxResponse Time | The maximum response time (in seconds) advertised in IGMPv2 general queries on this interface. This value is not configurable for IGMPv1.<br>Smaller values allow a router to prune groups faster. The range is from 0 to 25, and the default is 10 seconds.<br>Note: This value must be less than the QueryInterval. |

**Table 57** Parts of the Snoop Control tab (continued)

| <b>Part</b>                 | <b>Description</b>   |
|-----------------------------|--|
| Robustness                  | <p>This parameter allows tuning for the expected packet loss of a network. This value is equal to the number of expected query packet losses per serial query interval, plus 1. If a network is expected to lose query packets, the robustness value should be increased.</p> <p>The range is from 1 to 255, and the default is 2. The default value of 2 means that one query per query interval may be dropped without the querier aging out.</p>                |
| LastMember<br>QueryInterval | <p>The maximum response time (in seconds) that is inserted into group-specific queries sent in response to leave group messages. It is also the time between group-specific query messages. This value is not configurable for IGMPv1.</p> <p>Decreasing the value reduces the time to detect the loss of the last member of a group. The range is from 0 to 255, and the default is 1 second. Nortel recommends configuring this parameter to values above 1.</p> |
| HostTimeout                 | <p>The timer value for sending IGMP query packet when none was sent by the host in the LAN. The timer works on a per-VLAN basis. The device sends the query message if the timer is expired. The range is 1 to 16711450 with a default value of 260.</p>   |
| RouteTimeout                | <p>The amount of time a host must wait after hearing a Query before it sends any IGMPv2 messages. The default value is 260. The range is from 1 to 16711450 seconds.</p>   |
| LeaveTimer                  | <p>The frequency (in seconds) at which a querier sends group-specific queries to group members when the querier receives a leave group message. The range is from 1 to 16711450 with a default value of 1.</p>   |
| QueryState                  | <p>The current operational state of the IGMP query (enabled or disabled).</p>  |
| CurrentStates               | <p>The current state of the IGMP (querier or non-querier).</p>   |
| CtrlState                   | <p>The current state of IGMP snoop (disabled or enabled) for this entry. To enable or disable the current state, click the field and a selection box appears with the enable and disable options.</p>  |

## Snoop Group tab for ERS 1424/16xx

The **Snoop Group** tab contains the current IGMP information captured by the device.

[Table 58](#) describes the parts of the **Snoop Group** tab.

**Table 58** Parts of the Snoop Group tab

| Part                | Description   |
|---------------------|---|
| Vid                 | Indicates the VLAN ID of the individual IGMP VLAN.  |
| GroupIpAddr         | Identifies the group IP address learned from the IGMP packet on a per-VLAN basis.   |
| MacAddr             | Identifies the MAC address corresponding to the GroupIpAddr field, on a per-VLAN basis  |
| PortMap             | Indicates the ports that belong to the same multicast group, on a per-VLAN basis. The value in the PortMap field indicates the actual number of the port. |
| IpGroupReport Count | Indicates how many report packets were received for that group address on a per-VLAN basis.   |

## Snoop Forward tab for ERS 1424/16xx

The **Snoop Forward** tab contains the current IGMP forwarding information captured by the device.

[Table 59](#) describes the parts of the **Snoop Forward** tab.

**Table 59** Parts of the Snoop Forward tab

| Part                | Description  |
|---------------------|--|
| ForwardVid          | Identifies the VLAN ID of the VLAN on which the router port resides.               |
| ForwardGroup IpAddr | Identifies the group IP address learned from the IGMP packet, on a per-VLAN basis. |

## Snoop Router Ports tab for ERS 1424/16xx

The **Snoop Router Ports** tab allows you to designate a range of ports as being connected to multicast-enabled routers. This designation ensures that all packets with a multicast-enabled router as their destination reach the router, regardless of protocol.

[Table 60](#) describes the parts of the **Snoop Router Ports** tab.

**Table 60** Parts of the Snoop Router Ports tab

| Part               | Description   |
|--------------------|---|
| Vid                | The VID of the VLAN on which the router port resides.   |
| StaticRouterPort   | A port list that will be configured as router ports. These ports are statically configured to indicate the presence of a multicast router and to allow the router to forward all reports and multicast data on the ports. |
| DynamicRouter Port | Displays router ports that have been dynamically learned.   |

## MRDISC folder

The **MRDISC** (Multicast Route Discovery) folder of the [IGMP and IGMP Snoop protocol folder](#) shows the devices that have **MRDISC** enabled.

[Table 61](#) describes the parts of the **MRDISC** folder.

**Table 61** Parts of the MRDISC folder

| Part                   | Description  |
|------------------------|--|
| Interface              | The interface on which IGMP is enabled.  |
| MrdiscEnable           | Indicates whether MRDISC is enabled.   |
| Discovered route ports | Lists ports discovered by IGMP Multicast Router Discovery (MRDISC) Protocol.   |
| Max advertise interval | The maximum time allowed between sending router advertisements from the interface, in seconds, between 2 and 180 seconds. Default is 20 seconds. |



**Table 61** Parts of the MRDISC folder (continued)

| Part                           | Description  |
|--------------------------------|--|
| Min advertise interval         | The minimum time allowed between sending unsolicited router advertisements from the interface, in seconds. Must be more than 3 seconds but no greater than the value assigned to the MaxAdvertiseInterval value. |
| Max initial advertise interval | Used to set the maximum number (in seconds) of multicast advertisement intervals that can be configured on the switch.   |
| Max initial advertisements     | Used to set the maximum number of initial multicast advertisements that can be configured on the switch.   |
| Neighbor dead interval         | The time interval (in seconds) before the router interface drops traffic when a user leaves the multicast group.   |

## Fast Leave folder

The **Fast Leave** folder of the [IGMP and IGMP Snoop protocol folder](#) shows the devices that have one or more interfaces with Fast Leave enabled.

[Table 62](#) describes the parts of the **Fast Leave** folder.

**Table 62** Parts of the Fast Leave folder

| Part                    | Description                                       |
|-------------------------|---|
| Interface               | The interface on which Fast Leave is enabled.     |
| Fast Leave Enable       | Indicates whether Fast Leave is enabled.          |
| Fast Leave port members | The set of ports that are enabled for fast leave. |

## Access List folder

The **Access List** folder of the [IGMP and IGMP Snoop protocol folder](#) contains the [Static Members folder](#) and the [Group Access folder](#).

### Static Members folder

The **Static Members** folder of the [IGMP and IGMP Snoop protocol folder](#) shows the devices that have static members configured for any multicast group.

[Table 63](#) describes the parts of the **Static Members** folder.

**Table 63** Parts of the Static Members folder

| Part                | Description  |
|---------------------|--|
| Interface           | The interface on which IGMP is enabled.  |
| Group address       | Multicast group address of the multicast stream.   |
| Member ports        | Ports that redirect the multicast stream for this multicast group. The ports are member ports of the VLAN. |
| Not allowed to join | Ports that do not receive the multicast stream for this multicast group.                                   |

## Group Access folder

The appearance of the **Group Access** folder is different for ERS 8600 and ERS 8300 devices. For details, refer to the following:

- [“Group Access folder for ERS 8600” on page 250](#)
- [“Group Access folder for ERS 8300” on page 251](#)

## Group Access folder for ERS 8600

The **Group Access** folder of the [IGMP and IGMP Snoop protocol folder](#) displays information about hosts that are either denied transmission, denied reception, or denied both transmission and reception of multicast traffic.

[Table 64](#) describes the parts of the **Group Access** folder for ERS 8300.

**Table 64** Parts of the Group Access folder for ERS 8600

| Part         | Description  |
|--------------|--|
| Interface    | The interface on which the IGMP entry is enabled.  |
| PrefixListId | A numeric string that identifies the prefix list.  |
| HostAddr     | The IP address of the host.  |
| HostMask     | The subnet mask used to determine the host or hosts covered by this configuration. You can use the host subnet mask to restrict access to a portion of the host's network. |

**Table 64** Parts of the Group Access folder for ERS 8600 (continued)

| Part           | Description   |
|----------------|---|
| PrefixListName | The name of the prefix list.  |
| ActionMode     | Used to specify whether the host identified by HostAddr should be: <ul style="list-style-type: none"> <li>Denied IP multicast transmitted traffic (denyTX).</li> <li>Denied IP multicast received traffic (denyRX).</li> <li>Denied both IP multicast transmitted and received traffic (denyBOTH).</li> <li>Allowed IP multicast transmitted traffic (allowTX).</li> <li>Allowed IP multicast received traffic (allowRX).</li> <li>Allowed both IP multicast transmitted and received traffic (allowBOTH).</li> </ul> |

### Group Access folder for ERS 8300

The **Group Access** folder of the [IGMP and IGMP Snoop protocol folder](#) displays information about hosts that are either denied transmission, denied reception, or denied both transmission and reception of multicast traffic.

[Table 64](#) describes the parts of the **Group Access** folder for ERS 8300.

**Table 65** Parts of the Group Access folder for ERS 8300

| Part          | Description  |
|---------------|--|
| Interface     | Port number or VLAN name.  |
| Group address | Multicast group address of the multicast stream.   |
| Host address  | IP address of the host whose membership is to be controlled.   |
| Host mask     | Subnet mask of the host whose membership is to be controlled.  |
| Mode          | The host address mode, which can be one of the following: <ul style="list-style-type: none"> <li>denyTx—deny transmit mode</li> <li>denyRx—deny receive mode</li> <li>denyBoth—deny transmit and receive mode</li> </ul> |

## DVMRP protocol folder

The Distance Vector Multicast Routing Protocol (**DVMRP**) protocol folder contains subfolders for devices that have various DVMRP protocol features enabled.

[Table 66](#) describes the parts of the **DVMRP** protocol folder.

**Table 66** Parts of the DVMRP protocol folder

| Part                                   | Description   |
|--|---|
| <a href="#">Globals</a>                | Displays the devices that have DVMRP globally enabled.                                      |
| <a href="#">Interfaces folder</a>      | Displays the information about the interfaces with DVMRP enabled.                           |
| <a href="#">Routes folder</a>          | Displays the routing information for devices that participate in multicast routing.         |
| <a href="#">Dvmrp RPB Trees folder</a> | Displays the reverse path broadcast (RPB) tree for all possible sources within the network. |

### Globals

The **Globals** folder of the [DVMRP protocol folder](#) shows the devices that have DVMRP globally enabled.

[Table 67](#) describes the parts of the **Globals** table.

**Table 67** Parts of the Globals table

| Part           | Description  |
|----------------|--|
| Devices        | The IP address, system name, or hostname of the device.  |
| Enable         | Indicates whether DVMRP is enabled or disabled.  |
| UpdateInterval | Periodically, each multicast router advertises routing information about each DVMRP interface, using the DVMRP export message. This field shows the time interval (in seconds) between DMVRP updates. The range is from 10 to 2000 with a default of 60. In DVMRPv3, this variable is also known as the Route Report Interval. |

**Table 67** Parts of the Globals table (continued)

| Part                     | Description  |
|--------------------------|--|
| TriggerredUpdateInterval | Triggerred updates are sent when routing information changes. This value is the amount of time (in seconds) between triggered update messages. The range is from 5 to 1000 with a default value of 5. In DVMRPv3, this variable is also known as the Minimum Flash Update Interval.  |
| LeafTimeOut              | When DVMRP advertises a route on an interface, it waits a period of time for a DVMRP neighbor to respond positively. If no neighbor responds in the given time, the router considers the network attached to the interface to be a leaf network. The leaf timer shows you how long (in seconds) the router waits for a response from a neighbor. The range is from 25 to 4000 with a default value of 125. |
| NbrTimeOut               | The neighbor report timer specifies how long (in seconds) the router waits to receive a report from a neighbor before considering the connection inactive. The range is from 35 to 8000 with a default of 35.  |
| NbrProbeInterval         | How often the DVMRP router sends probe messages on its interfaces. The range is 5 to 30 seconds with a default of 10.  |
| RouteExpireTimeOut       | The route expiration timeout in seconds.   |
| FwdCacheTimeOut          | The value used in aging prune entries in seconds.  |
| RouteDiscardTimeOut      | The garbage collect route timeout in seconds.  |
| RouteSwitchTimeOut       | The route discard timeout in seconds.  |

## Interfaces folder

The DVMRP **Interfaces** folder of the [DVMRP protocol folder](#) displays information about the interfaces with DVMRP enabled.

[Table 68](#) describes the parts of the **Interfaces** folder.

**Table 68** Parts of the Interfaces folder

| Part      | Description   |
|-----------|---|
| Interface | The DVMRP interface, slot/port number or VLAN identification.   |
| OperState | Current operational state of this DVMRP interface (up or down). |

**Table 68** Parts of the Interfaces folder (continued)

| Part         | Description  |
|--------------|--|
| LocalAddress | IP address of the DVMRP router interface.  |
| Metric       | The distance metric for this interface, used to calculate distance vectors. The range is 1 to 31. The default value is 1, which means local delivery only. |

## Routes folder

The **Routes** folder of the [DVMRP protocol folder](#) shows routing information for devices that have DVMRP globally enabled.

[Table 69](#) describes the parts of the **Routes** folder.

**Table 69** Parts of the Routes folder

| Part                          | Description  |
|-------------------------------|--|
| <a href="#">Routes tab</a>    | Displays the table of routes learned through DVMRP route exchange.               |
| <a href="#">Neighbors tab</a> | Displays the DVMRP neighbors that were discovered by receiving DVMRP messages.   |
| <a href="#">Next Hops tab</a> | Displays the next hop on outgoing interfaces for routing IP multicast datagrams. |

## Routes tab

The DVMRP **Routes** tab of the [Routes folder](#) shows the table of routes learned through DVMRP route exchange.

[Table 70](#) describes the parts of the **Routes** tab.

**Table 70** Parts of the Routes tab

| Part       | Description   |
|------------|---|
| Source     | The network address, when combined with the corresponding route SourceMask value, identifies the sources for which this entry contains multicast routing information. |
| SourceMask | The network mask, when combined with the corresponding route Source value, identifies the sources for which this entry contains multicast routing information.        |

**Table 70** Parts of the Routes tab (continued)

| Part              | Description  |
|-------------------|--|
| Upstream Neighbor | Address of the upstream neighbor (in other words, the RPF neighbor) from which IP datagrams from these sources are received, or 0.0.0.0 if the network is local. |
| Interface         | DVMRP interface slot/port number or VLAN ID on which IP datagrams sent by these sources are received.  |
| Metric            | Distance in hops to the source subnet. Range is 1 to 32.   |
| ExpiryTime        | Amount of time (in seconds) remaining before this entry is aged out.   |

## Neighbors tab

The **Neighbors** tab of the [Routes folder](#) displays the DVMRP neighbors that were discovered by receiving DVMRP messages.

[Table 71](#) describes the parts of the **Neighbors** tab.

**Table 71** Parts of the Neighbors tab

| Part         | Description   |
|--------------|---|
| Interface    | The DVMRP slot/port number or the virtual interface (VLAN) used to reach this DVMRP neighbor. |
| Address      | IP address of the DVMRP neighbor for which this entry contains information.                   |
| ExpiryTime   | Time remaining before this DVMRP neighbor is aged out.  |
| GenerationID | Neighboring router's generation ID number.  |
| MajorVersion | Neighboring router's major DVMRP version number.  |
| MinorVersion | Neighboring router's minor DVMRP version number.  |

**Table 71** Parts of the Neighbors tab (continued)

| Part         | Description   |
|--------------|---|
| Capabilities | <p>Neighboring router's capabilities. The probe flag is 1 byte long with the lower 4 bits containing the following information:</p> <ul style="list-style-type: none"> <li>• The leaf bit (0) indicates that the neighbor has only one interface with neighbors.</li> <li>• The prune bit (1) indicates that the neighbor supports pruning.</li> <li>• The generationID bit (2) indicates that the neighbor sends its generation ID in probe messages.</li> <li>• The mtrace bit (3) indicates that the neighbor can handle mtrace requests.</li> </ul> |
| State        | <p>State of neighbor adjacency:</p> <ul style="list-style-type: none"> <li>• oneway—The switch sees a packet from the neighbor but no adjacency has been established.</li> <li>• active—Adjacency exists in both directions.</li> <li>• ignoring—The switch ignores neighbor packets.</li> <li>• down—The interface is not enabled.</li> </ul>  |

## Next Hops tab

The **Next Hops** tab of the [Routes folder](#) displays the next hop on outgoing interfaces for routing IP multicast datagrams.

[Table 72](#) describes the parts of the **Next Hops** tab.

**Table 72** Parts of the Next Hops tab

| Part       | Description   |
|------------|---|
| Interface  | DVMRP interface slot/port number or VLAN ID for the outgoing interface for this next hop.   |
| Type       | <p>The type is:</p> <ul style="list-style-type: none"> <li>• leaf if <i>no</i> downstream dependent neighbors exist on the outgoing virtual interface</li> <li>• branch if downstream dependent neighbors <i>do</i> exist on the outgoing virtual interface.</li> </ul> |
| Source     | The network address that, when combined with the corresponding next hop SourceMask value, identifies the source for which this entry specifies a next hop on an outgoing interface.   |
| SourceMask | The network mask that, when combined with the corresponding next hop Source value, identifies the source for which this entry specifies a next hop on an outgoing interface.  |



## Dvmrp RPB Trees folder

The **Dvmrp RPB Trees** folder of the [DVMRP protocol folder](#) shows the Reverse Path Broadcast (RPB) tree for all possible sources within the network.

[Table 73](#) describes the parts of the **Dvmrp RPB Trees** folder.

**Table 73** Parts of the Dvmrp RPB Trees folder

| Part              | Description  |
|-------------------|--|
| Device            | The IP address, system name, or host name of the device.   |
| Upstream Neighbor | Address of the upstream neighbor (in other words, the RPF neighbor) from which IP datagrams from these sources are received, or 0.0.0.0 if the network is local. |
| Interface         | DVMRP interface, slot/port number, or VLAN ID on which IP datagrams sent by these sources are received.  |
| Metric            | Distance in hops to the source subnet. Range is 1 to 32.   |
| ExpiryTime        | Amount of time (in seconds) remaining before this entry is aged out.   |

## PIM-SM protocol folder

Protocol Independent Multicast-Sparse Mode (PIM-SM) routes multicast packets to multicast groups, and establishes distribution trees across wide area networks. The **PIM-SM** protocol folder contains subfolders for PIM-SM features and elements.

[Table 74](#) describes the parts of the **PIM-SM** protocol folder.

**Table 74** Parts of the PIM-SM protocol folder

| Part                                      | Description   |
|---|---|
| <a href="#">Globals</a>                   | Displays the devices that have PIM globally enabled.                    |
| <a href="#">Interfaces folder</a>         | Displays the PIM-enabled interface for each device.                     |
| <a href="#">Candidate RPs folder</a>      | Displays the candidate RP nodes.  |
| <a href="#">Static RPs folder</a>         | Displays the static RP nodes.   |
| <a href="#">Redundant RPs folder</a>      | Displays all of the multicast groups that are covered by redundant RPs. |
| <a href="#">Bootstrap Switches folder</a> | Displays all configured Bootstrap switches.                             |

## Globals

The **Globals** table of the [PIM-SM protocol folder](#) shows devices that have PIM globally enabled.

[Table 75](#) describes the parts of the Globals table.

**Table 75** Parts of the Globals table

| Part              | Description  |
|-------------------|--|
| Devices           | The IP address, system name, or host name of the device.   |
| Enable            | Indicates whether PIM-SM is enabled or disabled.   |
| Mode              | The configured mode of this interface. Sparse is the only valid entry.   |
| Mbr               | Indicates whether the PIM multicast border router feature is enabled or disabled.  |
| JoinPruneInterval | Specifies how long to wait (in seconds) before the PIM router sends out the next join/prune message to its upstream neighbors. The default is 60 seconds.  |
| RegisterSuppTimer | Each source's DR maintains, per (S.G.) a register-suppression timer in seconds. This timer is started by the Register-Stop message; upon expiration, the source's DR resumes sending data packets to the RP. |
| StaticRP          | Indicates whether the static RP feature is enabled or disabled.  |

## Interfaces folder

The **Interfaces** folder of the [PIM-SM protocol folder](#) shows switch nodes that have PIM globally enabled.

[Table 76](#) describes the parts of the Interfaces folder.

**Table 76** Parts of the Interfaces folder

| Part                 | Description   |
|----------------------|---|
| Interface            | The slot/port number or VLAN ID of the interface on which PIM is enabled. |
| Interface IP address | The IP address of the PIM interface.                                      |
| Subnet mask          | The network mask for the IP address of the PIM interface.                 |

**Table 76** Parts of the Interfaces folder (continued)

| Part                   | Description   |
|------------------------|---|
| Mode                   | The configured mode of this interface. Sparse is the only valid entry.  |
| Designated router      | Displays the designated router for the PIM interface.   |
| Hello interval         | Specifies how long to wait (in seconds) before the PIM router sends out the next hello message to neighboring routers. The default is 30 seconds.   |
| Join prune interval    | Specifies how long to wait (in seconds) before the PIM router sends out the next join/prune message to its upstream neighbors. The default is 60 seconds.   |
| Candidate BSR presence | Sets your preference for this local interface to become a C-BSR. The C-BSR with the highest BSR-priority and address is referred to as the preferred BSR. The default is -1, which indicates that the current interface is not a C-BSR. |
| Operation status       | The current operational state of this PIM interface.  |

## Candidate RPs folder

A Candidate Rendezvous Point (RP) is a switch configured to advertise itself as a candidate RP for multicast groups. The **Candidate RPs** folder of the [PIM-SM protocol folder](#) shows the candidate RP nodes.

[Table 77](#) describes the parts of the **Candidate RPs** folder.

**Table 77** Parts of the Candidate RPs folder

| Part              | Description   |
|-------------------|---|
| Group address     | The IP address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a Candidate RP.      |
| Group mask        | The address mask of the multicast group. When combined with the group address, it identifies the prefix that the local router uses to advertise itself as a Candidate RP. |
| Interface address | The IP address of the Candidate RP. This address has to be one of the local PIM-SM enabled interfaces.  |

## Static RPs folder

Static Rendezvous points are switches that are configured statically for various multicast groups. The **Static RPs** folder of the [PIM-SM protocol folder](#) shows the static RP nodes.

[Table 78](#) describes the parts of the **Static RPs** folder.

**Table 78** Parts of the Static RPs folder

| Part              | Description  |
|-------------------|--|
| Group address     | The IP address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a Static RP.      |
| Group mask        | The address mask of the multicast group. When combined with the group address, it identifies the prefix that the local router uses to advertise itself as a Static RP. |
| Interface address | The IP address of the Static RP. This address has to be one of the local PIM-SM enabled interfaces.  |

## Redundant RPs folder

Redundant rendezvous points are switches that cover the same multicast groups. The **Redundant RPs** folder of the [PIM-SM protocol folder](#) shows all of the multicast groups that are covered by redundant RPs.

[Table 79](#) describes the parts of the **Redundant RPs** folder.

**Table 79** Parts of the Redundant RPs folder

| Part              | Description  |
|-------------------|--|
| Device name       | The system name, host name, or IP address of the device. |
| Interface Address | The interface address of the device.                     |

## Bootstrap Switches folder

The **Bootstrap Switches** folder of the [PIM-SM protocol folder](#) shows all configured bootstrap switches. Click a device in the folder to view information about it.

[Table 80](#) describes the parts of the **Bootstrap Switches** folder.

**Table 80** Parts of the Bootstrap switches folder

| Part              | Description   |
|-------------------|---|
| Group address     | The IP multicast group address.   |
| Group mask        | The netmask for the multicast group.  |
| Interface address | The IP address of the bootstrap switch.   |
| Hold time         | The holdtime of a bootstrap switch. If the local router is not the BSR, this value is 0.  |
| Expiry time       | The minimum time remaining before the bootstrap switch will be declared down. If the local router is not the BSR, this value is 0.      |
| Component         | A number uniquely identifying the component. Each protocol instance connected to a separate domain should have a different index value. |

## Mismatched Switches subfolder

All of the PIM-enabled devices are checked against bootstrap switches for RP set consistency. The **Mismatched Switches** subfolder of the [Bootstrap Switches folder](#) shows switches that are found to have a mismatched RP set.

[Table 81](#) describes the parts of the **Mismatched Switches** subfolder.

**Table 81** Parts of the Mismatched Switches subfolder

| Part              | Description                              |
|-------------------|--|
| Group address     | The IP multicast group address.          |
| Group mask        | The netmask for the multicast group.     |
| Interface address | The IP address of the mismatched switch. |

**Table 81** Parts of the Mismatched Switches subfolder (continued)

| Part        | Description   |
|-------------|---|
| Hold time   | The holdtime of a mismatched switch. If the local router is not the BSR, this value is 0.   |
| Expiry time | The minimum time remaining before the mismatched switch will be declared down. If the local router is not the BSR, this value is 0.     |
| Component   | A number uniquely identifying the component. Each protocol instance connected to a separate domain should have a different index value. |

## Multicast Route protocol folder

The **Multicast Route** protocol folder contains subfolders for devices that have various Multicast Route protocol features enabled.

[Table 82](#) describes the parts of the **Multicast Route** protocol folder.

**Table 82** Parts of the Multicast Route protocol folder

| Part                                     | Description   |
|--|---|
| <a href="#">PIM-DVMRP Gateway folder</a> | Displays devices that are configured as gateways between PIM and DVMRP domains.         |
| <a href="#">Timed Prune folder</a>       | Displays forwarding entries that will not be pruned until a configurable timer expires. |
| <a href="#">Routes folder</a>            | Displays protocol-independent multicast route and next hop information.                 |
| <a href="#">MRoute RPM Trees folder</a>  | Displays the reverse path multicast tree for all active sources.                        |

## PIM-DVMRP Gateway folder

The **PIM-DVMRP Gateway** folder of the [Multicast Route protocol folder](#) shows the devices that are configured as gateways between PIM and DVMRP domains.

[Table 83](#) describes the parts of the **PIM-DVMRP Gateway** folder.

**Table 83** Parts of the PIM-DVMRP Gateway folder

| Part      | Description  |
|-----------|--|
| Interface | The slot/port number or VLAN ID for which this entry contains information.   |
| TTL       | The datagram time to live (TTL) threshold for the interface. Any IP multicast datagrams with a TTL less than this threshold is not forwarded out the interface. The default value of 1 means that all multicast packets are forwarded out the interface. |
| Protocol  | The routing protocol running on this interface.  |

## Timed Prune folder

The **Timed Prune** folder of the [Multicast Route protocol folder](#) shows forwarding entries that would not be pruned until a configurable timer expires.

[Table 84](#) describes the parts of the **Timed Prune** folder.

**Table 84** Parts of the Timed prune folder

| Part               | Description   |
|--------------------|---|
| Group address      | Indicates the IP Multicast Group Address associated with the IP multicast stream.   |
| Source address     | The Source Subnet IP address of the sender of the IP multicast stream.              |
| Source subnet mask | This is the Source Subnet Mask IP address of the sender of the IP multicast stream. |

## Routes folder

The **Routes** folder of the [Multicast Route protocol folder](#) shows protocol-independent multicast route and next hop information.

[Table 85](#) describes the parts of the **Routes** folder.

**Table 85** Parts of the Routes folder

| Part                          | Description                              |
|-------------------------------|--|
| <a href="#">Routes tab</a>    | Displays multicast route information.    |
| <a href="#">Next Hops tab</a> | Displays multicast next hop information. |

## Routes tab

The **Routes** tab of the [Routes folder](#) shows multicast route information.

[Table 86](#) describes the parts of the **Routes** tab.

**Table 86** Parts of the Routes tab

| Part              | Description  |
|-------------------|--|
| Group             | The IP multicast group address for which this entry contains multicast routing information.  |
| Source            | The network address which, when combined with the corresponding route SourceMask value, identifies the sources for which this entry contains multicast routing information.      |
| Source mask       | The network mask which, when combined with the corresponding route Source value, identifies the sources for which this entry contains multicast routing information.             |
| Interface         | The slot/port number or VLAN ID on which IP datagrams sent by these sources to this multicast address are received.  |
| Upstream neighbor | The address of the upstream neighbor (e.g., RPF neighbor) from which IP datagrams from these sources to this multicast address are received, or 0.0.0.0 if the network is local. |
| Protocol          | The routing protocol through which this route was learned.   |



## Next Hops tab

The **Next Hops** tab of the [Routes folder](#) shows multicast next hop information.

[Table 87](#) describes the parts of the **Next Hops** tab.

**Table 87** Parts of the Next hops tab

| Part                | Description   |
|---------------------|---|
| Group               | The IP multicast group for which this entry specifies a next hop on an outgoing interface.  |
| Source              | The network address which, when combined with the corresponding next hop SourceMask value, identifies the source for which this entry specifies a next hop on an outgoing interface.  |
| Source mask         | The network mask which, when combined with the corresponding next hop Source value, identifies the source for which this entry specifies a next hop on an outgoing interface.   |
| Interface           | The slot/port number or VLAN ID for the outgoing interface for this next hop.   |
| Address             | The IP address of the VLAN for this next hop  |
| State               | An indication of whether the outgoing interface and next hop represented by this entry is currently being used to forward IP datagrams. A Value of “forwarding” indicates it is currently being used; “pruned” indicates it is not being used.                                |
| Expiry time         | The minimum amount of time remaining before this entry will be aged out. The value 0 indicates that the entry is not subject to aging.  |
| Closest member hops | The minimum number of hops between this router and any member of this IP Multicast group reached via this next hop on this outgoing interface. Any IP Multicast datagrams for the group that have a TTL less than this number of hops will not be forwarded to this next hop. |
| Protocol            | The routing protocol through which this next hop was learned.   |

## Interfaces tab

[Table 88](#) describes the parts of the **Interfaces** tab.

**Table 88** Parts of the Interfaces tab

| Part          | Description  |
|---------------|--|
| Interface     | The DVMRP interface or VLAN identification.  |
| Local Address | The IP address of the DVMRP router interface.  |
| Metric        | The distance metric for this interface, used to calculate distance vectors. The range is 1 to 31. The default value is 1, which means local delivery only. |
| OperState     | The current operational state of this DVMRP interface (up or down).  |

## MRoute RPM Trees folder

The **MRoute RPM Trees** folder of the [Multicast Route protocol folder](#) shows multicast routing information for IP datagrams sent by particular sources to the IP multicast groups known to a router.

[Table 89](#) describes the parts of the **MRoute RPM Trees** folder.

**Table 89** Parts of the MRoute RPM Trees folder

| Part                      | Description   |
|---------------------------|---|
| Device                    | The system name or IP address of the device.  |
| Interface                 | The DVMRP interface, slot/port number, or VLAN ID on which IP datagrams sent by these sources to this multicast address are received. A value of 0 indicates that datagrams are not subject to an incoming interface check, but may be accepted on multiple interfaces. |
| Upstream neighbor address | The address of the upstream neighbor from which IP datagrams from these sources to this multicast address are received, or 0.0.0.0 if the upstream neighbor is unknown.   |
| Protocol                  | The routing mechanism via which this route was learned.   |

---

## Chapter 7

# Using Trap/Log Manager

---

The Trap/Log Manager is a new ESM submanager that allows you to configure and view the traps and notifications and the system log. This submanager combines the functionality of the original Trap Receiver and Log Manager, and adds trap/notification configuration and syslog configuration.

You can configure the network manager to which the traps are sent using this submanager.

You can also configure the severity of the log, the host and port to which the log is sent.

Also the trap receiver shows the traps received from the configured devices.

Similarly, the syslog receiver shows the system Log for the configured devices.

**Note:** To enable traps and logs in ESM, you must select the Listen for Traps and Listen for Syslogs options, respectively, in the Preferences menu. (See [“Preferences dialog box items” on page 100](#) for details.)

This chapter contains information about the following topics:

- [“Starting Trap/Log Manager” on page 268](#)
- [“Configuring System Log” on page 269](#)
- [“Configuring Traps” on page 278](#)

## Starting Trap/Log Manager

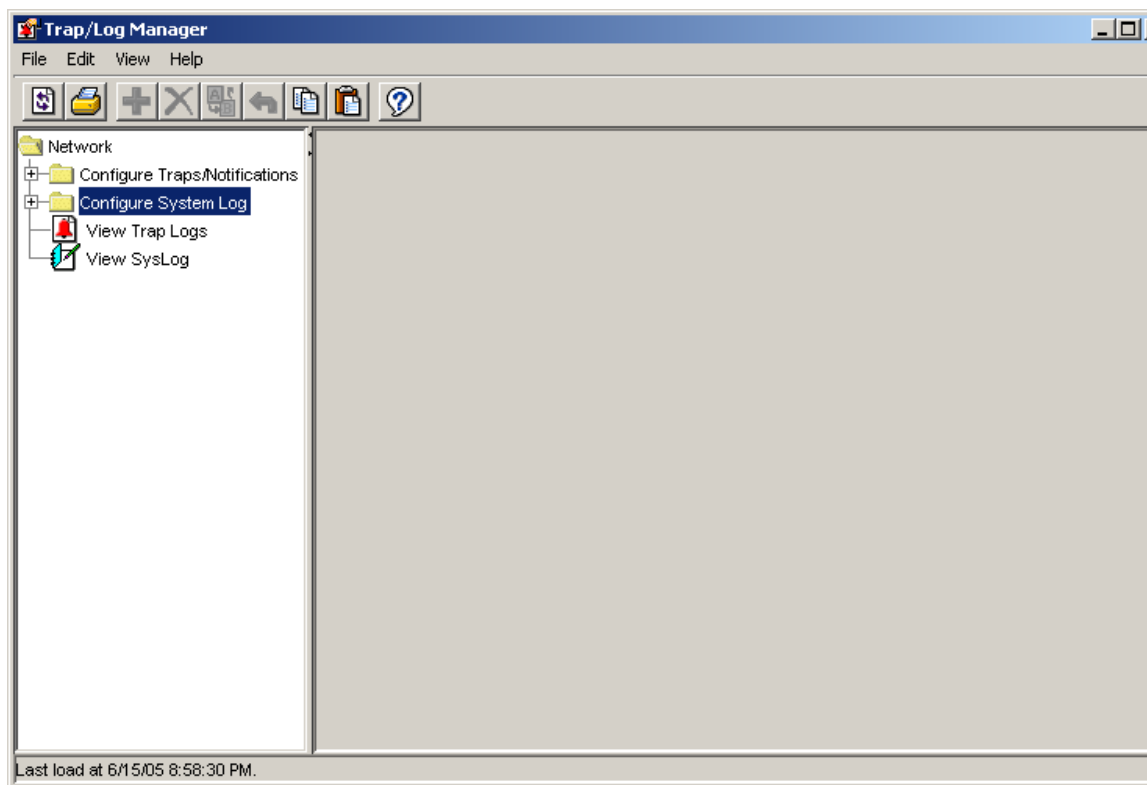
To start Trap/Log Manager:

→ Do one of the following:

- From the Enterprise Switch Manager menu bar, choose **Tools > Trap and Log Manager**.
- On the keyboard, press [F7].
- On the Enterprise Switch Manager toolbar, click **Trap/Log Manager**.

The Trap/Log Manager window opens ([Figure 91](#)).

**Figure 91** Trap/Log Manager dialog box



## Configuring System Log

The Trap/Log Manager lists the devices that support System Log configuration that have been discovered using the Topology Manager.

To display the devices, expand the Configure System Log tree.

**Note:** The create icon in the tool bar is enabled only on clicking a device.

For information about configuring the System Log for particular switch families, refer to the following:

- [Configuring System Log for ERS 8000 devices](#)
- [Enabling System Log for ERS 8000 devices](#)
- [Configuring System Log for ERS 1424/16xx devices](#)
- [Enabling System Log for ERS 16xx devices](#)
- [Configuring System Log for Ethernet Switch, ERS 55xx/35xx, and Legacy BayStack devices](#)

### Configuring System Log for ERS 8000 devices

To create a system log for a host

- 1** Under the Configure System Log folder, choose a device for which to create a system log.
- 2** Choose the **System Log Table** tab.
- 3** Click the **Create** icon in the tool bar, or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Syslog** dialog box appears (Figure 92).

**Figure 92** Insert Syslog dialog box for ERS 8000 devices

Table 90 describes the **Insert Syslog** dialog box fields

**Table 90** Insert Syslog box fields for ERS 8000

| Part          | definition   |
|---------------|--|
| Host Id       | ID for the syslog host being created.  |
| IP Address    | IP address of the syslog host.   |
| UDP Port      | The UDP port to use to send messages to the syslog host (514 to 530). Default value is 514.  |
| Host Facility | The syslog host facility used to identify messages (LOCAL0 to LOCAL7)  |
| Severity      | The Ethernet Routing Switch 8000 Series message severity for which syslog messages will be sent. Default value has all values enabled: info, fatal, warning and error. |

**Table 90** Insert Syslog box fields for ERS 8000 (continued)

| Part                       | definition  |
|----------------------------|---|
| Map Info Severity          | The fields that map the Ethernet Routing Switch 8000 Series severity levels to syslog severity. Default value is info.        |
| Map Warning Severity       | The fields that map Ethernet Routing Switch 8000 Series warning severity levels to syslog severity. Default value is warning. |
| Map Error Severity         | The fields that map Ethernet Routing Switch 8000 error severity levels to syslog severity. Default value is error.            |
| Map Fatal Severity         | The fields that map Ethernet Routing Switch 8000 fatal severity levels to syslog severity. Default value is emergency.        |
| Host Enable                | Enables or disables sending messages to the syslog host. Default value is true.   |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.   |

**4** Populate the fields as required.

**5** Click **OK**.

You can modify the existing SyslogHost properties by editing the corresponding cells in the table. To apply the changes, click the **Apply Changes** button in the tool bar.

## Enabling System Log for ERS 8000 devices

To enable the system log:

- 1** Under the **Configure System Log** folder, choose a device for which to enable the system log.
- 2** Under the **System Log** tab, choose **true** from the **Enable** column.
- 3** To apply the changes, click the **Apply Changes** button in the tool bar.

Table 91 describes the **System Log** tab fields

**Table 91** System Log tab fields for ERS 8000

| Part            | definition   |
|-----------------|--|
| Enable          | Used to enable/disable the syslog feature.   |
| Maximum Hosts   | The maximum number of remote hosts considered active and able to receive messages from the syslog service. |
| Operation State | The operational state of the syslog service.   |

## Configuring System Log for ERS 1424/16xx devices

To create a system log for a host

- 1 Under the **Configure System Log** folder, choose a device for which to create a system log.
- 2 Choose the **System Log** tab.
- 3 Click the **Create** icon in the tool bar, or choose **Edit > Create** from the Trap/Log Manager menu.



The **Insert Syslog** dialog box appears (Figure 93).

**Figure 93** Insert Syslog dialog box for ERS 1424/16xx devices

- 4 Populate the fields as required.
- 5 Click **OK**.

You can modify the existing SyslogHost properties by editing the corresponding cells in the table. To apply the changes, click the **Apply Changes** button in the tool bar.

[Table 92](#) describes the **Insert Syslog** dialog box fields.

**Table 92** Insert Syslog dialog box fields for ERS 14xx/16xx

| Part       | Description   |
|------------|---|
| Host Id    | ID for the syslog host being created.   |
| IP Address | IP address of the syslog host.  |
| Severity   | The Ethernet Routing Switch Layer 3 routing switch message severity for which syslog messages will be sent. |
| Facility   | The syslog host facility used to identify messages (LOCAL0 to LOCAL7 or All)                                |

**Table 92** Insert Syslog dialog box fields for ERS 14xx/16xx (continued)

| Part                       | Description   |
|----------------------------|---|
| UDP Port                   | The UDP port to use to send messages to the syslog host (514 to 530).   |
| State                      | This option enables or disables the host to receive such messages. The syslog protocol has been used for the transmission of event notification messages across networks to host. |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.   |

## Enabling System Log for ERS 16xx devices



**Note:** System Log is not supported on Ethernet Routing Switch 1424 devices.

To enable the system log:

- 1 Under the **Configure System Log** folder, choose a device for which to enable the system log.
- 2 Under the **System Log** tab, choose **true** from the **Enable** column.
- 3 To apply the changes, click the **Apply Changes** button in the tool bar.

[Table 93](#) describes the **System Log** tab fields for ERS 16xx

**Table 93** System Log tab fields for ERS 16xx devices

| Part                 | definition  |
|----------------------|---|
| State                | Used to enable/disable the syslog feature.  |
| Maximum Hosts        | The maximum number of remote hosts considered active and able to receive messages from the syslog service. The highest valid value is 10. |
| Remote UserLog State | The operational state of the Remote User Log.   |

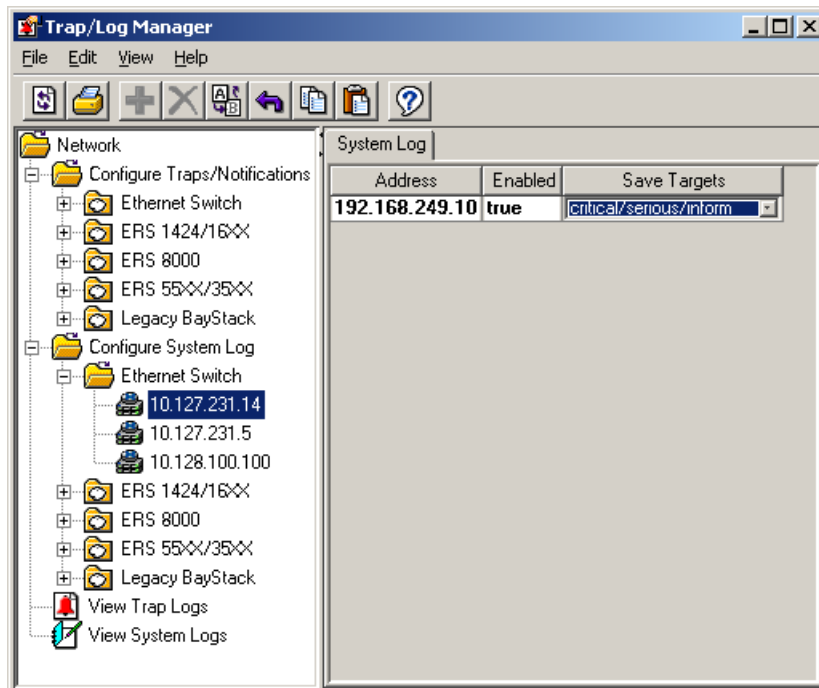
## Configuring System Log for Ethernet Switch, ERS 55xx/35xx, and Legacy BayStack devices

To configure the system log for a host:

- 1 Under the **Configure System Log** folder, choose a device for which to create a system log.
- 2 Choose the **System Log** tab.

The **System Log** tab appears (Figure 94).

**Figure 94** System log tab for Ethernet Switch, ERS 55xx/35xx, and Legacy BayStack devices



- 3 Modify the System Log properties by editing the corresponding cells in the table. To apply the changes, click the **Apply Changes** button in the tool bar.

[Table 94](#) describes the **System Log** tab fields.

**Table 94** System Log tab fields for Ethernet Switch, ERS 55xx/35xx, and Legacy BayStack

| <b>Part</b>  | <b>Description</b>  |
|--------------|---|
| Address      | The IP address where log messages are sent using the remote syslog facility.  |
| Enabled      | Specifies that the remote logging feature is enabled.   |
| Save Targets | Specifies the type of log messages to be sent to a remote syslog server when they occur. Messages are classified based on their type: <ul style="list-style-type: none"><li>• Critical - Specifies that only critical messages are sent to the remote syslog server.</li><li>• Critical/Serious - Specifies that both critical and serious messages are sent to the remote syslog server.</li><li>• Critical/Serious/Informational - Causes all log messages are sent to the remote syslog server.</li><li>• None - Specifies that no log messages are sent to the remote syslog server.</li></ul> |

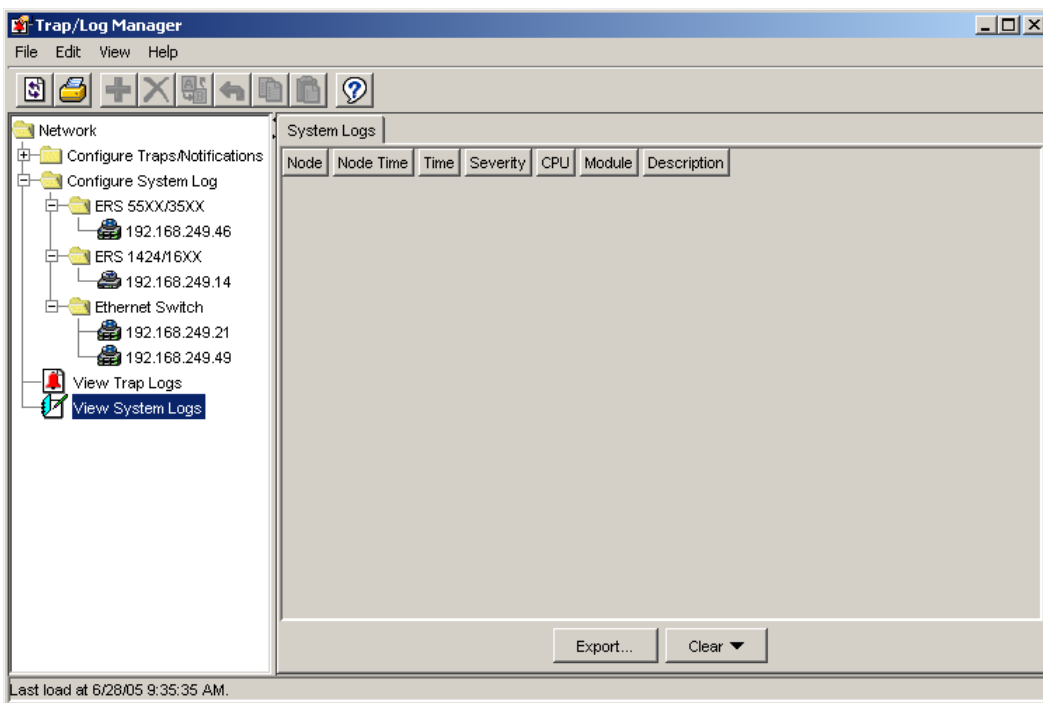
## Viewing SysLog

To view the SysLog:

➔ In the Trap/Log Manager navigation pane, click **View System Logs**.

The **View System Logs** table appears (Figure 95).

**Figure 95** View Syslog dialog box



The cells are non-editable.

## Configuring Traps

For instructions on configuring traps for different switch families, refer to the following:

- “Configuring Trap Receivers for ERS 8000 devices” on page 278
- “Configuring Target Address Table for ERS 8000 devices” on page 280
- “Configuring Target Params Table for ERS 8000 devices” on page 281
- “Configuring Notify Table for ERS 8000 devices” on page 283
- “Configuring Trap Receivers for ERS 55xx/35xx, Ethernet Switch, and Legacy BayStack devices” on page 285
- “Configuring Target Address Table for ERS 55xx/35xx and Ethernet Switch devices” on page 287
- “Configuring Target Params Table for ERS 55xx/35xx and Ethernet Switch devices” on page 289
- “Configuring Notify Table for ERS 55xx/35xx and Ethernet Switch devices” on page 291
- “Configuring Trap Receivers for ERS 1424/16xx devices” on page 293
- “Viewing trap log” on page 295

### Configuring Trap Receivers for ERS 8000 devices



**Note:** If the ERS 8000 device is running software prior to the 3.7.0 release, only the Trap Receivers tab appears in the contents pane. For ERS 8000 devices running release 3.7.0 software and later, the Target Address Table, Target Params Table, and Notify Table tabs appear in the contents pane.

---

To configure trap receivers:

- 1** In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2** Choose the switch for which you want to configure trap receivers.
- 3** In the content pane, click the **Trap Receivers** tab.

- 4 To add a trap receiver entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Trap Receiver** dialog box appears (Figure 96).

**Figure 96** Insert Trap Receiver dialog box for ERS 8000 devices

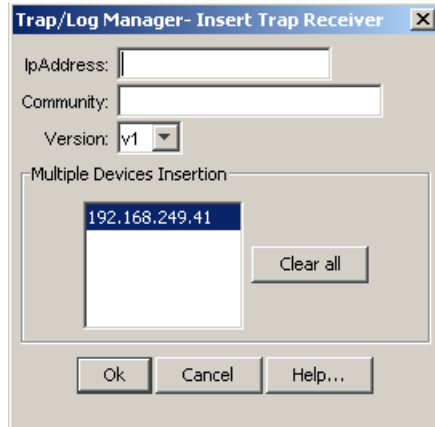


Table 95 describes the **Insert Trap Receiver** dialog box fields

**Table 95** Insert Trap Receiver dialog box fields for ERS 8000

| Part                       | definition  |
|----------------------------|---|
| IpAddress                  | IP Address of the NMS(ESM) which receive the traps        |
| Community                  | Community String  |
| Version                    | SNMP version  |
| Multiple Devices Insertion | Allows you to set these values for other similar devices. |

- 5 Populate the fields as required.
- 6 Click **OK**.

A row corresponding to the newly created trap receiver is added to the table in the content pane.

You can also edit the existing trap receiver by editing the corresponding cells.

## Configuring Target Address Table for ERS 8000 devices

To configure the **Target Address Table**:

- 1 In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2 Choose the switch for which you want to configure target addresses.
- 3 In the content pane, choose the **Target Address Table** tab.
- 4 To add a target address entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Target Address Table** dialog box appears (Figure 97).

**Figure 97** Insert Target Address Table dialog box for ERS 8000 devices

Trap/Log Manager- Insert Target Address Table

Name:

TDomain:

TAddress:  (in xx.xx.xx.xx:port format)

Timeout:  0..2147483647 (1/100) secs

RetryCount:  0..255

TagList:

Params:

StorageType:

Multiple Devices Insertion



[Table 96](#) describes the **Insert Target Address Table** dialog box fields

**Table 96** Insert Target Address Table dialog box fields for ERS 8000

| Part                       | definition   |
|----------------------------|--|
| Name                       | Specifies the name of the target table.  |
| TDomain                    | Specifies the TDomain for the target table.  |
| TAddress                   | The IP address and the host of the target and the UDP port number.<br>Note: Port 162 is reserved for SNMP traps. |
| Timeout                    | The maximum round trip time required for communicating with the transport address defined by this row.           |
| RetryCount                 | The number of retries to be attempted when a response is not received for a generated message.                   |
| TagList                    | Specifies a list of tag values. A tag value refers to a class of targets to which the messages may be sent       |
| Params                     | The string value that identifies snmpTargetParamsTable entries.  |
| StorageType                | Specifies the storage type, volatile or non-volatile. Default value is other.                                    |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.  |

**5** Populate the fields as required.

**6** Click **OK**.

A row corresponding to the newly created Target Address is added to the table in the content pane.

You can also edit the existing Target Address entries by editing the corresponding cells.

## Configuring Target Params Table for ERS 8000 devices

To configure the **Target Params Table**:

**1** In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.

- 2 Choose the switch for which you want to configure target parameters.
- 3 In the content pane, choose the **Target Params Table** tab.
- 4 To add a target parameter entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Target Params** dialog box appears (Figure 98).

**Figure 98** Insert Target Params dialog box for ERS 8000 devices

Table 97 describes the **Insert Target Params** dialog box fields

**Table 97** Insert Target Params dialog box fields for ERS 8000

| Part           | definition   |
|----------------|--|
| Name           | Specifies the unique name of the target parameters table   |
| MP Model       | Specifies the Message Processing model, SNMPv1, SNMPv2c, or SNMPv3/USM. Default value is SNMPv1. |
| Security Model | Specifies the security model, SNMPv1, SNMPv2c, or SNMPv3/USM. Default value is SNMPv1.           |
| Security Name  | Specifies a new security name, which identifies the principal to generate SNMP messages.         |

**Table 97** Insert Target Params dialog box fields for ERS 8000 (continued)

| <b>Part</b>                | <b>definition</b>  |
|----------------------------|--|
| Security Level             | The security level. The valid options are noAuthNoPriv, authNoPriv, and authPriv. Default value is noAuthNoPriv. |
| StorageType                | Specifies the storage type, volatile or non-volatile. Default value is other.                                    |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.  |

**5** Populate the fields as required.

**6** Click **OK**.

A row corresponding to the newly created **Target Params** entry is added to the table in the content pane.

You can also edit the existing target parameters by editing the corresponding cells.

## Configuring Notify Table for ERS 8000 devices

To configure the **Notify Table**:

- 1** In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2** Choose the switch for which you want to configure notifications.
- 3** In the content pane, click the **Notify Table** tab.
- 4** To add a notification entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Notify Table** dialog box appears (Figure 99).

**Figure 99** Insert Notify Table dialog box for ERS 8000 devices

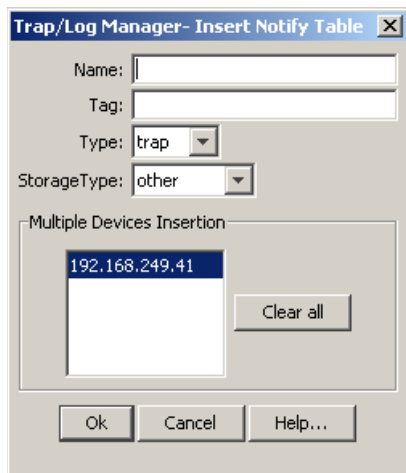


Table 98 describes the **Insert Notify Table** dialog box fields

**Table 98** Insert Notify Table dialog box fields for ERS 8000

| Part | definition   |
|------|--|
| Name | Specifies the unique identifier associated for the notify table.   |
| Tag  | A single tag value used to select entries in the snmpTargetAddrTable. Any entry in the snmpTargetAddrTable that contains a tag value equal to the value of an instance of this object is selected. If this object contains a value of zero length, no entries are selected.  |
| Type | This object determines the type of notification generated for entries in the snmpTargetAddrTable that are selected by the corresponding instance of snmpNotifyTag.<br>If the value of this object is trap, then any messages generated for selected rows contain SNMPv2-Trap PDUs.<br>If the value of this object is inform, then any messages generated for selected rows contain Inform PDUs.<br>Note: If an SNMP entity only supports generation of traps (and not informs), then this object may be read-only. |

**Table 98** Insert Notify Table dialog box fields for ERS 8000 (continued)

| Part                       | definition  |
|----------------------------|---|
| StorageType                | Specifies the storage type, volatile, non-volatile, or other. Default value is other. |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.                             |

5 Populate the fields as required.

6 Click **OK**.

A row corresponding to the newly created notification is added to the table in the content pane.

You can also edit the existing notifications by editing the corresponding cells.

## Configuring Trap Receivers for ERS 55xx/35xx, Ethernet Switch, and Legacy BayStack devices

To configure trap receivers:

- 1 In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2 Choose the switch for which you want to configure trap receivers.
- 3 In the content pane, click the **Trap Receivers** tab.
- 4 To add a trap receiver entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Trap Receiver** dialog box appears (Figure 100).

**Figure 100** Insert Trap Receiver dialog box for ERS 55xx/35xx, Ethernet Switch, and Legacy BayStack devices

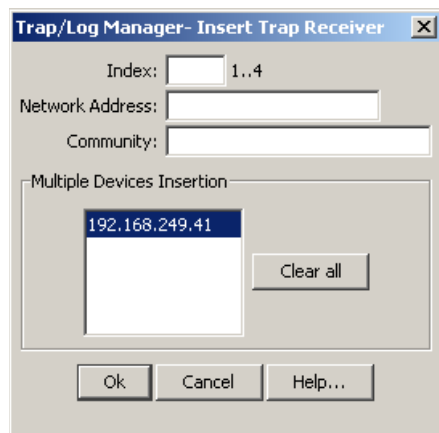


Table 99 describes the **Insert Trap Receiver** dialog box fields

**Table 99** Insert Trap Receiver dialog box fields for ERS 55xx/35xx, Ethernet Switch, and Legacy BayStack

| Part                       | definition  |
|----------------------------|---|
| Index                      | Index for this trap receiver table                        |
| Network Address            | IP Address of the NMS(ESM) which receive the traps        |
| Community                  | Community String  |
| Multiple Devices Insertion | Allows you to set these values for other similar devices. |

**5** Populate the fields as required.

**6** Click **OK**.

A row corresponding to the newly created trap receiver is added to the table in the content pane.

You can also edit the existing trap receiver by editing the corresponding cells.

## Configuring Target Address Table for ERS 55xx/35xx and Ethernet Switch devices

The notification table, target address table and target address param table entries for a device can be added by clicking the create icon in the tool bar or by choosing from the menu item.

A row corresponding to the newly created table will be added to the table in the right panel. The device also can be configured for the existing entry by editing the corresponding cells.

To configure the **Target Address Table**:

- 1** In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2** Choose the switch for which you want to configure target addresses.
- 3** In the content pane, click the **Target Address Table** tab.
- 4** To add a target address entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Target Address Table** dialog box appears (Figure 101).

**Figure 101** Insert Target Address Table dialog box ERS 55xx/35xx and Ethernet Switch devices

Table 100 describes the **Insert Target Address Table** dialog box fields

**Table 100** Insert Target Address Table dialog box fields for ERS 55xx/35xx and Ethernet Switch

| Part     | definition   |
|----------|--|
| Name     | Specifies the name of the target table.  |
| TDomain  | Specifies the TDomain for the target table.  |
| TAddress | The IP address and the host of the target and the UDP port number.<br>Note: Port 162 is reserved for SNMP traps. |



**Table 100** Insert Target Address Table dialog box fields for ERS 55xx/35xx and Ethernet Switch (continued)

| Part                       | definition   |
|----------------------------|--|
| Timeout                    | The maximum round trip time required for communicating with the transport address defined by this row.     |
| RetryCount                 | The number of retries to be attempted when a response is not received for a generated message.             |
| TagList                    | Specifies a list of tag values. A tag value refers to a class of targets to which the messages may be sent |
| Params                     | The string value that identifies snmpTargetParamsTable entries.  |
| StorageType                | Specifies the storage type, volatile or non-volatile. Default value is other.                              |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.  |

5 Populate the fields as required.

6 Click **OK**.

A row corresponding to the newly created Target Address is added to the table in the content pane.

You can also edit the existing Target Address entries by editing the corresponding cells.

## Configuring Target Params Table for ERS 55xx/35xx and Ethernet Switch devices

To configure the **Target Params Table**:

- 1 In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2 Choose the switch for which you want to configure target parameters.
- 3 In the content pane, click the **Target Params Table** tab.
- 4 To add a target parameter entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Target Params** dialog box appears (Figure 102).

**Figure 102** Insert Target Params dialog box for ERS 55xx/35xx and Ethernet Switch devices

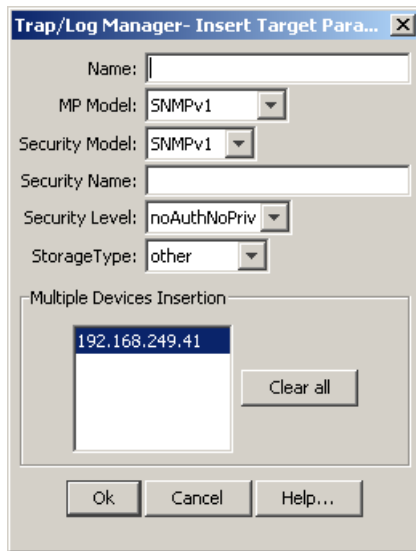


Table 101 describes the **Insert Target Params** dialog box fields

**Table 101** Insert Target Params dialog box fields for ERS 55xx/35xx and Ethernet Switch devices

| Part           | definition   |
|----------------|--|
| Name           | Specifies the unique name of the target parameters table   |
| MP Model       | Specifies the Message Processing model, SNMPv1, SNMPv2c, or SNMPv3/USM. Default value is SNMPv1.                 |
| Security Model | Specifies the security model, SNMPv1, SNMPv2c, or SNMPv3/USM. Default value is SNMPv1.                           |
| Security Name  | Specifies a new security name, which identifies the principal to generate SNMP messages.                         |
| Security Level | The security level. The valid options are noAuthNoPriv, authNoPriv, and authPriv. Default value is noAuthNoPriv. |

**Table 101** Insert Target Params dialog box fields for ERS 55xx/35xx and Ethernet Switch devices (continued)

| Part                       | definition  |
|----------------------------|---|
| StorageType                | Specifies the storage type, volatile or non-volatile. Default value is other. |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.                     |

5 Populate the fields as required.

6 Click **OK**.

A row corresponding to the newly created Target Params entry is added to the table in the content pane.

You can also edit the existing target parameters by editing the corresponding cells.

## Configuring Notify Table for ERS 55xx/35xx and Ethernet Switch devices

To configure the **Notify Table**:

- 1 In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2 Choose the switch for which you want to configure notifications.
- 3 In the content pane, click the **Notify Table** tab.
- 4 To add a notification entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Notify Table** dialog box appears (Figure 103).

**Figure 103** Insert Notify Table dialog box for ERS 55xx/35xx and Ethernet Switch devices



Table 102 describes the **Insert Notify Table** dialog box fields

**Table 102** Insert Notify Table dialog box fields for ERS 55xx/35xx and Ethernet Switch devices

| Part | definition  |
|------|---|
| Name | Specifies the unique identifier associated for the notify table.  |
| Tag  | A single tag value used to select entries in the snmpTargetAddrTable. Any entry in the snmpTargetAddrTable that contains a tag value equal to the value of an instance of this object is selected. If this object contains a value of zero length, no entries are selected. |

**Table 102** Insert Notify Table dialog box fields for ERS 55xx/35xx and Ethernet Switch devices (continued)

| Part                       | definition  |
|----------------------------|---|
| Type                       | <p>This object determines the type of notification generated for entries in the snmpTargetAddrTable that are selected by the corresponding instance of snmpNotifyTag.</p> <p>If the value of this object is trap, then any messages generated for selected rows contain SNMPv2-Trap PDUs.</p> <p>If the value of this object is inform, then any messages generated for selected rows contain Inform PDUs.</p> <p>The default value is trap.</p> <p>Note: If an SNMP entity only supports generation of traps (and not informs), then this object may be read-only.</p> |
| StorageType                | Specifies the storage type, volatile or non-volatile.   |
| Multiple Devices Insertion | Allows you to set these values for other similar devices.   |

5 Populate the fields as required.

6 Click **OK**.

A row corresponding to the newly created notification is added to the table in the content pane.

You can also edit the existing notifications by editing the corresponding cells.

## Configuring Trap Receivers for ERS 1424/16xx devices

To configure trap receivers:

- 1 In the Trap/Log Manager navigation pane, click **Configure Traps/Notifications**.
- 2 Choose the switch for which you want to configure trap receivers.
- 3 To add a trap receiver entry for a device, click the **Create** icon in the tool bar or choose **Edit > Create** from the Trap/Log Manager menu.

The **Insert Trap Receiver** dialog box appears (Figure 104).

**Figure 104** Insert Trap Receiver dialog box for ERS 1424/16xx devices

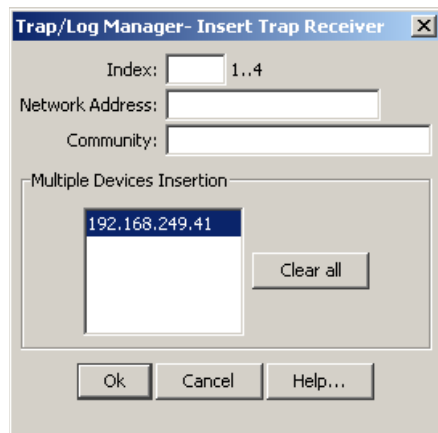


Table 103 describes the **Insert Trap Receiver** dialog box fields

**Table 103** Insert Trap Receiver dialog box fields for ERS 1424/16xx devices

| Part                       | definition  |
|----------------------------|---|
| Index                      | Index for this trap receiver table                        |
| Address                    | IP Address of the NMS(ESM) which receive the traps        |
| Community                  | Community String  |
| Multiple Devices Insertion | Allows you to set these values for other similar devices. |

**4** Populate the fields as required.

**5** Click **OK**.

A row corresponding to the newly created trap receiver is added to the table in the content pane.

You can also edit the existing trap receiver by editing the corresponding cells.

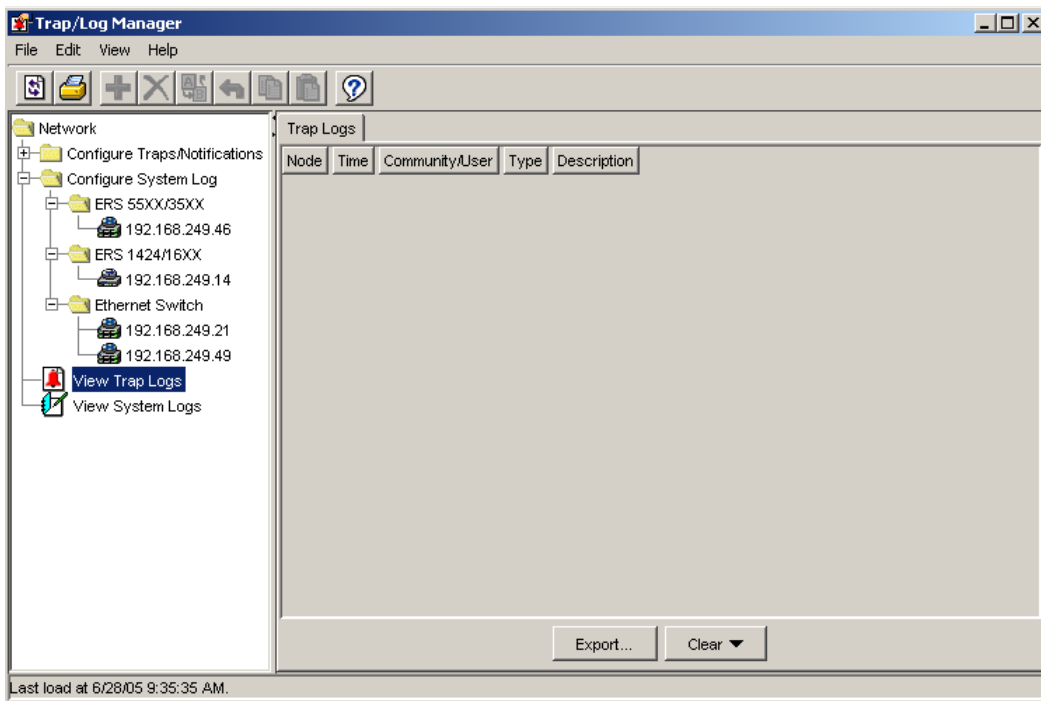
## Viewing trap log

To view the trap log:

➔ In the Trap/Log Manager navigation pane, click **View Trap Logs**.

The **Trap Logs** tab appears (Figure 105).

**Figure 105** Trap Logs tab



The cells are non-editable.



**Note:** This tab shows the traps that are received from the devices in case of any events. The right-hand panel displays the **Trap** or **Notifications** tab based on the version of the device. Older versions support the **Trap** tab and newer versions support the **Notifications** tab.

---



## Chapter 8

# Using File/Inventory Manager

File/Inventory Manager has two primary functions: file management and inventory management.

The file management features of File/Inventory Manager allows you to upload and download files to and from network devices. For all devices that support multiple devices (see [Table 104](#)), you can also use File/Inventory Manager to do bulk uploads or downloads to or from multiple devices. This feature makes it easier to deploy updated image or configuration files across your network.

[Table 104](#) summarizes the file management capabilities of File/Inventory Manager.

**Table 104** File/Inventory Manager file management capabilities

| Device family          | Operation      | Multiple devices | File types  |
|------------------------|----------------|------------------|---|
| ERS 8000               | Upload         | Yes              | Any (image, configuration, syslog, etc.)            |
|                        | Download       | Yes              | Any (image, WSM image, configuration, syslog, etc.) |
|                        | Backup         | Yes              | Configuration or boot configuration                 |
|                        | Archive        | Yes              | Configuration or boot configuration                 |
|                        | Restore        | Yes              | Configuration or boot configuration                 |
|                        | Synchronize    | Yes              | Configuration or boot configuration                 |
|                        | Device upgrade | Yes              | Image   |
| Passport 1000 (legacy) | Not supported  |                  |   |

**Table 104** File/Inventory Manager file management capabilities (continued)

| <b>Device family</b>              | <b>Operation</b> | <b>Multiple devices</b> | <b>File types</b>   |
|-----------------------------------|------------------|-------------------------|---|
| ERS 1424/16xx                     | Upload           | Yes                     | Configuration or history log  |
|                                   | Download         | Yes                     | Image or configuration  |
|                                   | Backup           | Yes                     | Configuration   |
|                                   | Archive          | Yes                     | Configuration   |
|                                   | Restore          | Yes                     | Configuration   |
|                                   | Synchronize      | Yes                     | Configuration   |
|                                   | Device upgrade   | Yes                     | Image   |
| Ethernet Routing Switch 55xx/35xx | Upload           | Yes                     | Configuration only  |
|                                   | Download         | Yes                     | Image, configuration, firmware image, or ASCII configuration file   |
|                                   | Backup           | Yes                     | Configuration   |
|                                   | Archive          | Yes                     | Configuration   |
|                                   | Restore          | Yes                     | Configuration   |
|                                   | Synchronize      | Yes                     | Configuration   |
|                                   | Device upgrade   | Yes                     | Image   |
| Ethernet Switch                   | Upload           | Yes                     | Configuration only  |
|                                   | Download         | Yes                     | Image, configuration, firmware image*, or ASCII configuration file*<br><br>* Ethernet Switch 460/470, Ethernet Switch 425 3.0 |
|                                   | Backup           | Yes                     | Configuration   |
|                                   | Archive          | Yes                     | Configuration   |
|                                   | Restore          | Yes                     | Configuration   |
|                                   | Synchronize      | Yes                     | Configuration   |
|                                   | Device upgrade   | Yes                     | Image   |

**Table 104** File/Inventory Manager file management capabilities (continued)

| Device family   | Operation      | Multiple devices | File types   |
|-----------------|----------------|------------------|--|
| Legacy BayStack | Upload         | Yes              | Configuration only   |
|                 | Download       | Yes              | Image, configuration, firmware image*, or ASCII configuration file*<br><br>* BPS 2000 2.0.5 and up, BayStack 380 3.0, BayStack 420 3.0 |
|                 | Backup         | Yes              | Configuration  |
|                 | Archive        | Yes              | Configuration  |
|                 | Restore        | Yes              | Configuration  |
|                 | Synchronize    | Yes              | Configuration  |
|                 | Device upgrade | Yes              | Image  |
| Alteon          | Upload         | Yes              | Configuration or dump file   |
|                 | Download       | Yes              | Image or configuration   |
|                 | Backup         | Yes              | Configuration  |
|                 | Archive        | Yes              | Configuration  |
|                 | Restore        | Yes              | Configuration  |
|                 | Synchronize    | Yes              | Configuration  |
|                 | Device upgrade | Yes              | Image  |
| OM 1000         | Upload         | Yes              | Configuration only   |
|                 | Download       | Yes              | Image, configuration, firmware image, or ASCII configuration file  |
|                 | Backup         | Yes              | Configuration  |
|                 | Archive        | Yes              | Configuration  |
|                 | Restore        | Yes              | Configuration  |
|                 | Synchronize    | Yes              | Configuration  |
|                 | Device upgrade | Yes              | Image  |

**Table 104** File/Inventory Manager file management capabilities (continued)

| Device family   | Operation      | Multiple devices | File types  |
|-----------------|----------------|------------------|---|
| WLAN AP devices | Upload         | Yes              | Configuration only                                |
|                 | Download       | Yes              | ApplicationImage or Configuration or NN Data file |
|                 | Backup         | Yes              | Configuration                                     |
|                 | Archive        | Yes              | Configuration                                     |
|                 | Restore        | Yes              | Configuration                                     |
|                 | Synchronize    | Yes              | Configuration                                     |
|                 | Device upgrade | Yes              | Image   |



**Note:** The actual file upload and download operations are performed by a TFTP server. You can use either TFTP server software running on the Enterprise Switch Manager management station, or you can designate a separate machine as the TFTP server.

The inventory management features of File/Inventory Manager show you current information about the hardware and software discovered on your network:

- Device and chassis types
- Installed blades
- Serial and revision numbers
- Image and configuration file names and versions

This chapter describes using File/Inventory Manager. It includes the following information:

- [“Starting File/Inventory Manager” on page 301](#)
- [“The File/Inventory Manager Window” on page 302](#)
- [“Working with File/Inventory Manager” on page 307](#)
- [“Understanding the File/Inventory Manager navigation tree” on page 367](#)
- [“Understanding the File/Inventory Manager interface” on page 422](#)

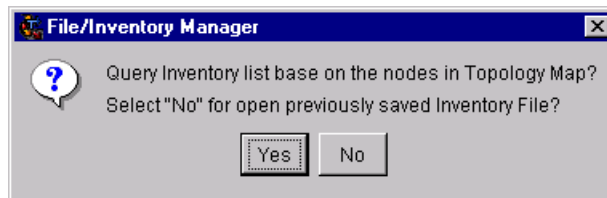
## Starting File/Inventory Manager

To start File/Inventory Manager:

- 1 Do one of the following:
  - From the Enterprise Switch Manager menu bar, choose **Tools > File/Inventory Manager**.
  - On the keyboard, press **[F6]**.
  - On the Enterprise Switch Manager toolbar, click **File/Inventory Manager**.

An alert box appears, prompting you for inventory information ([Figure 106](#)).

**Figure 106** Query inventory alert box



- 2 Click **Yes** to query the discovered devices for inventory information, or click **No** to get inventory information from a previously saved inventory file.

If you click **No**, File/Inventory Manager prompts you for the location of the inventory file. Navigate to the file and click **Open**.

The File/Inventory Manager window opens.

For more information about inventory files, see [“Using inventory files” on page 308](#).

## The File/Inventory Manager Window

Figure 107 shows the File/Inventory Manager window.

**Figure 107** File/Inventory Manager window

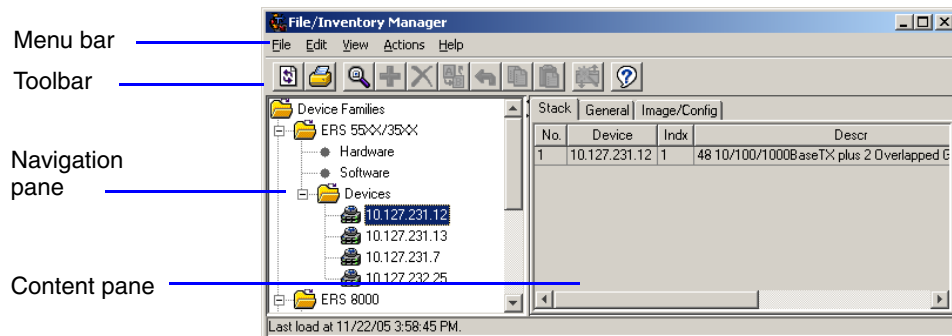


Table 105 describes the parts of the File/Inventory Manager window.



**Table 105** Parts of the File/Inventory Manager window

| Part            | Description   |
|-----------------|---|
| Menu bar        | Provides access to all File/Inventory Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons” on page 303</a> .                 |
| Toolbar         | Provides quick access to commonly-used File/Inventory Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons” on page 303</a> . |
| Navigation pane | Allows you to navigate File/Inventory elements for devices discovered on the network. For more information, see <a href="#">“Navigation pane” on page 306</a> .         |
| Content pane    | Displays file and inventory information for the element selected on the navigation pane. For more information, see <a href="#">“Content pane” on page 306</a> .         |








## Menu bar commands and toolbar buttons

[Table 106](#) describes the File/Inventory Manager menu bar commands and toolbar buttons.

**Table 106** Menu bar commands and toolbar buttons

| Menu | Command                                   | Toolbar button  | Shortcut key | Description  |
|------|---|---|--------------|--|
| File | Reload                                    |    | [Ctrl]+R     | Rediscovered the network and reloads File/Inventory Manager with the latest information. For more information, see <a href="#">“Reloading the inventory” on page 312</a> .                       |
|      | Save Inventory Info                       |   | [Ctrl]+S     | Allows you to save inventory files that you can load again later. For more information, see <a href="#">“Saving inventory information to a file” on page 308</a> .                               |
|      | Open Inventory File                       |   | [Ctrl]+O     | Allows you to load saved inventory files. For more information, see <a href="#">“Loading inventory information from a file” on page 310</a> .  |
|      | Save Inventory in Tab delimited text file |   |              | Allows you to save network inventory information in a tab-delimited text file. For more information, see <a href="#">“Saving inventory information in a tab-delimited text file” on page 309</a> |
|      | Print                                     |  | [Ctrl]+P     | Allows you to print either the current table or the current navigation tree. For more information, see <a href="#">“Printing inventory information” on page 366</a> .                            |
|      | Close                                     |   |              | Closes File/Inventory Manager  |

**Table 106** Menu bar commands and toolbar buttons (continued)


| Menu    | Command                    | Toolbar button  | Shortcut key | Description   |
|---------|----------------------------|---|--------------|---|
| Edit    | Undo Changes               |  | [Ctrl]+Z     | Reverses any changes you made to a record (always disabled).  |
|         | Preferences                |   |              | Identifies specific devices for Enterprise Switch Manager to configure and manage. See <a href="#">“Submanager preferences” on page 103</a> for more information.                         |
|         | Copy                       |  | [Ctrl]+C     | Copies the current selection onto the clipboard.  |
|         | Paste                      |  | [Ctrl]+V     | Pastes the contents of the clipboard.   |
|         | Insert                     |  | [Ctrl]+I     | Creates a new element (always disabled).  |
|         | Delete                     |  | [Ctrl]+D     | Deletes the selected element (always disabled).   |
|         | Apply Changes              |  |              | Applies your settings (always disabled).  |
|         | Find                       |  | [Ctrl]+F     | Finds matching text strings in the navigation or content panes. For more information, see <a href="#">“Finding elements in the inventory” on page 365</a> .                               |
| View    | Highlight Topology         |   |              | Highlights devices of the selected family on the Enterprise Switch Manager topology map. For more information, see <a href="#">“Highlighting devices on the topology map” on page 365</a> |
|         | Display Preferences        |   |              | Allows you to select the information to be displayed in the Inventory view. For more information, see <a href="#">“Changing display preferences” on page 310</a> .                        |
|         | File Inventory Manager Log |   |              | Allows you to open a File Inventory Manager log file. For more information, see <a href="#">“Viewing the File/Inventory Manager log” on page 364</a> .                                    |
| Actions | Download File to Device(s) |   |              | Allows you to download configuration and/or image files to devices. For more information, see <a href="#">“Downloading image and configuration files to devices” on page 313</a> .        |



**Table 106** Menu bar commands and toolbar buttons (continued)

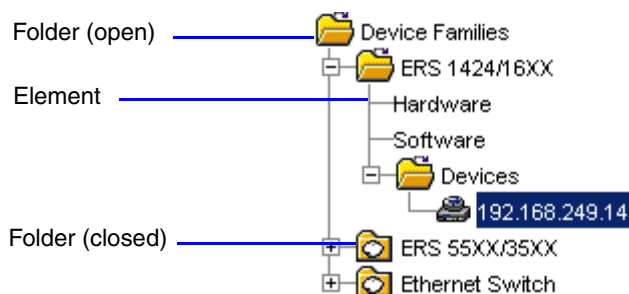
| Menu    | Command                       | Toolbar button | Shortcut key | Description   |
|---------|-------------------------------|----------------|--------------|---|
| Actions | Upload File from Device(s)    |                |              | Allows you to upload configuration and image files from devices. For more information, see <a href="#">“Uploading files from devices” on page 327</a> .   |
|         | Backup Config File            |                |              | Allows you to create backup configuration files that can be restored to devices in the event of a network failure. For more information, see <a href="#">“Backing up configuration files” on page 338</a> .                                     |
|         | Restore Config File           |                |              | Allows you to restore configuration files to devices from the backup subdirectory of the TFTP root directory. For more information, see <a href="#">“Restoring configuration files to devices” on page 339</a> .                                |
|         | Archive Config File           |                |              | Allows you to create and store archived configuration or boot.cfg files in the \ar subdirectory of the TFTP root directory. For more information, see <a href="#">“Archiving configuration files” on page 340</a> .                             |
|         | Synchronize Config File       |                |              | Allows you to upload a device’s current configuration or boot.cfg file to the \curDep (currently deployed) subdirectory of the TFTP root directory. For more information, see <a href="#">“Synchronizing configuration files” on page 342</a> . |
|         | Device Upgrade                |                |              | Allows you to upgrade devices by downloading an image file to the devices you specify. For more information, see <a href="#">“Upgrading devices” on page 344</a> .  |
|         | Device Upgrade Wizard         |                |              | Allows you to upgrade ERS 8000 devices using a wizard interface. For more information, see <a href="#">“Using Upgrade Wizard with ERS 8000 devices” on page 349</a> .   |
|         | Edit File                     |                |              | Allows you to edit configuration files with a text editor. For more information, see <a href="#">“Editing configuration files” on page 357</a> .  |
|         | Schedule Query Inventory Task |                |              | Allows you to schedule inventory queries for devices. For more information, see <a href="#">“Scheduling inventory queries” on page 358</a> .  |

**Table 106** Menu bar commands and toolbar buttons (continued)

| Menu | Command                      | Toolbar button  | Shortcut key | Description   |
|------|------------------------------|---|--------------|---|
| Help | Using                        |  | F1           | Opens online Help for the current folder or tab.                    |
|      | Online Support               |   |              | Opens a Web browser and loads the Nortel Customer Support Web page. |
|      | About File/Inventory Manager |   |              | Displays version and date information for File/Inventory Manager.   |

## Navigation pane

The File/Inventory Manager navigation pane allows you to navigate File/Inventory elements for devices discovered on the network. To open a folder and view its elements, either click the plus sign (+) next to the folder, or double-click the folder itself. Click folder elements to view their contents in the content pane. [Figure 108](#) shows the parts of the navigation pane.

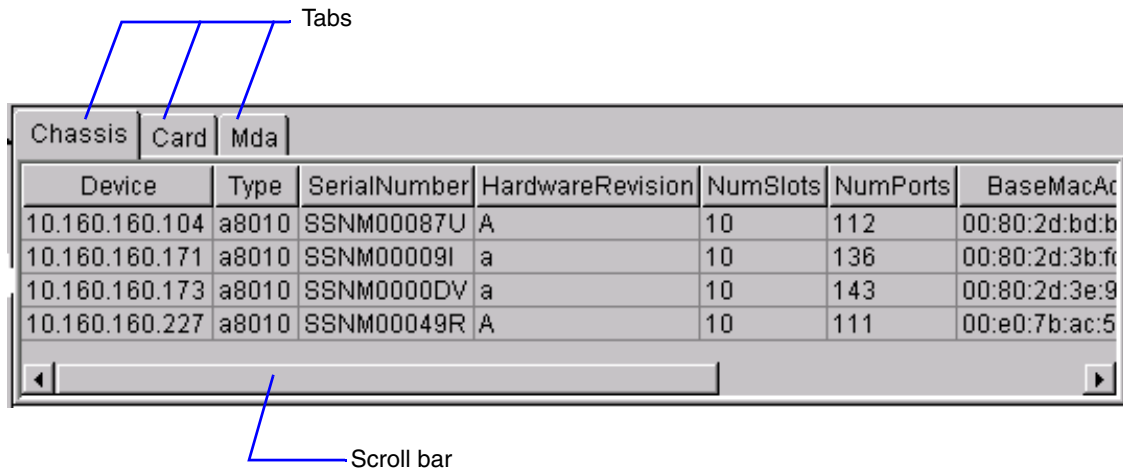
**Figure 108** Parts of the File/Inventory Manager navigation pane

## Content pane

The content pane shows you file and inventory information for the element selected on the navigation pane. In the contents pane, click the various tabs to view the file and inventory information about them. Use the horizontal scroll bar to view the full contents of tables that are wider than the content pane.

Figure 109 shows the parts of the content pane.

**Figure 109** Parts of the File/Inventory Manager content pane



## Working with File/Inventory Manager

The following sections describe how to use File/Inventory Manager to browse configuration and image file information for devices in the network inventory.

- [“Using inventory files” on page 308](#)
- [“Reloading the inventory” on page 312](#)
- [“Changing display preferences” on page 310](#)
- [“Downloading image and configuration files to devices” on page 313](#)
- [“Uploading files from devices” on page 327](#)
- [“Backing up configuration files” on page 338](#)
- [“Restoring configuration files to devices” on page 339](#)
- [“Archiving configuration files” on page 340](#)
- [“Synchronizing configuration files” on page 342](#)
- [“Upgrading devices” on page 344](#)
- [“Editing configuration files” on page 357](#)
- [“Scheduling inventory queries” on page 358](#)

- [“Viewing the File/Inventory Manager log” on page 364](#)
- [“Highlighting devices on the topology map” on page 365](#)
- [“Finding elements in the inventory” on page 365](#)
- [“Printing inventory information” on page 366](#)

## Using inventory files

You can save network inventory information to inventory files. Later, you can reload the inventory information back into File/Inventory Manager, or into third-party spreadsheet or database applications.

You can create two different types of files with File/Inventory Manager.

[Table 107](#) describes the file types.

**Table 107** Inventory file types

| File type               | Description  |
|-------------------------|--|
| Inventory file (.inv)   | Allows you to save inventory information that you can later reload back into File/Inventory Manager.   |
| Tab-delimited text file | Allows you to save inventory information in tab-delimited text file format that you can later load into third-party spreadsheet and database applications. |

The following sections describe the various operations that you can perform with inventory files:

- [“Saving inventory information to a file” on page 308](#)
- [“Saving inventory information in a tab-delimited text file” on page 309](#)
- [“Loading inventory information from a file” on page 310](#)

### Saving inventory information to a file

File/Inventory Manager allows you to save inventory information to a file. You can use this feature to create inventory files that you can load again later.

To save the network inventory to a file:

- 1 From the File/Inventory Manager menu bar, choose **File > Save Inventory Info**.

A **Save** dialog box appears.

- 2 Navigate to the folder where you want to save the inventory information.

- 3 In the **File Name** box, enter a name for the file.

The default filename extension is .inv. You can change the extension if you prefer.

- 4 Click **Save**.

File/Inventory Manager saves the inventory information in the specified folder and file.

### **Saving inventory information in a tab-delimited text file**

File/Inventory Manager allows you to save network inventory information in a tab-delimited text file. You can use this feature to export network inventory information to spreadsheet or database software applications.



**Note:** You cannot open tab-delimited files using File/Inventory Manager.

---

To save the network inventory to a tab-delimited text file:

- 1 From the File/Inventory Manager menu bar, choose **File > Save Inventory in Tab delimited text file**.

A **Save** dialog box appears.

- 2 Navigate to the folder where you want to save the inventory information.

In the **File Name** box, enter a name for the file. The default filename extension is .txt. You can use a different extension if you want to.

- 3 Click **Save**.

File/Inventory Manager saves the inventory information in the specified folder and file.

## Changing display preferences

File/Inventory Manager allows you to select the information to display in the Inventory view.

To change the Inventory view display preferences:

- 1 From the File/Inventory Manager menu bar, choose **View > Display Preferences**.

The **Display Preferences** dialog box appears (see “[Display Preferences dialog box](#)” on page 438).

- 2 Click the **Expand Devices** folder in Device Families tree check box if you want the **Devices** folders to appear in the **Device Families** tree view.
- 3 Use the **Device Family** radio buttons to configure the view preferences for the device family selected in the **Device Families** tree view.
- 4 Use the **Hardware Category** pull-down menu and **Column Header** list to choose the columns to show in the **Hardware** tables for each device family.
- 5 Use the **Software Category** pull-down menu and **Column Header** list to choose the columns to show in the **Software** tables for each device family.
- 6 Click **OK** to save your settings and close the dialog box.

## Loading inventory information from a file

File/Inventory Manager allows you to load inventory information from inventory files that you previously created. You can use this feature to quickly load inventory information without having to poll it from the network devices. You can also use it to load inventory information for previous network configurations, or for devices that no longer appear on the network.

To load inventory information from a file:

- 1 From the File/Inventory Manager menu bar, choose **File > Open Inventory File**.

An **Open File** dialog box appears.

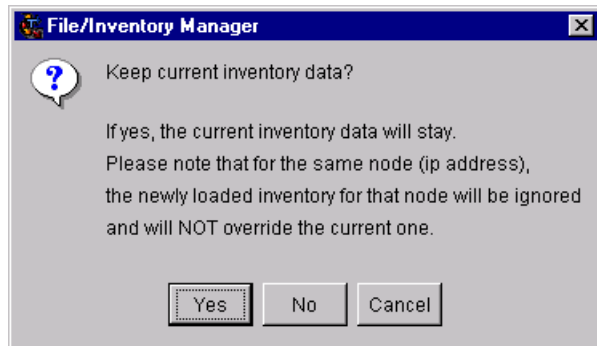
- 2 Navigate to the folder containing the inventory file you want to open.



**Note:** By default, the **Open File** dialog box filters for files with the filename extension **.inv**. If you have saved your inventory files using a different extension, replace **.inv** in the **File** name box with the actual filename extension.

- 3 Click **Open**.
- 4 If there is any inventory information already loaded in File/Inventory Manager, an alert box (Figure 110) prompts you whether you want to keep the current inventory data or not.

**Figure 110** File/Inventory Manager keep current data alert box



- 5 Do one of the following:
  - Click **Yes** to add the data in the file to the currently loaded inventory data. However, any data in the file about devices in the current inventory will be discarded, and will not overwrite data in the current inventory.
  - Click **No** to discard all of the currently loaded inventory data and then load the inventory data from the file.

File/Inventory Manager loads the inventory information from the file.

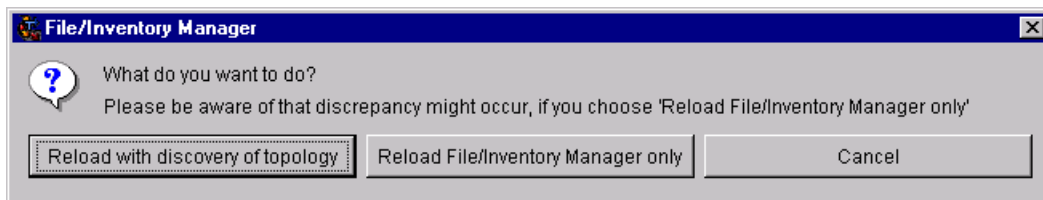
## Reloading the inventory

File/Inventory Manager allows you to refresh the information in the window with inventory information polled from the network devices. You can use this feature to load any updated information that took effect since you opened File/Inventory Manager.

To reload the inventory:

- 1 On the File/Inventory Manager toolbar, click **Reload**.  
Or, from the File/Inventory Manager menu bar, choose **File > Reload**.  
An alert box opens to ask how you want to continue ([Figure 111](#)).

**Figure 111** File/Inventory Manager reload dialog box



- 2 Do one of the following:
  - Click **Reload with discovery of topology** to rediscover network topology and reload the Enterprise Switch Manager topology map and all of the submanagers.
  - Click **Reload File/Inventory Manager** only to just reload File/Inventory Manager. Enterprise Switch Manager polls devices for file and inventory information, but does not perform a full network topology discovery.



- Click **Cancel** to abandon the reload operation.



**Note:** Reloading just File/Inventory Manager takes less time than reloading with topology discovery. However, any changes in network topology might result in discrepancies between the information in File/Inventory Manager and the information on the topology map. Such discrepancies might cause incorrect operation when you perform operations (such as highlighting the network map) that involve interactions between the submanagers and the topology map.

If you observe such incorrect operation, reload the network map. For more information, see [“Rediscovering the network map” on page 105](#).

---

Enterprise Switch Manager reloads topology information from the network devices, and refreshes the File/Inventory Manager window with it.

## Downloading image and configuration files to devices

File/Inventory Manager allows you to download image and configuration files from a TFTP server to network devices. You can use this feature to upgrade or modify agent software or configuration settings on the devices.

The procedure for downloading image and configuration files differs slightly, depending on the device family:

- For Alteon devices, use the procedure described in [“Downloading image and configuration files to Alteon devices” on page 314](#).
- For the following devices, use the procedure described in [“Downloading image and configuration files to Ethernet Switch, ERS 55xx/35xx and Legacy BayStack devices” on page 316](#):
  - Ethernet Switch
  - Ethernet Routing Switch 55xx/35xx
  - Legacy BayStack
  - Business Policy Switch 2000
  - OPTera Metro 1200, 1400, and 1450 Ethernet Service Module
- For Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices, use the procedure described in [“Downloading image and configuration files to ERS 1424/16xx devices” on page 318](#).

- For Ethernet Routing Switch 8000 family devices, use the procedure described in [“Downloading image, configuration, or NN Data files to ERS 8000 devices”](#) on page 320.
- For WLAN AP family devices, use their procedure described in [“Downloading image, configuration, or NN Data files to WLAN AP devices”](#) on page 322.



**Note:** File/Inventory Manager does not support the upload or download of files to or from Passport 1000 series switches.

---

## Downloading image and configuration files to Alteon devices

To download agent image or configuration files from a TFTP server to Alteon and similar network devices:

- 1 In the File/Inventory Manager navigation pane, select the **Alteon** device family folder.
- 2 From the menu bar, choose **Actions > Download File to Device(s)**.  
The [Download File to Device\(s\) dialog box](#) appears. For more information, see [“Download File to Device\(s\) dialog box”](#) on page 422.
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the download operation.  
If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box”](#) on page 98.
- 4 Use the **Action** radio buttons to set whether you are downloading an image file (**get-image**) or a configuration file (**get-configuration**).
- 5 Use the **Image File Name** or **Configuration File Name** boxes to enter the filename for the file you are downloading.
- 6 If you are downloading an image file, use the **Image1** or **Image2** radio button to designate whether the downloaded image file will be used as image 1 or image 2 on the Alteon device.
- 7 Use the **Prefix IP address for Source File** radio buttons to set how the filename is interpreted:

- When you choose **No**, File/Inventory Manager downloads the file with the selected filename.
- When you choose **Yes**, File/Inventory Manager downloads files to the selected device according to the IP address appended to the filename.

For example, suppose you have entered **config.cfg** as the filename, and selected the device **10.160.41.204**. File/Inventory Manager will download the file `10_160_41_204_config.cfg` to the device.

The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.

- 8** In the **Download Log** file name box, choose the file to which Enterprise Switch Manager logs the results of the download operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the download operation.

- 9** In the **Available devices** list, select the device(s) to which to download the selected configuration or image file.
- 10** Click **>>** to move the selected device(s) to **Target devices in order** list. Or, click **All >>** to move all the available devices to **Target devices in order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 11** Use the **Move Up** and **Move Down** buttons to arrange target devices in the order in which you want Enterprise Switch Manager to download the file to them.
- 12** Do one of the following:

- Click **Download** to download the file.

Enterprise Switch Manager downloads the selected file to devices in the **Target devices in order** dialog box in the order in which they appear. It also logs the results of the download operation to the selected log file.

- Click **Schedule** if you want the download operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

A message that shows the results of the operation appears at the bottom of the dialog box (Figure 112).

**Figure 112** Results message on download dialog box



Done. Please see log or log file for summary report.

---

## Downloading image and configuration files to Ethernet Switch, ERS 55xx/35xx and Legacy BayStack devices



**Note:** After downloading image or binary configuration files to Legacy BayStack and similar devices, the device resets. Your network may be temporarily disrupted while the device reboots. For each device, FIM waits for the device to finish the reboot before performing the download operation for the next device. If the current device did not reboot, FIM waits for 5 minutes and continues the download operation for the next device.

Also, BayStack 410, 450 and 350 devices do not support downloading diagnostic files or ASCII configuration; you can only download image files to these devices.

---

To download agent image or configuration files from a TFTP server to Legacy BayStack and similar network devices:

- 1 In the File/Inventory Manager navigation pane, select the desired device family folder.
- 2 From the menu bar, choose **Actions > Download File to Device(s)**.  
The **Download File to Device(s) dialog box** appears. For more information, see “[Download File to Device\(s\) dialog box](#)” on page 422.
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the download operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see “[Preferences dialog box](#)” on page 98.

- 4 Use the **Action** radio buttons to set whether you are downloading a configuration file (**dnldConfig**), an image file (**dnldImage**), a firmware diagnostic file (**dnldFw**), or an ASCII configuration file (**dnldAsciiConfig**).
- 5 Use the **ConfigFileName**, **ImageFileName**, **450ImageFileName(mix stack)**, and **FwFileName(Diag)** boxes to enter the base filename for the file you are downloading.

- 6 Use the **Prefix IP address for Source File** radio buttons to set how the filename is interpreted:

- When you choose **No**, File/Inventory Manager downloads the file with the selected filename.
- When you choose **Yes**, File/Inventory Manager downloads files to the selected device according to the IP address appended to the filename.

For example, suppose you have entered **config.cfg** as the filename, and selected the device **10.160.41.204**. File/Inventory Manager will download the file **10\_160\_41\_204\_config.cfg** to the device.

The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.

- 7 In the **Download Log** file name box, choose the file to which Enterprise Switch Manager logs the results of the download operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the download operation.

- 8 In the **Available devices** list, select one or more devices to which to download the selected configuration or image file.
- 9 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 10 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to download the file to them.

**11** Do one of the following:

- Click **Download** to download the file.

Enterprise Switch Manager downloads the selected file to the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the download operation to the selected log file.

- Click **Schedule** if you want the download operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

A message that shows the results of the operation appears at the bottom of the dialog box ([Figure 112](#)).

## Downloading image and configuration files to ERS 1424/16xx devices

To download agent image or configuration files from a TFTP server to Ethernet Routing Switch 1424, 1612, 1624, and 1648 network devices:

- 1** In the File/Inventory Manager navigation pane, select the **Ethernet Routing Switch 1424/16xx** device family folder.

- 2** From the menu bar, choose **Actions > Download File to Device(s)**.

The [Download File to Device\(s\) dialog box](#) appears. For more information, see [“Download File to Device\(s\) dialog box” on page 422](#).

- 3** In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the download operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

- 4** Use the **Action** radio buttons to set whether you are downloading an image file (**DownloadImage**) or a configuration file (**DownloadConfiguration**).
- 5** Use the **ImageFileName** or **ConfigFileName** boxes to enter the filename for the file you are downloading.
- 6** Use the **Prefix IP address for Source File** radio buttons to set whether or not you are downloading the same file to all selected devices:
  - When you choose **No**, File/Inventory Manager downloads the selected file to all selected devices.

- When you choose **Yes**, File/Inventory Manager downloads files to the selected devices according to the IP address appended to the filename. For example, suppose you have entered **config.cfg** as the filename, and selected the devices **10.160.41.229** and **10.160.41.204**. File/Inventory Manager will download the file 10\_160\_41\_204\_config.cfg to 10.160.41.204, and download the file 10\_160\_41\_229\_config.cfg to 10.160.41.229.

The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.

- 7 In the **Download Log** file name box, choose the file to which Enterprise Switch Manager logs the results of the download operation.

Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the download operation.

- 8 In the **Available devices** list, select one or more devices to which to download the selected file.
- 9 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 10 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to download the file to them.
- 11 Do one of the following:

- Click **Download** to download the file.

Enterprise Switch Manager downloads the selected file to the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the download operation to the selected log file.

- Click **Schedule** if you want the download operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

A message that shows the results of the operation appears at the bottom of the dialog box ([Figure 112](#)).

## Downloading image, configuration, or NN Data files to ERS 8000 devices

To download agent image or configuration files from a TFTP server to Ethernet Routing Switch 8000 family network devices:

- 1 In the File/Inventory Manager navigation pane, select the **ERS 8000** device family folder.
- 2 From the menu bar, choose **Actions > Download File to Device(s)**.  
The [Download File to Device\(s\) dialog box](#) appears. For more information, see [“Download File to Device\(s\) dialog box” on page 422](#).
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the download operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

- 4 Use the **Source File Name** box to enter the base filename for the file you are downloading.
- 5 In the **Destination File Name** box, enter the destination for the file on the Ethernet Routing Switch device.

You can preface the filename with the location on the Ethernet Routing Switch device; for example **/flash/** for a flash memory file, or **/wsm/slot#/** for a Web Switch Module file. See the hardware documentation for specific file location information.

- 6 Use the **Prefix IP address for Source File** radio buttons to set whether or not you are downloading the same file to all selected devices:
  - When you choose **No**, File/Inventory Manager downloads the selected file to all selected devices.
  - When you choose **Yes**, File/Inventory Manager downloads files to the selected devices according to the IP address appended to the filename.

For example, suppose you have entered **config.cfg** as the filename, and selected the devices **10.160.41.229** and **10.160.41.204**. File/Inventory Manager will download the file **10\_160\_41\_204\_config.cfg** to **10.160.41.204**, and download the file **10\_160\_41\_229\_config.cfg** to **10.160.41.229**.



The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.

- 7 In the Download Log File Name box, choose the file to which Enterprise Switch Manager logs the results of the download operation.

Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the download operation.

- 8 In the **Available devices** list, select one or more devices to which to download the selected file.
- 9 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 10 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to download the file to them.

- 11 Do one of the following:

- Click **Download** to download the file.

Enterprise Switch Manager downloads the selected file to the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the download operation to the selected log file.

- Click **Schedule** if you want the download operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

A message that shows the results of the operation appears at the bottom of the dialog box ([Figure 112](#)).

## Downloading image, configuration, or NN Data files to WLAN AP devices

To download an agent image, configuration, or NN (Nortel Networks) Data files from a TFTP server to WLAN AP and similar network devices:

**1** In the File/Inventory Manager navigation pane, select the **WLAN AP** device family folder.

**2** From the menu bar, choose **Actions > Download File to Device(s)**.

The [Download File to Device\(s\) dialog box](#) is displayed. For more information, see [“Download File to Device\(s\) dialog box” on page 422](#).

**3** In the **TFTP Server** box, enter the hostname or the IP address of the TFTP server for the download operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, the server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

**4** Use the **Action** radio buttons to set whether you are downloading an **Application Image** file, a **Configuration** file, or **Nortel Networks (NN) Data** file.

**5** Use the **Application Image File Name**, **Configuration File Name** or **NN Data file Name** boxes to enter the name of the file you are downloading.

**6** If you are downloading an Application Image file, use the **ntl-image** or **dflt-image** radio button to designate whether the downloaded image file will be used as ntl-image or dflt-image on the WLAN AP device.

**7** If you are downloading a config file, use **syscfg** or **syscfg\_bak** radio button to decide if the downloaded config file will be used as **syscfg** or **syscfg\_bak** on the WLAN AP device.

**8** Use the **Prefix IP address for Source File** radio buttons to set how the filename is interpreted:

- When you choose **No**, File/Inventory Manager downloads the file with the selected filename.
- When you choose **Yes**, File/Inventory Manager downloads files to the selected device according to the IP address appended to the filename.

For example, if you have entered **config.cfg** as the filename, and selected the device **10.160.41.204**, File/Inventory Manager will download the file **10\_160\_41\_204\_config.cfg** to the device.

The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.

- 9** In the **Download Log file name** box, choose the file to which Enterprise Switch Manager logs the results of the download operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the download operation.

- 10** Use the **Reboot after successful download** radio button to set reboot AP device action after successful download. The user needs to reboot the AP device in order that the newly downloaded ApplicationImage, ConfigFile, and NN DataFile takes effect. You can select **NO** if you do not want to reboot the AP device and reboot it at a later point of time. If download operations are not successful, even if the user selects **YES** to reboot the AP device, the reboot action will NOT be performed.
- 11** In the **Available devices** list, select the device(s) to which you need to download the selected Configuration or ApplicationImage or NN Data file.
- 12** Click **>>** to move the selected device(s) to the **Target devices in the order** list. Or, click **All >>** to move all the available devices to the **Target devices in the order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 13** Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want the Enterprise Switch Manager to download the file.

Do one of the following:

- Click **Download**, to download the file.

Enterprise Switch Manager downloads the selected file to the device in the Target devices in the order dialog box in the order in which they appear. It also logs the results of the download operation to the selected log file.

- Click **Schedule**, if you want the download operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

A message that shows the results of the operation appears at the bottom of the dialog box ([Figure 112](#)).

## Comparing switch configuration files

Smart Diff allows you to compare two ASCII-based switch configuration files. It supports configuration files generated from or created for any devices supported by ESM.

### Selecting switch configuration Files

Use File Dialog or JFileChooser in the JAVA package to select the switch configuration files. The user interface allows you to select 2 switch configuration files at the same time. If you select 2 configuration files in the same File Dialog then the 2 configuration files have to be in the same directory for SmartDiff to work accurately. If the 2 configuration files reside in different directories then you need to use File Dialog twice, each time specify one configuration file only

### Switch configuration files processing

Switch configuration files have a particular format with a section header followed by configuration sections. For example, “CLI CONFIGURATION” section for Ethernet Routing Switch 8000 or “BASIC” section for the Ethernet Routing Switch 1424/1600. The switch configuration files are plain ASCII text files.

### Switch Configuration Files Comparison

The switch configuration file is a plain ASCII text file that contains lines of text. Text in the Switch Configuration Files can be of two types.

- Comment line
- Command line

A Comment line in a Switch Configuration file is either a blank line (white spaces only), or it is a line beginning with the pound symbol (#).

A Command line in a Switch Configuration file is a non-comment line that ignores blank lines (with white spaces, blanks, tabs etc) and Divider lines. A Divider line is a Comment line that has a single pound symbol (#) comment indicator only. A Divide line is mainly used to improve readability.

The Smart Diff tool scans comment lines or command lines while comparing configuration files. Smart Diff scans comment lines also as comment lines in Configuration files for the Ethernet Routing Switch 8000 series. This could mean hardware configuration.

A Configuration file must contain the section that it supports, even if the section is empty. The section header, which is a comment line, identifies each section with a section name in the file.

Smart Diff compares Configuration files on the basis of different sections in files. During file comparison, Smart Diff locates and compares common sections across the files. For example, “CLI CONFIGURATION” section in the first file is compared to the “CLI CONFIGURATION” section of the second file. In the absence of common sections in the configuration file, Smart Diff treats the entire contents of the file as one big section and then compares it.

In every section of the Configuration file, Smart Diff performs a line-by-line text comparison for each command line.

[Table 108](#) displays the results of the text comparison and their description.

**Table 108** Results of text comparison

| <b>Result</b>      | <b>Description</b>                                |
|--------------------|---|
| Different line (D) | Contents of the line have some different segments |
| Matched line (S)   | Contents of the line are exactly, the same        |
| New line (N)       | Line is new in the section                        |

## Compare and Show Report

The report generated after the text comparison, is the combined content of the two files and is displayed on a panel that can be scrolled.

[Table 109](#) lists the colors used by Smart Diff to represent the differences between the two configuration files.

**Table 109** Color codes to present differences in text comparison

| Color                                 | Interpretation  |
|---------------------------------------|---|
| Black text in white background        | Refers to a line indicator [X,aaa,bbb], in front of each line |
| Black text in white background        | Indicates any matched text in a line                          |
| Yellow background and Blue foreground | Indicates any different text in the first line                |
| Blue background and White foreground  | Indicates any different text in the second line               |

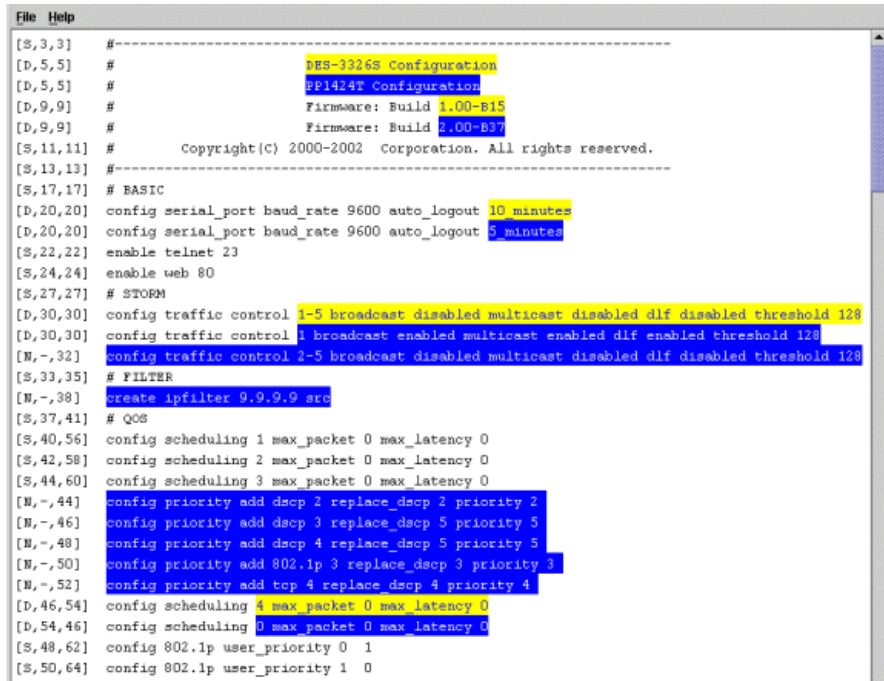
Smart Diff inserts a line indicator into each line in the report. The format of a line in the report is “[X, aaa, bbb]”, where ‘X’ shows the comparison result. See table 1 for the list of comparison results.

‘aaa’ denotes the line number in the first file and ‘bbb’ signifies the line number in the second file, if it is a same or different line of data. If it is a new line, then ‘aaa’ or ‘bbb’ can be ‘-’. [Figure 113 on page 327](#) displays the screen after a text comparison of the configuration files.



**Note:** The binary config file from to Ethernet Switch, ERS 55xx/35xx, Legacy BayStack & WLAN AP family is not comparable.

---

**Figure 113** Text comparison of the configuration files


```

File Help
[S,3,3] #-----
[D,5,5] # BES-3326S Configuration
[D,5,5] # PP1424T Configuration
[D,9,9] # Firmware: Build 1.00-B15
[D,9,9] # Firmware: Build 1.00-B27
[S,11,11] # Copyright(C) 2000-2002 Corporation. All rights reserved.
[S,13,13] #-----
[S,17,17] # BASIC
[D,20,20] config serial_port baud_rate 9600 auto_logout 10 minutes
[D,20,20] config serial_port baud_rate 9600 auto_logout 5 minutes
[S,22,22] enable telnet 23
[S,24,24] enable web 80
[S,27,27] # STORM
[D,30,30] config traffic control 1-5 broadcast disabled multicast disabled dlf disabled threshold 128
[D,30,30] config traffic control 1 broadcast enabled multicast enabled dlf enabled threshold 128
[W,-,32] config traffic control 2-5 broadcast disabled multicast disabled dlf disabled threshold 128
[S,33,35] # FILTER
[W,-,38] create ipfilter 9.9.9.9 src
[S,37,41] # QOS
[S,40,56] config scheduling 1 max_packet 0 max_latency 0
[S,42,58] config scheduling 2 max_packet 0 max_latency 0
[S,44,60] config scheduling 3 max_packet 0 max_latency 0
[W,-,44] config priority add dscp 2 replace_dscp 2 priority 2
[W,-,46] config priority add dscp 3 replace_dscp 5 priority 5
[W,-,48] config priority add dscp 4 replace_dscp 5 priority 5
[W,-,50] config priority add 802.1p 3 replace_dscp 3 priority 3
[W,-,52] config priority add tcp 4 replace_dscp 4 priority 4
[D,46,54] config scheduling 4 max_packet 0 max_latency 0
[D,54,46] config scheduling 0 max_packet 0 max_latency 0
[S,48,62] config 802.1p user_priority 0 1
[S,50,64] config 802.1p user_priority 1 0

```

## Uploading files from devices

File/Inventory Manager allows you to upload image, configuration, and other files from network devices to a TFTP server. You can use this feature to obtain agent software or configuration settings from the devices for archiving or editing.

The procedure for uploading image and configuration files differs slightly depending on the device family:

- For Alteon devices, use the procedure described in [“Uploading files from Alteon devices”](#) on page 328.
- For the following devices, use the procedure described in [“Uploading configuration files from Ethernet Switch, ERS 55xx/35xx and Legacy BayStack devices”](#) on page 330:
  - Ethernet Switch
  - Ethernet Routing Switch 55xx/35xx
  - Legacy BayStack

- Business Policy Switch 2000
- OPTera Metro 1200, 1400, and 1450 Ethernet Service Module
- For Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices, use the procedure described in [“Uploading files from ERS 1424/16xx devices” on page 332](#).
- For Ethernet Routing Switch 8000 family devices, use the procedure described in [“Uploading image and configuration files from ERS 8000 devices” on page 334](#).



**Note:** File/Inventory Manager does not support upload or download of files to or from Passport 1000 switches.

---

- For WLAN AP devices, use the procedure described in [“Uploading configuration files from WLAN AP Devices” on page 336](#)

## Uploading files from Alteon devices

You can use File/Inventory Manager to upload configuration and dump files from Alteon devices to a TFTP server. You can upload configuration and dump files from more than one device at a time.

When uploading configuration and dump files, the actual upload operation is performed by a TFTP server. The destination directory for upload operations is determined by the settings of the TFTP server.

To upload configuration files from Alteon network devices to a TFTP server:

- 1** In the File/Inventory Manager navigation pane, select the **Alteon** device family folder.
- 2** From the menu bar, choose **Actions > Upload File from Device(s)**.  
The [Upload File from Device\(s\) dialog box](#) appears. For more information, see [“Upload File from Device\(s\) dialog box” on page 425](#).
- 3** In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upload operation.



If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see “[Preferences dialog box](#)” on page 98.

- 4 Use the **Action** radio buttons to set whether to upload configuration files (**put-configuration**) or dump files (**put-dump**) from multiple Alteon devices to a workstation accessible by the TFTP server.
- 5 Use the **Configuration File Name** or **Dump File Name** boxes to enter the base filename for the configuration or dump filename. Observe the following points regarding the configuration filename:

- During the upload operation, the IP address of the device(s) are appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.

For example, suppose you have entered **config.cfg** as the filename, and selected two devices, **10.160.41.204** and **10.160.41.229**. The actual destination files will be named **10\_160\_41\_204\_config.cfg** and **10\_160\_41\_229\_config.cfg**.

- The destination directory for the upload operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.
- 6 In the **Upload Log file name** box, choose the file to which Enterprise Switch Manager logs the results of the download operation.

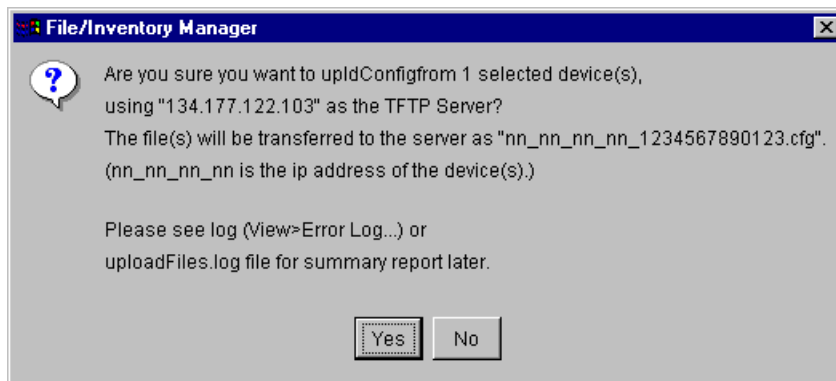
Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the upload operation.

- 7 In the **Available devices** list, select one or more devices from which to upload the selected configuration or dump file.
- 8 Click **>>** to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 9 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upload their files.
- 10 Do one of the following:
  - Click **Upload** to upload the file(s).

File/Inventory Manager opens an alert box to prompt you to confirm the upload operation (Figure 114). Proceed to step 11.

**Figure 114** Upload confirmation dialog box



- Click **Schedule** if you want the upload operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see “[Scheduling tasks](#)” on page 360.

**11** Click **Yes** to continue.

Enterprise Switch Manager uploads the specified configuration or dump file from the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the upload operation to the selected log file.

A message that shows the results of the operation appears at the bottom of the dialog box (Figure 115).

**Figure 115** Results message on upload dialog box

Done. Please see log or log file for summary report.

## Uploading configuration files from Ethernet Switch, ERS 55xx/35xx and Legacy BayStack devices

You can use File/Inventory Manager to upload configuration files from Legacy BayStack and similar devices to a TFTP server. You can upload configuration files from more than one device at a time.

When uploading configuration files, the actual upload operation is performed by a TFTP server. The destination directory for upload operations is determined by the settings of the TFTP server.

To upload configuration files from Legacy BayStack or similar network devices to a TFTP server:

**1** In the File/Inventory Manager navigation pane, select the desired device family folder.

**2** From the menu bar, choose **Actions > Upload File from Device(s)**.

The [Upload File from Device\(s\) dialog box](#) appears. For more information, see [“Upload File from Device\(s\) dialog box” on page 425](#).

**3** In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upload operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

**4** Use the **ConfigFileName** box to enter the base filename for the configuration filename. Observe the following points regarding the configuration filename:

- During the upload operation, the IP address of the device(s) are appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.

For example, suppose you have entered **config.cfg** as the filename, and selected two devices, **10.160.41.204** and **10.160.41.229**. The actual destination files will be named **10\_160\_41\_204\_config.cfg** and **10\_160\_41\_229\_config.cfg**.

- The destination directory for the upload operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.

**5** In the **Upload Log file name** box, choose the file to which Enterprise Switch Manager logs the results of the download operation.

Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the upload operation.

- 6 In the **Available Devices** list, select one or more devices from which to upload the selected configuration file.
- 7 Click **>>** to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 8 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upload the files.
- 9 Do one of the following:
  - Click **Upload** to upload the file(s).  
File/Inventory Manager opens an alert box to prompt you to confirm the upload operation (Figure 114). Proceed to step 10.
  - Click **Schedule** if you want the upload operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see “Scheduling tasks” on page 360.
- 10 Click **Yes** to continue.

Enterprise Switch Manager uploads the configuration file from the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the upload operation to the selected log file.

A message that shows the results of the operation appears at the bottom of the dialog box (Figure 115).

## Uploading files from ERS 1424/16xx devices

To upload agent image or configuration files from Ethernet Routing Switch 1424, 1612, 1624, and 1648 network devices to a TFTP server:

- 1 In the File/Inventory Manager navigation pane, select the **ERS 1424/16xx** device family folder.
- 2 From the menu bar, choose **Actions > Upload File from Device(s)**.  
The **Upload File from Device(s) dialog box** appears. For more information, see “Upload File from Device(s) dialog box” on page 425.
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upload operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see “[Preferences dialog box](#)” on page 98.

- 4 Use the **Action** radio buttons to set whether to upload configuration files (**UploadConfiguration**) or history log files (**UploadHistoryLog**).
- 5 Use the **ConfigFileName** or **HistoryLogFileName** box to enter the base filename. Observe the following points regarding the configuration filename:
  - During the upload operation, the IP address of the device(s) are appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.

For example, suppose you have entered **config.cfg** as the filename, and selected two devices, **10.160.41.204** and **10.160.41.229**. The actual destination files will be named **10\_160\_41\_204\_config.cfg** and **10\_160\_41\_229\_config.cfg**.

- The destination directory for the upload operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.
- 6 In the **Upload Log file name** box, choose the file to which Enterprise Switch Manager logs the results of the upload operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the upload operation.

- 7 In the **Available devices** list, select one or more devices from which to upload the selected file.
- 8 Click **>>** to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 9 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upload files.
- 10 Do one of the following:
  - Click **Upload** to upload the file(s).

File/Inventory Manager opens an alert box to prompt you to confirm the upload operation ([Figure 114](#)). Proceed to step 11.

- Click **Schedule** if you want the upload operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

**11** Click **Yes** to continue.

Enterprise Switch Manager uploads the specified file from the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the upload operation to the selected log file.

A message that shows the results of the operation appears at the bottom of the dialog box ([Figure 115](#)).

## Uploading image and configuration files from ERS 8000 devices

To upload agent image or configuration files from ERS 8000 family network devices to a TFTP server:

- 1** In the File/Inventory Manager navigation pane, select the ERS 8000 device family folder.

- 2** From the menu bar, choose **Actions > Upload File from Device(s)**.

The [Upload File from Device\(s\) dialog box](#) appears. For more information, see [“Upload File from Device\(s\) dialog box” on page 425](#).

- 3** In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upload operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

- 4** In the **Source File Name** box, enter the source for the file on the Ethernet Routing Switch device.

You can preface the filename with the location on the Ethernet Routing Switch device; for example **/flash/** for a flash memory file, or **/wsm/slot#** for a Web Switch Module file. See the hardware documentation for specific file location information.

- 5 Use the **Destination File Postfix** box to enter the base filename for the configuration filename. Observe the following points regarding the destination filename:
  - During the upload operation, the IP address of the device(s) are appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.

For example, suppose you have entered **config.cfg** as the filename, and selected two devices, **10.160.41.204** and **10.160.41.229**. The actual destination files will be named **10\_160\_41\_204\_config.cfg** and **10\_160\_41\_229\_config.cfg**.
  - The destination directory for the upload operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.
- 6 In the **Upload Log file name** box, choose the file to which Enterprise Switch Manager logs the results of the upload operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

You can use the log file later to view information about the upload operation.
- 7 In the **Available devices** list, select one or more devices from which to upload the selected file.
- 8 Click **>>** to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 9 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upload their files.
- 10 Do one of the following:
  - Click **Upload** to upload the file(s).

File/Inventory Manager opens an alert box to prompt you to confirm the upload operation (Figure 114). Proceed to step 11.
  - Click **Schedule** if you want the upload operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see “Scheduling tasks” on page 360.
- 11 Click **Yes** to continue.

Enterprise Switch Manager uploads the specified file from the devices in the **Target devices in order** list in the order in which they appear. It also logs the results of the upload operation to the selected log file.

A message that shows the results of the operation appears at the bottom of the dialog box (Figure 115).

## Uploading configuration files from WLAN AP Devices

You can use File/Inventory Manager to upload configuration files from WLAN AP devices to a TFTP server. You can upload configuration files from more than one device at a time.

When uploading configuration files, the actual upload operation is performed by a TFTP server. The destination directory for upload operations are determined by the settings of the TFTP server.

To upload configuration files from WLAN AP or similar network devices to a TFTP server:

- 1 In the File/Inventory Manager navigation pane, select the **WLAN AP** device family folder.
- 2 From the menu bar, choose **Actions > Upload File from Device(s)**.  
The **Upload File from Device(s) dialog box** appears. For more information, see “[Upload File from Device\(s\) dialog box](#)” on page 425.
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upload operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, the server will automatically appear in the **TFTP Server** box. For more information, see “[Preferences dialog box](#)” on page 98.

- 4 Use the **ConfigFileName** box to enter the base filename for the configuration filename. Observe the following points regarding the configuration filename:
  - During the upload operation, the IP address of the device(s) are appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.



For example, suppose you have entered **config.cfg** as the filename, and selected two devices, **10.160.41.204** and **10.160.41.229**. The actual destination files will be named **10\_160\_41\_204\_config.cfg** and **10\_160\_41\_229\_config.cfg**.

- The destination directory for the upload operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.
- 5 In the **Upload Log file name** box, choose the file to which Enterprise Switch Manager logs the results of the download operation.  
  
Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.  
  
You can use the log file later to view information about the upload operation.
  - 6 In the **Available devices** list, select one or more devices from which to upload the selected configuration file.
  - 7 Click **>>** to move the selected device(s) to the **Target devices in the order** list. Or, click **All >>** to move all the available devices to the **Target devices in the order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
  - 8 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upload the files.
  - 9 Do one of the following:
    - Click **Upload** to upload the file(s).  
  
File/Inventory Manager opens an alert box to prompt you to confirm the upload operation (Figure 114). Proceed to step 10.
    - Click **Schedule** if you want the upload operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see “Scheduling tasks” on page 360.
  - 10 Click **Yes** to continue.

Enterprise Switch Manager uploads the configuration file from the devices in the **Target devices in the order** list in the order in which they appear. It also logs the results of the upload operation to the selected log file.

A message that shows the results of the operation appears at the bottom of the dialog box (Figure 115).

## Backing up configuration files

You can create backup configuration files that can be restored to devices in the event of a network failure. You can also create a backup boot.cfg file for Ethernet Routing Switch 8000 family network devices.



**Note:** The backup file you create in this procedure will overwrite any file of the same name that exists in the \backup subdirectory of the TFTP root directory.

---

To back up a configuration file from a device:

- 1 In the File/Inventory Manager navigation pane, select the device family folder.
- 2 From the menu bar, choose **Actions > Backup Config File**.  
The **Backup Config File** dialog box appears. For more information, see [“Backup Config File dialog box” on page 427](#).
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the backup operation.  
If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).
- 4 For Ethernet Routing Switch 8000 files, use the **File** radio buttons to select the type of file to back up (**config.cfg** or **boot.cfg**).
- 5 In the **Backup log file name** box, enter the name of the file to which Enterprise Switch Manager logs the results of the backup operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 6 In the **Available devices** list, select one or more devices whose configuration file you want to back up.
- 7 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.

- 8 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to back them up.
- 9 Do one of the following:
  - Click **Backup** to back up the configuration file(s) immediately.  
File/Inventory Manager opens an alert box to prompt you to confirm the backup operation. Proceed to step 10.
  - Click **Schedule** if you want the backup operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).
- 10 Click **Yes** to continue.

Enterprise Switch Manager backs up the selected configuration file to the \backup subdirectory of the TFTP root directory. It backs up the devices in the order in which they appear in the **Target devices in order** list. It also logs the results of the backup operation to the selected backup log file.

## Restoring configuration files to devices

To restore configuration files to devices from the backup subdirectory of the TFTP root directory:

- 1 In the File/Inventory Manager navigation pane, select the device family folder.
- 2 From the menu bar, choose **Actions > Restore Config File**.  
The **Restore Config File** dialog box appears. For more information, see [“Restore Config File dialog box” on page 429](#).
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the restore operation.  
If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).
- 4 For Ethernet Routing Switch 8000 files, use the **File** radio buttons to select the type of file to restore (**config.cfg** or **boot.cfg**).
- 5 In the **Restore log file name** box, enter the name of the file to which Enterprise Switch Manager logs the results of the restore operation. Or, click

the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

- 6 For WLAN AP device, use the **Reboot after successful download** radio button to specify the reboot action.
- 7 In the **Available devices** list, select one or more devices whose configuration files you want to restore.
- 8 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 9 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to restore them.
- 10 Do one of the following:
  - Click **Restore** to restore the configuration file(s) immediately.  
File/Inventory Manager opens an alert box to prompt you to confirm the restore operation. Proceed to step 10.
  - Click **Schedule** if you want the restore operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).
- 11 Click **Yes** to continue.

Enterprise Switch Manager restores the configuration file(s) to the devices in the order in which they appear in the **Target devices in order** list. It also logs the results of the restore operation to the selected restore log file.

## Archiving configuration files

Enterprise Switch Manager stores only one backup configuration file and boot.cfg file for each device in the \backup subdirectory of the TFTP root directory. However, the Archive operation allows you to create and store an unlimited number of archived configuration and boot.cfg files in the \ar\YYMMDD\

subdirectory of the TFTP root directory. YYMMDD represents the year, month, and date on which the file is archived. For example, if you archive a file on April 2, 2003, Enterprise Switch Manager archives the file to the \ar\030402\ subdirectory of the TFTP root directory.



**Note:** If you archive the same configuration file from the same device on the same day multiple times, the new file overwrites any files archived previously that day. However, if you archive the same device's configuration on a different day, the archive file is placed in a new \ar\YYMMDD\ subdirectory created to correspond with the date of the archive operation.

To archive configuration files:

- 1 In the File/Inventory Manager navigation pane, select the device family folder.
- 2 From the menu bar, choose **Actions > Archive Config File**.  
The **Archive Config File** dialog box appears. For more information, see [“Archive Config File dialog box” on page 430](#).
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the archive operation.  
If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).
- 4 For Ethernet Routing Switch 8000 files, use the **File** radio buttons to select the type of file to archive (**config.cfg** or **boot.cfg**).
- 5 In the **Archive log file name** box, enter the name of the file to which Enterprise Switch Manager logs the results of the archive operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 6 In the **Available devices** list, select one or more devices whose configuration file you want to archive.
- 7 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.

**8** Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to archive them.

**9** Do one of the following:

- Click **Archive** to archive the file(s) immediately.

File/Inventory Manager opens an alert box to prompt you to confirm the archive operation. Proceed to step **10**.

- Click **Schedule** if you want the archive operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see “[Scheduling tasks](#)” on page 360.

**10** Click **Yes** to continue.

Enterprise Switch Manager archives the selected configuration file(s) to the \var\YYMMDD\ subdirectory of the TFTP root directory. Enterprise Switch Manager archives the files in the order in which the devices appear in the **Target devices in order** list. It also logs the results of the archive operation to the selected archive log file.

## Synchronizing configuration files

File/Inventory Manager allows you to upload the current configuration or boot.cfg file of a device to the \curDep\ (currently deployed) subdirectory of the TFTP root directory.



**Note:** The configuration or boot.cfg file you upload in this procedure will overwrite any file of the same name that exists in the \curDep subdirectory of the TFTP root directory.

---

To upload the current configuration or boot.cfg file:

**1** In the File/Inventory Manager navigation pane, select the device family folder.

**2** From the menu bar, choose **Actions > Synchronize Config File**.

The Synchronize Config File dialog box appears. For more information, see “[Synchronize Config File dialog box](#)” on page 431.

**3** In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the synchronize operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

- 4** For Ethernet Routing Switch 8000 files, use the **File** radio buttons to select the type of file to synchronize (**config.cfg** or **boot.cfg**).
- 5** In the **Synchronize log file name** box, enter the name of the file to which Enterprise Switch Manager logs the results of the synchronize operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 6** In the **Available devices** list, select one or more devices whose configuration file you want to synchronize.
- 7** Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 8** Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to synchronize them.
- 9** Do one of the following:
  - Click **Synchronize** to upload the configuration file(s) immediately.  
File/Inventory Manager opens an alert box to prompt you to confirm the synchronize operation. Proceed to step **10**.
  - Click **Schedule** if you want the synchronize operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).
- 10** Click **Yes** to continue.

Enterprise Switch Manager uploads the selected configuration file(s) to the \curDep\ subdirectory of the TFTP root directory in the order in which the devices appear in the **Target devices in order** list and logs the results of the synchronize operation to the selected synchronize log file.

## Upgrading devices

File/Inventory Manager allows you to upgrade devices by downloading an image file to the devices you specify. You can specify the order in which Enterprise Switch Manager upgrades the devices, and the results of the upgrade operation are stored in a log file to which you can refer later.

The procedure for upgrading devices differs slightly depending on the device family:

- For Alteon devices, use the procedure described in [“Upgrading Alteon devices” on page 344](#).
- For Ethernet Switch, Ethernet Routing Switch 55xx/35xx, and Legacy Baystack devices, use the procedure described in [“Upgrading Ethernet Switch, ERS 55xx/35xx and Legacy BayStack devices” on page 346](#).
- For Ethernet Routing Switch 8000, 1424, 1612, 1624, and 1648 devices, use the procedure described in [“Upgrading ERS 8000 and 1424/16xx devices” on page 347](#). Or, for Ethernet Routing Switch 8000 only, you can also use the procedure described in [“Using Upgrade Wizard with ERS 8000 devices” on page 349](#).

### Upgrading Alteon devices

To upgrade one or more Alteon devices:

- 1 In the File/Inventory Manager navigation pane, select the **Alteon** device family folder.
- 2 From the menu bar, choose **Actions > Device Upgrade**.  
The **Device Upgrade** dialog box appears. For more information, see [“Device Upgrade dialog box” on page 432](#).
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upgrade operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).



- 4 In the **Image File Name** box, enter the name of the image file to download. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 5 Use the **Image** radio buttons to set the target image.
- 6 In the **Device Upgrade Log file name** box, enter the name of the log file to which Enterprise Switch Manager logs the results of the upgrade operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 7 In the **Available devices** list, select one or more devices to upgrade.
- 8 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 9 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upgrade them.
- 10 Do one of the following:
  - Click **Device Upgrade** to upgrade the devices immediately.  
File/Inventory Manager opens an alert box to prompt you to confirm the upgrade operation. Proceed to step 11.
  - Click **Schedule** if you want the upgrade operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see “[Scheduling tasks](#)” on page 360.
- 11 Click **Yes** to continue.

Enterprise Switch Manager upgrades the selected devices in the order in which they appear in the **Target devices in order** list and logs the results of the upgrade operation to the selected device upgrade log file.

## Upgrading Ethernet Switch, ERS 55xx/35xx and Legacy BayStack devices



**Note:** When upgrading Legacy BayStack and similar devices, the device resets after you download image files to the devices. Your network may be temporarily disrupted while the device reboots.

If a device fails to resume running, File/Inventory Manager waits for 5 minutes and continue device upgrade operation for other devices listed in the **Target devices in order** list box.

---

To upgrade one or more Legacy Baystack or similar devices:

- 1 In the File/Inventory Manager navigation pane, select the desired device family folder.
- 2 From the menu bar, choose **Actions > Device Upgrade**.  
The Device Upgrade dialog box appears. For more information, see [“Device Upgrade dialog box” on page 432](#).
- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upgrade operation.  
If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).
- 4 In the **Image File Name** box, enter the name of the image file to download. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 5 In the **Image File Name (mix stack)** box, enter the name of the image file to download in mixed stack configurations.
- 6 In the **Device Upgrade Log file name** box, enter the name of the log file to which Enterprise Switch Manager logs the results of the upgrade operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 7 In the **Available devices** list, select one or more devices to upgrade.
- 8 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in**

**order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.

**9** Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upgrade them.

**10** Do one of the following:

- Click **Device Upgrade** to upgrade the devices immediately.

File/Inventory Manager opens an alert box to prompt you to confirm the upgrade operation. Proceed to step [11](#).

- Click **Schedule** if you want the upgrade operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

**11** Click **Yes** to continue.

Enterprise Switch Manager upgrades the selected devices in the order in which they appear in the **Target devices in order** list and logs the results of the upgrade operation to the selected device upgrade log file.

## Upgrading ERS 8000 and 1424/16xx devices



**Note:** When upgrading Ethernet Routing Switch 1424, 1612, 1624, or 1648 devices, the device resets after you download image or binary configuration files to an Ethernet Routing Switch 1424, 1612, 1624, or 1648 device. Your network may be temporarily disrupted while the device reboots.

Also, File/Inventory Manager waits until the download to one device is complete and that device is running again before it proceeds to the next device in the Target devices order list. If a device fails to resume running, File/Inventory Manager does not process the rest of the devices in the list.

---

To upgrade one or more Ethernet Routing Switch 8000, 1424, 1612, 1624, and 1648 devices:

- 1** In the File/Inventory Manager navigation pane, select the desired Ethernet Routing Switch device family folder.
- 2** From the menu bar, choose **Actions > Device Upgrade**.

The **Device Upgrade** dialog box appears. For more information, see [“Device Upgrade dialog box” on page 432](#).

- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upgrade operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, that server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

- 4 In the **Image File Name** box, enter the name of the image file to download. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

- 5 In the **Device Upgrade Log file name** box, enter the name of the log file to which Enterprise Switch Manager logs the results of the upgrade operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

- 6 In the **Available devices** list, select one or more devices to upgrade.

- 7 Click >> to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.

- 8 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upgrade them.

- 9 Do one of the following:

- Click **Device Upgrade** to upgrade the devices immediately.

File/Inventory Manager opens an alert box to prompt you to confirm the upgrade operation. Proceed to step 10.

- Click **Schedule** if you want the upgrade operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).

- 10 Click **Yes** to continue.

Enterprise Switch Manager upgrades the selected devices in the order in which they appear in the **Target devices in order** list and logs the results of the upgrade operation to the selected device upgrade log file.

## Using Upgrade Wizard with ERS 8000 devices

File/Inventory Manager provides an Upgrade Wizard for ERS 8000 devices. The Upgrade Wizard lets you upgrade multiple ERS 8000 devices using one interface.

The Upgrade Wizard allows you to perform the following:

- back up your current configuration files
- set the primary runtime image from flash, PCMCIA, or TFTP
- set the boot image from flash, PCMCIA, or TFTP
- set the loadable image from flash or PCMCIA (required for ERS 8300 I/O module and ERS 8600 R-module only)
- boot the device with the specified images



**Note:** Before you initiate the Upgrade Wizard, you must load the desired primary runtime image file and the boot image file to either flash, PCMCIA, or TFTP server, and load the loadable image file (required for ERS 8300 I/O module and ERS 8600 R-module only) to either flash or PCMCIA. Otherwise, the upgrade cannot function properly.

---

### *Backing up current configuration files*

The backup operation backs up configurations that are known to be operational, so that these configurations can be restored in case of any network failure.

The backup operation lets you back up the configuration files to flash, and upload the configuration files to the \backup sub-directory of the TFTP root directory of the TFTP server.

You can create backups of the configuration files (config.cfg) and boot configuration files (boot.cfg).

When performing the backup of config.cfg and boot.cfg files to a TFTP server, the backup config.cfg file name is saved as <device\_ip\_address>\_c.c and the backup boot.cfg file name is saved as <device\_ip\_address>\_b.c. For example, for a device with an IP address of 10.10.40.30, the backup config.cfg file and backup boot.cfg file are uploaded as 10\_10\_40\_30\_c.c and 10\_10\_40\_30\_b.c, respectively.



**Note:** If you choose to upload the backup file to TFTP, the newly uploaded file will overwrite any file of the same name that exists in the backup subdirectory of the TFTP root directory.

---

When you back up to flash, the files are not prefixed with the device IP address. You should therefore provide different destination file names for the config.cfg and boot.cfg backup files. By default the destination file names are ESM\_AutoImageUpgrade\_boot.cfg for boot.cfg and ESM\_AutoImageUpgrade\_config.cfg for config.cfg.

If you do not specify a location for the backup operation, ESM automatically instructs the device to save a backup of the boot.cfg file in flash as ESM\_AutoImageUpgrade\_boot.cfg. This is because a workable boot.cfg file is required in case of malfunction during the booting process.

### *Setting the primary runtime image and the boot image*

When you upgrade a device with the Upgrade Wizard, you must specify both the primary runtime image and the boot image for the process to complete successfully.

The format for the boot file name is p83bxxxx.img for an ERS 8300 device and p80bxxxx.img for an ERS 8600 device (where xxxx is the version number). The format for the primary runtime image file name is p83axxxx.img for an ERS 8300 device and p80axxxx.img for an ERS 8600 device.

### *Setting the loadable images for I/O module (ERS 8300) and R-module (ERS 8600)*

With the ERS 8000 Upgrade Wizard you can specify the loadable images (.dld) for I/O modules (for Ethernet Routing Switch 8300) and R-modules (for Ethernet Routing Switch 8600, release 4.0.0.0 and above).

To upgrade I/O modules and R-modules successfully, you must transfer the necessary loadable images to the local storage of the switch, either in flash memory or on the PCMCIA card, before the image upgrade.

For the I/O modules and R-modules to function properly following the upgrade, the loadable image version must match the boot image version.

The file name format for the 8300 loadable image is p83rxxxx.dld, where xxxx is the version number (for example, p83r2300.dld). The file name format for the 8600 loadable image is p80jxxxx.dld, (for example, p80j4000.dld).

When you upgrade the loadable image, you can do so using two different methods.

- Specify the image in the Dld Image field.  
If you specify the location of the loadable file in the Dld Image field, the device uses the specified file to upgrade the module, and the filename is saved in the boot.cfg file.
- Leave the Dld Image field blank  
It is not mandatory to specify the loadable image in the Dld Image field. If you do not specify the location of the loadable file, the device uses the default loadable image: the switch searches in flash and PCMCIA for the .dld file that matches with the version of the boot image. For example, if an ERS 8300 switch uses p83b2300.img and p83a2300.img to boot, the device searches in flash and PCMCIA for the p83r2300.dld file, and uses that file for the upgrade.

If you have previously specified a loadable filename during an upgrade, that filename is saved in the boot.cfg file. This instructs the device to use that particular filename during the next upgrade. However, to avoid any potential image version conflicts, when no loadable image is specified, ESM removes the loadable filename reference from the boot.cfg file. As a result, the device still upgrades using the default loadable file that matches the new boot.cfg file.

## Upgrading ERS 8000 Series devices using Upgrade Wizard

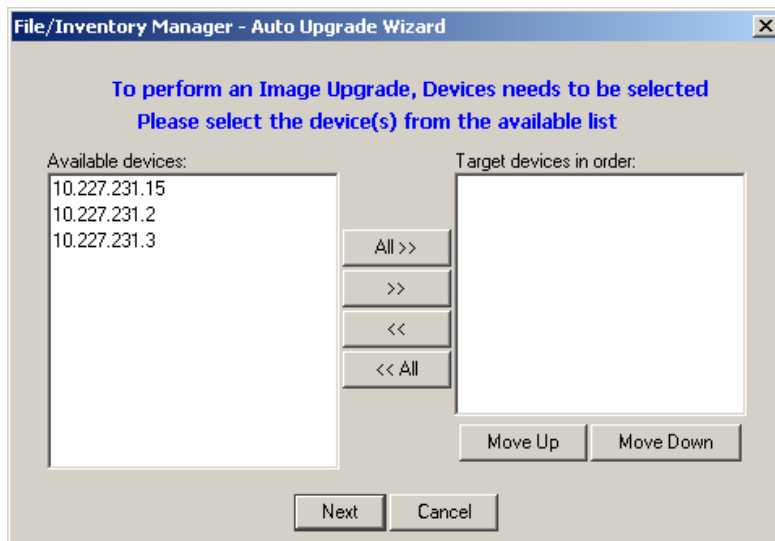
To upgrade ERS 8000 Series devices using Upgrade Wizard:

- 1 On the File/Inventory Manager toolbar, click the **Device Upgrade Wizard** icon.

Or, from the menu bar, choose **Actions > Upgrade Wizard**.

The **Target devices** dialog box appears (Figure 116).

**Figure 116** Target devices dialog box



- 2 Click **>>** to move the selected device(s) to the **Target devices in order** list. Or, click **All >>** to move all the available devices to the **Target devices in order** list. Use the **<<** and **<< All** buttons to move devices back to the **Available devices** list.
- 3 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upgrade them.
- 4 Click **Next**.



The **Config Backup/Image Options** dialog box appears (Figure 117).

**Figure 117** Config Backup/Image Options dialog box

The screenshot shows the 'File/Inventory Manager - Auto Upgrade Wizard' dialog box. It is divided into two main sections: 'Config Backup' and 'Image Options'.

**Config Backup Section:** This section is titled 'Config Backup' and has the subtitle 'Saves a copy of the configuration file to a specified location'. It contains the following fields and options:

- Configuration files:** Two checked checkboxes for 'boot.cfg' and 'config.cfg'.
- BackUp files in:** Two checked checkboxes for 'flash' and 'TFTP Server'.
- TFTP Server:** An empty text input field.
- In FLASH Save Bootconfig As:** A text input field containing 'ESM\_AutoImageUpgrade\_boot.cfg'.
- In FLASH Save Config As:** A text input field containing 'ESM\_AutoImageUpgrade\_config.cfg'.

**Image Options Section:** This section is titled 'Image Options' and has the subtitle 'Saves the primary runtime image and boots the device'. It contains the following fields and options:

- CLI UserName:** An empty text input field.
- CLI Password:** An empty text input field.
- Show image files in:** Three radio button options: 'flash' (selected), 'PCMCIA', and 'TFTP Server'.
- TFTP Server:** An empty text input field.

Below the 'Image Options' section is a table with the following data:

| Device        | Primary Image | Boot Image | DId Image |
|---------------|---------------|------------|-----------|
| 10.227.231.3  |               |            |           |
| 10.227.231.2  |               |            |           |
| 10.227.231.15 |               |            |           |

At the bottom of the dialog box are four buttons: 'Apply', 'Reset', 'Cancel', and 'Help...'.

- 5 In the **Config Backup** pane, specify the parameters for the backup operation:
  - a In the **Configuration files** field, select the file types to back up (you can choose **config.cfg** or **boot.cfg**, or both).
  - b In the **BackUp files in** field, select the destination for the backup files (you can choose **flash** or **TFTP Server** or both).
  - c If you are uploading to TFTP, enter the hostname or IP address of the TFTP server for the upload operation in the **TFTP Server** box.

- d If you are backing up the boot.cfg file to flash, enter a filename for the backup boot.cfg file (by default, ESM\_AutoImageUpgrade\_boot.cfg) in the **In FLASH Save Bootconfig As** box.
- e If you are backing up the config.cfg file to flash, enter a filename for the backup config.cfg file (by default, ESM\_AutoImageUpgrade\_config.cfg) in the **In FLASH Save Config As** box.



**Note:** If you do not specify a location in the **BackUp files in** field, when you click Apply, ESM automatically instructs the device to save a backup of the boot.cfg file in flash as ESM\_AutoImageUpgrade\_boot.cfg. This is because a workable boot.cfg file is required in case of malfunction during the booting process.

---

- 6 In the **Image Options** pane, enter a valid CLI read/write user name and password in the **CLI UserName** and **CLI Password** fields.



**Note:** This CLI user name and password applies to all devices in the Image Options table. To update all listed devices at the same time, they must all have the same CLI user name and password.

---

- 7 For each device listed in the **Image Options** table, you must specify both the desired primary runtime image and the desired boot image as follows:
  - a In the **Show Image Files in** field, choose the source location for the image file. If you choose **TFTP Server** as the image location, enter the hostname or IP address of the TFTP server in the provided field.
  - b In a device row, double-click the **Boot Image**, or **Primary Image** field.

A dialog box appears displaying the available images from the specified location. (If **TFTP Server** is selected, a **Find File** dialog box appears allowing you to browse to and select a file.)

To display the available images from a different source location, close the dialog box and choose a different location from the **Show images files in** field, then double-click the **Boot Image** or **Primary Image** field again.

- c Select the desired image from the list.

**d** Click **Add**.

The selected image file is inserted into its respective column.

Repeat these steps for the boot image and primary runtime image of each device in the list. If you make any mistakes when choosing the desired images, you can click **Reset** to set the **Upgrade Wizard** to the default view.

- 8** For each ERS 8300 device that houses an I/O module and each 8600 device that houses an R-module, you can specify the loadable image as follows (optional):



**Note:** If an ERS 8600 device is not running release 4.0.0.0 software or above, the **Dld Image** column for the corresponding row is disabled.

---

- a** In the **Show Image Files in** field, choose the source location for the loadable image file. (You cannot select the **TFTP Server** option with the loadable image, as the loadable image cannot reside on the TFTP server.)
- b** In a device row, double-click the **Dld Image** field.

A dialog box appears displaying the available .dld images from the specified location.

To display the available images from a different source location, close the dialog box and choose a different location from the **Show images files in** field, then double-click the **Dld Image** field again.

- c** Select the desired image from the list.
- d** Click **Add**.

The selected image file is inserted into its respective column.



**Note:** If you do not specify the location of a required loadable image in the **Dld Image** field, the device searches in flash and PCMCIA for the default loadable image version that matches the boot image version and uses this file for the upgrade.

---

Repeat these steps for the loadable image of each device in the list. If you make any mistakes when choosing the desired images, you can click **Reset** to set the **Upgrade Wizard** to the default view.

- 9 Once you have specified all desired primary runtime images, boot images, loadable images, and backup parameters, click **Apply**.



---

**Note:** If there is a version difference between the primary runtime image and the boot image, a warning message dialog appears before you can proceed. To properly upgrade images on a device, Nortel recommends that a device have the same version of boot and runtime images.

---

ESM performs the following, one device at a time, according to the listed order of devices:

- backs up the configuration files on the device
- validates and sets the new primary runtime image and boot image
- validates and sets the new loadable image (if ERS 8300 I/O modules or ERS 8600 R-modules are present)
- resets the device

This operation takes time to complete (approximately 3 minutes to complete for one switch).

## Upgrading WLAN AP devices

To upgrade one or more WLAN AP devices:

- 1 In the File/Inventory Manager navigation pane, select the **WLAN AP** device.
- 2 From the menu bar, choose **Actions > Device Upgrade**.

The **Device Upgrade** dialog box appears. For more information, see [“Device Upgrade dialog box” on page 432](#).

- 3 In the **TFTP Server** box, enter the hostname or IP address of the TFTP server for the upgrade operation.

If you have specified a default TFTP server in the Enterprise Switch Manager **Preferences** dialog box, the server will automatically appear in the **TFTP Server** box. For more information, see [“Preferences dialog box” on page 98](#).

- 4 In the **ApplicationImage File Name** box, enter the name of the image file to download. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.

- 5 In the **Device Upgrade Log file name** box, enter the name of the log file to which Enterprise Switch Manager logs the results of the upgrade operation. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 6 Use the **Reboot after successful download** radio button to specify reboot action.
- 7 In the **Available devices** list, select one or more devices to upgrade.
- 8 Click >> to move the selected device(s) to the **Target devices in the order** list. Or, click **All >>** to move all the available devices to the **Target devices in the order** list. Use the << and << **All** buttons to move devices back to the **Available devices** list.
- 9 Use the **Move Up** and **Move Down** buttons to arrange the target devices in the order in which you want Enterprise Switch Manager to upgrade them.
- 10 Do one of the following:
  - Click **Device Upgrade** to upgrade the devices immediately.  
File/Inventory Manager opens an alert box to prompt you to confirm the upgrade operation. Proceed to step 10.
  - Click **Schedule** if you want the upgrade operation to be performed at a specific time or on a regular basis. For information about scheduling tasks, see [“Scheduling tasks” on page 360](#).
- 11 Click **Yes** to continue.

Enterprise Switch Manager upgrades the selected devices in the order in which they appear in the **Target devices in the order** list and logs the results of the upgrade operation to the selected device upgrade log file.

## Editing configuration files

File/Inventory Manager allows you to browse configuration files and edit them with a text editor for the following switches:

- Ethernet Routing Switch 8000
- Ethernet Routing Switch 8300
- Ethernet Routing Switch 1424 and 16xx
- Passport 1000

- BPS 2000 (v2.0.5 and later, for ASCII config file only)
- Legacy BayStack 380/420 (v300 and later, for ASCII config file only)
- Ethernet Switch 325/425/460/470 (for ASCII config file only)
- Ethernet Routing Switch 55xx/35xx (for ASCII config file only)



**Note:** Binary configuration files for Legacy BayStack, Ethernet Switch, Ethernet Routing Switch 55xx/35xx, and WLAN AP devices are stored in a proprietary binary format that you cannot edit using a text editor.

---

To open a configuration file for editing:

- 1 From the File/Inventory Manager menu bar, choose **Actions > Edit File**.

An open file dialog box appears.

- 2 Browse to the configuration file you want to edit, and click **Open**.

File/Inventory Manager opens the configuration file in a text editor:

- On a Windows machine, the file opens in Wordpad.
- On a UNIX machine, the file opens in vi.

## Scheduling inventory queries

You can schedule an inventory query task to occur at a specific time in the future, once or on a recurring basis.



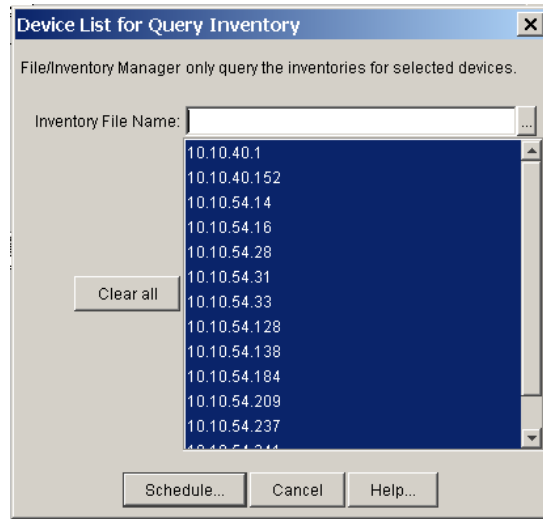
**Note:** In order to schedule tasks, Scheduler Server must be installed and running on your system. For information about installing Scheduler Server, see *Installing Enterprise Switch Manager*.

---

To schedule an inventory query:

- 1 From the File/Inventory Manager menu bar, choose **Actions > Schedule Query Inventory Task**.

The **Device List for Query Inventory** dialog box appears (Figure 118). For more information, see “[Device List for Query Inventory dialog box](#)” on page 434.

**Figure 118** Device List for Query Inventory dialog box

- 2 In the **Inventory File Name** box, enter the name for the file to which Scheduler Server logs the results of the inventory query. Or, click the ellipsis (...) button to the right of the text box to open a find file dialog box that allows you to navigate to the file.
- 3 Select the IP address of the device(s) for which to perform the inventory query.
- 4 Click **Schedule**.  
An alert box appears to prompt whether you are sure you want to schedule the task for the specified device.
- 5 Click **Yes**.  
The **Query Inventory** dialog box appears.
- 6 In the **Name** box, enter a name to assign to the task. The name distinguishes this task from other scheduled tasks for easy identification.
- 7 Use the **Schedule** radio buttons to set how often you want the task to run.
  - When you choose **One Time Only**, Scheduler Server executes the task only once at the time you specify.
  - When you choose **Every Month on the \_\_ Day**, Scheduler Server executes the task every month on the day of the month and at the time you specify.

- When you choose **Every Week on \_\_**, Scheduler Server executes the task every week on the day of the week and at the time you specify.
  - When you choose **Every \_\_ Days**, Scheduler Server executes the task at the interval and time you specify.
  - When you choose **Every Day**, Scheduler Server executes the task every day at the time you specify.
- 8 In the **Starting date/time** boxes, set the date and time you want Scheduler Server to execute the task.
  - 9 Click **Set**.

Scheduler Server schedules the task and will execute it at the set time.

## Scheduling tasks

You can schedule upload, download, backup, restore, archive, synchronize, and device upgrade operations to occur at a specific time, either once or on a recurring basis. The Scheduler server stores information about all scheduled tasks and runs in the background, letting Scheduler Server perform scheduled tasks even when Enterprise Switch Manager is not running. Scheduler Server maintains a list of all scheduled tasks, even after an operating system reboot.



**Note:** In order to schedule tasks, Scheduler Server must be installed and running on your system. For information about installing Scheduler Server, see *Installing Enterprise Switch Manager*.

---

To schedule a task:

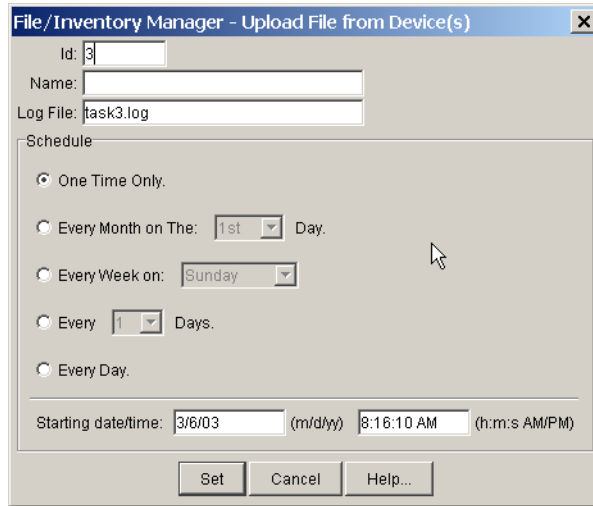
- 1 Complete the upload, download, backup, restore, archive, synchronize, or device upgrade procedure steps for the specific device type until you reach the step in which you have the option of completing the procedure or clicking **Schedule**.
- 2 Click **Schedule**.  
An alert box appears to prompt whether you want to schedule the task for that device.
- 3 Click **Yes**.



The **Schedule** dialog box for the procedure appears. For more information, see “[Schedule dialog box](#)” on page 436.

Figure 119 shows the **Schedule** dialog box for an upload procedure.

**Figure 119** Upload File from Device(s) schedule dialog box



- 4 In the **Name** box, enter a name to assign to the task. The name distinguishes this task from other scheduled tasks for easy identification.
- 5 Use the **Schedule** radio buttons to set how often you want the task to run.
  - When you choose **One Time Only**, Scheduler Server executes the task only once at the time you specify.
  - When you choose **Every Month on the \_\_ Day**, Scheduler Server executes the task every month on the day of the month and at the time you specify.
  - When you choose **Every Week on \_\_**, Scheduler Server executes the task every week on the day of the week and at the time you specify.
  - When you choose **Every \_\_ Days**, Scheduler Server executes the task at the interval and time you specify.
  - When you choose **Every Day**, Scheduler Server executes the task every day at the time you specify.
- 6 In the **Starting date/time** boxes, set the date and time you want Scheduler Server to execute the task.

**7** Click **Set**.

Scheduler Server schedules the task and executes it at the set time. To view the log file Scheduler Server creates when it executes this task, see [“Viewing scheduled task log files”](#).

**Viewing scheduled tasks**

Enterprise Switch Manager allows you to view a list of all the tasks you schedule. From the **View Scheduled Task** dialog box you can also cancel tasks and view the task log file that Enterprise Switch Manager creates when it executes a scheduled task.



**Note:** In order to schedule tasks, Scheduler Server must be installed and running on your system. For information about installing Scheduler Server, see *Installing Enterprise Switch Manager*.

---

To view the list of scheduled tasks:

- ➔ From the Enterprise Switch Manager menu bar, choose **View > Scheduled Task**.

The **View Scheduled Task** dialog box appears. For more information about the **View Scheduled Task** dialog box, see [“View Scheduled Task dialog box” on page 437](#).

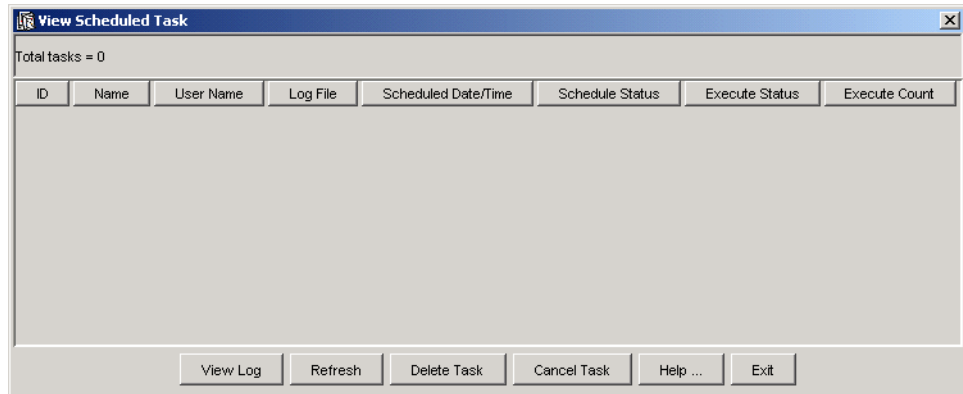
**Viewing scheduled task log files**

To view the log file that Enterprise Switch Manager creates when it executes a scheduled task:

- 1** From the Enterprise Switch Manager menu bar, choose **View > Scheduled Task**.

The **View Scheduled Task** dialog box appears ([Figure 120](#)).

**Figure 120** View scheduled task dialog box



- 2 For more information about the **View Scheduled Task** dialog box, see [“View Scheduled Task dialog box”](#) on page 437.
- 3 In the **ID** column, select the ID of the task whose log file you want to view.
- 4 Click **View Log**.

The **Log File:(log file name)** dialog box appears and displays the contents of the selected task log file.

## Cancelling scheduled tasks

You can view all scheduled tasks and cancel tasks you do not want Scheduler Server to execute.



**Note:** Only the user who created a scheduled task can cancel or delete the task.

To cancel a scheduled task:

- 1 From the Enterprise Switch Manager menu bar, choose **View > Scheduled Task**.

The **View Scheduled Task** dialog box appears.

2 Select the ID of the task that you want to cancel.

3 Click **Cancel Task**.

Scheduler Server will not execute the task. However, the task remains in the task list until you delete it (See [“Deleting scheduled tasks” on page 364](#)).

## Deleting scheduled tasks

The **View Scheduled Task** dialog box maintains a list of all scheduled tasks and does not remove tasks from the list after it executes them. To remove a task from the task list, you must delete it.

To delete a task from the **View Scheduled Task** dialog box:

1 From the Enterprise Switch Manager menu bar, choose **View > Scheduled Task**.

The **View Scheduled Task** dialog box appears. For more information, see [“View Scheduled Task dialog box” on page 437](#).

2 Select the ID of the task that you want to delete.

3 Click **Delete**.

The Scheduler removes the task from the list of scheduled tasks.

## Viewing the File/Inventory Manager log

The File/Inventory Manager log allows you to view the log file to which File/Inventory Manager writes the results of all download, upload, backup, restore, archive, synchronize, and device upgrade operations.

To view the File/Inventory Manager log:

➔ On the File/Inventory Manager menu bar, choose **View > File Inventory Manager Log**.

A dialog box appears to let you select the log file to view.

## Highlighting devices on the topology map

File/Inventory Manager allows you to highlight devices of the selected family (Ethernet Routing Switch 8000, Ethernet Routing Switch 1424/16xx, Ethernet Routing Switch 55xx/35xx, Passport 1000, WLAN AP, Legacy BayStack, Ethernet Switch, or Alteon) or an individual device on the Enterprise Switch Manager topology view.

To view network inventory devices on the Enterprise Switch Manager topology map:

- ➔ On the File/Inventory Manager menu bar, choose **View > Highlight Topology**.

Enterprise Switch Manager highlights devices of the selected family or the individual device on the topology map.

## Finding elements in the inventory

File/Inventory Manager allows you to find devices and elements in the network inventory.

To find a device or element in the inventory:

- 1 On the File/Inventory Manager toolbar, click **Find**.  
Or, from the menu bar, choose **Edit > Find**.  
The **Find** dialog box appears.
- 2 In the **Find** text box, type the text or number for your search.
- 3 In the **In** section, click the **Tree** option to search the navigation pane, or click the **Table** option to search the contents pane.
- 4 In the **From** section, choose whether you want to start the search from the current selection or from the start of the table or tree.
- 5 Click **Next**.

File/Inventory Manager starts its search and highlights the first match it finds.

File/Inventory Manager searches tables starting from either the selected cell or from the upper left cell. If the **By Row** check box is not checked, it searches all the cells in a column before going to the next column to the right. If the **By Row** check box is checked, it searches all the cells in a row before searching the next row.

- 6 If a first match was found, click **Next** to find each subsequent match, or click **Previous** to go back to your last match.

## Printing inventory information

File/Inventory Manager allows you to print either the contents of the current table in the content pane or the folder hierarchy in the navigation pane.

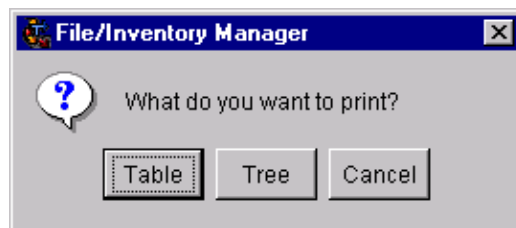
To print the folder tree or current tab:

- 1 On the File/Inventory Manager toolbar, click **Print**.

Or, from the File/Inventory Manager menu bar, choose **File > Print**.

An alert box appears to prompt whether you want to print the contents of the current tab (**Table**), or the navigation hierarchy (**Tree**) as shown in [Figure 121](#).

**Figure 121** Print alert box

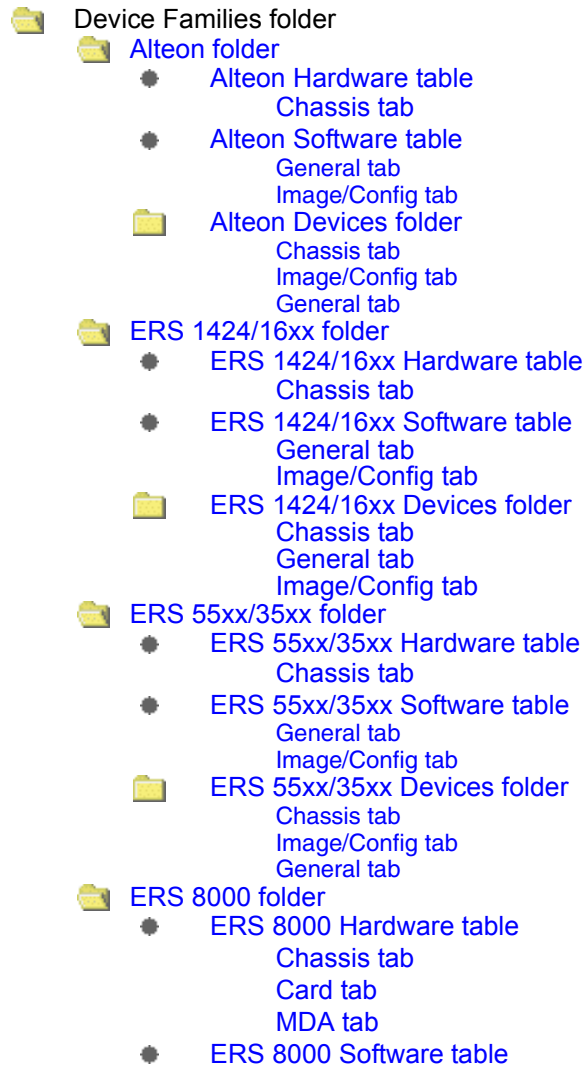


- 2 Click either **Table** or **Tree**, depending on what you want to print.  
The operating system opens a **Print** dialog box.
- 3 Use the **Print** dialog box to select the printer and set printing parameters, and click **OK**.

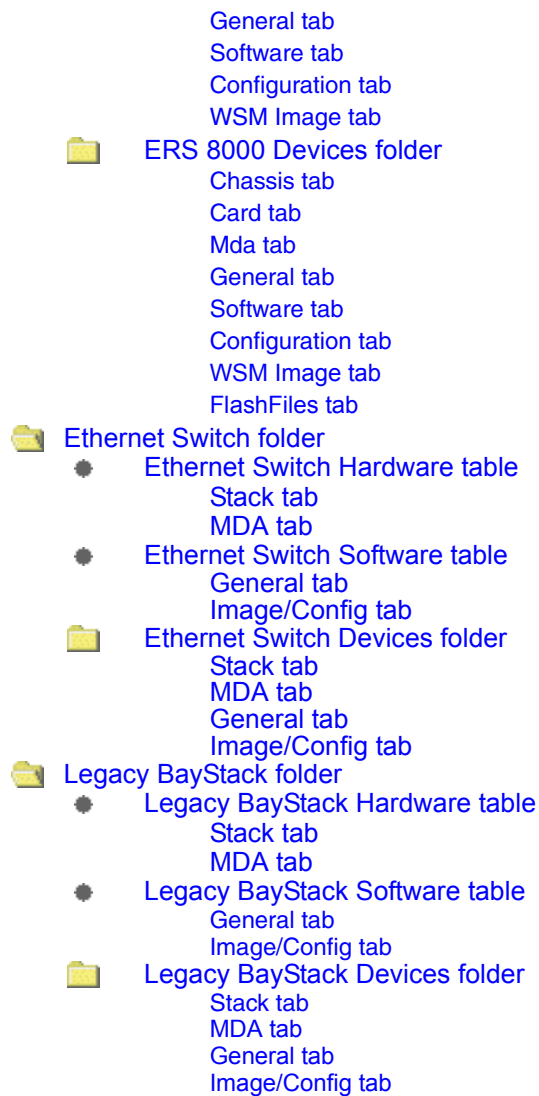
## Understanding the File/Inventory Manager navigation tree

Figure 122 shows the File/Inventory Manager navigation tree. Depending on the devices that were discovered, your File/Inventory Manager window may show folders that are not listed here, and may not show folders that are listed.

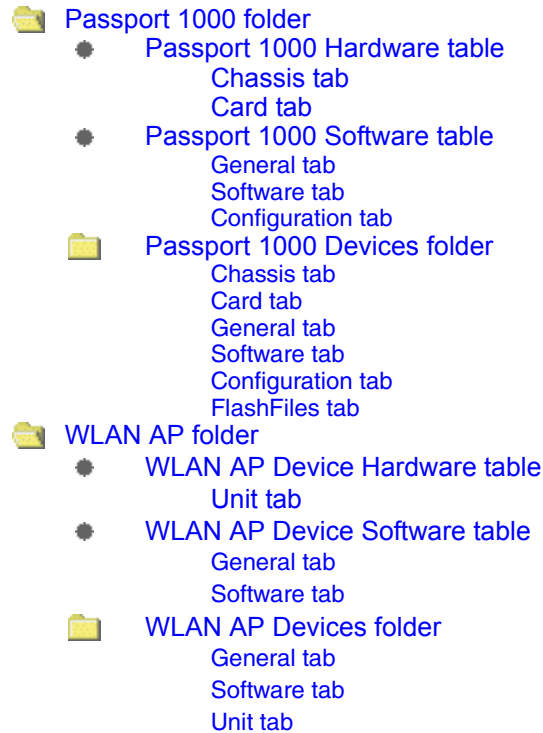
**Figure 122** File/Inventory Manager navigation tree



**Figure 122** File/Inventory Manager navigation tree (continued)





**Figure 122** File/Inventory Manager navigation tree (continued)

## Alteon folder

Use the **Alteon** folder to view information about Alteon hardware, software, and devices in the network inventory.

[Table 110](#) describes the parts of the **Alteon** folder.

**Table 110** Parts of the Alteon folder

| Part                                  | Description  |
|---------------------------------------|--|
| <a href="#">Alteon Hardware table</a> | Shows you information about Alteon hardware in the network inventory.                    |
| <a href="#">Alteon Software table</a> | Shows you information about Alteon software in the network inventory.                    |
| <a href="#">Alteon Devices folder</a> | Shows you information about specific Alteon devices and stacks in the network inventory. |

## Alteon Hardware table

Use the Alteon **Hardware** table to view information about Alteon chassis in the network inventory.

### Chassis tab

The **Chassis** tab of the Alteon **Hardware** table shows information about Alteon chassis.

[Table 111](#) describes the parts of the **Chassis** tab of the Alteon **Hardware** table.

**Table 111** Parts of the Chassis tab of the Alteon Hardware table

| Part       | Description   |
|------------|---|
| No.        | Shows the row number of the table entry.            |
| Device     | Shows the IP address or hostname of the device.     |
| PartNumber | Shows the serial number for the device.             |
| Revision   | Shows the current hardware revision of the chassis. |

## Alteon Software table

Use the **Software** table of the [Alteon folder](#) to view information about agent images and configuration files for Alteon devices in the network inventory.

[Table 112](#) describes the parts of the Alteon **Software** table.

**Table 112** Parts of the Alteon Software table

| Part                             | Description  |
|----------------------------------|--|
| <a href="#">General tab</a>      | Allows you to view general information about the software currently running on Alteon devices. |
| <a href="#">Image/Config tab</a> | Allows you to view information about the image and configuration files for Alteon devices.     |

## General tab

Use the **General** tab of the [Alteon Software table](#) to view general information about the software currently running on an Alteon device.

[Table 113](#) describes the parts of the **General** tab.

**Table 113** Parts of the General tab of the Alteon Software folder

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.   |
| Device      | Shows the IP address or hostname of the device.  |
| Type        | Shows the device type.   |
| SysName     | Shows the device system name (if any).   |
| Description | Shows a description of the device, including hardware, firmware, and software version levels if available. |
| Location    | Shows the location of the device.  |
| Contact     | Shows the administrative contact for the device.   |
| UpTime      | Shows the elapsed time since last reset for the device.  |

## Image/Config tab

Use the **Image/Config** tab of the [Alteon Software table](#) to view information about the image and configuration files for an Alteon device.

[Table 114](#) describes the parts of the **Image/Config** tab.

**Table 114** Parts of the Image/Config tab of the Alteon Software table

| Part              | Description                                       |
|-------------------|---|
| No.               | Shows the row number of the table entry.          |
| Device            | Shows the IP address or hostname of the device.   |
| SoftwareVersion   | Shows the software version of the image.          |
| EnabledSWFeatures | Shows the enabled software features of the image. |
| BootVer           | Shows the boot version of the image.              |
| Image1Ver         | Shows the version number of image 1.              |
| Image2Ver         | Shows the version number of image 2.              |

**Table 114** Parts of the Image/Config tab of the Alteon Software table (continued)

| Part              | Description  |
|-------------------|--|
| ImageForNxtReset  | Shows the image file that will be loaded the next time the switch resets.  |
| ConfigForNxtReset | Shows the configuration file that will be loaded the next time the switch resets.  |
| ApplyPending      | Indicates that changes made to the configuration file need to be applied.  |
| SavePending       | Indicates that a save action is required because the configuration has been applied but has not been saved to the flash. |

## Alteon Devices folder

Use the Alteon **Devices** folder to view information for all applied categories of hardware and software inventory for all of the Alteon devices discovered on the network.

[Table 115](#) describes the tabs available for each device in the Alteon **Devices** folder.

**Table 115** Parts of the Alteon Devices folder

| Part                             | Description   |
|----------------------------------|---|
| <a href="#">General tab</a>      | Allows you to view general information about the software currently running on Alteon devices.      |
| <a href="#">Image/Config tab</a> | Allows you to view information about the software image and configuration files for Alteon devices. |
| <a href="#">Chassis tab</a>      | Allows you to view information about Alteon device hardware.  |

## General tab

Use the **General** tab of the [Alteon Devices folder](#) to view general information about the selected Alteon device.

[Table 116](#) describes the parts of the **General** tab.

**Table 116** Parts of the General tab of the Alteon Devices folder

| Part        | Description  |
|-------------|--|
| Type        | Shows the device type.   |
| SysName     | Shows the device system name (if any).   |
| Description | Shows a description of the device, including hardware, firmware, and software version levels if available. |
| Location    | Shows the location of the device.  |
| Contact     | Shows the administrative contact for the device.   |
| UpTime      | Shows the elapsed time since last reset for the device.  |

## Image/Config tab

[Table 117](#) describes the parts of the **Image/Config** tab.

**Table 117** Parts of the Image/Config tab of the Alteon Devices folder

| Part              | Description  |
|-------------------|--|
| SoftwareVersion   | Shows the software version of the image.   |
| EnabledSWFeatures | Shows the enabled software features of the image.  |
| BootVer           | Shows the boot version of the image.   |
| Image1Ver         | Shows the version number of image 1.   |
| Image2Ver         | Shows the version number of image 2.   |
| ImageForNxtReset  | Shows the image file that will be loaded the next time the card resets.  |
| ConfigForNxtReset | Shows the configuration file that will be loaded the next time the card resets.  |
| ApplyPending      | Indicates that changes made to the configuration file need to be applied.  |
| SavePending       | Indicates that a save action is required because the configuration has been applied but has not been saved to the flash. |

## Chassis tab

[Table 118](#) describes the parts of the **Chassis** tab

**Table 118** Parts of the Chassis tab of the Alteon Devices table

| Part              | Description   |
|-------------------|---|
| PartNumber        | Shows the serial number of the device chassis.              |
| Revision          | Shows the current hardware revision of the device chassis.  |
| PowerSupplyStatus | Shows the status of the power supply to the device chassis. |

## ERS 1424/16xx folder

Use the **ERS 1424/16xx** folder to view information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 hardware, software, and devices in the network inventory.

[Table 119](#) describes the parts of the **ERS 1424/16xx** folder.

**Table 119** Parts of the ERS 1424/16xx folder

| Part   | Description  |
|--|--|
| <a href="#">ERS 55xx/35xx Hardware table</a> | Shows information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 device hardware in the network inventory.             |
| <a href="#">ERS 55xx/35xx Software table</a> | Shows information about software running on Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices in the network inventory. |
| <a href="#">ERS 55xx/35xx Devices folder</a> | Shows information about each of the Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices discovered on the network.        |

## ERS 1424/16xx Hardware table

Use the **ERS 1424/16xx Hardware** table to view information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 device hardware in the network inventory.

[Table 120](#) describes the parts of the **ERS 1424/16xx Hardware** table.

**Table 120** Parts of the ERS 1424/16xx Hardware table

| Part                        | Description   |
|-----------------------------|---|
| <a href="#">Chassis tab</a> | Shows information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 chassis. |

## Chassis tab

Use the **Chassis** tab of the [ERS 55xx/35xx folder](#) to view information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 chassis.

[Table 121](#) describes the parts of the **Chassis** tab.

**Table 121** Parts of the Chassis tab of the ERS 1424/16xx Hardware table

| Part               | Description  |
|--------------------|--|
| No.                | Shows the row number of the table entry.                   |
| Device             | Shows the IP address or host name for the device.          |
| ModuleType         | Shows the Ethernet Routing Switch module type.             |
| HwRevision         | Shows the current hardware revision of the device chassis. |
| DeviceSerialNumber | Shows the serial number of the device.                     |

## ERS 1424/16xx Software table

Use the **ERS 1424/16xx Software** table to view information about software running on Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices in the network inventory.

[Table 122](#) describes the parts of the **ERS 1424/16xx Software** table.

**Table 122** Parts of the ERS 1424/16xx Software table

| Part                             | Description  |
|----------------------------------|--|
| <a href="#">General tab</a>      | Shows general information about software running on Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices in the network inventory. |
| <a href="#">Image/Config tab</a> | Shows information about software configuration settings.   |

### General tab

Use the **General** tab of the [ERS 1424/16xx Software table](#) to view general information about the software running on Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices.

[Table 123](#) describes the parts of the **General** tab.

**Table 123** Parts of the General tab of the ERS 1424/16xx Software table

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.                     |
| Device      | Shows the IP address or hostname of the device.              |
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |



## Image/Config tab

Use the **Image/Config** tab of the [ERS 55xx/35xx Software table](#) to view information about image and configuration files loaded on the Ethernet Routing Switch 1424, 1612, 1624, and 1648 device.

[Table 124](#) describes the parts of the **Image/Config** tab.

**Table 124** Parts of the Image/Config tab of the ERS 1424/16xx software table

| Part             | Description  |
|------------------|--|
| No.              | Shows the row number of the table entry.   |
| Device           | Shows the IP address or hostname of the device.  |
| PromFWVersion    | Shows the version number of the agent PROM firmware.   |
| RuntimeSWVersion | Shows the version number of the runtime software.  |
| FirmwareFile     | Shows the filename of the last image/firmware file downloaded to the device.                 |
| ConfigFName      | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

## ERS 1424/16xx Devices folder

Use the ERS 1424/16xx **Devices** folder to view information about each of the Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices discovered on the network.

For each device in the **Devices** folder, File/Inventory Manager displays the following tabs in the content pane:

**Table 125** Parts of the ERS 1424/16xx Devices folder

| Part                             | Description  |
|----------------------------------|--|
| <a href="#">Chassis tab</a>      | Shows information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 chassis.  |
| <a href="#">General tab</a>      | Shows general information about software running on Ethernet Routing Switch 1424, 1612, 1624, and 1648 devices in the network inventory. |
| <a href="#">Image/Config tab</a> | Shows information about software configuration settings.   |



**Note:** The content pane displays the tabs described in [Table 125](#), only when you select a device from the device folder.

---

## Chassis tab

Use the **Chassis** tab of the [ERS 1424/16xx Devices folder](#) to view information about Ethernet Routing Switch 1424, 1612, 1624, and 1648 chassis.

[Table 126](#) describes the parts of the **Chassis** tab.

**Table 126** Parts of the Chassis tab of the ERS 1424/16xx Devices folder

| Part               | Description  |
|--------------------|--|
| ModuleType         | The Ethernet Routing Switch module type.             |
| HwRevision         | The current hardware revision of the device chassis. |
| DeviceSerialNumber | Serial number for the device.                        |

## General tab

Use the **General** tab of the [ERS 1424/16xx Devices folder](#) to view general information about the selected Ethernet Routing Switch 1424, 1612, 1624, and 1648 device.

[Table 127](#) describes the parts of the **General** tab.

**Table 127** Parts of the General tab of the ERS 1424/16xx Devices folder

| Part        | Description  |
|-------------|--|
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Image/Config tab

Use the **Image/Config** tab of the [ERS 1424/16xx Devices folder](#) to view information about image and configuration files loaded on the device.

[Table 128](#) describes the parts of the **Image/Config** tab.

**Table 128** Parts of the Image/Config tab of the ERS 1424/16xx Devices folder

| Part             | Description  |
|------------------|--|
| PromFWVersion    | Shows the version number of the agent PROM firmware.   |
| RuntimeSWVersion | Shows the version number of the runtime software.  |
| FirmwareFile     | Shows the filename of the last image or firmware file downloaded to the device.              |
| ConfigFName      | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

## ERS 55xx/35xx folder

Use the **ERS 55xx/35xx** folder to view information about Ethernet Routing Switch 5510, 5520, 5530, and 3510 hardware, software, and devices in the network inventory.

[Table 129](#) describes the parts of the **ERS 55xx/35xx** folder.

**Table 129** Parts of the ERS 55xx/35xx folder

| Part   | Description   |
|--|---|
| <a href="#">ERS 55xx/35xx Hardware table</a> | Shows information about Ethernet Routing Switch 55xx and 35xx device hardware in the network inventory.             |
| <a href="#">ERS 55xx/35xx Software table</a> | Shows information about software running on Ethernet Routing Switch 55xx and 35xx devices in the network inventory. |
| <a href="#">ERS 55xx/35xx Devices folder</a> | Shows information about each of the Ethernet Routing Switch 55xx and 35xx devices discovered on the network.        |

## ERS 55xx/35xx Hardware table

Use the **ERS 55xx/35xx Hardware** table to view information about Ethernet Routing Switch 55xx and 35xx device hardware in the network inventory.

[Table 130](#) describes the parts of the **ERS 55xx/35xx Hardware** table.

**Table 130** Parts of the ERS 55xx/35xx Hardware table

| Part                        | Description  |
|-----------------------------|--|
| <a href="#">Chassis tab</a> | Shows information about Ethernet Routing Switch 55xx and 35xx chassis. |

### Chassis tab

Use the **Chassis** tab of the [ERS 55xx/35xx folder](#) to view information about Ethernet Routing Switch 55xx and 35xx chassis.

[Table 131](#) describes the parts of the **Chassis** tab.

**Table 131** Parts of the Chassis tab of the ERS 55xx/35xx Hardware table

| Part               | Description  |
|--------------------|--|
| No.                | Shows the row number of the table entry.                   |
| Device             | Shows the IP address or host name for the device.          |
| ModuleType         | Shows the Ethernet Routing Switch module type.             |
| HwRevision         | Shows the current hardware revision of the device chassis. |
| DeviceSerialNumber | Shows the serial number of the device.                     |

## ERS 55xx/35xx Software table

Use the ERS 55xx/35xx **Software** table to view information about software running on Ethernet Routing Switch 55xx and 35xx devices in the network inventory.

[Table 132](#) describes the parts of the ERS 55xx/35xx **Software** table.

**Table 132** Parts of the ERS 55xx/35xx Software table

| Part                             | Description  |
|----------------------------------|--|
| <a href="#">General tab</a>      | Shows general information about software running on Ethernet Routing Switch (legacy) 55xx and 35xx devices in the network inventory. |
| <a href="#">Image/Config tab</a> | Shows information about software configuration settings.   |

### General tab

Use the **General** tab of the [ERS 55xx/35xx Software table](#) to view general information about the software running on Ethernet Routing Switch 55xx and 35xx devices.

[Table 133](#) describes the parts of the **General** tab.

**Table 133** Parts of the General tab of the ERS 55xx/35xx Software table

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.                     |
| Device      | Shows the IP address or hostname of the device.              |
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Image/Config tab

Use the **Image/Config** tab of the [ERS 55xx/35xx Software table](#) to view information about image and configuration files loaded on the Ethernet Routing Switch 55xx and 35xx devices.

[Table 134](#) describes the parts of the **Image/Config** tab.

**Table 134** Parts of the Image/Config tab of the ERS 55xx/35xx software table

| Part             | Description  |
|------------------|--|
| No.              | Shows the row number of the table entry.   |
| Device           | Shows the IP address or hostname of the device.  |
| PromFWVersion    | Shows the version number of the agent PROM firmware.   |
| RuntimeSWVersion | Shows the version number of the runtime software.  |
| FirmwareFile     | Shows the filename of the last image/firmware file downloaded to the device.                 |
| ConfigFName      | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

## ERS 55xx/35xx Devices folder

Use the ERS 55xx/35xx **Devices** folder to view information about each of the Ethernet Routing Switch 55xx and 35xx devices discovered on the network.

For each device in the **Devices** folder, File/Inventory Manager displays the following tabs in the content pane:

**Table 135** Parts of the ERS 55xx/35xx Devices folder

| Part                             | Description   |
|----------------------------------|---|
| <a href="#">Chassis tab</a>      | Shows information about Ethernet Routing Switch 55xx and 35xx chassis.  |
| <a href="#">General tab</a>      | Shows general information about software running on Ethernet Routing Switch 55xx and 35xx devices in the network inventory. |
| <a href="#">Image/Config tab</a> | Shows information about software configuration settings.  |



**Note:** The content pane displays the tabs described in [Table 135](#), only when you select a device from the device folder.

## Chassis tab

Use the **Chassis** tab of the [ERS 55xx/35xx Devices folder](#) to view information about Ethernet Routing Switch 55xx and 35xx chassis.

[Table 136](#) describes the parts of the **Chassis** tab.

**Table 136** Parts of the Chassis tab of the ERS 55xx/35xx Devices folder

| Part               | Description  |
|--------------------|--|
| ModuleType         | The Ethernet Routing Switch module type.             |
| HwRevision         | The current hardware revision of the device chassis. |
| DeviceSerialNumber | Serial number for the device.                        |

## General tab

Use the **General** tab of the [ERS 55xx/35xx Devices folder](#) to view general information about the selected Ethernet Routing Switch 55xx and 35xx device.

[Table 137](#) describes the parts of the **General** tab.

**Table 137** Parts of the General tab of the ERS 55xx/35xx Devices folder

| Part        | Description  |
|-------------|--|
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Image/Config tab

Use the **Image/Config** tab of the [ERS 55xx/35xx Devices folder](#) to view information about image and configuration files loaded on the device.

[Table 138](#) describes the parts of the **Image/Config** tab.

**Table 138** Parts of the Image/Config tab of the ERS 55xx/35xx Devices folder

| Part             | Description  |
|------------------|--|
| PromFWVersion    | Shows the version number of the agent PROM firmware.   |
| RuntimeSWVersion | Shows the version number of the runtime software.  |
| FirmwareFile     | Shows the filename of the last image or firmware file downloaded to the device.              |
| ConfigFName      | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

## ERS 8000 folder

Use the **ERS 8000** folder to view information about Ethernet Routing Switch 8000 hardware, software, and devices in the network inventory.

[Table 139](#) describes the parts of the **ERS 8000** folder.

**Table 139** Parts of the ERS 8000 folder

| Part                                    | Description  |
|---|--|
| <a href="#">ERS 8000 Hardware table</a> | Shows information about Ethernet Routing Switch 8000 device hardware in the network inventory.             |
| <a href="#">ERS 8000 Software table</a> | Shows information about software running on Ethernet Routing Switch 8000 devices in the network inventory. |
| <a href="#">ERS 8000 Devices folder</a> | Shows information about each of the Ethernet Routing Switch 8000 devices discovered on the network.        |



## ERS 8000 Hardware table

Use the **ERS 8000 Hardware** table to view information about Ethernet Routing Switch 8000 device hardware in the network inventory.

[Table 140](#) describes the parts of the **ERS 8000 Hardware** table.

**Table 140** Parts of the ERS 8000 Hardware table

| Part                        | Description   |
|-----------------------------|---|
| <a href="#">Chassis tab</a> | Shows information about Ethernet Routing Switch 8000 family chassis.                    |
| <a href="#">Card tab</a>    | Shows information about cards installed in Ethernet Routing Switch 8000 family chassis. |
| <a href="#">MDA tab</a>     | Shows information about MDAs installed in Ethernet Routing Switch 8000 family chassis.  |

### Chassis tab

Use the **Chassis** tab of the [ERS 8000 Hardware table](#) to view information about Ethernet Routing Switch 8000 family chassis.

[Table 141](#) describes the parts of the **Chassis** tab.

**Table 141** Parts of the Chassis tab of the ERS 8000 Hardware table

| Part              | Description  |
|-------------------|--|
| No.               | Shows the row number of the table entry.   |
| Device            | Shows the IP address or host name for the device.  |
| Type              | Shows the module type.   |
| SerialNumber      | Shows the serial number for the device.  |
| Hardware Revision | Shows the current hardware revision of the device chassis.   |
| NumSlots          | Shows the number of slots (or cards) this device can contain.  |
| NumPorts          | Shows the number of ports currently on this device.  |
| BaseMacAddr       | Shows the starting point of the block of MAC addresses used by the switch for logical and physical interfaces. |

**Table 141** Parts of the Chassis tab of the ERS 8000 Hardware table (continued)

| Part       | Description   |
|------------|---|
| HaCpu      | Shows you the L2 redundancy on the master CPU is enabled or disabled.   |
| StandbyCpu | Shows you whether the L2 Redundancy is enabled on the standby CPU. The possible states are: <ul style="list-style-type: none"> <li>• hotStandbyCPU</li> <li>• warmStandbyCPU</li> <li>• standbyCPUNotPresent</li> </ul> |

## Card tab

Use the **Card** tab of the [ERS 8000 Hardware table](#) to view information about cards installed in Ethernet Routing Switch 8000 series chassis.

[Table 142](#) describes the parts of the **Card** tab.

**Table 142** Parts of the Card tab of the ERS 8000 Hardware table

| Part             | Description   |
|------------------|---|
| No.              | Shows the row number of the table entry.  |
| Device           | Shows the IP address or hostname of the device.   |
| SlotNum          | Shows the slot numbers of cards installed in the chassis.   |
| FrontType        | Indicates the card types in Ethernet Routing Switch 8000 Series devices. Front refers to the I/O portion of the module, the I/O card. |
| FrontDescription | Shows the model number of the module (for example, 8608GT).   |
| FrontSerialNum   | Shows the serial number of the I/O card.  |
| FrontHwVersion   | Shows the hardware version of the I/O card.   |
| FrontPartNumber  | Shows the part number of the I/O card.  |
| FrontDateCode    | Shows the manufacturing date code for the I/O card.   |
| FrontDeviations  | Shows front deviations for the card.  |

**Table 142** Parts of the Card tab of the ERS 8000 Hardware table (continued)

| Part            | Description  |
|-----------------|--|
| BackType        | Shows the back type of the card. Possible values are: <ul style="list-style-type: none"> <li>• rc2kBackplane</li> <li>• rc2kSFM</li> <li>• rc2kBFM0</li> <li>• rc2kBFM2</li> <li>• rc2kBFM3</li> <li>• rc2kBFM6</li> <li>• rc2kBFM8</li> <li>• rc2kMGSFM</li> <li>• other</li> </ul> |
| BackDescription | Shows the back description for the card.   |
| BackSerialNum   | Shows the back serial number for the card.   |
| BackHwVersion   | Shows the back hardware version for the card.  |
| BackPartNumber  | Shows the back part number for the card.   |
| BackDateCode    | Shows the back date code for the card.   |
| BackDeviations  | Shows the back deviations for the card.  |

### MDA tab

Use the **MDA** tab of the [ERS 8000 Hardware table](#) to view information about MDA installed in Ethernet Routing Switch 8000 family devices in the network inventory.

[Table 143](#) describes the parts of the **MDA** tab.

**Table 143** Parts of the MDA tab of the ERS 8000 Hardware table

| Part    | Description   |
|---------|---|
| No.     | Shows the row number of the table entry.                                      |
| Device  | Shows the IP address or hostname of the device in which the MDA is installed. |
| SlotNum | Shows the identity of the slot in which the MDA is installed.                 |
| MdaNum  | Shows the number of the MDA.  |
| Type    | Shows the type of the MDA.  |

**Table 143** Parts of the MDA tab of the ERS 8000 Hardware table (continued)

| Part        | Description   |
|-------------|---|
| Description | Shows the MDA description. Possible values include: <ul style="list-style-type: none"> <li>• OC-3c SMF MDA--Dual port OC-3c SMF</li> <li>• OC-3c MMF MDA--Dual port OC-3c MMF</li> <li>• OC-12c SMF MDA -- Single Port OC-12c SMF</li> <li>• OC-12c MMF MDA --Single Port OC-12c MMF</li> </ul> |
| NumPorts    | Shows the number of ports on the MDA.   |

## ERS 8000 Software table

Use the ERS 8000 **Software** table to view information about software running on Ethernet Routing Switch 8000 devices in the network inventory.

[Table 144](#) describes the parts of the ERS 8000 **Software** table.

**Table 144** Parts of the ERS 8000 Software table

| Part                              | Description   |
|-----------------------------------|---|
| <a href="#">General tab</a>       | Shows general information about software running on Ethernet Routing Switch 8000 family devices in the network inventory. |
| <a href="#">Software tab</a>      | Shows information about software versions and sources.  |
| <a href="#">Configuration tab</a> | Shows information about software configuration settings.  |
| <a href="#">WSM Image tab</a>     | Shows information about WSM images.   |

### General tab

Use the **General** tab of the [ERS 8000 Software table](#) to view general information about software running on Ethernet Routing Switch 8000 family devices on the network.

[Table 145](#) describes the parts of the **General** tab.

**Table 145** Parts of the General tab of the ERS 8000 Software table

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.                     |
| Device      | Shows the IP address or hostname of the device.              |
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Software tab

Use the **Software** tab of the [ERS 8000 Software table](#) to view information about the software running on cards installed in the Ethernet Routing Switch 8000 family chassis. The table on the tab will have one row for each CPU card in the chassis.

[Table 146](#) describes the parts of the **Software** tab.

**Table 146** Parts of the Software tab of the ERS 8000 Software table

| Part                    | Description   |
|-------------------------|---|
| No.                     | Shows the row number of the table entry.                            |
| Device                  | Shows the IP address or hostname of the device.                     |
| Slot                    | Shows the slot number of the card on which the software is running. |
| SwVersion               | Shows the version number of the software.                           |
| LastRuntime ImageSource | Shows the name of the file from which the runtime image was loaded. |
| PrimaryImage Source     | Shows the name of the file from which the primary image was loaded. |

## Configuration tab

Use the **Configuration** tab of the [ERS 8000 Software table](#) to view information about configuration files loaded on the device. The table on the tab will have one row for each CPU card in the chassis.

[Table 147](#) describes the parts of the **Configuration** tab.

**Table 147** Parts of the Configuration tab of the ERS 8000 Software table

| Part                     | Description   |
|--------------------------|---|
| No.                      | Shows the row number of the table entry.  |
| Device                   | Shows the IP address or hostname of the device.   |
| Slot                     | Shows the slot number of the card on which the software is running.                           |
| LastBootConfig Source    | Shows the name and location of the file from which the last boot configuration was loaded.    |
| LastRuntime ConfigSource | Shows the name and location of the file from which the last runtime configuration was loaded. |
| PrimaryConfig Source     | Shows the name and location of the file from which the last primary configuration was loaded. |

## WSM Image tab

Use the **WSM Image** tab of the [ERS 8000 Software table](#) to view information about WSM image software running on Ethernet Routing Switch 8000 family devices.

[Table 148](#) describes the parts of the **WSM Image** tab.

**Table 148** Parts of the WSM Image tab of the ERS 8000 Software table

| Part               | Description   |
|--------------------|---|
| No.                | Shows the row number of the table entry.                            |
| Device             | Shows the IP address or hostname of the device.                     |
| SlotNum            | Shows the slot number of the card on which the software is running. |
| Software Version   | Shows the software version of the WSM image.                        |
| Enabled SwFeatures | Shows the enabled features of the WSM image.                        |

**Table 148** Parts of the WSM Image tab of the ERS 8000 Software table

| Part               | Description  |
|--------------------|--|
| BootVer            | Shows the boot version of the WSM image.   |
| Image1Ver          | Shows the version number of WSM image 1.   |
| Image2Ver          | Shows the version number of WSM image 2.   |
| ImageForNxt Reset  | Shows the image file that will be loaded the next time the WSM card resets.  |
| ConfigForNxt Reset | Shows the configuration file that will be loaded the next time the WSM card resets.                                      |
| SavePending        | Indicates that a save action is required because the configuration has been applied but has not been saved to the flash. |

## ERS 8000 Devices folder

Use the ERS 8000 **Devices** folder to view information about each of the Ethernet Routing Switch 8000 devices discovered on the network.

[Table 149](#) describes the parts of the ERS 8000 **Devices** folder.

**Table 149** Parts of the ERS 8000 Devices folder

| Part                              | Description   |
|-----------------------------------|---|
| <a href="#">Chassis tab</a>       | Shows information about Ethernet Routing Switch 8000 family chassis.  |
| <a href="#">Card tab</a>          | Shows information about cards installed in Ethernet Routing Switch 8000 series chassis.                                   |
| <a href="#">Mda tab</a>           | Shows information about MDA installed in Ethernet Routing Switch 8000 family devices in the network inventory.            |
| <a href="#">General tab</a>       | Shows general information about software running on Ethernet Routing Switch 8000 family devices in the network inventory. |
| <a href="#">Software tab</a>      | Shows information about software versions and sources.  |
| <a href="#">Configuration tab</a> | Shows information about software configuration settings.  |
| <a href="#">WSM Image tab</a>     | Shows information about WSM images.   |
| <a href="#">FlashFiles tab</a>    | Shows information about the files in the flash memory of Ethernet Routing Switch 8000 family devices.                     |

## Chassis tab

Use the **Chassis** tab of the [ERS 8000 Devices folder](#) to view information about the Ethernet Routing Switch 8000 device chassis.

[Table 150](#) describes the parts of the **Chassis** tab.

**Table 150** Parts of the Chassis tab of the ERS 8000 Devices folder

| Part              | Description   |
|-------------------|---|
| Type              | Shows the module type.  |
| SerialNumber      | Shows the serial number for the device.   |
| Hardware Revision | Shows the current hardware revision of the device chassis.  |
| NumSlots          | Shows the number of slots (or cards) this device can contain.   |
| NumPorts          | Shows the number of ports currently on this device.   |
| BaseMacAddr       | Shows the starting point of the block of MAC addresses used by the switch for logical and physical interfaces.  |
| HaCpu             | Shows you whether the L2 redundancy on the master CPU is enabled or disabled.   |
| StandbyCpu        | Shows you whether the L2 Redundancy is enabled on the standby CPU. The possible states are: <ul style="list-style-type: none"><li>• hotStandbyCPU</li><li>• warmStandbyCPU</li><li>• standbyCPUNotPresent</li></ul> |



## Card tab

Use the **Card** tab of the [ERS 8000 Devices folder](#) to view information about cards installed in Ethernet Routing Switch 8000 series chassis.

[Table 151](#) describes the parts of the **Card** tab.

**Table 151** Parts of the Card tab of the ERS 8000 Devices folder

| Part             | Description  |
|------------------|--|
| SlotNum          | Shows the slot numbers of cards installed in the chassis.  |
| FrontType        | Indicates the card types in Ethernet Routing Switch 8000 Series devices. Front refers to the I/O portion of the module, the I/O card.  |
| FrontDescription | Shows the model number of the module (for example, 8608GT).  |
| FrontSerialNum   | Shows the serial number of the I/O card.   |
| FrontHwVersion   | Shows the hardware version of the I/O card.  |
| FrontPartNumber  | Shows the part number of the I/O card.   |
| FrontDateCode    | Shows the manufacturing date code for the I/O card.  |
| FrontDeviations  | Shows front deviations for the card.   |
| BackType         | Shows the back type of the card. Possible values are: <ul style="list-style-type: none"> <li>• rc2kBackplane</li> <li>• rc2kSFM</li> <li>• rc2kBFM0</li> <li>• rc2kBFM2</li> <li>• rc2kBFM3</li> <li>• rc2kBFM6</li> <li>• rc2kBFM8</li> <li>• rc2kMGSFM</li> <li>• other</li> </ul> |
| BackDescription  | Shows the back description for the card.   |
| BackSerialNum    | Shows the back serial number for the card.   |
| BackHwVersion    | Shows the back hardware version for the card.  |
| BackPartNumber   | Shows the back part number for the card.   |
| BackDateCode     | Shows the back date code for the card.   |
| BackDeviations   | Shows the back deviations for the card.  |

## Mda tab

Use the **Mda** tab of the [ERS 8000 Devices folder](#) to view information about MDA installed in Ethernet Routing Switch 8000 family devices in the network inventory.

[Table 152](#) describes the parts of the **Mda** tab.

**Table 152** Parts of the Mda tab of the ERS 8000 Devices folder

| Part        | Description  |
|-------------|--|
| SlotNum     | Shows the identity of the slot in which the MDA is installed.  |
| MdaNum      | Shows the number of the MDA.   |
| Type        | Shows the type of the MDA.   |
| Description | Shows the MDA description. Possible values include: <ul style="list-style-type: none"><li>• OC-3c SMF MDA--Dual port OC-3c SMF</li><li>• OC-3c MMF MDA--Dual port OC-3c MMF</li><li>• OC-12c SMF MDA -- Single Port OC-12c SMF</li><li>• OC-12c MMF MDA --Single Port OC-12c MMF</li></ul> |
| NumPorts    | Shows the number of ports on the MDA.  |

## General tab

Use the **General** tab of the [ERS 8000 Devices folder](#) to view general information about software running on Ethernet Routing Switch 8000 family devices on the network.

[Table 153](#) describes the parts of the **General** tab.

**Table 153** Parts of the General tab of the ERS 8000 Devices folder

| Part        | Description                          |
|-------------|--------------------------------------|
| Type        | Shows the type of the device.        |
| SysName     | Shows the system name of the device. |
| Description | Shows a description of the device.   |
| Location    | Shows the location of the device.    |

**Table 153** Parts of the General tab of the ERS 8000 Devices folder (continued)

| Part    | Description  |
|---------|--|
| Contact | Shows the administrative contact for the device.             |
| UpTime  | Shows the elapsed time since the last restart of the device. |

## Software tab

Use the **Software** tab of the [ERS 8000 Devices folder](#) to view information about software running on cards installed in Ethernet Routing Switch 8000 family chassis. The table on the tab will have one row for each CPU card in the chassis.

[Table 154](#) describes the parts of the **Software** tab.

**Table 154** Parts of the Software tab of the ERS 8000 Devices folder

| Part                    | Description   |
|-------------------------|---|
| Slot                    | Shows the slot number of the card on which the software is running. |
| SwVersion               | Shows the version number of the software.                           |
| LastRuntime ImageSource | Shows the name of the file from which the runtime image was loaded. |
| PrimaryImage Source     | Shows the name of the file from which the primary image was loaded. |

## Configuration tab

Use the **Configuration** tab of the [ERS 8000 Devices folder](#) to view information about configuration files loaded on the device. The table on the tab will have one row for each CPU card in the chassis.

[Table 155](#) describes the parts of the **Configuration** tab.

**Table 155** Parts of the Configuration tab of the ERS 8000 Devices folder

| Part                  | Description  |
|-----------------------|--|
| Slot                  | Shows the slot number of the card on which the software is running.                        |
| LastBootConfig Source | Shows the name and location of the file from which the last boot configuration was loaded. |

**Table 155** Parts of the Configuration tab of the ERS 8000 Devices folder

| Part                     | Description   |
|--------------------------|---|
| LastRuntime ConfigSource | Shows the name and location of the file from which the last runtime configuration was loaded. |
| PrimaryConfig Source     | Shows the name and location of the file from which the last primary configuration was loaded. |

## WSM Image tab

Use the **WSM Image** tab of the [ERS 8000 Devices folder](#) to view information about WSM image software running on Ethernet Routing Switch 8000 family devices.

[Table 156](#) describes the parts of the **WSM Image** tab.

**Table 156** Parts of the WSM Image tab of the ERS 8000 Devices folder

| Part               | Description  |
|--------------------|--|
| No.                | Shows the row number of the table entry.   |
| Device             | Shows the IP address or hostname of the device.  |
| SlotNum            | Shows the slot number of the card on which the software is running.  |
| Software Version   | Shows the software version of the WSM image.   |
| Enabled SwFeatures | Shows the enabled features of the WSM image.   |
| BootVer            | Shows the boot version of the WSM image.   |
| Image1Ver          | Shows the version number of WSM image 1.   |
| Image2Ver          | Shows the version number of WSM image 2.   |
| ImageForNxt Reset  | Shows the image file that will be loaded the next time the WSM card resets.  |
| ConfigForNxt Reset | Shows the configuration file that will be loaded the next time the WSM card resets.                                      |
| SavePending        | Indicates that a save action is required because the configuration has been applied but has not been saved to the flash. |

## FlashFiles tab

Use the **Flash Files** tab of the [ERS 8000 Devices folder](#) to view information about the files in the flash memory of the selected Ethernet Routing Switch 8000 device.

[Table 157](#) describes the parts of the **Flash Files** tab.

**Table 157** Parts of the Flash Files tab of the ERS 8000 Devices folder

| Part | Description   |
|------|---|
| Slot | Displays slot number of the card that contains the Flash files. |
| Name | Displays the name of the file                                   |
| Date | Displays the date the file was written to the flash memory      |
| Size | Displays the file size in bytes                                 |

## Ethernet Switch folder

Use the **Ethernet Switch** folder to view information about Ethernet Switch hardware, software, and devices in the network inventory.

[Table 158](#) describes the parts of the **Ethernet Switch** folder.

**Table 158** Parts of the Ethernet Switch folder

| Part   | Description   |
|--|---|
| <a href="#">Ethernet Switch Hardware table</a> | Shows you information about Ethernet Switch hardware in the network inventory.                    |
| <a href="#">Ethernet Switch Software table</a> | Shows you information about Ethernet Switch software in the network inventory.                    |
| <a href="#">Ethernet Switch Devices folder</a> | Shows you information about specific Ethernet Switch devices and stacks in the network inventory. |

## Ethernet Switch Hardware table

Use the Ethernet Switch **Hardware** table to view information about Ethernet Switch and similar devices in the network inventory.

[Table 159](#) describes the parts of the **Ethernet Switch Hardware** table.

**Table 159** Parts of the Ethernet Switch Hardware table

| Part                      | Description  |
|---------------------------|--|
| <a href="#">Stack tab</a> | Shows you information about Ethernet Switch stacks.                                |
| <a href="#">MDA tab</a>   | Shows you information about MDAs installed in Ethernet Switch and similar devices. |

### Stack tab

Use the **Stack** tab of the [Legacy BayStack Hardware table](#) to view information about devices within Ethernet Switch stacks.

[Table 160](#) describes the parts of the **Stack** tab.

**Table 160** Parts of the Stack tab of the Ethernet Switch Hardware table

| Part     | Description                                     |
|----------|---|
| No.      | Shows the row number of the table entry.        |
| Device   | Shows the IP address or hostname of the device. |
| Indx     | Shows the unit number within the stack.         |
| Descr    | Shows the description of the unit.              |
| Ver      | Shows the hardware version of the unit.         |
| SerNum   | Shows the serial number of the unit.            |
| Location | Shows the location of the unit.                 |

### MDA tab

Use the **MDA** tab of the [Legacy BayStack Hardware table](#) to view information about media dependent adapters installed in Ethernet Switch and similar devices.

[Table 161](#) describes the parts of the **MDA** tab.

**Table 161** Parts of the MDA tab of the Ethernet Switch Hardware table

| Part   | Description   |
|--------|---|
| No.    | Shows the row number of the table entry.                                      |
| Device | Shows the IP address or hostname of the device in which the MDA is installed. |
| Indx   | Shows the number of the unit in which the MDA is installed.                   |
| Descr  | Shows a description of the MDA.   |

## Ethernet Switch Software table

Use the **Software** table of the [Ethernet Switch folder](#) to view information about agent images and configuration files for Ethernet Switch devices in the network inventory.

[Table 162](#) describes the parts of the Ethernet Switch **Software** table.

**Table 162** Parts of the Ethernet Switch Software table

| Part                             | Description   |
|----------------------------------|---|
| <a href="#">General tab</a>      | Allows you to view general information about the software currently running on Ethernet Switch and similar devices. |
| <a href="#">Image/Config tab</a> | Allows you to view information about the image and configuration files for Ethernet Switch and similar devices.     |

### General tab

Use the **General** tab of the [Ethernet Switch Software table](#) to view general information about the software currently running on an Ethernet Switch.

[Table 163](#) describes the parts of the **General** tab.

**Table 163** Parts of the General tab of the Ethernet Switch Software table

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.   |
| Device      | Shows the IP address or hostname of the device.  |
| Type        | Shows the device type.   |
| SysName     | Shows the device system name (if any).   |
| Description | Shows a description of the device, including hardware, firmware, and software version levels if available. |
| Location    | Shows the location of the device.  |
| Contact     | Shows the administrative contact for the device.   |
| UpTime      | Shows the elapsed time since last reset for the device.  |

### Image/Config tab

Use the **Image/Config** tab of the [Ethernet Switch Software table](#) to view information about the image and configuration files for an Ethernet Switch.

[Table 164](#) describes the parts of the **Image/Config** tab.

**Table 164** Parts of the Image/Config tab of the Ethernet Switch Software table

| Part     | Description  |
|----------|--|
| No.      | Shows the row number of the table entry.   |
| Device   | Shows the IP address or hostname of the device.  |
| ImgFname | Shows the filename of the last image file downloaded to the device.                          |
| CfgFname | Shows the filename of the last configuration file downloaded to or uploaded from the device. |



## Ethernet Switch Devices folder

Use the Ethernet Switch **Devices** folder to view information about each of the Ethernet Switch devices discovered on the network.

[Table 165](#) describes the tabs available for each device in the Ethernet Switch **Devices** folder.

**Table 165** Parts of the Ethernet Switch Devices folder

| Part                             | Description  |
|----------------------------------|--|
| <a href="#">Stack tab</a>        | Allows you to view general information about Ethernet Switch stacks.   |
| <a href="#">MDA tab</a>          | Allows you to view general information about medial dependent adapters installed in Ethernet Switch and similar devices. |
| <a href="#">General tab</a>      | Allows you to view general information about the software currently running on Ethernet Switch and similar devices.      |
| <a href="#">Image/Config tab</a> | Allows you to view general information about the image and configuration files for Ethernet Switch and similar devices.  |

### Stack tab

[Table 166](#) describes the parts of the **Stack** tab.

**Table 166** Parts of the Stack tab of the Ethernet Switch Devices folder

| Part     | Description                                     |
|----------|---|
| No.      | Shows the row number of the table entry.        |
| Device   | Shows the IP address or hostname of the device. |
| Indx     | Shows the unit number within the stack.         |
| Descr    | Shows a description of the unit.                |
| Ver      | Shows hardware version of the unit.             |
| SerNum   | Shows the serial number of the unit.            |
| Location | Shows the location of the unit.                 |

## MDA tab

[Table 167](#) describes the parts of the **MDA** tab.

**Table 167** Parts of the MDA tab of the Ethernet Switch Devices folder

| Part   | Description   |
|--------|---|
| No.    | Shows the row number of the table entry.                                      |
| Device | Shows the IP address or hostname of the device in which the MDA is installed. |
| Indx   | Shows the number of the unit in which the MDA is installed.                   |
| Descr  | Shows a description of the MDA.   |

## General tab

Use the **General** tab of the [Ethernet Switch Devices folder](#) to view general information about the selected Ethernet Switch device.

[Table 168](#) describes the parts of the **General** tab.

**Table 168** Parts of the General tab of the Ethernet Switch Devices folder

| Part        | Description  |
|-------------|--|
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Image/Config tab

[Table 169](#) describes the parts of the **Image/Config** tab.

**Table 169** Parts of the Image/Config tab of the Ethernet Switch Devices folder

| Part     | Description  |
|----------|--|
| ImgFname | Shows the filename of the last image file downloaded to the device                           |
| CfgFname | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

## Legacy BayStack folder

Use the **Legacy Baystack** folder to view information about Legacy BayStack hardware, software, and devices in the network inventory.

[Table 170](#) describes the parts of the **Legacy BayStack** folder.

**Table 170** Parts of the Legacy BayStack folder

| Part   | Description   |
|--|---|
| <a href="#">Legacy BayStack Hardware table</a> | Shows you information about Legacy BayStack hardware in the network inventory.                    |
| <a href="#">Legacy BayStack Software table</a> | Shows you information about Legacy BayStack software in the network inventory.                    |
| <a href="#">Legacy BayStack Devices folder</a> | Shows you information about specific Legacy BayStack devices and stacks in the network inventory. |

## Legacy BayStack Hardware table

Use the Legacy BayStack **Hardware** table to view information about Legacy BayStack and similar devices in the network inventory.

[Table 171](#) describes the parts of the Legacy BayStack **Hardware** table.

**Table 171** Parts of the Legacy BayStack Hardware table

| Part                      | Description  |
|---------------------------|--|
| <a href="#">Stack tab</a> | Shows you information about Legacy BayStack stacks.                                |
| <a href="#">MDA tab</a>   | Shows you information about MDAs installed in Legacy BayStack and similar devices. |

### Stack tab

Use the **Stack** tab of the [Legacy BayStack Hardware table](#) to view information about devices within Legacy BayStack stacks.

[Table 172](#) describes the parts of the **Stack** tab.

**Table 172** Parts of the Stack tab of the Legacy BayStack Hardware table

| Part     | Description                                     |
|----------|---|
| No.      | Shows the row number of the table entry.        |
| Device   | Shows the IP address or hostname of the device. |
| Indx     | Shows the unit number within the stack.         |
| Descr    | Shows the description of the unit.              |
| Ver      | Shows the hardware version of the unit.         |
| SerNum   | Shows the serial number of the unit.            |
| Location | Shows the location of the unit.                 |

### MDA tab

Use the **MDA** tab of the [Legacy BayStack Hardware table](#) to view information about media dependent adapters installed in Legacy BayStack and similar devices.

[Table 173](#) describes the parts of the **MDA** tab.

**Table 173** Parts of the MDA tab of the Legacy BayStack Hardware table

| Part   | Description   |
|--------|---|
| No.    | Shows the row number of the table entry.                                      |
| Device | Shows the IP address or hostname of the device in which the MDA is installed. |
| Indx   | Shows the number of the unit in which the MDA is installed.                   |
| Descr  | Shows a description of the MDA.   |

## Legacy BayStack Software table

Use the **Software** table of the [Legacy BayStack folder](#) to view information about agent images and configuration files for Legacy BayStack devices in the network inventory.

[Table 174](#) describes the parts of the Legacy BayStack **Software** table.

**Table 174** Parts of the Legacy BayStack Software table

| Part                             | Description   |
|----------------------------------|---|
| <a href="#">General tab</a>      | Allows you to view general information about the software currently running on Legacy BayStack and similar devices. |
| <a href="#">Image/Config tab</a> | Allows you to view information about the image and configuration files for Legacy BayStack and similar devices.     |

### General tab

Use the **General** tab of the [Legacy BayStack Software table](#) to view general information about the software currently running on a Legacy BayStack device.

[Table 175](#) describes the parts of the **General** tab.

**Table 175** Parts of the General tab of the Legacy BayStack Software table

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.   |
| Device      | Shows the IP address or hostname of the device.  |
| Type        | Shows the device type.   |
| SysName     | Shows the device system name (if any).   |
| Description | Shows a description of the device, including hardware, firmware, and software version levels if available. |
| Location    | Shows the location of the device.  |
| Contact     | Shows the administrative contact for the device.   |
| UpTime      | Shows the elapsed time since last reset for the device.  |

### Image/Config tab

Use the **Image/Config** tab of the [Legacy BayStack Software table](#) to view information about the image and configuration files for a Legacy BayStack device.

[Table 176](#) describes the parts of the **Image/Config** tab.

**Table 176** Parts of the Image/Config tab of the Legacy BayStack Software table

| Part     | Description  |
|----------|--|
| No.      | Shows the row number of the table entry.   |
| Device   | Shows the IP address or hostname of the device.  |
| ImgFname | Shows the filename of the last image file downloaded to the device.                          |
| CfgFname | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

### Legacy BayStack Devices folder

Use the Legacy BayStack **Devices** folder to view information about each of the Legacy BayStack devices discovered on the network.

Table 177 describes the tabs available for each device in the Legacy BayStack Devices folder.

**Table 177** Parts of the Legacy BayStack Devices folder

| Part                             | Description  |
|----------------------------------|--|
| <a href="#">Stack tab</a>        | Allows you to view general information about Legacy BayStack stacks.   |
| <a href="#">MDA tab</a>          | Allows you to view general information about medial dependent adapters installed in Legacy BayStack and similar devices. |
| <a href="#">General tab</a>      | Allows you to view general information about the software currently running on Legacy BayStack and similar devices.      |
| <a href="#">Image/Config tab</a> | Allows you to view general information about the image and configuration files for Legacy BayStack and similar devices.  |

## Stack tab

Table 178 describes the parts of the **Stack** tab.

**Table 178** Parts of the Stack tab of the Legacy BayStack Devices folder

| Part     | Description                                     |
|----------|---|
| No.      | Shows the row number of the table entry.        |
| Device   | Shows the IP address or hostname of the device. |
| Indx     | Shows the unit number within the stack.         |
| Descr    | Shows a description of the unit.                |
| Ver      | Shows hardware version of the unit.             |
| SerNum   | Shows the serial number of the unit.            |
| Location | Shows the location of the unit.                 |

## MDA tab

[Table 179](#) describes the parts of the **MDA** tab.

**Table 179** Parts of the MDA tab of the Legacy BayStack Devices folder

| Part   | Description   |
|--------|---|
| No.    | Shows the row number of the table entry.                                      |
| Device | Shows the IP address or hostname of the device in which the MDA is installed. |
| Indx   | Shows the number of the unit in which the MDA is installed.                   |
| Descr  | Shows a description of the MDA.   |

## General tab

Use the **General** tab of the [Legacy BayStack Devices folder](#) to view general information about the selected Legacy BayStack device.

[Table 180](#) describes the parts of the **General** tab.

**Table 180** Parts of the General tab of the Legacy BayStack Devices folder

| Part        | Description  |
|-------------|--|
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |



## Image/Config tab

[Table 181](#) describes the parts of the **Image/Config** tab.

**Table 181** Parts of the Image/Config tab of the Legacy BayStack Devices folder

| Part     | Description  |
|----------|--|
| ImgFname | Shows the filename of the last image file downloaded to the device                           |
| CfgFname | Shows the filename of the last configuration file downloaded to or uploaded from the device. |

## Passport 1000 folder

Use the **Passport 1000** folder to view information about Passport (legacy) 1050, 1150, 1200, and 1250 hardware, software, and devices in the network inventory.

[Table 182](#) describes the parts of the **Passport 1000** folder.

**Table 182** Parts of the Passport 1000 folder

| Part   | Description  |
|--|--|
| <a href="#">Passport 1000 Hardware table</a> | Shows information about Passport (legacy) 1050, 1150, 1200, and 1250 device hardware in the network inventory.             |
| <a href="#">Passport 1000 Software table</a> | Shows information about software running on Passport (legacy) 1050, 1150, 1200, and 1250 devices in the network inventory. |
| <a href="#">Passport 1000 Devices folder</a> | Shows information about each of the Passport devices discovered on the network.  |

## Passport 1000 Hardware table

Use the Passport 1000 **Hardware** table to view information about Passport (legacy) 1050, 1150, 1200, and 1250 device hardware in the network inventory.

[Table 183](#) describes the parts of the Passport 1000 **Hardware** table.

**Table 183** Parts of the Passport 1000 Hardware table

| Part                        | Description  |
|-----------------------------|--|
| <a href="#">Chassis tab</a> | Shows information about Passport (legacy) 1050, 1150, 1200, and 1250 chassis.                    |
| <a href="#">Card tab</a>    | Shows information about cards installed in Passport (legacy) 1050, 1150, 1200, and 1250 chassis. |

## Chassis tab

Use the **Chassis** tab of the [Passport 1000 Hardware table](#) to view information about Passport (legacy) 1050, 1150, 1200, and 1250 chassis.

[Table 184](#) describes the parts of the **Chassis** tab.

**Table 184** Parts of the Chassis tab of the Passport 1000 Hardware table

| Part              | Description   |
|-------------------|---|
| No.               | Shows the row number of the table entry.                |
| Device            | The IP address or host name for the device.             |
| Type              | The Passport module type.                               |
| SerialNumber      | The serial number for the device.                       |
| Hardware Revision | The current hardware revision of the device chassis.    |
| NumSlots          | The number of slots (or cards) this device can contain. |
| NumPorts          | The number of ports currently on this device.           |

## Card tab

Use the **Card** tab of the [Passport 1000 Hardware table](#) to view information about cards installed in Ethernet Routing Switch 8000 series chassis.

[Table 185](#) describes the parts of the **Card** tab.

**Table 185** Parts of the Card tab of the Passport 1000 Hardware table

| Part             | Description                                     |
|------------------|---|
| No.              | Shows the row number of the table entry.        |
| Device           | Shows the IP address or hostname of the device. |
| Type             | Shows the card type.                            |
| SerialNum        | Shows the serial number of the card.            |
| HardwareRevision | Hardware revision number of the card.           |
| PartNumber       | Part number of the card.                        |
| QuidVersion      | Shows the QuidVersion number for the card.      |
| AruVersion       | Shows the AruVersion number for the card.       |

## Passport 1000 Software table

Use the Passport 1000 **Software** table to view information about software running on Passport (legacy) 1050, 1150, 1200, and 1250 devices in the network inventory.

[Table 186](#) describes the parts of the Passport 1000 **Software** table.

**Table 186** Parts of the Passport 1000 Software table

| Part                              | Description  |
|-----------------------------------|--|
| <a href="#">General tab</a>       | Shows general information about software running on Passport (legacy) 1050, 1150, 1200, and 1250 devices in the network inventory. |
| <a href="#">Software tab</a>      | Shows information about software versions and sources.   |
| <a href="#">Configuration tab</a> | Shows information about software configuration settings.   |

## General tab

Use the **General** tab of the [Passport 1000 Software table](#) to view general information about the software running on Passport (legacy) 1050, 1150, 1200, and 1250 devices.

[Table 187](#) describes the parts of the **General** tab.

**Table 187** Parts of the General tab of the Passport 1000 Software table

| Part        | Description  |
|-------------|--|
| No.         | Shows the row number of the table entry.                     |
| Device      | Shows the IP address or hostname of the device.              |
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Software tab

Use the **Software** tab of the [Passport 1000 Software table](#) to view information about software running on the Passport (legacy) 1050, 1150, 1200, or 1250 device.

[Table 188](#) describes the parts of the **Software** tab.

**Table 188** Parts of the Software tab of the Passport 1000 Software table

| Part            | Description                                     |
|-----------------|---|
| No.             | Shows the row number of the table entry.        |
| Device          | Shows the IP address or hostname of the device. |
| SysVersion      | Shows the version number of the software.       |
| LastBoot Source | Shows the last boot source.                     |

**Table 188** Parts of the Software tab of the Passport 1000 Software table

| Part                      | Description                        |
|---------------------------|------------------------------------|
| PrimarySource             | Shows the primary source.          |
| PrimarySource<br>FileName | Shows the primary source filename. |

## Configuration tab

Use the **Configuration** tab of the [Passport 1000 Software table](#) to view information about configuration files loaded on the device.

[Table 189](#) describes the parts of the **Configuration** tab.

**Table 189** Parts of the Configuration tab of the Passport 1000 Software table

| Part                     | Description                                      |
|--------------------------|--|
| No.                      | Shows the row number of the table entry.         |
| Device                   | Shows the IP address or hostname of the device.  |
| ConfigSource             | Shows the source for the device configuration.   |
| ConfigSource<br>FileName | Shows the filename for the configuration source. |

## Passport 1000 Devices folder

Use the Passport 1000 **Devices** folder to view information about each of the Passport (legacy) 1050, 1150, 1200, and 1250 devices discovered on the network.

For each device in the **Devices** folder, File/Inventory Manager displays the following tabs in the content pane:

**Table 190** Parts of the Passport 1000 Devices folder

| Part                        | Description  |
|-----------------------------|--|
| <a href="#">Chassis tab</a> | Shows information about Passport (legacy) 1050, 1150, 1200, and 1250 chassis.                    |
| <a href="#">Card tab</a>    | Shows information about cards installed in Passport (legacy) 1050, 1150, 1200, and 1250 chassis. |

**Table 190** Parts of the Passport 1000 Devices folder (continued)

| Part                              | Description   |
|-----------------------------------|---|
| <a href="#">General tab</a>       | Shows general information about software running on Passport 1000 family devices in the network inventory.                |
| <a href="#">Software tab</a>      | Shows information about software versions and sources.  |
| <a href="#">Configuration tab</a> | Shows information about software configuration settings.  |
| <a href="#">FlashFiles tab</a>    | Shows information about the files in the flash memory of the selected Passport (legacy) 1050, 1150, 1200, or 1250 device. |



**Note:** The content pane displays the tabs described in [Table 190](#) only when you select a device from the device folder.

---

## Chassis tab

Use the **Chassis** tab of the [Passport 1000 Devices folder](#) to view information about Passport (legacy) 1050, 1150, 1200, and 1250 chassis.

[Table 191](#) describes the parts of the **Chassis** tab.

**Table 191** Parts of the Chassis tab of the Passport 1000 Devices folder

| Part              | Description   |
|-------------------|---|
| No.               | Shows the row number of the table entry.                |
| Device            | The IP address or host name for the device.             |
| Type              | The Passport module type.                               |
| SerialNumber      | The serial number of the device.                        |
| Hardware Revision | The current hardware revision of the device chassis.    |
| NumSlots          | The number of slots (or cards) this device can contain. |
| NumPorts          | The number of ports currently on this device.           |

## Card tab

Use the **Card** tab of the [Passport 1000 Devices folder](#) to view information about cards installed in Passport (legacy) 1050, 1150, 1200, and 1250 chassis.

[Table 192](#) describes the parts of the **Card** tab.

**Table 192** Parts of the Card tab of the Passport 1000 Devices folder

| Part             | Description                                     |
|------------------|---|
| No.              | Shows the row number of the table entry.        |
| Device           | Shows the IP address or hostname of the device. |
| Type             | Shows the card type.                            |
| SerialNum        | Shows the serial number of the card.            |
| HardwareRevision | Hardware revision number of the card.           |
| PartNumber       | Part number of the card.                        |
| QuidVersion      | Shows the QuidVersion number for the card.      |
| AruVersion       | Shows the AruVersion number for the card.       |

## General tab

Use the **General** tab of the [Passport 1000 Devices folder](#) to view general information about the selected Passport (legacy) 1050, 1150, 1200, and 1250 device.

[Table 193](#) describes the parts of the **General** tab.

**Table 193** Parts of the General tab of the Passport 1000 Devices folder

| Part        | Description  |
|-------------|--|
| Type        | Shows the type of the device.                                |
| SysName     | Shows the system name of the device.                         |
| Description | Shows a description of the device.                           |
| Location    | Shows the location of the device.                            |
| Contact     | Shows the administrative contact for the device.             |
| UpTime      | Shows the elapsed time since the last restart of the device. |

## Software tab

Use the **Software** tab of the [Passport 1000 Devices folder](#) to view information about software running on the selected Passport (legacy) 1050, 1150, 1200, and 1250 device.

[Table 194](#) describes the parts of the **Software** tab.

**Table 194** Parts of the Software tab of the Passport 1000 Devices folder

| Part                      | Description                               |
|---------------------------|---|
| SysVersion                | Shows the version number of the software. |
| LastBoot Source           | Shows the last boot source.               |
| PrimarySource             | Shows the primary source.                 |
| PrimarySource<br>FileName | Shows the primary source filename.        |

## Configuration tab

Use the **Configuration** tab of the [Passport 1000 Devices folder](#) to view information about configuration files loaded on the device.

[Table 195](#) describes the parts of the **Configuration** tab.

**Table 195** Parts of the Configuration tab of the Passport 1000 Devices folder

| Part                     | Description                                      |
|--------------------------|--|
| ConfigSource             | Shows the source for the device configuration.   |
| ConfigSource<br>FileName | Shows the filename for the configuration source. |



## FlashFiles tab

Use the **FlashFiles** tab of the [Passport 1000 Devices folder](#) to view information about the files in the flash memory of the selected Passport (legacy) 1050, 1150, 1200, and 1250 device.

[Table 196](#) describes the parts of the **FlashFiles** tab.

**Table 196** Parts of the FlashFiles tab of the Passport 1000 Devices folder

| Part       | Description   |
|------------|---|
| No.        | Shows the row number of the table entry.  |
| Device     | Shows the IP address or host name for the device.   |
| Name       | Shows the name of the file  |
| Date       | Shows the date the file was written to the flash memory   |
| FileDetail | Shows detailed information about the file   |
| Type       | Shows the file type. Recognized file types are: <ul style="list-style-type: none"> <li>• log</li> <li>• executable</li> <li>• config</li> </ul> |
| Mode       | Shows the file mode. Recognized modes are: <ul style="list-style-type: none"> <li>• compressed</li> <li>• uncompressed</li> </ul>               |
| Size       | Shows the file size in bytes.   |
| CRC        | Shows the CRC code for the file   |
| Status     | Shows the status of the file. Recognized statuses are: <ul style="list-style-type: none"> <li>• active</li> <li>• inactive</li> </ul>           |

## WLAN AP folder

Use the **WLAN AP** folder to view information about WLAN AP hardware, software, and devices in the network inventory.

[Table 197](#) describes the parts of the **WLAN AP** folder.

**Table 197** Parts of the WLAN AP folder

| Part  | Description  |
|---|--|
| <a href="#">WLAN AP Device Hardware table</a> | Displays information about WLAN AP device hardware in the network inventory. |
| <a href="#">Unit tab</a>                      | Displays information about WLAN AP device software in the network inventory. |

### WLAN AP Device Hardware table

Use the WLAN AP **Hardware** table to view information about WLAN AP device chassis in the network inventory.

#### Unit tab

The **Unit** tab of the WLAN AP device **Hardware** table shows information about WLAN AP device unit

[Table 198](#) describes the parts of the WLAN AP device **Unit** tab.

**Table 198** Parts of the Unit tab of the WLAN AP device Hardware table

| Part         | Description   |
|--------------|---|
| No.          | Displays the row number of the table entry.             |
| Device       | Displays the IP address or hostname of the device.      |
| Hardware Ver | Displays the current hardware version of the main board |

## WLAN AP Device Software table

Use the **Software** table of the **WLAN AP** device folder to view information about agent images and configuration files for WLAN AP devices in the network inventory.

[Table 199](#) describes the parts of the WLAN AP device **Software** table.

**Table 199** Parts of the WLAN AP device Software table

| Part                         | Description   |
|------------------------------|---|
| <a href="#">General tab</a>  | Allows you to view general information about the software currently running on WLAN AP devices. |
| <a href="#">Software tab</a> | Allows you to view about software versions and sources for WLAN AP devices.                     |

### General tab

Use the **General** tab of the WLAN AP device folder to view general information about the software currently running on an WLAN AP device.

[Table 200](#) describes the parts of the **General** tab.

**Table 200** Parts of the General tab of the WLAN AP device Software folder

| Part        | Description   |
|-------------|---|
| No.         | Displays the row number of the table entry.   |
| Device      | Displays the IP address or hostname of the device.  |
| Type        | Displays the device type.   |
| SysName     | Displays the device system name (if any).   |
| Description | Displays a description of the device, including hardware, and software version levels if available. |
| Location    | Displays the location of the device.  |
| Contact     | Displays the administrative contact for the device.   |
| UpTime      | Displays the elapsed time since last reset for the device.  |

## Software tab

Use the **Software** tab of the WLAN AP device **Software** table to view software information for an WLAN AP device.

[Table 201](#) describes the parts of the **Software** tab.

**Table 201** Parts of the Software tab of the WLAN AP device Software table

| Part          | Description  |
|---------------|--|
| No.           | Displays the row number of the table entry.              |
| Device        | Displays the IP address or hostname of the device.       |
| BootRomVer    | Displays Boot ROM code version of the main board         |
| OpCodeVer     | Displays Op Code version                                 |
| NNDataFileVer | Displays Nortel Networks Customization Data File Version |
| CountryCode   | Displays Country code of the AP device                   |

## WLAN AP Devices folder

Use the WLAN AP **Devices** folder to view information for all applied categories of hardware and software inventory for all WLAN AP devices discovered on the network.

[Table 202](#) describes the tabs available for each device in the WLAN AP **Devices** folder.

**Table 202** Parts of the WLAN AP device folder

| Part         | Description   |
|--------------|---|
| General tab  | Allows you to view general information about the software currently running on WLAN AP devices. |
| Software tab | Allows you to view information about software versions and sources for WLAN AP devices.         |
| Unit tab     | Allows you to view information about WLAN AP device hardware.                                   |

## General tab

Use the **General** tab of the [WLAN AP Devices folder](#) to view general information about the selected WLAN AP device.

[Table 203](#) describes the parts of the **General** tab.

**Table 203** Parts of the General tab of the WLAN AP device Software folder

| Part        | Description   |
|-------------|---|
| Type        | Displays the device type.   |
| SysName     | Displays the device system name (if any).   |
| Description | Displays a description of the device, including hardware, and software version levels if available. |
| Location    | Displays the location of the device.  |
| Contact     | Displays the administrative contact for the device.   |
| UpTime      | Displays the elapsed time since last reset for the device.  |

## Software tab

[Table 204](#) describes the parts of the **Software** tab.

**Table 204** Parts of the Software tab of the WLAN AP device Software table

| Part          | Description  |
|---------------|--|
| BootRomVer    | Displays Boot ROM code version of the main board         |
| OpCodeVer     | Displays Op Code version                                 |
| NNDataFileVer | Displays Nortel Networks Customization Data File Version |
| CountryCode   | Displays Country code of the AP device                   |

## Unit tab

[Table 205](#) describes the parts of the WLAN AP device **Unit** tab.

**Table 205** Parts of the Unit tab of the WLAN AP device Hardware table

| Part         | Description   |
|--------------|---|
| Hardware Ver | Displays the current hardware version of the main board |

## Understanding the File/Inventory Manager interface

The sections listed below describe the dialog boxes that you encounter in File/Inventory Manager.

- [“Download File to Device\(s\) dialog box” on page 422](#)
- [“Upload File from Device\(s\) dialog box” on page 425](#)
- [“Backup Config File dialog box” on page 427](#)
- [“Restore Config File dialog box” on page 429](#)
- [“Archive Config File dialog box” on page 430](#)
- [“Synchronize Config File dialog box” on page 431](#)
- [“Device Upgrade dialog box” on page 432](#)
- [“Schedule dialog box” on page 436](#)
- [“View Scheduled Task dialog box” on page 437](#)
- [“Display Preferences dialog box” on page 438](#)

### Download File to Device(s) dialog box

Use the **Download File to Device(s)** dialog box to download configuration files and image files to devices

For more information, see [“Downloading image and configuration files to devices” on page 313](#).

Table 206 describes the parts of the **Download File to Device(s)** dialog box.

**Table 206** Parts of the Download File to Device(s) dialog box

| Part   | Description   |
|--|---|
| TFTP Server  | Allows you to enter the IP address of the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> .   |
| Action   | <ul style="list-style-type: none"> <li>For Alteon devices, these radio buttons let you choose whether to download a configuration file (get-configuration) or an image file (get-image).</li> <li>For ERS 1424, 1612, 1624, and 1648 devices, these radio buttons let you choose whether to download a configuration file (DownloadConfiguration) or an image file (DownloadImage).</li> <li>For Ethernet Switch, ERS 55xx/35xx and Legacy Baystack devices, these radio buttons let you choose whether to download a configuration file (dnldConfig), an image file (dnldImage), a firmware file (dnldFW), or an ASCII configuration file (dnldAsciiConfig).</li> <li>For WLAN AP devices, these radio buttons let you choose whether to download a Configuration file, ApplicationImageFile or NN DataFile</li> </ul> |
| Configuration File Name  | Allows you to choose a configuration file to download to Alteon, Ethernet Switch, Ethernet Routing Switch 55xx/35xx, Legacy Baystack, or ERS 1424, 1612, 1624, or 1648 devices. The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.   |
| Source File Name   | Allows you to choose a file to download to Ethernet Routing Switch 8000 devices. The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.  |
| Destination File Name  | Allows you to enter a destination filename for a Ethernet Routing Switch 8000 download operation.   |
| ImageFileName or ApplicationImage FileName (only for WLAN AP device) | Allows you to choose an image file to download.   |
| Image  | Allows you to set the target image for Alteon devices.  |
| 450ImageFileName (BPS 2000/BS460/BS470 mix stack)                    | Allows you to choose an Ethernet Switch 450 image file to download in mixed stack configurations.   |
| FWFileName(diag)   | Allows you to choose a diagnostic firmware file to download.  |

**Table 206** Parts of the Download File to Device(s) dialog box (continued)

| Part   | Description   |
|--|---|
| Nortel Networks (NN) DataFile Name                         | Allows you to choose a Nortel customer data file  |
| Target Config (Only for WLAN AP device)                    | Allows you to choose syscfg or syscfg_bak for WLAN AP device  |
| Target Image (Only for WLAN AP device)                     | Allows you to choose ntl-img or dflt-img for WLAN AP device   |
| Action   | Allows you to choose whether to download an image file, a configuration file, a diag. firmware file, or an ASCII configuration file.  |
| Prefix IP address for Source File                          | <p>Use the Prefix IP address for Source File radio buttons to set whether or not you are downloading files according to the IP address appended to the filename:</p> <ul style="list-style-type: none"> <li>When you choose No, File/Inventory Manager downloads the selected file to all selected devices.</li> <li>When you choose Yes, File/Inventory Manager downloads files to the selected devices according to the IP address appended to filename.<br/>For example, suppose you have entered “config.cfg” as the filename, and selected the device, 10.160.41.204. File/Inventory Manager will download the file 10_160_41_204_config.cfg to 10.160.41.204.</li> <li>The source directory for the download operation is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the source directory.</li> </ul> |
| Download Log file name                                     | Allows you to enter the file to which Enterprise Switch Manager logs the results of the operation. Click the ... button to browse available files.  |
| Reboot after successful download (only for WLAN AP device) | Allows you to specify reboot WLAN AP device action after successful download (only for WLAN AP devices).  |
| Available devices list                                     | Allows you to choose from all the available devices.  |
| Target devices in order list                               | Allows you to arrange multiple devices in the order in which you want to download the file.   |
| All >>   | Allows you to move all the devices from the Available devices list into the Target devices in the order list.   |
| >>   | Allows you to move the selected device from the Available devices list into the Target devices in the order list.   |



**Table 206** Parts of the Download File to Device(s) dialog box (continued)

| Part      | Description  |
|-----------|--|
| <<        | Allows you to move the selected device from the Target devices in order list to the Available devices list.              |
| << All    | Allows you to move all the devices in the Target devices in order list to the Available devices list.                    |
| Move Up   | Allows you to move the selected device up one position in the Target devices in the order list.                          |
| Move Down | Allows you to move the selected device down one position in the Target devices in the order list.                        |
| Schedule  | Allows you to open the schedule dialog box and schedule the download operation for a specific time or a recurring basis. |
| Download  | Downloads the files to the devices shown on the Target devices in order list.  |
| Close     | Discards your settings and closes the dialog box.  |
| Help      | Opens Online Help for the Download File to Device(s) dialog box.   |

## Upload File from Device(s) dialog box

Use the **Upload File from Device(s)** dialog box to upload files from one or more devices.

For more information, see [“Uploading files from devices” on page 327](#).

[Table 207](#) describes the parts of the **Upload File from Device(s)** dialog box.

**Table 207** Parts of the Upload File from Device(s) dialog box

| Part             | Description  |
|------------------|--|
| TFTP Server      | Allows you to enter the IP address for the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> . |
| Source File Name | For Ethernet Routing Switch 8000 devices, allows you to choose a file to upload.   |

**Table 207** Parts of the Upload File from Device(s) dialog box (continued)

| Part                     | Description  |
|--------------------------|--|
| Action                   | <ul style="list-style-type: none"> <li>• For Alteon devices, these radio buttons let you choose whether to upload configuration files (put-configuration) or dump files (put-dump) from multiple Alteon devices to a workstation accessible by the TFTP server.</li> <li>• For ERS 1424, 1612, 1624, and 1648 devices, these radio buttons let you choose whether to upload configuration files (UploadConfiguration) or history log files (UploadHistoryLog).</li> </ul>  |
| Destination File Postfix | <p>For Ethernet Routing Switch 8000 devices, allows you to enter a base filename for the destination file.</p> <p>Observe the following points regarding the destination filename:</p> <ul style="list-style-type: none"> <li>• During the upload operation, the IP address of the device or devices will be appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.</li> </ul> <p>For example, suppose you have entered “config.cfg” as the filename, and selected two devices, 10.160.41.204 and 10.160.41.229. The actual destination files will be named 10_160_41_204_config.cfg and 10_160_41_229_config.cfg.</p> <ul style="list-style-type: none"> <li>• The destination directory for the upload is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.</li> <li>• For Ethernet Switch, ERS 55xx/35xx, and Legacy BayStack devices, the actual destination filename is limited to a maximum of 29 characters, including the appended IP address.</li> </ul> |
| ConfigFileName           | <p>Allows you to enter a base filename for the destination file.</p> <p>Observe the following points regarding the destination filename:</p> <ul style="list-style-type: none"> <li>• During the upload operation, the IP address of the device or devices will be appended to the base filename. This feature helps you upload configuration files from multiple devices without overwriting the destination files.</li> </ul> <p>For example, suppose you have entered “config.cfg” as the filename, and selected two devices, 10.160.41.204 and 10.160.41.229. The actual destination files will be named 10_160_41_204_config.cfg and 10_160_41_229_config.cfg.</p> <ul style="list-style-type: none"> <li>• The destination directory for the upload is determined by the settings of the TFTP server. Review the configuration settings of the TFTP server to determine the destination directory.</li> <li>• For Ethernet Switch, ERS 55xx/35xx, and Legacy BayStack devices, the actual destination filename is limited to a maximum of 29 characters, including the appended IP address.</li> </ul>   |
| History Log file name    | <p>For ERS 1424, 1612, 1624, and 1648 devices, allows you to enter the name of the history log file to upload if you select the UploadHistoryLog Action radio button.</p>  |

**Table 207** Parts of the Upload File from Device(s) dialog box (continued)

| Part                         | Description   |
|------------------------------|---|
| Dump File Name               | For Alteon devices, allows you to enter the name of the dump file to upload if you selected the put-dump Action radio button. |
| Upload Log file name         | Allows you to enter the file to which Enterprise Switch Manager logs the results of the operation.                            |
| Available devices list       | Allows you to choose from all the available devices.  |
| Target devices in order list | Allows you to arrange multiple devices in the order in which you want to upload the files from them.                          |
| All >>                       | Allows you to move all the devices from the Available devices list into the Target devices in order list.                     |
| >>                           | Allows you to move the selected device from the Available devices list into the Target devices in order list.                 |
| <<                           | Allows you to move the selected device from the Target devices in order list to the Available devices list.                   |
| << All                       | Allows you to move all the devices in the Target devices in order list to the Available devices list.                         |
| Move Up                      | Allows you to move the selected device up one position in the Target devices in order list.                                   |
| Move Down                    | Allows you to move the selected device down one position in the Target devices in order list.                                 |
| Schedule                     | Allows you to open the schedule dialog box and schedule the upload operation for a specific time on a recurring basis.        |
| Upload                       | Uploads the file from the devices shown in the Target devices in order list and closes the dialog box.                        |
| Close                        | Discards your settings and closes the dialog box.   |
| Help                         | Opens online Help for the Upload File from Device(s) dialog box.  |

## Backup Config File dialog box

Use the **Backup Config File** dialog box to back up configuration files from devices.

For more information, see [“Backing up configuration files” on page 338](#).

Table 208 describes the parts of the **Backup Config File** dialog box.

**Table 208** Parts of the Backup Config File dialog box

| Part                         | Description  |
|------------------------------|--|
| TFTP Server                  | Allows you to enter the IP address for the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> . |
| File                         | The File radio buttons let you choose whether to back up the config.cfg or boot.cfg file (available for Ethernet Routing Switch 8000 devices only).  |
| Backup log file name         | Allows you to enter a name for the file to which Enterprise Switch Manager logs the results of the operation. Click the ... button to browse available files.  |
| Available devices list       | Allows you to choose from all the available devices.   |
| Target devices in order list | Allows you to arrange multiple devices in the order in which you want to back up the configuration files.  |
| All >>                       | Allows you to move all the devices from the Available devices list into the Target devices in the order list.  |
| >>                           | Allows you to move the selected device from the Available devices list into the Target devices in the order list.  |
| <<                           | Allows you to move the selected device from the Target devices in order list to the Available devices list.  |
| << All                       | Allows you to move all the devices in the Target devices in order list to the Available devices list.  |
| Move Up                      | Allows you to move the selected device up one position in the Target devices in order list.  |
| Move Down                    | Allows you to move the selected device down one position in the Target devices in order list.  |
| Schedule                     | Allows you to open the schedule dialog box and schedule the backup operation for a specific time on a recurring basis.   |
| Backup                       | Backs up the configuration file(s) for the devices shown in the Target devices in the order list and closes the dialog box.  |
| Close                        | Discards your settings and closes the dialog box.  |
| Help                         | Opens Online Help for the Backup Config File dialog box.   |

## Restore Config File dialog box

Use the **Restore Config File** dialog box to restore a device's configuration file.

For more information, see [“Restoring configuration files to devices” on page 339](#).

[Table 209](#) describes the parts of the **Restore Config File** dialog box.

**Table 209** Parts of the Restore Config File dialog box

| Part   | Description  |
|--|--|
| TFTP Server  | Allows you to enter the IP address for the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> . |
| File   | The File radio button allows you to choose whether to restore the config.cfg or boot.cfg file (available for Ethernet Routing Switch 8000 devices only).   |
| Restore log file name                                      | Allows you to enter a name of the file to which Enterprise Switch Manager logs the results of the operation. Click the ... button to browse available files.   |
| Reboot after successful download (only for WLAN AP device) | Allows you to specify reboot WLAN AP device action after successful download (only for WLAN AP devices).   |
| Available devices list                                     | Allows you to choose from all the available devices.   |
| Target devices in order list                               | Allows you to arrange multiple devices in the order in which you want to restore configuration files.  |
| All >>   | Allows you to move all the devices from the Available devices list into the Target devices in the order list.  |
| >>   | Allows you to move the selected device from the Available devices list into the Target devices in order list.  |
| <<   | Allows you to move the selected device from the Target devices in order list to the Available devices list.  |
| << All   | Allows you to move all the devices in the Target devices in order list to the Available devices list.  |
| Move Up  | Allows you to move the selected device up one position in the Target devices in the order list.  |
| Move Down  | Allows you to move the selected device down one position in the Target devices in the order list.  |

**Table 209** Parts of the Restore Config File dialog box (continued)

| Part     | Description   |
|----------|---|
| Schedule | Allows you to open the schedule dialog box and schedule the restore operation for a specific time or a recurring basis.   |
| Restore  | Restores the configuration files for the devices shown in the Target devices in the order list and closes the dialog box. |
| Close    | Discards your settings and closes the dialog box.   |
| Help     | Opens Online Help for the Restore Config File dialog box.   |

## Archive Config File dialog box

Use the **Archive Config File** dialog box to archive a device's configuration file.

For more information, see [“Archiving configuration files” on page 340](#).

[Table 210](#) describes the parts of the **Archive Config File** dialog box.

**Table 210** Parts of the Archive Config File dialog box

| Part                         | Description  |
|------------------------------|--|
| TFTP Server                  | Allows you to enter the IP address for the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> . |
| File                         | The File radio button allows you to choose whether to archive the config.cfg or boot.cfg file (available for Ethernet Routing Switch 8000 devices only).   |
| Archive log file name        | Allows you to enter a name for the file to which Enterprise Switch Manager logs the results of the operation. Click the ... button to browse available files.  |
| Available devices list       | Allows you to choose from all the available devices.   |
| Target devices in order list | Allows you to arrange multiple devices in the order in which you want to archive their configuration files.  |
| All >>                       | Allows you to move all the devices from the Available devices list into the Target devices in the order list.  |
| >>                           | Allows you to move the selected device from the Available devices list into the Target devices in the order list.  |

**Table 210** Parts of the Archive Config File dialog box (continued)

| Part      | Description   |
|-----------|---|
| <<        | Allows you to move the selected device from the Target devices in order list to the Available devices list.                 |
| << All    | Allows you to move all the devices in the Target devices in order list to the Available devices list.                       |
| Move Up   | Allows you to move the selected device up one position in the Target devices in the order list.                             |
| Move Down | Allows you to move the selected device down one position in the Target devices in the order list.                           |
| Schedule  | Allows you to open the schedule dialog box and schedule the archive operation for a specific time on a recurring basis.     |
| Archive   | Archives the configuration files for the device(s) shown in the Target devices in the order list and closes the dialog box. |
| Close     | Discards your settings and closes the dialog box.   |
| Help      | Opens Online Help for the Archive Config File dialog box.   |

## Synchronize Config File dialog box

Use the **Synchronize Config File** dialog box to upload a device's current configuration or boot.cfg file to the currently deployed subdirectory of the TFTP root directory.

For more information, see [“Synchronizing configuration files” on page 342](#).

[Table 211](#) describes the parts of the **Synchronize Config File** dialog box.

**Table 211** Parts of the Synchronize Config File dialog box

| Part        | Description  |
|-------------|--|
| TFTP Server | Allows you to enter the IP address for the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> . |
| File        | The File radio buttons let you choose whether to synchronize the config.cfg or boot.cfg file (available for Ethernet Routing Switch 8000 devices only).  |

**Table 211** Parts of the Synchronize Config File dialog box (continued)

| Part                         | Description  |
|------------------------------|--|
| Synchronize log file name    | Allows you to enter a name for the file to which Enterprise Switch Manager logs the results of the operation. Click the ... button to browse available files.                                |
| Available devices list       | Allows you to choose from all the available devices.   |
| Target devices in order list | Allows you to arrange multiple devices in the order in which you want to synchronize their configuration files.  |
| All >>                       | Allows you to move all the devices from the Available devices list into the Target devices in the order list.  |
| >>                           | Allows you to move the selected device from the Available devices list into the Target devices in the order list.  |
| <<                           | Allows you to move the selected device from the Target devices in order list to the Available devices list.  |
| << All                       | Allows you to move all the devices in the Target devices in order list to the Available devices list.  |
| Move Up                      | Allows you to move the selected device up one position in the Target devices in the order list.  |
| Move Down                    | Allows you to move the selected device down one position in the Target devices in the order list.  |
| Schedule                     | Allows you to open the schedule dialog box and schedule the synchronize operation for a specific time on a recurring basis.  |
| Synchronize                  | Uploads the configuration files for the device(s) shown in the Target devices in the order list to the currently deployed subdirectory of the TFTP root directory and closes the dialog box. |
| Close                        | Discards your settings and closes the dialog box.  |
| Help                         | Opens Online Help for Synchronize Config File dialog box.  |

## Device Upgrade dialog box

Use the **Device Upgrade** dialog box to download an image file to the devices you specify.

For more information, see [“Upgrading devices” on page 344](#).



Table 212 describes the parts of the **Device Upgrade** dialog box.

**Table 212** Parts of the Device Upgrade dialog box

| Part  | Description  |
|---|--|
| TFTP Server   | Allows you to enter the IP address for the TFTP server for the operation. The default setting is the TFTP server (if any) specified on the Preferences dialog box. For more information, see <a href="#">“Preferences dialog box” on page 98</a> . |
| Image file name   | Allows you to enter the name of the file to download. Click the ... button to browse available files.  |
| 450ImageFileName (Mix Stack)                                | Allows you to choose a BayStack 450 image file to download in mixed stack configurations.  |
| Image   | Allows you to set the target image for Alteon devices.   |
| Device Upgrade Log file name                                | Allows you to enter a name for the file to which Enterprise Switch Manager logs the results of the operation. Click the ... button to browse available files.  |
| Reboot after successful download (only for WLAN AP devices) | Allows you to specify reboot WLAN AP device action or not after successful download (only for WLAN AP devices).  |
| Available devices list                                      | Allows you to choose from all the available devices.   |
| Target devices in order list                                | Allows you to arrange multiple devices in the order in which you want to upgrade them.   |
| All >>  | Allows you to move all the devices from the Available devices list into the Target devices in the order list.  |
| >>  | Allows you to move the selected device from the Available devices list into the Target devices in the order list.  |
| <<  | Allows you to move the selected device from the Target devices in the order list to the Available devices list.  |
| << All  | Allows you to move all the devices in the Target devices in the order list to the Available devices list.  |
| Move Up   | Allows you to move the selected device up one position in the Target devices in the order list.  |
| Move Down   | Allows you to move the selected device down one position in the Target devices in the order list.  |
| Schedule  | Allows you to open the schedule dialog box and schedule the upgrade operation for a specific time or a recurring basis.  |
| Device Upgrade  | Downloads the selected image file to the device(s) shown in the Target devices in the order list and closes the dialog box.  |

**Table 212** Parts of the Device Upgrade dialog box (continued)

| Part  | Description                                       |
|-------|---|
| Close | Discards your settings and closes the dialog box. |
| Help  | Opens Online Help for Device Upgrade dialog box.  |

## Device List for Query Inventory dialog box

Use the **Device List for Query Inventory** dialog box to query selected devices, or to schedule that query for a later time. For more information, see Scheduling inventory queries.

The following sections describe the different versions of the **Device List for Query Inventory** dialog box you encounter in Enterprise Switch Manager:

- [“Device List dialog box, schedule or query version”](#)
- [“Device list dialog box, query-only version” on page 435](#)
- [“Device list dialog box, schedule-only version” on page 435](#)

## Device List dialog box, schedule or query version

Use the **Device List for Query Inventory** dialog box to schedule an inventory query task.

For more information, see [“Scheduling inventory queries” on page 358](#).

[Table 213](#) describes the parts of the **Device List for Query Inventory** dialog box, schedule or query version.

**Table 213** Parts of the Device List for Inventory Query dialog box, schedule or query version

| Part                | Description   |
|---------------------|---|
| Inventory File Name | Allows you to enter the name for the file to which Enterprise Switch Manager logs the results of the inventory query. |
| Clear all           | Allows you to clear all selected IP addresses in the device list to the rightly.                                      |

**Table 213** Parts of the Device List for Inventory Query dialog box, schedule or query version (continued)

| Part     | Description   |
|----------|---|
| Schedule | Allows you to open the schedule dialog box and schedule the inventory query to occur at a specific time or on a regular basis. For more information, see <a href="#">“Scheduling inventory queries” on page 358</a> . |
| Cancel   | Discards your settings and closes the dialog box.   |
| Help     | Opens online Help for the Device List for Query Inventory dialog box.   |

## Device list dialog box, query-only version

The query-only version of the **Device List for Query Inventory** dialog box lets you choose devices for an immediate inventory query when reloading. See [Reloading the inventory](#) for more information.

[Table 214](#) describes the parts of the **Device List for Query Inventory** dialog box, query-only version.

**Table 214** Parts of the Device List for Inventory Query dialog box, query-only version

| Part                 | Description  |
|----------------------|--|
| Clear all/Select all | Click once to clear all selected IP addresses in the device list to the right. Click again to select all IP addresses in the list. |
| OK                   | Queries the selected devices and closes the dialog box.  |
| Cancel               | Discards your settings and closes the dialog box.  |
| Help                 | Opens online Help for the Device List for Query Inventory dialog box.  |

## Device list dialog box, schedule-only version

The schedule-only version of the **Device List for Query Inventory** dialog box lets you choose devices for a scheduled inventory query. See [Scheduling inventory queries](#) for more information.

[Table 215](#) describes the parts of the **Device List for Query Inventory** dialog box, schedule-only version.

**Table 215** Parts of the Device List for Inventory Query dialog box, schedule-only version

| Part                 | Description  |
|----------------------|--|
| Inventory File Name  | Lets you enter the name for the file to which Enterprise Switch Manager logs the results of the inventory query  |
| Clear all/Select all | Click once to clear all selected IP addresses in the device list to the right. Click again to select all IP addresses in the list.   |
| Schedule             | Lets you open the schedule dialog box and schedule the inventory query to occur at a specific time or on a regular basis. For more information, see <a href="#">Scheduling inventory queries</a> . |
| Cancel               | Discards your settings and closes the dialog box.  |
| Help                 | Opens online Help for the Device List for Query Inventory dialog box.  |

## Schedule dialog box

When you click **Schedule** during an upload, download, device upgrade, backup, restore, archive, or synchronize procedure, a **Schedule** dialog box for the procedure opens. Use this **Schedule** dialog box to schedule the process for a specific time or on a recurring basis.

For more information, see [“Scheduling tasks” on page 360](#).

[Table 216](#) describes the parts of the **Schedule** dialog box.

**Table 216** Parts of the Schedule dialog box

| Part     | Description  |
|----------|--|
| Id       | Displays the system-assigned identification number for the scheduled task.   |
| Name     | Allows you to enter a name for the task so that you can identify it easily later.  |
| Log File | Allows you to enter a name for the file to which Enterprise Switch Manager logs the results of the operation after it executes it. |

**Table 216** Parts of the Schedule dialog box (continued)

| Part               | Description   |
|--------------------|---|
| Schedule           | The Schedule radio buttons allow you to set how often you want the task to run. <ul style="list-style-type: none"> <li>• When you choose One Time Only, Enterprise Switch Manager executes the task only once at the time you specify.</li> <li>• When you choose Every Month on the __ Day, Enterprise Switch Manager executes the task every month on the day of the month and at the time you specify.</li> <li>• When you choose Every Week on __, Enterprise Switch Manager executes the task every week on the day of the week and at the time you specify.</li> <li>• When you choose Every __ Days, Enterprise Switch Manager executes the task at the interval and time you specify.</li> <li>• When you choose Every Day, Enterprise Switch Manager executes the task every day at the time you specify.</li> </ul> |
| Starting date/time | Allows you to set the date and time you want Enterprise Switch Manager to execute the task.   |
| Set                | Stores your settings and closes the dialog box.   |
| Cancel             | Discards your settings and closes the dialog box.   |
| Help               | Opens online Help for the schedule dialog box.  |

## View Scheduled Task dialog box

Use the **View Schedule Task** dialog box to view a list of all scheduled tasks for File/Inventory Manager. From this dialog box, you can also view the scheduled task log file and delete or cancel a task.

For more information, see [“Scheduling tasks” on page 360](#).

[Table 217](#) describes the parts of the **View Scheduled Task** dialog box.

**Table 217** Parts of the View Scheduled Task dialog box

| Part        | Description   |
|-------------|---|
| Total tasks | Displays total number of tasks scheduled.   |
| ID          | Displays the task's system-assigned ID number.                                    |
| Name        | Allows you to enter a name for the task so that you can easily identify it later. |

**Table 217** Parts of the View Scheduled Task dialog box (continued)

| Part                    | Description  |
|-------------------------|--|
| User Name               | Displays the name of the user who scheduled the task.  |
| Log File                | Displays the name of the file to which Enterprise Switch Manager logs the results of the operation after execution.  |
| Scheduled Date and Time | Displays the date and time for which the task is scheduled.  |
| Schedule Status         | Allows you to see the status of the task. The following status types are possible: <ul style="list-style-type: none"> <li>• Created—The task has been created, but not scheduled.</li> <li>• Scheduled—The task is scheduled for execution.</li> <li>• Canceled—The task is canceled and will not be executed.</li> <li>• ErrorInScheduling—An error in scheduling prevents Enterprise Switch Manager from executing the task.</li> </ul>                    |
| Execute Status          | <ul style="list-style-type: none"> <li>• None-The task has been scheduled and not executed yet.</li> <li>• n/a-The task encountered an error while scheduling the task.</li> <li>• In Progress—Enterprise Switch Manager is currently executing the task.</li> <li>• Completed—Enterprise Switch Manager has finished executing the task.</li> <li>• ErrorInExecution—Enterprise Switch Manager encountered an error and cannot execute the task.</li> </ul> |
| Execute Count           | Updates the user on how many times a task has been executed so far   |
| View Log                | Allows you to view the Scheduled Task log file.  |
| Refresh                 | Updates the scheduled task list to show any new information.   |
| Delete Task             | Removes the selected task from the task list. Enterprise Switch Manager will not execute the task.   |
| Cancel Task             | Removes the selected task from the schedule. Enterprise Switch Manager will not execute the task, but the task remains visible in the task list unless you delete it with the Delete Task button.  |
| Help                    | Opens online Help for View Scheduled Task dialog box.  |
| Exit                    | Closes the dialog box.   |

## Display Preferences dialog box

Use the **Display Preferences** dialog box to select the information you want to display in the Inventory view.

[Table 218](#) describes the parts of the **Display Preferences** dialog box.

For more information, see [“Changing display preferences” on page 310](#).

**Table 218** Parts of the Display Preferences dialog box

| Part  | Description   |
|---|---|
| Expand Devices folder in Device Families tree | Check this check box if you want the Devices folders to appear in the Device Families tree view.                                    |
| Device Family                                 | Use these radio buttons to configure the view preferences for the device family selected in the Device Families tree view.          |
| Hardware                                      | Use the Category pull-down menu and Column Header list to choose the columns to show in the Hardware tables for each device family. |
| Software                                      | Use the Category pull-down menu and Column Header list to choose the columns to show in the Software tables for each device family. |
| OK  | Saves your settings and closes the dialog box.  |
| Close   | Cancel your settings and closes the dialog box.   |
| Help  | Opens online Help for the Display Preferences dialog box.   |





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## Chapter 9

# Using Security Manager

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Security Manager allows you to manage access to device and network management functions on Ethernet Routing Switch 8000 series, Ethernet Routing Switch 55xx/35xx series, Ethernet Switch, and Legacy BayStack devices discovered by Enterprise Switch Manager. You can set, change, and synchronize passwords and security features for:

- Command Line Interface (CLI) access
- Web access
- Simple Network Management Protocol (SNMP) access
- Remote Access Dial-In User Services (RADIUS) properties
- SNMPv3 properties
- Access policies
- Secure Shell (SSH) bulk password



**Note:** For Ethernet Routing Switches 8600 v3.2.1 and later, you cannot use Enterprise Switch Manager to modify the CLI user name and password. For Ethernet Routing Switches 8600 switches v3.5 and later, you cannot use Enterprise Switch Manager to modify the web user name and password.

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You can configure the network access for each application using one or more security groups that you manage independently. You use security groups to group together devices that you want to have the same passwords and access features.

This chapter describes using Security Manager. It includes the following topics:

- [“Starting Security Manager”](#)
- [“Security Manager window” on page 443](#)
- [“Working with Security Manager” on page 446](#)

- [“Managing security group attributes” on page 455](#)

## Starting Security Manager

To start Security Manager:

- 1 Do one of the following:
  - From the Enterprise Switch Manager menu bar, choose **Tools > Security Manager**.
  - On the keyboard, press **[F5]**.
  - On the Enterprise Switch Manager toolbar, click **Security Manager**.



**Note:** With Release 5.0.0.0 and above, a user name and password combination is no longer required to log in to Security Manager because user access is now controlled with the Managing User screen.

For more information, see [“Managing users” on page 60](#).

---

- 2 The Security Manager window opens.

## Security Manager window

Figure 123 shows the Security Manager window.

**Figure 123** Security Manager window

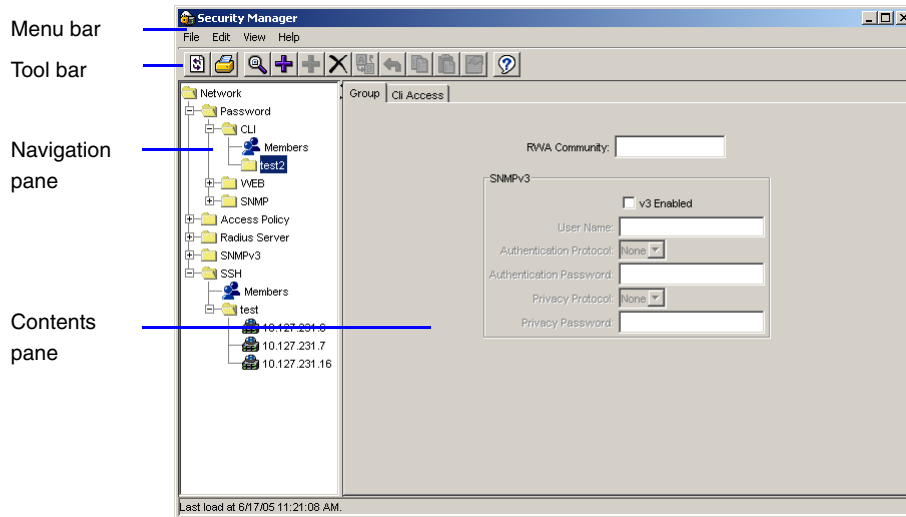


Table 219 describes the parts of the Security Manager window.












**Table 219** Parts of the Security Manager window

| Part            | Description   |
|-----------------|---|
| Menu bar        | Provides access to all Security Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons” on page 444</a> .                 |
| Toolbar         | Provides quick access to commonly-used Security Manager commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons” on page 444</a> . |
| Navigation pane | Allows you to navigate security settings for the current network devices. For more information, see <a href="#">“Navigation pane” on page 445</a> .               |
| Content pane    | Displays elements of the folder or element selected on the navigation pane. For more information, see <a href="#">“Content pane” on page 446</a> .                |


## Menu bar commands and toolbar buttons

Table 220 describes the Security Manager menu bar commands and toolbar buttons.

**Table 220** Security Manager Menu bar commands and toolbar buttons

| Menu | Command            | Toolbar button  | Shortcut key | Description   |
|------|--------------------|---|--------------|---|
| File | Reload             |    | [Ctrl]+R     | Rediscovered the network and reloads Security Manager with the latest information. For more information, see <a href="#">“Reloading Security Manager” on page 447</a> .       |
|      | Print              |    | [Ctrl]+P     | Lets you print either the current table or the current navigation tree.   |
|      | Close              |   |              | Closes Security Manager   |
| Edit | Undo Changes       |    | [Ctrl]+Z     | Reverses any changes you made to a record.  |
|      | Copy               |    | [Ctrl]+C     | Copies the current selection onto the clipboard.  |
|      | Paste              |    | [Ctrl]+V     | Pastes the contents of the clipboard.   |
|      | Insert             |   | [Ctrl]+I     | Creates a new element in the selected folder or table.  |
|      | Insert Wizard      |  | [Ctrl]+W     | Opens the wizard for inserting an SNMPv3 user-related configuration.  |
|      | Delete             |  | [Ctrl]+D     | Deletes the selected folder or element.   |
|      | Modify             |  | [Ctrl]+M     | Modifies multiple selected table entries.   |
|      | Apply Changes      |  |              | Applies your settings to all of the devices in the security group.  |
|      | Find               |  | [Ctrl]+F     | Finds matching text strings in the navigation or content panes.   |
| View | Highlight Topology |   |              | Highlights devices on the current Enterprise Switch Manager topology view. For more information, see <a href="#">“Highlighting devices on the topology map” on page 454</a> . |

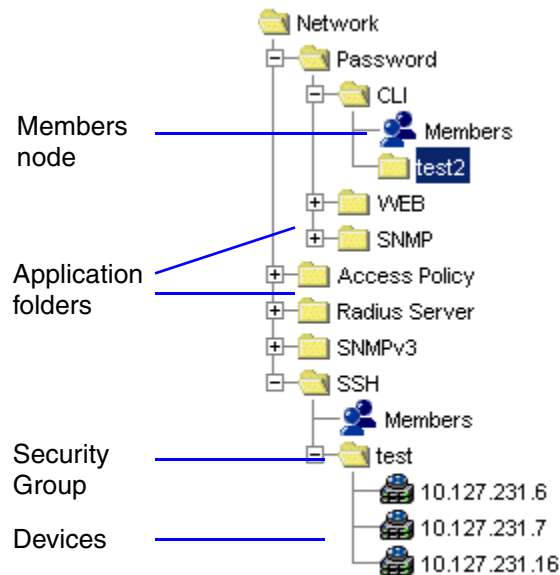
**Table 220** Security Manager Menu bar commands and toolbar buttons

| Menu | Command                | Toolbar button  | Shortcut key | Description   |
|------|------------------------|---|--------------|---|
| Help | Using                  |  | F1           | Opens Online Help for the current folder or tab.                    |
|      | Online Support         |   |              | Opens a Web browser and loads the Nortel Customer Support Web page. |
|      | About Security Manager |   |              | Displays version and date information for Security Manager.         |

## Navigation pane

The Security Manager navigation pane displays a hierarchical folder tree that you can use to navigate security groups.

[Figure 124](#) shows the navigation pane of the Security Manager window.

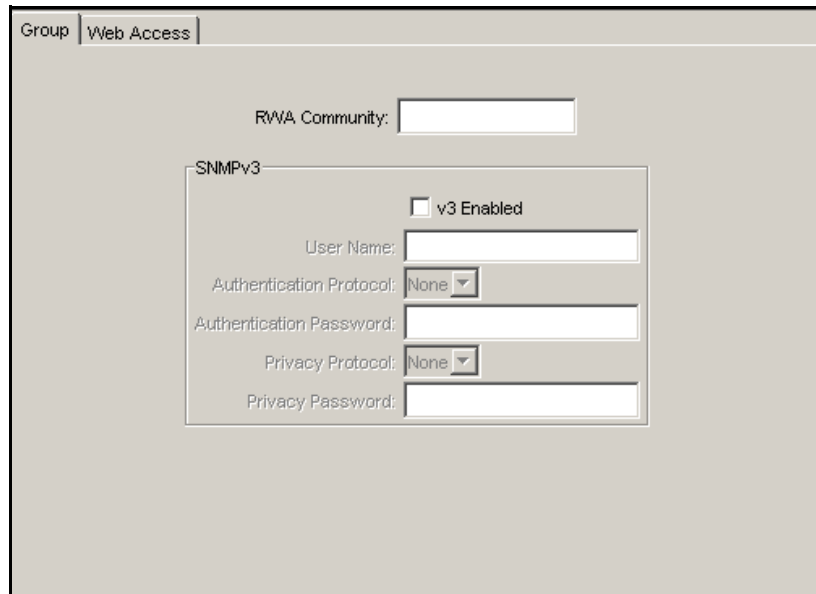
**Figure 124** Security Manager navigation pane

## Content pane

The content pane shows you the contents of the selected element in the navigation pane.

[Figure 125](#) shows the Security Manager content pane.

**Figure 125** Security Manager content pane



The screenshot shows the Security Manager content pane for the 'Web Access' group. The interface includes a 'Group' tab labeled 'Web Access'. Below this, there is a text input field for 'RWA Community:'. A sub-section titled 'SNMPv3' contains a checkbox for 'v3 Enabled', a text input field for 'User Name:', a dropdown menu for 'Authentication Protocol:' set to 'None', a text input field for 'Authentication Password:', a dropdown menu for 'Privacy Protocol:' set to 'None', and a text input field for 'Privacy Password:'.

## Working with Security Manager

The following sections describe how to use Security Manager:

- [“Reloading Security Manager”](#) on page 447
- [“Saving security group settings”](#) on page 448
- [“Working with security groups”](#) on page 448
- [“Highlighting devices on the topology map”](#) on page 454
- [“Managing access policies with Security Manager”](#) on page 494
- [“Managing security group attributes”](#) on page 455

## Reloading Security Manager

Security Manager allows you to refresh the information in the window with security information polled from the network devices. You can use this feature to load any updated information that took effect since you opened Security Manager.

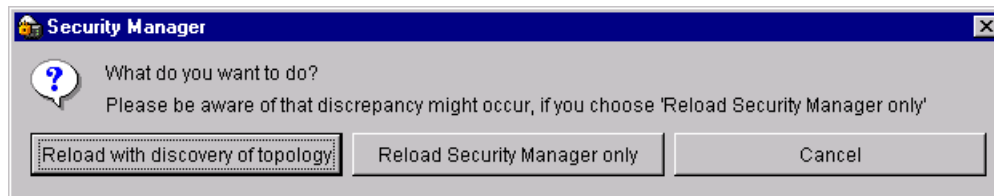
To reload the security information:

- 1 On the Security Manager toolbar, click **Reload**.

Or, from the Security Manager menu bar, choose **File > Reload**.

An alert box appears to ask how you want to continue (Figure 126).

**Figure 126** Security Manager reload dialog box



- 2 Do one of the following:
  - Click **Reload with discovery of topology** to rediscover network topology and reload the Enterprise Switch Manager topology map and all of the submanagers.
  - Click **Reload Security Manager only** to just reload Security Manager. Enterprise Switch Manager polls devices for security settings and features, but does not perform a full network topology discovery.

- Click **Cancel** to abandon the reload operation.



**Note:** Reloading just Security Manager takes less time than reloading with topology discovery. However, if there are any changes in network topology, discrepancies between the information in Security Manager and the information on the topology map may result. Such discrepancies might cause incorrect operation when you perform operations (such as highlighting the network map) that involve interactions between the submanagers and the topology map.

If you observe such incorrect operation, reload the network map. For more information, see [“Rediscovering the network map” on page 105](#).

---

Enterprise Switch Manager reloads topology information from the network devices, and refreshes the Security Manager window with it.

## Saving security group settings

Security Manager saves all security group information to the local hard disk when you close the Security Manager window. When you restart Security Manager, it reloads the saved security group settings.

## Working with security groups

The following sections describe how to manage security groups with Security Manager:

- [“Creating security groups,” next](#)
- [“Setting security group properties” on page 450](#)
- [“Deleting security groups” on page 452](#)
- [“Adding devices to a security group” on page 452](#)
- [“Removing devices from a security group” on page 454](#)

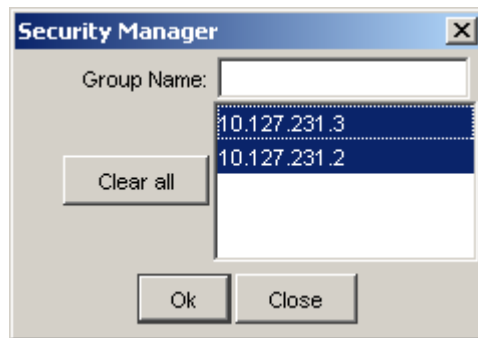


## Creating security groups

To create a security group:

- 1 In the navigation pane, navigate and select one of the following application folders:
  - **Access Policy**
  - **Radius Server**
  - **SNMPv3**
  - Or, under the Password folder, select one of the following folders:
    - **CLI**
    - **WEB**
    - **SNMP**
- 2 On the Toolbar, click **Insert** (the plus sign).  
The **New Group** dialog box appears (Figure 127).

**Figure 127** New Group dialog box



- 3 In the **Group Name** field, type a new group name.
- 4 In the device list, choose the devices that you want to include in the new security group. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.

Security Manager creates a new security group containing the selected devices.



**Note:** After creating a security group, you must set the RWA community for the group before you can use the security group. For more information, see [“Setting security group properties,” next](#).

---

[Table 221](#) describes the parts of the **New Group** dialog box.

**Table 221** Parts of the New Group dialog box

| Part        | Description  |
|-------------|--|
| Group Name  | Allows you to enter a name for the new security group.   |
| Device list | Displays a list of devices that you can add to the new security group. Use Ctrl+click and Shift+click to select multiple devices |
| Clear All   | Deselects all the devices on the device list.  |
| OK          | Creates the new security group and adds the devices as members.  |
| Close       | Closes the dialog box without applying your settings.  |

## Setting security group properties

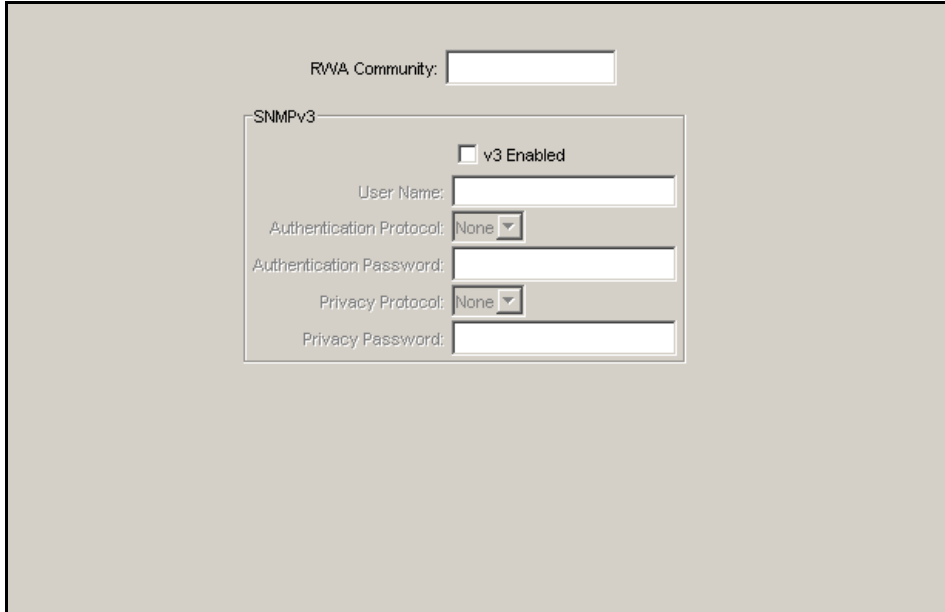
All the devices in a security group use the same SNMP parameters to communicate with the switches. Either SNMPv1/v2c or SNMPv3.

Security Manager applies the properties of a security group to all the devices that are members of that group. To view and change the properties of a security group:

- 1 In the navigation pane, click the folder for a security group.

The property table appears in the content pane ([Figure 128](#)).

**Figure 128** Security group property table



The screenshot shows a configuration window for a security group. At the top, there is a text input field labeled "RWA Community:". Below this is a section titled "SNMPv3" which contains a checkbox labeled "v3 Enabled". Underneath the checkbox are several fields: "User Name:" with a text input field, "Authentication Protocol:" with a dropdown menu currently set to "None", "Authentication Password:" with a text input field, "Privacy Protocol:" with a dropdown menu currently set to "None", and "Privacy Password:" with a text input field.

**2** Do one of the following:

- In the **RWA Community** box, enter the SNMP read/write/all community string for the security group. The RWA community for the group must match the RWA community currently configured on the devices in the group.
- In the **SNMPv3** section, enter the SNMPv3 properties for the security group. The SNMPv3 user name and passwords must match the user names and passwords currently configured on the devices in the group.



**Note:** The SNMP properties do not take effect until you click **Apply Changes** on the Enterprise Switch Manager toolbar.

For more information, see [“Managing security group attributes”](#) on page 455.

**3** On the Security Manager toolbar, click **Apply Changes**.

Use the **SNMPv3** dialog box to configure SNMPv3 properties for a security group. For more information, see [“Adding RADIUS servers” on page 459](#).

[Table 222](#) describes the parts of the **SNMPv3** dialog box.

**Table 222** Parts of the SNMPv3 dialog box

| Part                    | Description  |
|-------------------------|--|
| User Name               | Indicates the name of the user in usmUser.   |
| Authentication Protocol | Identifies the Authentication protocol used.   |
| Authentication Password | A password that is used for authentication purposes. If no value is entered, assume the entry has no authentication capability.                                      |
| Privacy Protocol        | Identifies the privacy protocol used.  |
| Privacy Password        | A password that is used for privacy purposes. If no value is entered, assume the entry has no privacy capability. (Note: Privacy has to be set with authentication.) |

## Deleting security groups

To delete a security group:

- 1 In the navigation pane, select the security group that you want to delete.
- 2 On the Toolbar, click **Delete** (the **X** symbol), or from the menu bar, choose **Edit > Delete**.

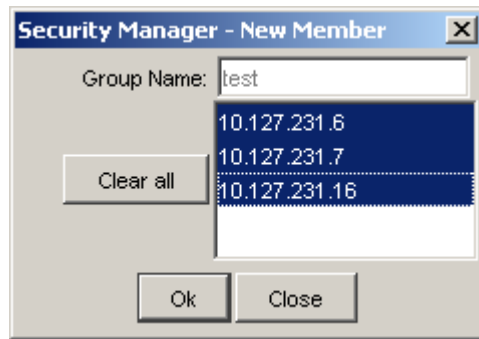
## Adding devices to a security group

To add devices to a security group:

- 1 In the navigation pane, open the folder for the security group to which you want to add a device.
- 2 On the Toolbar, click **Insert** (the plus sign).  
Or, from the menu bar, choose **Edit > Insert**.

The **Security Manager - New Member** dialog box appears ([Figure 129](#)).

**Figure 129** Security Manager - New Member dialog box



- 3 In the device list, choose the devices that you want to add to the security group. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 4 Click **OK**.

Security Manager adds the selected devices to the security group.

Use the **New Member** dialog box to add new members to existing security groups. For more information, see [“Adding devices to a security group” on page 452](#).

[Table 223](#) describes the parts of the **New Member** dialog box.

**Table 223** Parts of the New Member dialog box

| Part        | Description  |
|-------------|--|
| Group Name  | Displays the name of the security group to which the members will be added.  |
| Device list | Displays a list of devices that you can add to the security group. Use Ctrl+click and Shift+click to select multiple devices |
| OK          | Adds the devices to the security group and closes the dialog box.  |
| Close       | Closes the dialog box without applying your settings.  |

## Removing devices from a security group

To remove devices from a security group:

- 1 In the navigation pane, open the folder for the security group from which you want to remove devices.
- 2 In the security group folder, click the device you want to remove from the group.
- 3 On the Toolbar, click **Delete** (the **X** symbol).  
Or, from the menu bar, choose **Edit > Delete**.

## Highlighting devices on the topology map

You can highlight the Enterprise Switch Manager topology map to show information relating to devices in security groups. For more information, see the following sections:

- [“Highlighting members of a security group,”](#) next

### Highlighting members of a security group

To highlight the Enterprise Switch Manager topology map to show which devices are members of a security group:

- 1 In the navigation pane, open the folder for the security group for which you want to highlight devices.
- 2 In the security group folder, click the icon for the **Members** Folder of the group.
- 3 On the Security Manager Menu bar, choose **View > Highlight Topology**.

A check mark appears next to the Highlight Topology menu item to show that it is selected, and Enterprise Switch Manager highlights devices of the selected group on the topology map.

## Managing security group attributes

The following sections describe how to manage security group attributes for each specific application folder:

- [“Configuring CLI access” on page 455](#)
- [“Configuring SNMP access” on page 457](#)
- [“Configuring Web access” on page 457](#)
- [“Adding RADIUS servers” on page 459](#)
- [“Removing RADIUS servers” on page 462](#)
- [“Setting global RADIUS server parameters” on page 462](#)
- [“Configuring SNMPv3 access” on page 463](#)
- [“Managing access policies with Security Manager” on page 494](#)
- [“Managing SSH security groups and bulk passwords” on page 499](#)

### Configuring CLI access

You can use Security Manager to configure the Command Line Interface (CLI) user names and passwords for all of the devices in a security group.

To configure CLI access for a security group:

- 1** Under the **CLI** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2** In the contents pane, click the **CLI Access** tab.
- 3** On the **CLI Access** tab, edit the CLI user name and password.
- 4** On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the devices in the security group.

Table 224 describes the parts of the **CLI Access** tab.

**Table 224** Parts of the CLI Access tab of the Attributes folder

| Part              | Description   |
|-------------------|---|
| RWAUserName       | User name for the read/write/all CLI account.   |
| RWAPassword       | Password for the read/write/all CLI account.  |
| RWUserName        | User name for the read/write CLI account.   |
| RWPassword        | Password for the read/write CLI account.  |
| RWL3UserName      | User name for the Layer 3 read/write CLI account.   |
| RWL3Password      | Password for the Layer 3 read/write CLI account.  |
| RWL2UserName      | User name for the Layer 2 read/write CLI account.   |
| RWL2Password      | Password for the Layer 2 read/write CLI account.  |
| RWL1UserName      | User name for the Layer 1 read/write CLI account.   |
| RWL1Password      | Password for the Layer 1 read/write CLI account.  |
| ROUserName        | User name for the read-only CLI account.  |
| ROPassword        | Password for the read-only CLI account.   |
| MaxTelnetSessions | Maximum number of concurrent Telnet sessions that are allowed (from none to 8).   |
| MaxRloginSessions | Maximum number of concurrent Rlogin sessions that are allowed (from none to 8).   |
| Timeout           | Number of seconds of inactivity for a Telnet or Rlogin session before automatic timeout and disconnect (30 to 65535 seconds). |

The **CLI** tab also lets you specify the number of allowed Telnet sessions and remote login (rlogin) sessions. To prohibit Telnet or rlogin access to the devices, specify zero (0) as the number of allowed sessions. Ports are in the forwarding and blocking states.



## Configuring SNMP access

You can use Security Manager to configure the SNMP community strings for all of the devices in a security group.

To configure SNMP community strings for a security group:

- 1 Under the **SNMP** folder in the navigation pane, click the folder for the security group for which you want to configure SNMP access.
- 2 In the contents pane, click the **SNMP Access** tab.
- 3 On the **SNMP Access** tab, edit the SNMP community strings.
- 4 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the devices in the security group.

[Table 225](#) describes the parts of the **SNMP Access** tab.

**Table 225** Parts of the SNMP Access tab of the Attributes folder

| Part            | Description   |
|-----------------|---|
| ReadWriteAll    | The SNMP ReadWriteAll community string for the security group.    |
| ReadWrite       | The SNMP ReadWrite community string for the security group.       |
| ReadOnly        | The SNMP ReadOnly community string for the security group.        |
| ReadWriteLayer3 | The SNMP ReadWriteLayer3 community string for the security group. |
| ReadWriteLayer2 | The SNMP ReadWriteLayer2 community string for the security group. |
| ReadWriteLayer1 | The SNMP ReadWriteLayer1 community string for the security group. |

## Configuring Web access

You can use Security Manager to manage access to the Web interfaces for all devices in the security group.

To configure Web access for a security group:

- 1 Under the **WEB** folder in the navigation pane, click the folder for the security group for which you want to configure Web access.
- 2 In the contents pane, click the **Web Access** tab.
- 3 On the **Web Access** tab, edit the Web access user names and passwords.
- 4 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the devices in the security group.

[Table 226](#) describes the parts of the **Web Access** tab.

**Table 226** Parts of the Web Access tab of the Attributes folder

| Part               | Description  |
|--------------------|--|
| RWAUserName        | The user name of the RWAUserName Web access account for the security group.  |
| RWAPassword        | The password of the RWAPassword Web access account for the security group.   |
| RWUserName         | The user name of the RWUserName Web access account for the security group.   |
| RWPassword         | The password of the RWPassword Web access account for the security group.    |
| ROUserName         | The user name of the ROUserName Web access account for the security group.   |
| ROPassword         | The password of the ROPassword Web access account for the security group.    |
| DefaultDisplayRows | Displays the number of default display rows on the Web management interface. |
| HttpPort           | Displays the HTTP port for Web management access.                            |
| Enable Server      | Allows you to enable or disable the Web access server.                       |

## Adding RADIUS servers

You can use Security Manager to add Radius servers to security groups.

To add a Radius server:

- 1 Under the **Radius Server** folder in the navigation pane, click the folder for the security group for which you want to add a Radius server.
- 2 In the Contents pane, click the **Radius Servers** tab.
- 3 On the Toolbar, click **Insert** (the + symbol).

Or, from the menu bar, choose **Edit > Insert**.

The **New Radius Server** dialog box appears (Figure 130).

**Figure 130** New Radius Server dialog box

The screenshot shows the 'Security Manager - New Radius Server' dialog box. It features several input fields and checkboxes. The 'Address' field is empty. 'Priority' is set to 10, 'TimeOut' to 3, and 'MaxRetries' to 3. 'UdpPort' is 1812 and 'AcctUdpPort' is 1813. The 'SecretKey' field is empty. There are checkboxes for 'Enable' and 'AcctEnable', both of which are checked. The 'rcRadiusServUsedBy' field has radio buttons for 'cli', 'igap', 'snmp', and 'eap', with 'cli' selected. Below these is the 'rcRadiusServSourceIpAddr' field, which is empty. A section titled 'Multiple Devices Insertion' contains a list box with two IP addresses: '10.127.231.2' and '10.127.231.3', with the second one selected. A 'Clear all' button is next to the list box. At the bottom of the dialog are 'Ok' and 'Close' buttons.



**Note:** The default values for the Radius port (**UdpPort**) and the Radius accounting port (**AccUdpPort**) are 1812 and 1813, respectively. Many legacy servers use default ports 1645 and 1646, respectively. You must ensure that the ports specified in this table match the ports on which your Radius servers are listening.

4 Set the dialog box parameters as appropriate.

5 Click **OK**.

Security Manager creates a new entry on the [Radius Servers tab](#).

6 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the devices in the security group.

Use the **New Radius Server** dialog box to add new Radius servers to a security group. For more information, see [“Adding RADIUS servers” on page 459](#).

[Table 227](#) describes the parts of the **New Radius Server** dialog box.

**Table 227** Parts of the New Radius Server dialog box

| Part       | Description  |
|------------|--|
| Address    | Enter the IP address of the new server.  |
| Priority   | Enter the priority between 1 and 10 of the new RADIUS server.  |
| TimeOut    | Enter the number of seconds, between 1 and 10, that you want between retransmissions from the client to the RADIUS server. |
| Enable     | Enables the RADIUS server.   |
| MaxRetries | Enter the maximum number of retries, between 1 and 6, that you want to allow requests to the server.                       |
| UdpPort    | Enter the UDP port number, between 1 and 65536, that the client will use to send requests to the server.                   |
| SecretKey  | Enter the secret key of the authentication client.   |
| AccEnable  | Allows you to enable accounting on the RADIUS server.  |
| AccUdpPort | Allows you to enter the UDP port number of the RADIUS accounting server.   |

**Table 227** Parts of the New Radius Server dialog box (continued)

| Part                         | Description                         |
|------------------------------|-------------------------------------|
| rcRadiusServ<br>UsedBy       | Range is cli, igap, snmp, eap       |
| rcRadiusServ<br>SourceIpAddr | Enter the IP address of the source. |

## Radius Servers tab

[Table 228](#) describes the parts of the **Radius Servers** tab.

**Table 228** Parts of the Radius Servers tab of the Attributes folder

| Part       | Description  |
|------------|--|
| Address    | Allows you to enter the IP address of the new server.  |
| Priority   | Allows you to enter the priority between 1 and 10 of the RADIUS server.  |
| TimeOut    | Allows you to enter the number of seconds, between 1 and 10, that you require between retransmissions from the client to the RADIUS server.  |
| Enable     | Allows you to enable the RADIUS server.  |
| MaxRetries | Allows you to enter the maximum number of retries, between 1 and 6, that you require to allow requests to the server.  |
| UdpPort    | Allows you to enter the UDP port number, between 1 and 65536, that the client will use to send requests to the server.<br>Note: The UDP port value set for the client must be the same as the value set for the Radius server. |
| SecretKey  | Allows you to enter the secret key of the authentication client.   |
| AccEnable  | Allows you to enable accounting on this RADIUS server.   |
| AccUdpPort | Allows you to enter the UDP port number of the RADIUS accounting server.   |

## Removing RADIUS servers

To remove a RADIUS server from a security group:

- 1** Under the **Radius Server** folder in the navigation pane, open the folder for the security group for which you want to remove a Radius server.
- 2** In the **Contents** pane, click the **Radius Servers** tab.
- 3** On the **Radius Servers** tab, click any cell on the entry for the Radius server that you want to remove.
- 4** On the Toolbar, click **Delete** (the **X** symbol).  
Or, from the menu bar, choose **Edit > Delete**.  
Security Manager deletes the selected Radius server.
- 5** On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.  
Security Manager applies your changes to the devices in the security group.

## Setting global RADIUS server parameters

To set global RADIUS server parameters:

- 1** Under the **Radius Server** folder in the navigation pane, open the folder for the security group for which you want to set global Radius server parameters.
- 2** In the Contents pane, click the Radius **Global** tab.
- 3** Set the parameters as appropriate.
- 4** On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.  
Security Manager applies your changes to the devices in the security group.

Table 229 describes the parts of the Radius **Global** tab.

**Table 229** Parts of the Radius Global tab of the Attributes folder

| Part               | Description  |
|--------------------|--|
| Enable             | Allows you to enable or disable the RADIUS authentication feature globally.  |
| MaxNumberServer    | Allows you to set the maximum number of servers, between 1 and 10, that you want to use.   |
| AttributeValue     | Allows you to set the value for Access-Priority attribute. The default is 192.   |
| AcctEnable         | Allows you to enable or disable accounting on this RADIUS server.  |
| AcctAttributeValue | Allows you to set the account attribute value, ranging from 192 to 240. This attribute is vendor-specific and is different from the attribute value used for authentication. |

## Configuring SNMPv3 access

You can use Security Manager to configure the SNMPv3 community strings for all the devices in a security group.

To configure SNMPv3 community strings for a security group:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure SNMPv3 access.
- 2 In the contents pane, click the **SNMP Access** tab.
- 3 On the **SNMP Access** tab, edit the SNMP community strings.
- 4 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the devices in the security group.

To perform additional SNMPv3 configurations, refer to the following:

- [“Configuring USM Access” on page 464](#)
- [“Configuring VACM Group Members” on page 466](#)
- [“Displaying VACM Group Access” on page 468](#)

- “Displaying VACM MIB View” on page 471
- “Displaying the Community Table” on page 473
- “Displaying the Target Table” on page 476
- “Displaying the Target Params Table” on page 479
- “Displaying the Notify Table” on page 482
- “Displaying the Notify Filter Profile Table” on page 484
- “Displaying the Notify Filter Table” on page 486
- “Configuring SNMPv3 users with the Insert Wizard” on page 488

## Configuring USM Access

You can use Security Manager to configure User-based Security Model (USM) access for devices in a security group.

To view USM access for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure USM access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **USM Access** tab.

[Table 230](#) describes the parts of the **USM Access** tab.

**Table 230** Parts of the USM Access tab

| Part             | Description  |
|------------------|--|
| Engine ID        | Indicates the administratively-unique identifier for the SNMP engine.            |
| New User Name    | The name of the new user in usmUser.   |
| UserSecurityName | Creates the name used as an index to the table. The range is 1 to 32 characters. |
| UserAuthProtocol | Identifies the Authentication protocol used.                                     |
| UserPrivProtocol | Identifies the privacy protocol used.  |



## Adding a USM User

To add a USM User:

- 1 In the contents pane, click the **USM Access** tab.
- 2 On the **Toolbar**, click **Insert** (the plus sign).

The **New USM User** dialog box appears (Figure 131).

**Figure 131** New USM User dialog box

The screenshot shows a dialog box titled "Security Manager - New USM user". It contains the following fields and controls:

- Engine ID: 80:00:08:e0:03:00:0c:f7:fa:40:00
- New User Name: (empty text box)
- Clone From User: initial(80:00:08:e0:03:00:0c:f7:fa:40:00) (dropdown menu)
- Auth Protocol: usmNoAuthProtocol (dropdown menu)
- Cloned User's Auth Password: (empty text box)
- New User's Auth Password: (empty text box)
- Priv Protocol: usmNoPrivProtocol (dropdown menu)
- Cloned User's Priv Password: (empty text box)
- New User's Priv Password: (empty text box)
- Multiple Devices Insertion: A list box containing "10.127.231.2" and "10.127.231.3", with "10.127.231.3" selected. A "Clear all" button is to the right.
- Buttons: "Ok" and "Close" at the bottom.

- 3 In the **New USM user** dialog box, edit the USM user names and passwords.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Security Manager applies your changes to the devices in the security group.

Table 231 describes the parts of the **New USM user** dialog box.

**Table 231** Parts of the New USM user dialog box

| Part                        | Description   |
|-----------------------------|---|
| Engine ID                   | Indicates the administratively-unique identifier for the SNMP engine.   |
| New User Name               | Creates the new entry with this security name. The name is used as an index to the table. The range is 1 to 32 characters.  |
| Clone From User             | Specifies the security name from which the new entry must copy privacy and authentication parameters. The range is 1 to 32 characters.  |
| Auth Protocol (Optional)    | Assigns an authentication protocol (or no authentication) from a drop-down menu. If you select an authentication protocol, you must enter the cloned user's authentication password and specify a new authentication password for the new user. |
| Cloned User's Auth Password | Enter the cloned user's authentication password.  |
| New User's Auth Password    | Enter a new authentication password for the new user.   |
| Priv Protocol (Optional)    | Assigns a privacy protocol (or no privacy) from a drop-down menu. If you select a privacy protocol, you must enter the cloned user's privacy Pass and specify a new privacy password for the new user.  |
| Cloned User's Priv Password | Enter the cloned user's privacy password.   |
| New User's Priv Password    | Enter a new privacy password for the new user.  |

## Configuring VACM Group Members

You can use Security Manager to configure VACM Group Members for devices in a security group.

To view VACM Group Members for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **VACM Group Members** tab.

Table 232 describes the parts of the **VACM Group Member** tab.

**Table 232** Parts of the VACM Group Member tab

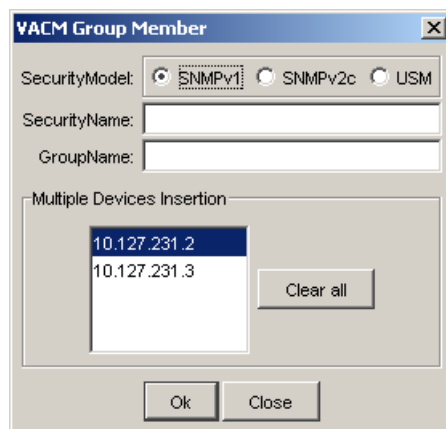
| Part          | Description  |
|---------------|--|
| SecurityModel | The security model currently in use.   |
| SecurityName  | The name representing the user in usm user. The range is 1 to 32 characters.                       |
| GroupName     | The name of the group to which this entry (combination of securityModel and securityName) belongs. |

## Adding VACM Group Members

To add VACM Group Members to a device:

- 1 In the contents pane, click the **VACM Group Members** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).  
The **VACM Group Member** dialog box appears (Figure 132).

**Figure 132** VACM Group Member dialog box



- 3 In the **VACM Group Member** box, edit the VACM Group Member properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.

- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Security Manager applies your changes to the devices in the security group.

[Table 233](#) describes the parts of the **VACM Group Member** dialog box.

**Table 233** Parts of the VACM Group Member dialog box

| Part          | Description  |
|---------------|--|
| SecurityModel | The security model currently to use  |
| SecurityName  | The name representing the user in USM user. The range is 1 to 32 characters.                       |
| GroupName     | The name of the group to which this entry (combination of securityModel and securityName) belongs. |

## Displaying VACM Group Access

You can use Security Manager to view VACM Group Access for devices in a security group.

To view VACM Group Access for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **VACM Group Access** tab.

Table 234 describes the parts of the **VACM Group Access** tab.

**Table 234** Parts of the VACM Group Access tab

| Part           | Description   |
|----------------|---|
| vacmGroupName  | The name of the group name in the VACM table. The name is a numeral. The range is 1 to 32 characters.   |
| ContextPrefix  | The contextName of an incoming SNMP packet must match exactly or partially the value of the instance of this object. The range is an SnmpAdminString, 1 to 32 characters.                         |
| SecurityModel  | The security model of the entry, either SNMPv1, SNMPv2, or SNMPv3.  |
| SecurityLevel  | The minimum level of security required to gain access rights. The security levels are: <ul style="list-style-type: none"> <li>• noAuthNoPriv</li> <li>• authNoPriv</li> <li>• authpriv</li> </ul> |
| ReadViewName   | Specifies the MIB view to which read access is authorized.  |
| WriteViewName  | Specifies the MIB view to which write access is authorized.   |
| NotifyViewName | Specifies the MIB view name to which notification access is authorized.   |

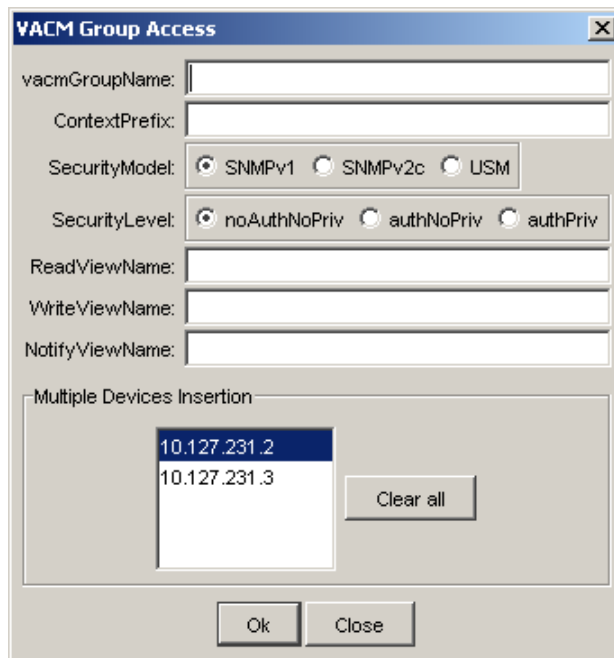
## Configuring VACM Group Access

To configure VACM Group Access for a device:

- 1 In the contents pane, click the **VACM Group Access** tab to bring it to the front.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **VACM Group Access** dialog box appears ([Figure 133](#)).

**Figure 133** VACM Group Access dialog box



- 3** In the **VACM Group Access** box, edit the VACM Group Access properties.
- 4** To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5** Click **OK**.
- 6** On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Use the **VACM Group Access** dialog box to configure VACM Group Access. For more information, see [“Displaying VACM Group Access” on page 468](#).

Table 235 describes the parts of the **VACM Group Access** dialog box.

**Table 235** Parts of the VACM Group Access dialog box

| Part           | Description   |
|----------------|---|
| vacmGroupName  | The name of the new group name in the VACM table. The name is a numeral. The range is 1 to 32 characters.   |
| ContextPrefix  | The contextName of an incoming SNMP packet must match exactly or partially the value of the instance of this object. The range is an SnmpAdminString, 1 to 32 characters.                         |
| SecurityModel  | The security model of the entry, either SNMPv1, SNMPv2, or SNMPv3.  |
| SecurityLevel  | The minimum level of security required to gain access rights. The security levels are: <ul style="list-style-type: none"> <li>• noAuthNoPriv</li> <li>• authNoPriv</li> <li>• authpriv</li> </ul> |
| ReadViewName   | Specifies the MIB view to which read access is authorized.  |
| WriteViewName  | Specifies the MIB view to which write access is authorized.   |
| NotifyViewName | Specifies the MIB view name to which notification access is authorized.   |

## Displaying VACM MIB View

You can use Security Manager to display VACM Management Information Base (MIB) views for devices in a security group.

To display VACM MIB views for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **VACM MIB View** tab.

Table 236 describes the parts of the VACM MIB View tab.

**Table 236** Parts of the VACM MIB View tab

| Part     | Description  |
|----------|--|
| ViewName | The group name. The range is 1 to 32 characters.   |
| Subtree  | Any valid object identifier that defines the set of MIB objects or MIB node name accessible by this SNMP entity. For example 1.3.6.1.1.5 or Org, ISO 8802. |
| Mask     | Specifies that a bit mask be used with vacmViewTreeFamilySubtree to determine whether an OID falls under a view subtree.                                   |
| Type     | Determines whether access to a mib object is granted (Included) or denied (Excluded). Included is the default.   |

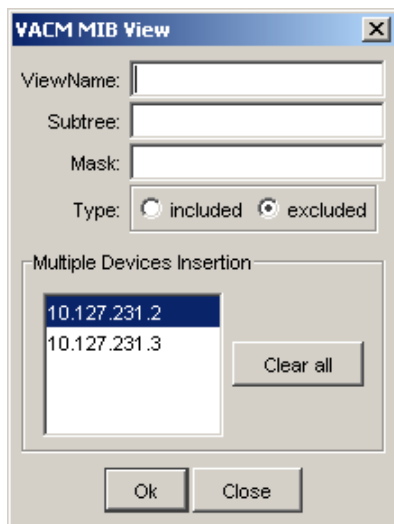
## Configuring VACM MIB View

To configure VACM MIB View:

- 1 In the contents pane, click the **VACM MIB View** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **VACM MIB View** dialog box appears (Figure 134).

**Figure 134** VACM MIB View dialog box





- 3 In the **VACM MIB View** dialog box, edit the VACM MIB View properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.  
Security Manager applies your changes to the selected devices in the security group.

Table 237 describes the parts of the **VACM MIB View** dialog box.

**Table 237** Parts of the VACM MIB View dialog box

| Part     | Description  |
|----------|--|
| ViewName | Creates a new entry with this group name. The range is 1 to 32 characters.   |
| Subtree  | Any valid object identifier that defines the set of MIB objects or MIB node name accessible by this SNMP entity. For example 1.3.6.1.1.5 or Org, ISO 8802. |
| Mask     | Specifies that a bit mask be used with vacmViewTreeFamilySubtree to determine whether an OID falls under a view subtree.                                   |
| Type     | Determines whether access to a mib object is granted (Included) or denied (Excluded). Included is the default.   |

## Displaying the Community Table

You can use Security Manager to configure the **Community Table** for devices in a security group.

To configure the **Community Table** for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **Community Table** tab.

Table 238 describes the parts of the **Community Table** tab.

**Table 238** Parts of the Community Table tab

| Part            | Description  |
|-----------------|--|
| Index           | The unique index value of a row in this table. SnmpAdminString 1-32 characters.  |
| Name            | The community string for which a row in this table represents a configuration.   |
| SecurityName    | The security name assigned to this entry in the Community table. The range is 1 to 32 characters.  |
| ContextEngineID | The contextEngineID indicating the location of the context in which management information is accessed.  |
| TransportTag    | The transport endpoints that are associated with the community string. The community string is only valid when found in an SNMPv1 (or SNMPv2c) message received from one of these transport endpoints, or when used in an SNMPv1 (or SNMPv2c) message to be sent to one of these transport endpoints.<br><br>The value of this object identifies a set of entries in the snmpTargetAddrTable.<br><br>If the value of this object has zero-length, transport endpoints are not checked when attempting to choose an entry in the snmpCommunityTable (that is, the community string is valid for use with any transport endpoint). |

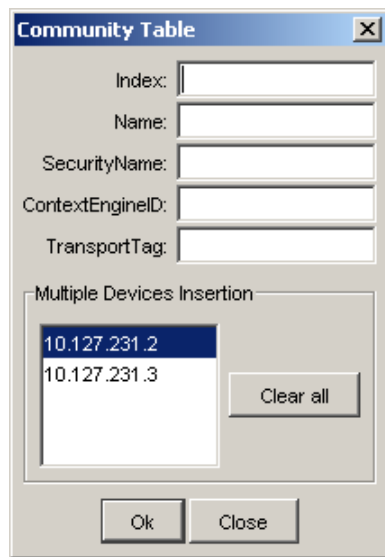
## Configuring the Community Table

To configure the **Community Table**:

- 1 In the contents pane, click the **Community Table** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **Community Table** dialog box appears (Figure 135).

**Figure 135** Community Table dialog box



- 3 In the **Community Table** dialog box, edit the Community Table properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Table 239 describes the parts of the **Community Table** dialog box.

**Table 239** Parts of the Community Table dialog box

| Part            | Description   |
|-----------------|---|
| Index           | The unique index value of a row in this table. SnmpAdminString 1-32 characters.   |
| Name            | The community string for which a row in this table represents a configuration.  |
| SecurityName    | The security name assigned to this entry in the Community table. The range is 1 to 32 characters.   |
| ContextEngineID | The contextEngineID indicating the location of the context in which management information is accessed.   |
| TransportTag    | <p>The transport endpoints that are associated with the community string. The community string is only valid when found in an SNMPv1 (or SNMPv2c) message received from one of these transport endpoints, or when used in an SNMPv1 (or SNMPv2c) message to be sent to one of these transport endpoints.</p> <p>The value of this object identifies a set of entries in the snmpTargetAddrTable.</p> <p>If the value of this object has zero-length, transport endpoints are not checked when attempting to choose an entry in the snmpCommunityTable (that is, the community string is valid for use with any transport endpoint).</p> |

## Displaying the Target Table

You can use Security Manager to display the **Target Table** for devices in a security group.

To display the **Target Table** for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **Target Table** tab.

Table 240 describes the parts of the **Target Table** tab.

**Table 240** Parts of the Target Table tab

| Part           | Description   |
|----------------|---|
| AddrName       | The unique identifier to index this table.  |
| AddrTDomain    | The transport type of the address in the snmpTargetAddrTAddressobject.                                      |
| AddrTAddress   | The transport address whose format depends on the value of the snmpTargetAddrTAddressobject.                |
| AddrTimeout    | The maximum round trip time required for communicating with the transport address defined by this row.      |
| AddrRetryCount | The number of retries to be attempted when a response is not received for a generated message.              |
| AddrTagList    | Specifies a list of tag values. A tag value refers to a class of targets to which the messages may be sent. |
| AddrParams     | The value of SnmpAdminString identifies snmpTargetParamsTable entries.                                      |

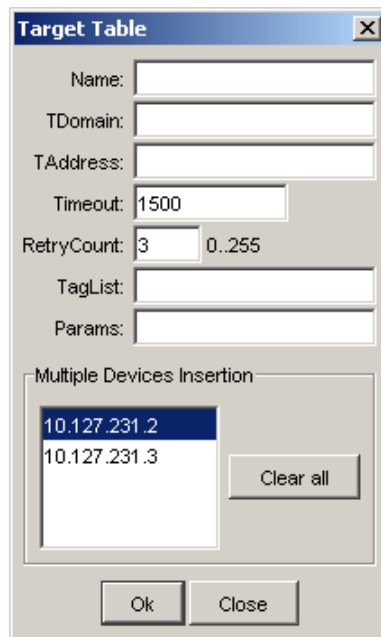
## Configuring the Target Table

To configure the **Target Table** for a device:

- 1 In the contents pane, click the **Target Table** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **Target Table** dialog box appears (Figure 136).

**Figure 136** Target Table dialog box



- 3** In the **Target Table** dialog box, edit the Target Table properties.
- 4** To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5** Click **OK**.
- 6** On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Table 241 describes the parts of the **Target Table** dialog box.

**Table 241** Parts of the Target Table dialog box

| Part       | Description   |
|------------|---|
| Name       | The unique identifier to index this table.  |
| TDomain    | The transport type of the address in the snmpTargetAddrTAddressobject.                                      |
| TAddress   | The transport address whose format depends on the value of the snmpTargetAddrTAddressobject.                |
| Timeout    | The maximum round trip time required for communicating with the transport address defined by this row.      |
| RetryCount | The number of retries to be attempted when a response is not received for a generated message.              |
| TagList    | Specifies a list of tag values. A tag value refers to a class of targets to which the messages may be sent. |
| Params     | The value of SnmpAdminString identifies snmpTargetParamsTable entries.                                      |

## Displaying the Target Params Table

You can use Security Manager to display the **Target Params Table** for devices in a security group.

To display the **Target Params Table** for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **Target Params Table** tab.

Table 242 describes the parts of the **Target Params Table** tab.

**Table 242** Parts of the Target Params Table tab

| Part          | Description  |
|---------------|--|
| Name          | The community string for which a row in this table represents a configuration.   |
| MpModel       | Specifies the Message Processing model, SNMPv1, SNMPv2c, or SNMPv3/USM.  |
| SecurityModel | Specifies the security model, SNMPv1, SNMPv2c, or SNMPv3/USM.  |
| SecurityName  | The security name identifies the principal to generate SNMP messages using security name entry.  |
| SecurityLevel | The minimum level of security required to gain access rights.<br>The security levels are: <ul style="list-style-type: none"><li>• noAuthNoPriv</li><li>• authNoPriv</li><li>• authpriv</li></ul> |

## Configuring the Target Params Table

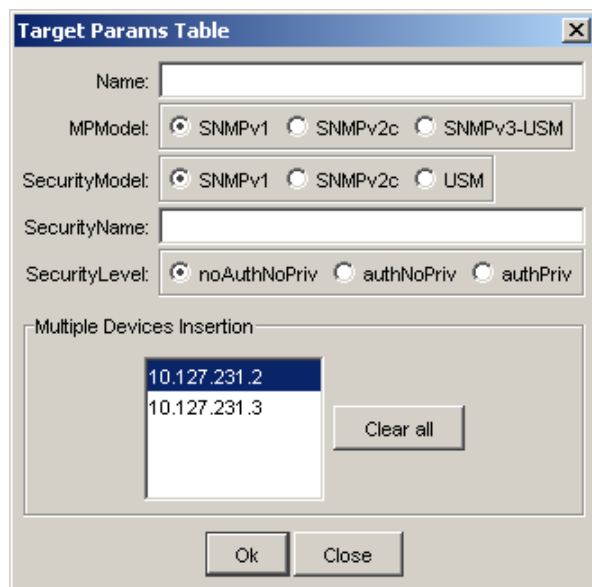
To configure the **Target Params Table** for a device:

- 1 In the contents pane, click the **Target Params Table** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).



The **Target Params Table** dialog box appears (Figure 137).

**Figure 137** Target Params Table dialog box



- 3 In the **Target Params Table** dialog box, edit the Target Params Table properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

[Table 243](#) describes the parts of the **Target Params Table** dialog box.

**Table 243** Parts of the Target Params Table dialog box

| Part          | Description  |
|---------------|--|
| Name          | The community string for which a row in this table represents a configuration.   |
| MpModel       | Specifies the Message Processing model, SNMPv1, SNMPv2c, or SNMPv3/USM.  |
| SecurityModel | Specifies the security model, SNMPv1, SNMPv2c, or SNMPv3/USM.  |
| SecurityName  | The security name identifies the principal to generate SNMP messages using security name entry.  |
| SecurityLevel | The minimum level of security required to gain access rights.<br>The security levels are: <ul style="list-style-type: none"> <li>• noAuthNoPriv</li> <li>• authNoPriv</li> <li>• authpriv</li> </ul> |

## Displaying the Notify Table

You can use Security Manager to display the **Notify Table** for devices in a security group.

To display the **Notify Table** for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **Notify Table** tab.

[Table 244](#) describes the parts of the **Notify Table** tab.

**Table 244** Parts of the Notify Table tab

| Part | Description  |
|------|--|
| Name | The community string for which a row in this table represents a configuration. |

**Table 244** Parts of the Notify Table tab (continued)

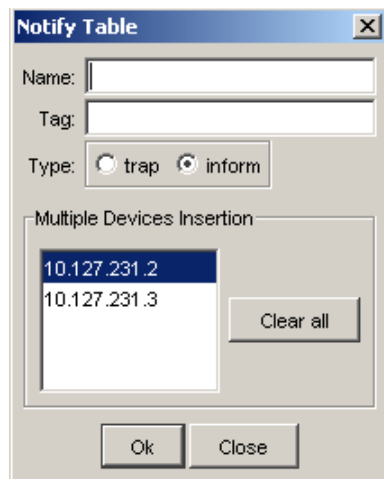
| Part | Description   |
|------|---|
| Tag  | The tag value used to select the entries in snmpTargetAddrTable.  |
| Type | The type assigned to the community string name. Choices are: <ul style="list-style-type: none"> <li>trap</li> <li>inform</li> </ul> |

## Configuring the Notify Table

To configure the **Notify Table** for a device:

- 1 In the contents pane, click the **Notify Table** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **Notify Table** dialog box appears ([Figure 138](#)).

**Figure 138** Notify Table dialog box

- 3 In the **Notify Table** dialog box, edit the Notify Table properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Security Manager applies your changes to the devices in the security group.

[Table 245](#) describes the parts of the **Notify Table** dialog box.

**Table 245** Parts of the Notify Table dialog box

| Part | Description   |
|------|---|
| Name | The community string for which a row in this table represents a configuration.  |
| Tag  | The tag value used to select the entries in snmpTargetAddrTable.  |
| Type | The type assigned to the community string name. Choices are: <ul style="list-style-type: none"> <li>• trap</li> <li>• inform</li> </ul> |

## Displaying the Notify Filter Profile Table

You can use Security Manager to display the **Notify Filter Profile Table** for devices in a security group.

To display the **Notify Filter Profile Table** for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **Notify Filter Profile Table** tab.

[Table 246](#) describes the parts of the **Notify Filter Profile Table** tab.

**Table 246** Parts of the Notify Filter Profile Table tab

| Part                    | Description  |
|-------------------------|--|
| TargetParamsName        | The unique identifier associated with this entry. This value is an SnmpAdminString of 1-32 characters. |
| NotifyFilterProfileName | The name of the filter profile used while generating notifications in snmpTargetAddrTable.             |

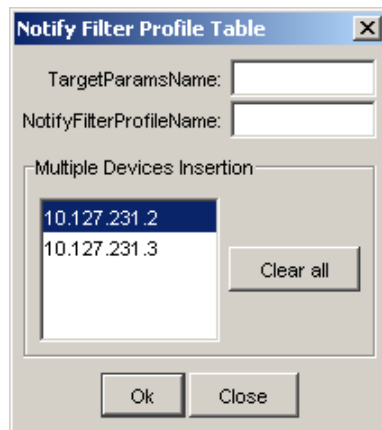
## Configuring the Notify Filter Profile Table

To configure the **Notify Filter Profile Table** for a device:

- 1 In the contents pane, click the **Notify Filter Profile Table** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **Notify Filter Profile Table** dialog box appears (Figure 139).

**Figure 139** Notify Filter Profile Table dialog box



- 3 In the **Notify Filter Profile Table** dialog box, edit the Notify Filter Profile Table properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Security Manager applies your changes to the devices in the security group.

[Table 247](#) describes the parts of the **Notify Filter Profile Table** dialog box.

**Table 247** Parts of the Notify Filter Profile Table dialog box

| Part                    | Description  |
|-------------------------|--|
| TargetParamsName        | The unique identifier associated with this entry. This value is an SnmpAdminString of 1-32 characters. |
| NotifyFilterProfileName | The name of the filter profile used while generating notifications in snmpTargetAddrTable.             |

## Displaying the Notify Filter Table

You can use Security Manager to display the **Notify Filter Table** for devices in a security group.

To display the **Notify Filter Table** for a device:

- 1 Under the **SNMPv3** folder in the navigation pane, click the folder for the security group for which you want to configure CLI access.
- 2 In the security group folder, click the desired device.
- 3 In the contents pane, click the **Notify Filter Table** tab

[Table 248](#) describes the parts of the **Notify Filter Table** tab.

**Table 248** Parts of the Notify Filter Table tab

| Part        | Description  |
|-------------|--|
| ProfileName | The name of the filter profile used while generating notifications in snmpTargetAddrTable.   |
| Subtree     | MIB subtree with the corresponding instance of snmpNotifyFilterMask defines a family of subtrees.  |
| Mask        | Bit mask in combination with snmpNotifyFilterMask defines a family of subtrees.  |
| Type        | Indicates whether the family of filter subtrees defined by this entry are included or excluded from a filter. The valid options are included and excluded. |

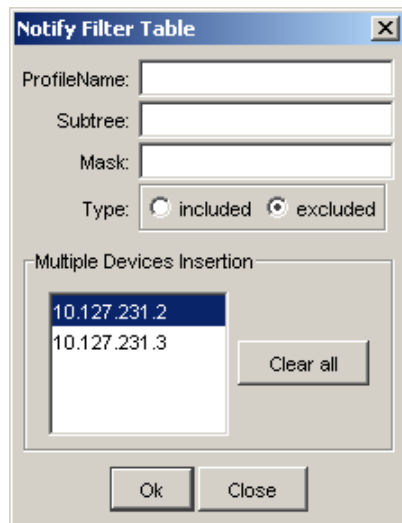
## Configuring the Notify Filter Table

To configure the **Notify Filter Table** for a device:

- 1 In the contents pane, click the **Notify Filter Table** tab.
- 2 On the Toolbar, click **Insert** (the plus sign).

The **Notify Filter Table** dialog box appears (Figure 140).

**Figure 140** Notify Filter Table dialog box



- 3 In the **Notify Filter Table** dialog box, edit the Notify Filter Table properties.
- 4 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the Multiple Devices Insertion list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 5 Click **OK**.
- 6 On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the selected devices in the security group.

Security Manager applies your changes to the devices in the security group.

Table 249 describes the parts of the **Notify Filter Table** dialog box.

**Table 249** Parts of the Notify Filter Table dialog box

| Part        | Description  |
|-------------|--|
| ProfileName | The name of the filter profile used while generating notifications in snmpTargetAddrTable.   |
| Subtree     | MIB subtree with the corresponding instance of snmpNotifyFilterMask defines a family of subtrees.  |
| Mask        | Bit mask in combination with snmpNotifyFilterMask defines a family of subtrees.  |
| Type        | Indicates whether the family of filter subtrees defined by this entry are included or excluded from a filter. The valid options are included and excluded. |

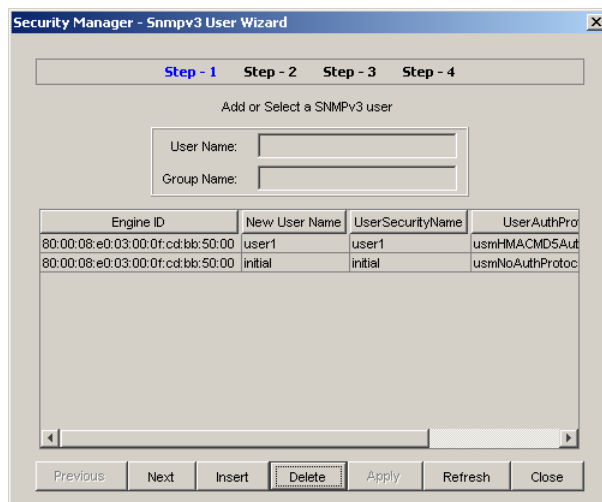
## Configuring SNMPv3 users with the Insert Wizard

To configure SNMPv3 users with the **Insert Wizard**:

- 1 In the navigation pane, click the device for which you want to add users.
- 2 On the Toolbar, click **Insert Wizard** (the plus sign).

The **SNMPv3 Insert Wizard** appears (Figure 141).

**Figure 141** SNMPv3 User Wizard





**3** Click **Insert**.

The **New USM user** dialog box appears (Figure 142).

**Figure 142** New USM user dialog box

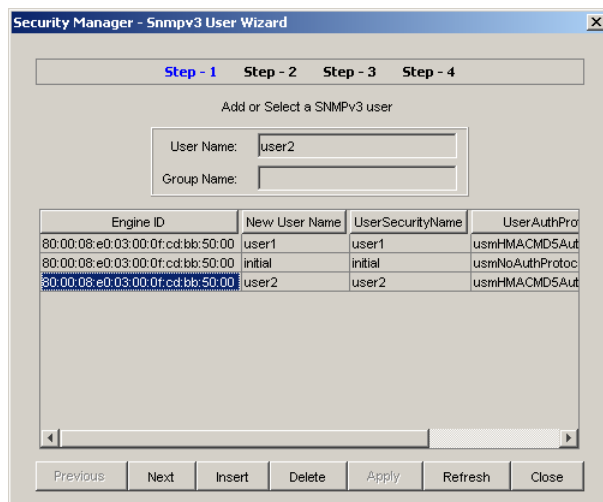
The screenshot shows a dialog box titled "SNMPv3 - New USM user". It contains the following fields and controls:

- Engine ID: 80:00:02:32:80:02:00:08:41:43:43:31:31:30:30:35:52
- New User Name: (empty text box)
- Clone From User: initial(80:00:02:32:80:02:00:08:41:43:43:31:31:30:30:35:52) [dropdown]
- Auth Protocol: usmHMACMD5AuthProtocol [dropdown]
- Cloned User's Auth Password: (empty text box)
- New User's Auth Password: (empty text box)
- Priv Protocol: usmDESPrivProtocol [dropdown]
- Cloned User's Priv Password: (empty text box)
- New User's Priv Password: (empty text box)
- Multiple Devices Insertion: 192.168.249.49 [text box] and Clear all [button]
- Ok [button] and Close [button] at the bottom.

**4** Enter the USM user information as required, and click **OK** (see “Parts of the New USM user dialog box” on page 466 for more information).

The new USM user appears in the **User Wizard** (Figure 143).

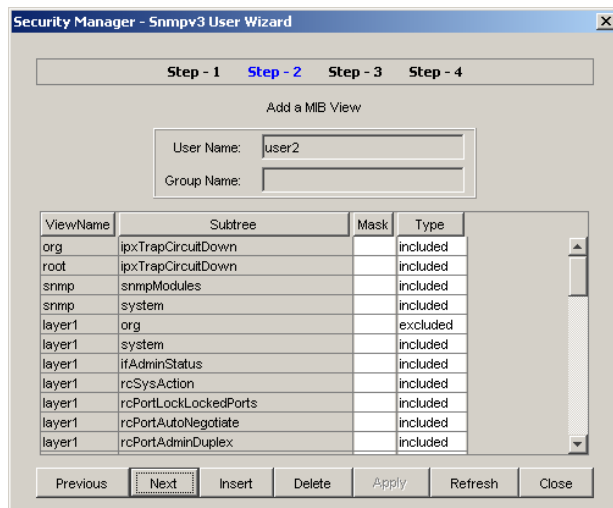
**Figure 143** SNMPv3 User Wizard with new user



5 Highlight the new User, and click **Next**.

6 The **User Wizard** prompts for MIB view information (Figure 144).

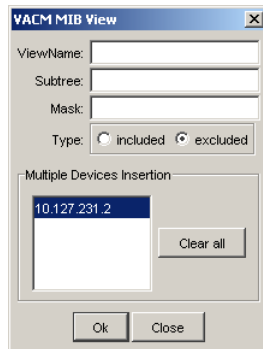
**Figure 144** MIB View information dialog box



7 To add a new MIB View, click **Insert**.

The VACM MIB View dialog box appears (Figure 145).

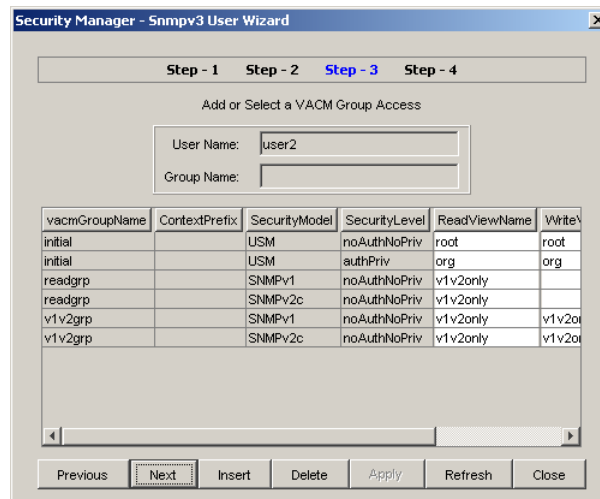
**Figure 145** Add MIB View dialog box



- 8 Complete the fields as required, and click **OK** (see “Parts of the VACM MIB View tab” on page 472 for more information).
- 9 Select the **included** or **excluded Type** button.
- 10 Click **Next**.

The **User Wizard** prompts for **VACM Group Access** information (Figure 146).

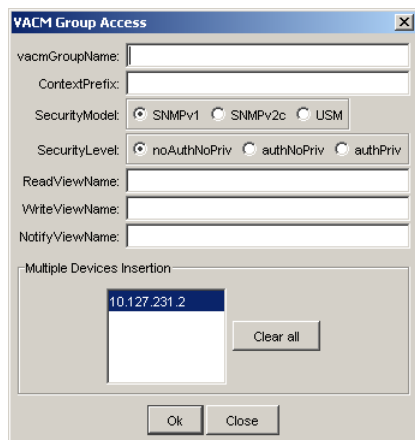
**Figure 146** VACM Group Access information dialog box



- 11 To add a new VACM Group, click **Insert**.

The **VACM Group Access** dialog box appears (Figure 147).

**Figure 147** Add VACM Group dialog box



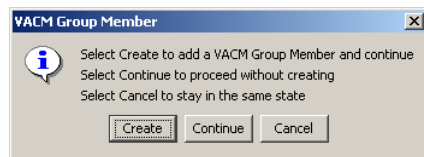
**12** Complete the fields as required (see “Parts of the VACM Group Access dialog box” on page 471 for more information).

**13** Click **OK**.

**14** Highlight a VACM Group Name, and click **Next**.

The **User Wizard** displays an alert dialog box (Figure 148).

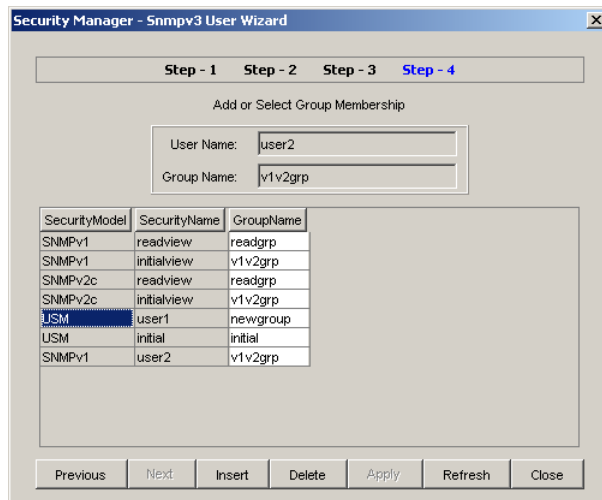
**Figure 148** VACM Group Member alert dialog box



**15** Click **Continue**.

The **User Wizard** prompts for VACM Group Membership information (Figure 149).

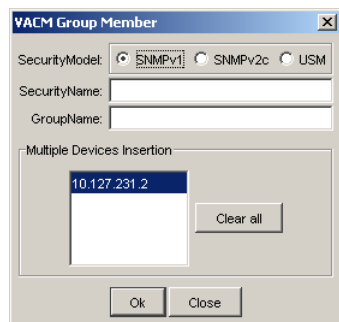
**Figure 149** VACM Group Membership dialog box



**16** To Insert a Group Member, click **Insert**.

The **VACM Group Member** dialog box appears (Figure 150).

**Figure 150** Add VACM Group Member dialog box



**17** Complete the fields as required (see “Parts of the VACM Group Member tab” on page 467 for more information).

**18** Click **OK**.

**19** Click **Next**.

## Managing access policies with Security Manager

You can use Security Manager to add, delete, monitor, and synchronize access policies for all the devices in a security group.

### Enabling or disabling access policies

Security Manager allows you to enable and disable access policies at a variety of levels within a security group. See the following sections for more information:

- [“Enabling or disabling access policies for devices in a security group” on page 494](#)
- [“Enabling or disabling individual access policies” on page 495](#)
- [“Adding access policies” on page 496](#)
- [“Deleting access policies” on page 498](#)

### Enabling or disabling access policies for devices in a security group

To enable or disable access policies for a device in a security group:

- 1 Under the **Access Policy** folder in the navigation pane, open the folder for the security group for which you want to set access policies.
- 2 In the security group folder, click the desired device.
- 3 In the content pane, click the **Access Policy Enable** tab.
- 4 On the **Access Policy Enable** tab, click the box in the **Enable** column and choose **True** to enable access policies or **False** to disable access policies.
- 5 To apply the changes to multiple devices in the group, choose the devices for which you want to apply the changes in the **Multiple Devices Insertion** list. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 6 On the Security Manager toolbar, click **Apply**.

[Table 250](#) describes the parts of the **Access Policy Enable** tab.

**Table 250** Parts of the Access Policy Enable tab of the Attributes folder

| Part   | Description  |
|--------|--|
| Enable | Enables or disables access policies for the security group. The available settings are true and false. |

## Enabling or disabling individual access policies

To enable or disable individual access policies in a security group:

- 1 Under the **Access Policy** folder in the navigation pane, open the folder for the security group for which you want to set access policies.
- 2 In the security group folder, click the desired device.
- 3 In the content pane, click the **Access Policy Table** tab.
- 4 On the **Access Policy Table** tab, scroll down to the row for the access policy that you want to enable or disable.
- 5 In the **Enable** column, click the entry for the access policy and choose **True** to enable the access policy or **False** to disable the access policy.
- 6 On the Security Manager toolbar, click **Apply**.

[Table 251](#) describes the parts of the **Access Policy Table** tab.

**Table 251** Parts of the Access Policy Table tab of the Attributes folder

| Part       | Description  |
|------------|--|
| Id         | Identifies the entry in the table.   |
| Name       | Displays the name of the policy.   |
| Enable     | Allows you to activate or deactivate the access policy. See <a href="#">"Enabling or disabling individual access policies" on page 495</a> for more information. |
| Mode       | Indicates whether a packet having a source IP address that matches this entry should be permitted to enter the device or denied access.                          |
| Service    | Selects the protocol to which this entry should be applied.  |
| Precedence | Indicates the precedence of the policy. The lower the number, the higher the precedence (1 to 128).  |

**Table 251** Parts of the Access Policy Table tab of the Attributes folder (continued)

| Part                 | Description  |
|----------------------|--|
| NetAddr              | Source network IP address. An address of 0.0.0.0 specifies any address on the network.   |
| NetMask              | Source network masks.  |
| TrustedHost Addr     | Trusted IP address of the host performing rlogin or rsh into the device. Applies only to rlogin and rsh.<br><b>Note:</b> You cannot use wildcard entries.  |
| TrustedHost UserName | User name assigned to the trusted host. Applies only to rlogin and rsh.<br><b>Note:</b> You cannot use wildcard entries. The user must already be logged in with the user name to be assigned to the trusted host. |
| AccessLevel          | Access level of the trusted host (readOnly, readWrite, or readWriteAll).   |

## Adding access policies

You can control access to Passport and Accelar devices in the security group with access policies. The access policy specifies the hosts or networks that can access the switch through various services.

To add an access policy:

- 1 Under the **Access Policy** folder in the navigation pane, click the folder for the security group for which you want to configure access policies.
- 2 In the security group folder, click the desired device.
- 3 In the Contents pane, click the **Access Policy Table** tab.
- 4 On the Toolbar, click **Insert** (the plus symbol).

Or, from the menu bar, choose **Edit > Insert**.



The **New Access Policy** dialog box appears (Figure 151).

**Figure 151** New Access Policy dialog box

The screenshot shows the 'Security Manager - New Access Policy' dialog box. It has the following fields and options:

- Id:** 2 (with a range of 1..65535)
- Name:** (empty text field)
- PolicyEnable:**
- Mode:**  allow  deny
- Service:**
  - telnet  snmp  tftp
  - ftp  http  rlogin
  - ssh
- Precedence:** 10 (with a range of 1..128)
- NetAddr:** 0.0.0.0
- NetMask:** 0.0.0.0
- TrustedHostAddr:** 0.0.0.0
- TrustedHostUserName:** (empty text field)
- AccessLevel:**  readOnly  readWrite  readWriteAll
- Multiple Devices Insertion:** A list box containing '10.127.231.2' and '10.127.231.3', with a 'Clear all' button to the right.
- Buttons:** 'Ok' and 'Close' at the bottom.

**5** Select appropriate access policy settings.

**6** Click **OK**.

Security Manager creates a new entry on the **Access Policy Table** tab.

**7** On the Security Manager toolbar, click **Apply Changes**.

Or, from the menu bar, choose **Edit > Apply Changes**.

Security Manager applies your changes to the devices in the security group.

Use the **New Access Policy** dialog box to configure new access policies.

Table 252 describes the parts of the New Access Policy dialog box.

**Table 252** Parts of the New Access Policy dialog box

| Part                 | Description   |
|----------------------|---|
| Id                   | ID of this policy.  |
| Name                 | Name of this policy.  |
| PolicyEnable         | Select to activate the access policy.   |
| Mode                 | Indicates whether a packet having a source IP address that matches this entry should be permitted to enter the device or denied access.   |
| Service              | Selects the protocol to which this entry should be applied.   |
| Precedence           | Indicates the precedence of the policy. The lower the number, the higher the precedence (1 to 128).   |
| NetAddr              | Source network IP address. An address of 0.0.0.0 specifies any address on the network.  |
| NetMask              | Source network masks.   |
| TrustedHost Addr     | Trusted IP address of the host performing rlogin or rsh into the device. Applies only to rlogin and rsh.<br>Note: You cannot use wildcard entries.  |
| TrustedHost UserName | User name assigned to the trusted host. Applies only to rlogin and rsh.<br>Note: You cannot use wildcard entries. The user must already be logged in with the user name to be assigned to the trusted host. |
| AccessLevel          | Access level of the trusted host (readOnly, readWrite, or readWriteAll).  |
| Clear all            | Deselects all of the devices on the device list.  |
| OK                   | Applies your settings and closes the dialog box   |
| Close                | Closes the dialog box without applying your settings  |

## Deleting access policies

To delete an access policy from a security group:

- 1 Under the **Access Policy** folder in the navigation pane, click the folder for the security group from which you want to delete an access policy.
- 2 In the security group folder, click the desired device.
- 3 In the Contents pane, click the **Access Policy Table** tab.
- 4 On the **Access Policy Table** tab, click any cell of the access policy that you want to delete.

- 5 On the Toolbar, click **Delete** (the **X** symbol).  
Or, from the menu bar, choose **Edit > Delete**.  
Security Manager deletes the selected access policy.
- 6 On the Security Manager toolbar, click **Apply Changes**.  
Or, from the menu bar, choose **Edit > Apply Changes**.  
Security Manager applies your changes to the devices in the security group.

## Managing SSH security groups and bulk passwords

This section describes how to configure SSH security groups, SSH Bulk passwords, and related properties.

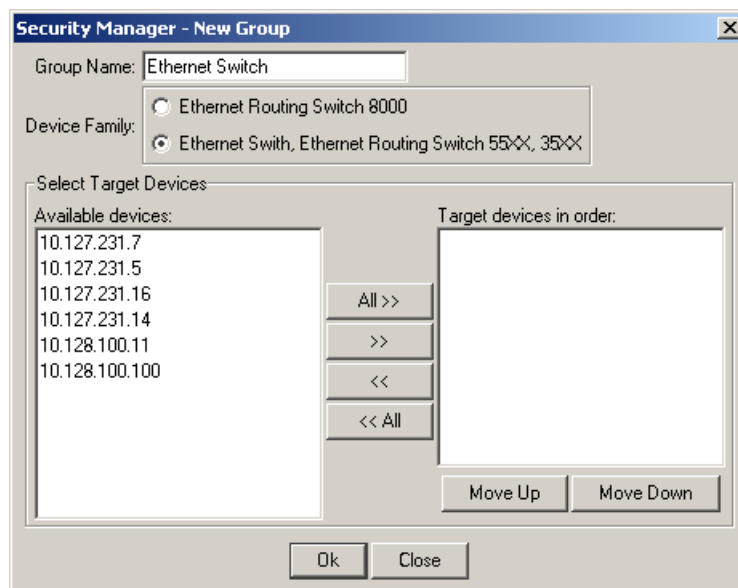
It contains the following topics:

- [“Creating SSH security groups” on page 499](#)
- [“Deleting SSH security groups” on page 501](#)
- [“Adding devices to an SSH security group” on page 501](#)
- [“Removing devices from an SSH security group” on page 502](#)
- [“Configuring SSH properties for ERS 8000 security groups” on page 506](#)
- [“Configuring SSH properties for ERS 8000 devices” on page 507](#)
- [“Configuring SSH properties for ERS 55xx/35xx and Ethernet Switch security groups” on page 508](#)
- [“Configuring SSH properties for ERS 55xx/35xx and Ethernet Switch devices” on page 509](#)
- [“Viewing the SSH Password Configuration log file” on page 511](#)

### Creating SSH security groups

To create an SSH security group:

- 1 In the navigation pane, select the **SSH** folder.
- 2 On the Toolbar, click **Insert** (the plus sign).  
The **New Group** dialog box appears ([Figure 152](#)).

**Figure 152** SSH - New Group dialog box

- 3 In the **Group Name** field, type a new group name.
- 4 In the **Device Family** field, choose the device family for which you would like to create an SSH security group.
- 5 In the **Select Target Devices** device box, use the arrows to move the desired devices from the **Available devices** column to the **Target devices in order** column. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 6 Use the **Move Up** and **Move Down** buttons to arrange the devices in the order of your preference.
- 7 Click **OK**.

Security Manager creates a new SSH security group containing the selected devices.



**Note:** After creating an SSH security group, you must set the RWA community for the group before you can use the SSH security group. For more information, see [“Setting security group properties” on page 450](#).

## Deleting SSH security groups

To delete an SSH security group:

- 1 In the navigation pane, select the SSH security group that you want to delete.
- 2 On the Toolbar, click **Delete** (the **X** symbol), or from the menu bar, choose **Edit > Delete**.

## Adding devices to an SSH security group

To add devices to an SSH security group:

- 1 In the navigation pane, open the folder for the SSH security group to which you want to add a device.
- 2 On the Toolbar, click **Insert** (the plus sign).  
Or, from the menu bar, choose **Edit > Insert**.

The **Security Manager - New Member** dialog box appears (Figure 129).

**Figure 153** SSH - New Member dialog box



- 3 In the device list, choose the devices that you want to add to the SSH security group. You can use **Shift+click** and **Ctrl+click** to select multiple devices.
- 4 Click **OK**.

Security Manager adds the selected devices to the SSH security group.

## Removing devices from an SSH security group

To remove devices from an SSH security group:

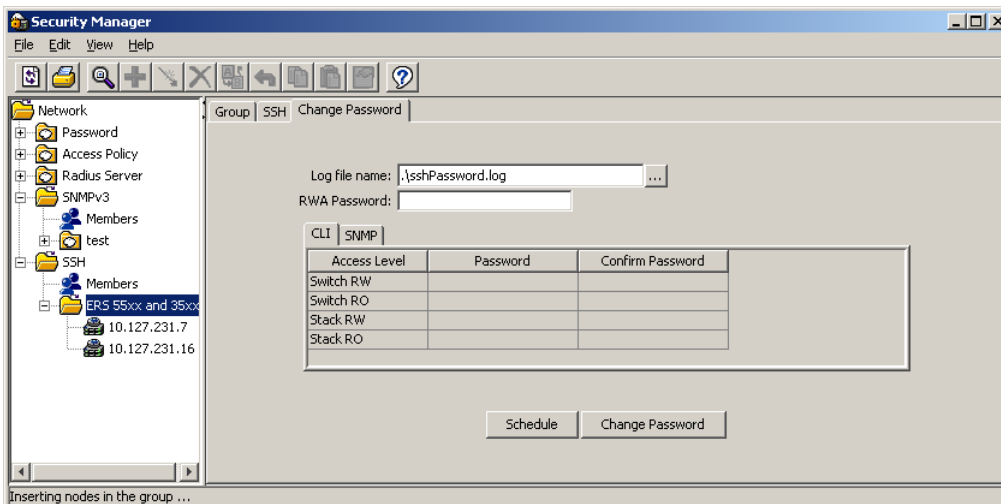
- 1 In the navigation pane, open the folder for the SSH security group from which you want to remove devices.
- 2 In the SSH security group folder, click the device you want to remove from the group.
- 3 On the Toolbar, click **Delete** (the **X** symbol).  
Or, from the menu bar, choose **Edit > Delete**.

## Configuring SSH Bulk Passwords

In Security Manager, you can use Secure Shell (SSH) to configure the CLI user name and password for all the devices in a security group. With ERS 55xx/35xx and Ethernet Switch devices, you can also use SSH to configure the SNMP communities for the security group.

To configure SSH access for a security group:

- 1 Under the SSH folder in the navigation pane, click the folder for the security group for which you want to configure SSH access.
- 2 In the contents pane, click the **Change Password** tab.  
The **Change Password** tab appears ([Figure 154](#)).

**Figure 154** Change Password tab (ERS 55xx/35xx and Ethernet Switch view)

- 3 Enter the current password for the devices in the **RWA Password** field. (For ERS 8000 devices, you must also enter the current user name for the devices in the **RWA Username** field.)
- 4 Update the CLI and SNMP passwords as follows:
  - To update the passwords for the CLI, choose the **CLI** tab. In the password column, double-click a password cell to activate it, then enter the desired password. In the adjacent **Confirm Password** cell, enter the confirmed password.
  - To update the SNMP passwords for ERS55xx/35xx or Ethernet Switch devices, choose the **SNMP** tab. In the password column, double-click a password cell to activate it, then enter the desired password. In the adjacent **Confirm Password** cell, enter the confirmed password.
- 5 Initiate the password change:
  - To initiate the password change immediately, click **Change Password**. The status bar shows the current status. After all devices have finished the password change, the status is displayed as **Done**.

- To initiate the password change at a later time, click **Schedule**, and complete the **Schedule Password Change** dialog box (see [Figure 155](#)).



**Note:** Password change is applicable only to fields with data. Empty fields are not considered. All passwords are shown as asterisks (\*\*\*), not plain text.

**Figure 155** Schedule Password Change dialog box

Security Manager Schedule Password Change

Id: 1

Name:

Log File: task1.log

Schedule

One Time Only.

Every Month on The: 1st Day.

Every Week on: Sunday

Every 1 Days.

Every Day.

Starting date/time: 6/19/05 (m/d/yy) 10:30:11 PM (h:m:s AM/PM)

Set Cancel Help...

- 6 In the **Name** box, enter a name to assign to the task. The name distinguishes this task from other scheduled tasks for easy identification.
- 7 Use the **Schedule** radio buttons to set a schedule for the task.
  - When you choose **One Time Only**, Scheduler Server executes the task only once at the time you specify.
  - When you choose **Every Month on the \_\_ Day**, Scheduler Server executes the task every month on the day of the month and at the time you specify.



- When you choose **Every Week on \_\_**, Scheduler Server executes the task every week on the day of the week and at the time you specify.
  - When you choose **Every \_\_ Days**, Scheduler Server executes the task at the interval and time you specify.
  - When you choose **Every Day**, Scheduler Server executes the task every day at the time you specify.
- 8** In the **Starting date/time** boxes, set the date and time you want Scheduler Server to execute the task.
- 9** Click **Set**.

Scheduler Server schedules the task and executes it at the set time. To view the log file Scheduler Server creates when it executes this task, see [“Viewing scheduled task log files” on page 362](#).

## Schedule Password Change dialog box

[Table 253](#) describes the parts of the **Schedule Password Change** dialog box.

**Table 253** Parts of the Schedule Password Change dialog box

| Part                                | Description   |
|-------------------------------------|---|
| Id                                  | Specifies the ID of this schedule.  |
| Name                                | Specifies the name of this schedule.                                      |
| Log File                            | Specifies the name of the Log file.                                       |
| Schedule-One time only              | Specifies a password change scheduled only once                           |
| Schedule-Every Month on The nth Day | Specifies a password change for every month on the specified day.         |
| Schedule-Every week on              | Specifies a password change for every week on the specified day           |
| Schedule-Every n days               | Specifies a password change for every n days.                             |
| Schedule-Every Day                  | Specifies a password change every day.                                    |
| Starting date/time                  | Specifies the date and time from which the scheduler should be activated. |

## Configuring SSH properties for ERS 8000 security groups

To configure SSH properties for an ERS 8000 security group:

- 1 Under the **SSH** folder in the navigation pane, click the folder for the security group for which you want to configure SSH properties.
- 2 In the contents pane, click the **SSH** tab.

The **SSH** tab appears (Figure 156).

**Figure 156** SSH tab for ERS 8000

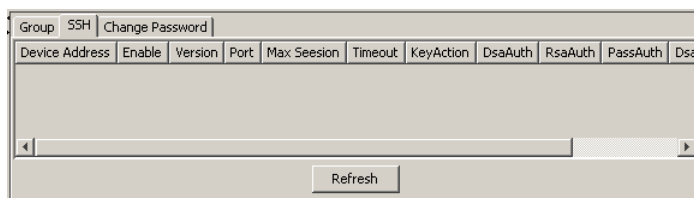


Table 254 describes the parts of the **SSH** tab.

**Table 254** Parts of the SSH tab for ERS 8000

| Part           | Description   |
|----------------|---|
| Device Address | IP address for the device.  |
| Enable         | Enable or disable SSH. Set to false to disable SSH services. Set to true to enable SSH services. Set to secure to enable SSH and disable insecure services SNMP, TFTP, and Telnet. The secure mode will take effect after reboot. Default is false. |
| Version        | Set the SSH version. Set to both or v2only. Default is v2only.  |
| Port           | Sets the SSH connection port number. Default is 22.   |
| Max Session    | Sets the maximum number of SSH sessions allowed. The value can be from 0 to 8. Default is 4.  |
| Timeout        | Set the SSH authentication connection timeout in seconds. Default is 60 seconds.  |
| KeyAction      | Set the SSH key action.   |
| DsaAuth        | Enable or disable DSA authentication. Default is enabled.   |
| RsaAuth        | Enable or disable RSA authentication. Default is enabled.   |
| PassAuth       | Enable or disable password authentication. Default is enabled.  |

**Table 254** Parts of the SSH tab for ERS 8000 (continued)

| Part       | Description   |
|------------|---|
| DsaKeySize | DSA key size. Value can be from 512 to 1024. Default is 1024. |
| RsaKeySize | RSA key size. Value can be from 512 to 1024. Default is 1024. |

## Configuring SSH properties for ERS 8000 devices

To configure SSH properties for an ERS 8000 device:

- 1 Under the **SSH** folder in the navigation pane, click the folder containing the device for which you want to configure SSH properties.
- 2 In the security group, click the desired device.

The **SSH** device dialog box appears ([Figure 157](#)).

**Figure 157** SSH device window for ERS 8000

The screenshot shows the SSH device configuration window for ERS 8000. The settings are as follows:

- Enable:  false  true  secure
- Version:  v2only  both
- Port: 22 (range 1..65535)
- MaxSession: 4 (range 1..8)
- TimeOut: 60 (range 1..120)
- KeyAction:  none  generateDsa  generateRsa  deleteDsa  deleteRsa
- RsaKeySize: 1024 (range 512..1024)
- DsaKeySize: 1024 (range 512..1024)
- RsaAuth
- DsaAuth
- PassAuth

A "Refresh" button is located at the bottom center of the window.

Table 255 describes the parts of the **SSH** device screen.

**Table 255** Parts of the SSH device window for ERS 8000

| Part       | Description  |
|------------|--|
| Enable     | Enables, disables or securely enables SSH. Securely enable turns off other daemon flag, and it takes effect after reboot |
| Version    | Indicates the SSH version  |
| Port       | Indicates the SSH connection port.   |
| MaxSession | Sets the maximum number of SSH sessions allowed. The value can be from 0 to 8. Default is 4.                             |
| Timeout    | Indicates the SSH connection timeout in seconds.   |
| KeyAction  | Indicates the SSH key action   |
| RsaKeySize | RSA key size. Value can be from 512 to 1024. Default is 1024.  |
| DsaKeySize | DSA key size. Value can be from 512 to 1024. Default is 1024.  |
| RsaAuth    | Enables or disables the SSH RSA authentication. Default is enabled.  |
| DsaAuth    | Enables or disables the SSH DSA authentication. Default is enabled.  |
| PassAuth   | Enable or disable password authentication. Default is enabled.   |

## Configuring SSH properties for ERS 55xx/35xx and Ethernet Switch security groups

To configure SSH properties for an ERS 55xx/35xx or Ethernet Switch security group:

- 1 Under the **SSH** folder in the navigation pane, click the folder for the security group for which you want to configure SSH properties.
- 2 In the contents pane, click the **SSH** tab.

The **SSH** tab appears (Figure 158).

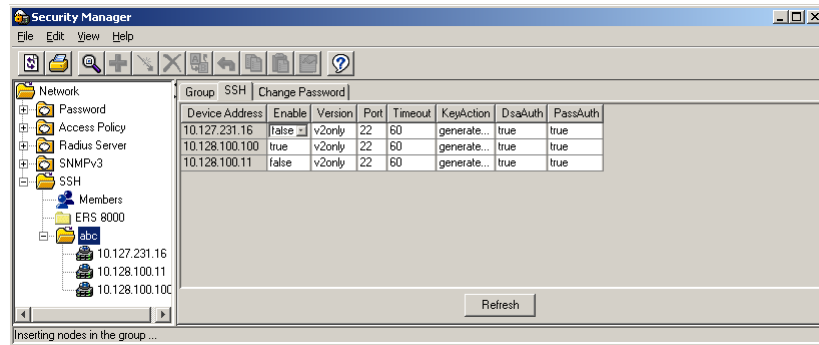
**Figure 158** SSH tab for ERS 55xx/35xx and Ethernet Switch

Table 256 describes the parts of the **SSH** tab.

**Table 256** Parts of the SSH tab for ERS 55xx/35xx and Ethernet Switch

| Part           | Description   |
|----------------|---|
| Device Address | IP address for the device.  |
| Enable         | Enable or disable SSH. Set to false to disable SSH services. Set to true to enable SSH services. Set to secure to enable SSH and disable insecure services SNMP, TFTP, and Telnet. The secure mode will take effect after reboot. Default is false. |
| Version        | Set the SSH version. Set to both or v2only. Default is v2only.  |
| Port           | Sets the SSH connection port number. Default is 22.   |
| Timeout        | Set the SSH authentication connection timeout in seconds. Default is 60 seconds.  |
| KeyAction      | Set the SSH key action.   |
| DsaAuth        | Enable or disable DSA authentication. Default is enabled.   |
| PassAuth       | Enable or disable password authentication. Default is enabled.  |

## Configuring SSH properties for ERS 55xx/35xx and Ethernet Switch devices

To configure SSH properties for ERS 55xx/35xx and Ethernet Switch devices:

- 1 Under the **SSH** folder in the navigation pane, click the folder containing the device for which you want to configure SSH properties.
- 2 In the security group, click the desired device.

The SSH device window appears (Figure 159).

**Figure 159** SSH device window for ERS 55xx/35xx and Ethernet Switch

Table 257 describes the parts of the SSH device screen.

**Table 257** Parts of the SSH device window for ERS 55xx/35xx and Ethernet Switch

| Part      | Description  |
|-----------|--|
| Enable    | Enables, disables or securely enables SSH. Securely enable turns off other daemon flag, and it takes effect after reboot |
| Version   | Indicates the SSH version.   |
| Port      | Indicates the SSH connection port.   |
| Timeout   | Indicates the SSH connection timeout in seconds.   |
| KeyAction | Indicates the SSH key action   |
| DsaAuth   | Enables or disables the SSH DSA authentication   |
| PassAuth  | Enables or disables the SSH password authentication  |

**Table 257** Parts of the SSH device window for ERS 55xx/35xx and Ethernet Switch (continued)

| Part             | Description  |
|------------------|--|
| DsaHostKeyStatus | Indicates the current status of the SSH DSA host key. Possible values are: <ul style="list-style-type: none"> <li>notGenerated</li> <li>generated</li> <li>generating</li> </ul> |
| LoadServerAddr   | Indicates the current server IP address.   |
| TftpFile         | Name of file for the TFTP transfer.  |
| TftpAction       | The action for the TFTP transfer.  |
| TftpResult       | Contains result of the last TFTP action request.   |

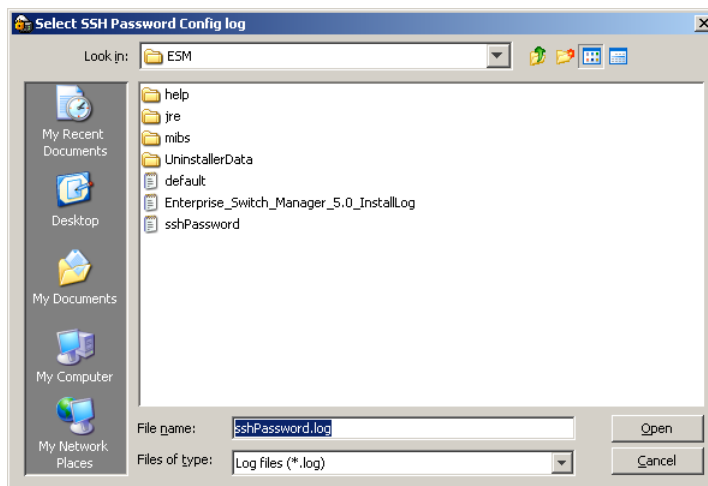
## Viewing the SSH Password Configuration log file

To view the SSH Password Configuration log file:

- 1 From the Security Manager menu bar, click **Edit > View > SSH Password Config Log**.

The **Select SSH Password Config log** dialog box appears ([Figure 160](#)).

**Figure 160** Select SSH Password Config log dialog box



- 2 Specify the log file to open (by default, this is **sshPassword.log**).
- 3 Click **Open**
- 4 The Password Configuration log file appears.



---

## Chapter 10

# Using NSNA Manager

---

NSNA Manager manages the Nortel Secure Network Access (NSNA) solution in a network. Enterprise Switch Manager (ESM) is the starting point for NSNA Manager, and ESM must be open to use NSNA Manager.



---

**Note:** You can open the Security & Routing Element Manager (SREM) for the Nortel Secure Network Access Switch (NSNAS) by double-clicking the **NSNAS** icon from the topology view. For this action to complete successfully, you must do the following:

- Specify the correct path to the folder containing the SREM software in the ESM **Preferences** dialog box (see [“Preferences dialog box” on page 98](#)).
  - If the NSNAS CLI user name and password are not the default values (admin/admin), specify the updated user name and password in the **Communities/Password** dialog box (see [“Accessing NSNAS with different CLI user names and passwords” on page 111](#)).
- 

This chapter describes how to use NSNA Manager to manage NSNA on Nortel Ethernet Routing Switch 8300 and Ethernet Routing Switch 55xx devices. It includes the following information:

- [“What is NSNA Manager?” on page 514](#)
- [“Starting NSNA Manager” on page 516](#)
- [“NSNA Manager window” on page 517](#)
- [“Working with NSNA Manager” on page 523](#)
- [“Enabling NSNA on a device” on page 524](#)
- [“Configuring the NSNAS subnet” on page 525](#)
- [“Entering IP Phone signatures for NSNA” on page 530](#)

- [“Displaying NSNA VLANs” on page 532](#)
- [“Enabling NSNA on ports” on page 533](#)
- [“Displaying information about NSNA clients” on page 535](#)
- [“Viewing NSNAS subnet members in Enterprise Switch Manager” on page 537](#)

## What is NSNA Manager?

NSNA Manager enables you to manage NSNA configurations in a single device or across multiple devices. The following sections describe NSNA Manager conventions and features:

- [“NSNA”](#)
- [“NSNA Manager features” on page 515](#)

## NSNA

The Nortel Secure Network Access (NSNA) solution is a protective framework to completely secure the network from endpoint vulnerability. The NSNA solution addresses endpoint security and enforces policy compliance. NSNA delivers endpoint security by enabling only trusted, role-based access privileges premised on the security level of the device, user identity, and session context. NSNA enforces policy compliance such as for Sarbanes-Oxley, and COBIT, ensuring the required anti-virus applications or software patches are installed before a user is granted network access.

The NSNA solution provides a policy-based, clientless approach to corporate network access. The NSNA solution provides both authentication and enforcement (operating system/antivirus/firewall code revision enforcement, Windows\* registry content verification and enforcement, file system verification and enforcement).

A PC user gains access into the corporate network by passing through:

- authentication
- host integrity check and remediation (if needed)

Before authentication, the user is given restricted access within the whole network (Red VLAN). By default, the restrictions allow access to the Nortel Secure Network Access Switch (NSNAS) and to the Windows domain controller network only (this is based on the default NSNA Red filter set). This is necessary to allow the authentication traffic. You can customize the filter sets to allow greater access, if necessary.

After the client's credentials are checked with an authentication server, a TunnelGuard applet (the security agent) is downloaded to every PC client. TunnelGuard provides continual device integrity checking.

If the host integrity check fails after password authentication, the user is given access to the remediation network only (Yellow VLAN).

After successful completion of all of these phases, the user is given full access to the network, depending on the user profile (Green VLAN).

IP phones are given access to one of the preconfigured VoIP subnets, and are permitted a prespecified type of communication. The VoIP filters are constructed to prevent the VoIP traffic from going anywhere but to a specific subnet. This subnet is specified by the VoIP VLAN.

For detailed information about the NSNA solution and deployment scenarios, refer to *Nortel Secure Network Access Solution Guide (320817-A)*. For information about configuring the NSNAS, refer to *Nortel Secure Network Access Switch 4050 User Guide (320818-A)*. For switch-specific configuration information, refer to your switch documentation.

## NSNA Manager features

You can use NSNA Manager to:

- configure the NSNAS subnet
- enable NSNA on a device
- enable NSNA on ports
- enter IP Phone Signatures for NSNA
- display information about NSNA clients
- display NSNA per VLAN

You cannot use NSNA Manager to configure VLAN properties. To configure NSNA VLAN properties, you must use VLAN Manager. See [“Configuring VLANs for NSNA” on page 138](#).

The following sections describe the NSNA Manager window and available management functions.

## Starting NSNA Manager

To start NSNA Manager:

➔ Do one of the following:

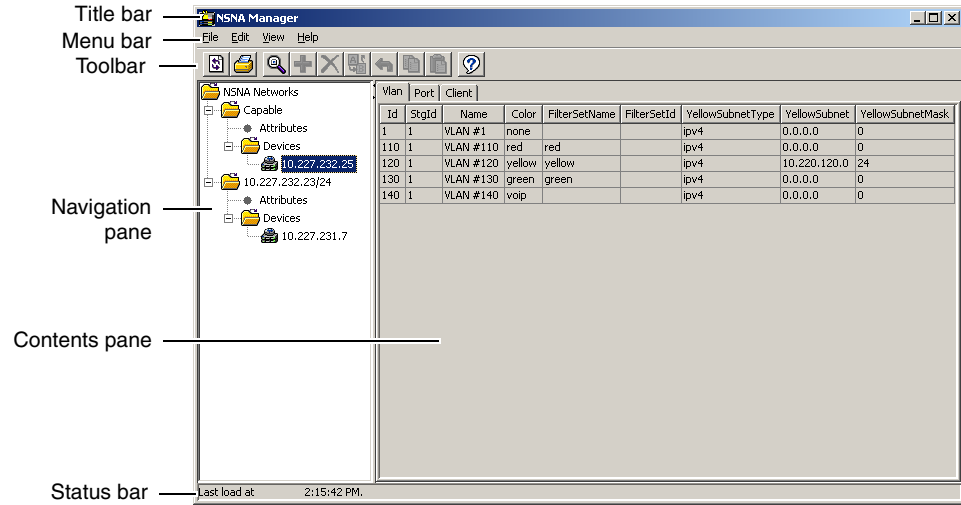
- From the Enterprise Switch Manager menu bar, choose **Tools > NSNA Manager**.
- On the keyboard, press **[F8]**.
- On the Enterprise Switch Manager toolbar, click NSNA Manager.

The NSNA Manager window opens ([Figure 161](#)).

## NSNA Manager window

The NSNA Manager window contains the parts identified in [Figure 161](#).

**Figure 161** NSNA Manager window



[Table 258](#) describes the parts of the NSNA Manager window.

**Table 258** NSNA Manager window parts










| Part            | Description  |
|-----------------|--|
| Title bar       | Displays the submanager name.  |
| Menu bar        | Provides access to all NSNA Manager commands. For more information, see <a href="#">"Menu bar commands and toolbar buttons"</a> .                              |
| Toolbar         | Provides quick access to commonly used NSNA Manager commands. For more information, see <a href="#">"Menu bar commands and toolbar buttons"</a> .              |
| Navigation pane | Provides a navigation tree showing NSNA Manager network folder resources. For more information, see <a href="#">"Navigation pane" on page 519</a> .            |
| Contents pane   | Displays information about the objects selected in the navigation pane. For more information, see <a href="#">"Contents pane" on page 520</a> .                |
| Status bar      | Displays status information, including the type of device highlighted and command status. For more information, see <a href="#">"Status bar" on page 521</a> . |

## Menu bar commands and toolbar buttons


The menu bar and toolbar provide menu commands and toolbar buttons for operating NSNA Manager.

Table 259 lists the NSNA Manager menus and toolbar buttons.

**Table 259** NSNA Manager menu commands and toolbar buttons

| Menu | Command            | Toolbar button  | Shortcut Key | Description   |
|------|--------------------|---|--------------|---|
| File | Refresh            |   |              | Queries devices and updates the contents pane for the selected tree node in the navigation pane.  |
|      | Reload             |    | [Ctrl]+R     | Rediscovered the network and reloads NSNA Manager with the latest information. For more information, see <a href="#">“Reloading NSNA Manager” on page 522</a> .   |
|      | Print              |    | [Ctrl]+P     | Opens the Print dialog box, where you enter print parameters.   |
|      | Close              |   |              | Closes the NSNA Manager window.   |
| Edit | Undo Changes       |    | [Ctrl]+Z     | Reverses any changes you made to an item or field.  |
|      | Preferences        |   |              | Identifies specific devices for Enterprise Switch Manager to configure and manage. See <a href="#">“Submanager preferences” on page 103</a> for more information. |
|      | Copy               |   | [Ctrl]+C     | Copies the contents of a selected cell.   |
|      | Paste              |  | [Ctrl]+V     | Pastes the cell contents to a new location.   |
|      | Insert             |  | [Ctrl]+I     | Opens the Insert dialog box, where you insert an NSNAS configuration or IP Phone signature.   |
|      | Delete             |  | [Ctrl]+D     | Removes a selection and displays a message to confirm deletion of the selected item.  |
|      | Apply Changes      |  |              | After you make changes to your NSNA configuration, this command applies these changes to the selected devices in the network.                                     |
|      | Find               |  | [Ctrl]+F     | Opens the Find dialog box, where you set parameters to find matching entries in your network.   |
| View | Highlight Topology |   |              | Highlights the NSNA topology map in the Enterprise Switch Manager contents pane.  |

**Table 259** NSNA Manager menu commands and toolbar buttons (continued)

| Menu | Command            | Toolbar button  | Shortcut Key | Description  |
|------|--------------------|---|--------------|--|
| Help | Using              |  | F1           | Opens a Web browser and loads the Help files.                        |
|      | Online Support     |   |              | Opens a Web browser that loads the Nortel Customer Support Web page. |
|      | About NSNA Manager |   |              | Displays information about NSNA Manager.                             |

## Navigation pane

The NSNA Manager navigation pane ([Figure 162](#)) is located on the left side of the window. It contains a network folder for the NSNA-capable devices found in the network, as well as for each NSNAS subnet. When you click a Devices folder, the folder expands to display the device information.

In the navigation pane, select the folder for which you want to view NSNA information, or choose **Edit > Print** to print the navigation tree.

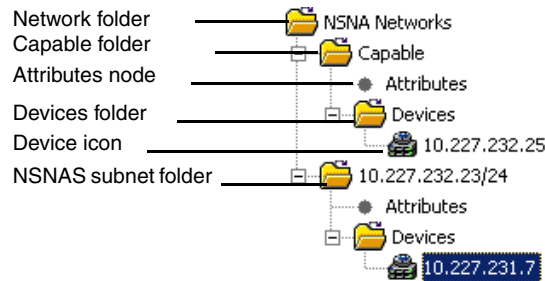
**Figure 162** NSNA Manager navigation pane

Table 260 describes the parts of the NSNA Manager navigation pane.

**Table 260** Parts of the NSNA Manager navigation pane

| Part                | Description  |
|---------------------|--|
| Network folder      | Contains all of the icons and folders in the navigation pane.                                      |
| Capable folder      | Contains all NSNA-capable devices that do not belong to an NSNAS subnet.                           |
| Attributes node     | Allows you to enable and disable NSNA on a switch or stack and configure related NSNAS properties. |
| Devices folder      | Contains network devices.  |
| Devices icon        | Represents individual devices in the network.  |
| NSNAS subnet folder | Contains all NSNA-capable devices that belong to the same NSNAS subnet.                            |

## Contents pane

When you select a network resource in the navigation pane, a table appears in the contents pane (Figure 163).

**Figure 163** View in the NSNA Manager contents pane

| Vlan |       |           |        |               |             |                  |              |                  |
|------|-------|-----------|--------|---------------|-------------|------------------|--------------|------------------|
|      | Port  | Client    |        |               |             |                  |              |                  |
| Id   | StgId | Name      | Color  | FilterSetName | FilterSetId | YellowSubnetType | YellowSubnet | YellowSubnetMask |
| 1    | 1     | VLAN #1   | none   |               |             | ipv4             | 0.0.0.0      | 0                |
| 110  | 1     | VLAN #110 | red    | red           |             | ipv4             | 0.0.0.0      | 0                |
| 120  | 1     | VLAN #120 | yellow | yellow        |             | ipv4             | 10.220.120.0 | 24               |
| 130  | 1     | VLAN #130 | green  | green         |             | ipv4             | 0.0.0.0      | 0                |
| 140  | 1     | VLAN #140 | voip   |               |             | ipv4             | 0.0.0.0      | 0                |

To view the NSNA information in the contents pane:

- ➔ In the navigation pane, select an **Attributes** node or a **Device** icon.

The example in Figure 163 shows the NSNA VLAN configuration information for a device.



## Status bar

The NSNA Manager status bar is located at the bottom of the NSNA Manager window (Figure 161 on page 517). Table 261 describes the NSNA Manager status bar.

**Table 261** NSNA Manager status bar

| Field   | Description  |
|---------|--|
| Message | Located on the left, the message field displays information about NSNA Manager operations. |

## Finding network resources

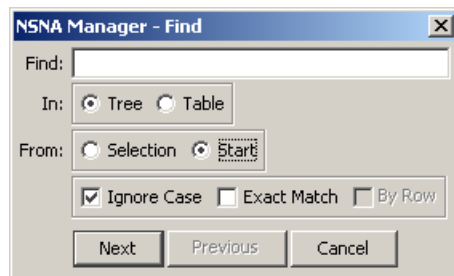
You can locate an entry in a field that contains a particular item of information, such as text, seed address, or VLAN ID number.

To find a network resource:

- 1 Click any device in the navigation tree or contents pane, and do one of the following:
  - From the NSNA Manager menu bar, choose **Edit > Find**.
  - On the NSNA Manager toolbar, click **Find**.

The **Find** dialog box appears (Figure 164).

**Figure 164** Find dialog box



- 2 In the **Find** text box, type the text or number for your search.
- 3 In the **In** section, select the **Tree** option to search the navigation tree, or select the **Table** option to search the contents pane.

- 4 In the **From** text box, click **Selection** to start the search from the highlighted selection, or click **Start** to begin searching from the top of the tree or table.
- 5 To perform a non-case-sensitive search, click the **Ignore Case** check box. To perform a case-sensitive search, clear the **Ignore Case** check box.
- 6 To search for an exact text match, click the **Exact Match** check box. To perform a partial text search, clear the **Exact Match** check box.
- 7 Click **Next**.  
NSNA Manager starts its search and highlights the first match that it finds or displays a message that it found no matches.
- 8 If the search finds a match, click **Next** to find each subsequent match, or click **Previous** to go back to the last match.

## Reloading NSNA Manager

You can refresh the information in the NSNA Manager window with NSNA information polled from the network devices. You can use this feature to load any updated information that took effect since you opened NSNA Manager.

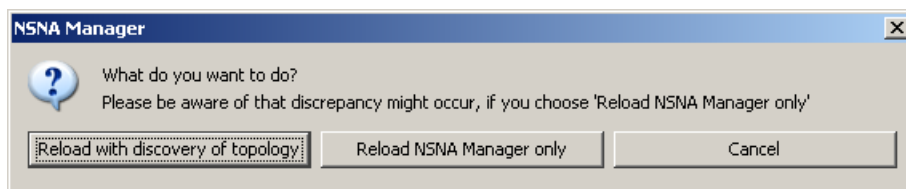
To reload the NSNA information:

- 1 On the NSNA Manager toolbar, click **Reload**.

Or, from the NSNA Manager menu bar, choose **File > Reload**.

An alert box appears, prompting you to select how you want to continue (Figure 165).

**Figure 165** NSNA Manager reload dialog box



- 2 Do one of the following:
  - Click **Reload with discovery of topology** to rediscover network topology and reload the Enterprise Switch Manager topology map and all of the submanagers.

- Click **Reload NSNA Manager only** to just reload NSNA Manager. Enterprise Switch Manager polls devices for settings and features, but does not perform a full network topology discovery.
- Click **Cancel** to abandon the reload operation.



---

**Note:** Reloading only NSNA Manager takes less time than reloading with topology discovery. However, if there are any changes in network topology, it can result in discrepancies between the information in NSNA Manager and the information about the topology map. Such discrepancies can cause incorrect operation when you perform operations (such as highlighting the network map) that involve interactions between the submanagers and the topology map.

If you observe such incorrect operations, reload the network map. For more information, see [“Rediscovering the network map” on page 105](#).

---

## Working with NSNA Manager

Using NSNA Manager, you can configure the Ethernet Routing Switch 8300 and the Ethernet Routing Switch 55xx devices as network access devices in the NSNA solution.

This section includes the information about the following topics:

- [“Enabling NSNA on a device” on page 524](#)
- [“Configuring the NSNAS subnet” on page 525](#)
- [“Entering IP Phone signatures for NSNA” on page 530](#)
- [“Displaying NSNA VLANs” on page 532](#)
- [“Enabling NSNA on ports” on page 533](#)
- [“Displaying information about NSNA clients” on page 535](#)

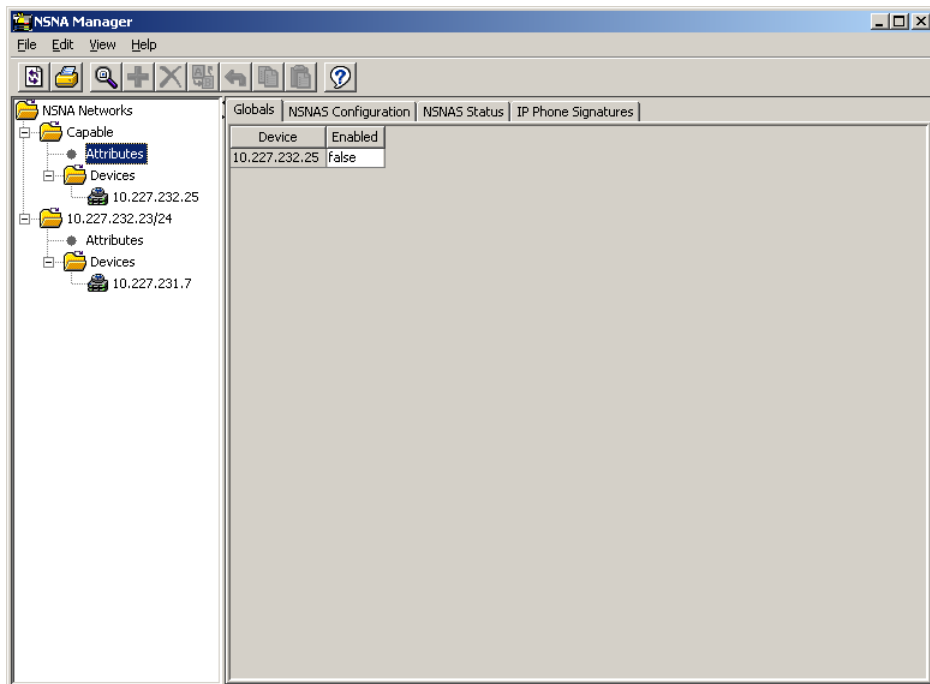
## Enabling NSNA on a device

To globally enable NSNA on a switch or stack:

- 1 In the navigation pane, select **Attributes**.

In the contents pane, the NSNA **Globals** tab appears (see [Figure 166](#)).

**Figure 166** Globals tab



- 2 In the **Enabled** column, click the row for the device you want to enable, and choose true from the drop-down list.
- 3 Click **Apply Changes**.



**Note:** It can take 2–3 minutes to globally enable or disable NSNA on a device, especially on a fully populated Ethernet Routing Switch 55xx stack.

## Configuring the NSNAS subnet

To configure the NSNAS subnet:

- 1 In the navigation pane, select **Attributes**.

In the contents pane, the NSNA **Globals** tab appears (see [Figure 166](#)).

- 2 Click the **NSNAS Configuration** tab.

The **NSNAS Configuration** tab appears (see [Figure 167](#)).

**Figure 167** NSNAS Configuration tab

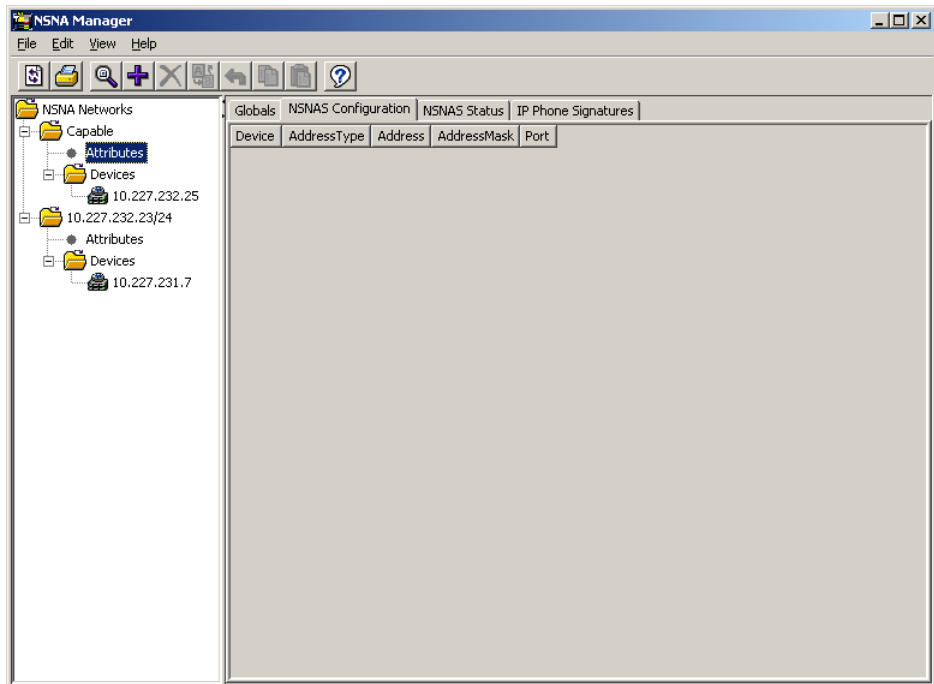


Table 262 describes the fields in the **NSNAS Configuration** tab.

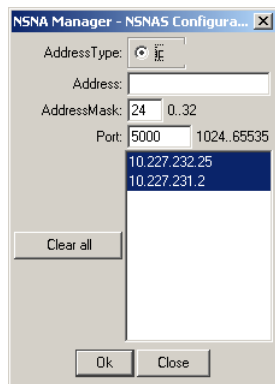
**Table 262** NSNAS Configuration tab fields

| Field       | Description  |
|-------------|--|
| Device      | Specifies devices by IP address.   |
| AddressType | Specifies the type of IP address used by the NSNAS. IPv4 is the only available option at this time.                    |
| Address     | Specifies the IP address of the NSNAS.   |
| AddressMask | Specifies the NSNAS IP address subnet mask.  |
| Port        | Specifies the TCP port number for the Secure Switch Communication Protocol (SSCP) server. The default setting is 5000. |

**3** Click **Insert**.

The **NSNA Manager - NSNAS Configuration Insert** dialog box appears (see Figure 168).

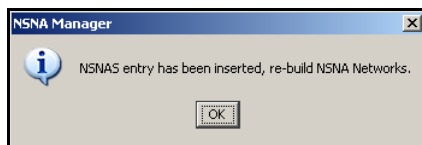
**Figure 168** NSNA Manager - NSNAS Configuration Insert dialog box



- 4** In the **Address** box, type the IP address of the NSNAS.
- 5** In the **AddressMask** box, type the subnet mask of the NSNAS.
- 6** In the **Port** box, enter the port number (if it is different than the default value).
- 7** In the device list, select the devices to which you want the NSNAS subnet configuration to apply.
- 8** Click **OK**.

A dialog box appears, alerting you that ESM is rebuilding the NSNA network (see [Figure 169](#)).

**Figure 169** NSNAS entry insertion dialog box



- 9 Click **OK**.

The information for the configured NSNAS subnet appears in the **NSNAS Configuration** tab for all selected devices.



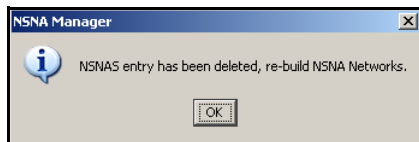
**Note:** With the current release, only one entry for the NSNAS subnet can be configured per device.

## Removing devices from the NSNAS

To remove devices from the currently configured NSNAS:

- 1 In the navigation pane, select **Attributes**.  
In the contents pane, the NSNA **Globals** tab appears (see [Figure 166](#)).
- 2 Click the **NSNAS Configuration** tab.  
The **NSNAS Configuration** tab appears (see [Figure 167](#)).
- 3 Select the rows corresponding to the devices you want to remove from the NSNAS subnet.
- 4 Click **Delete**.  
A dialog box appears, alerting you that ESM is rebuilding the NSNA network (see [Figure 170](#)).

**Figure 170** NSNAS entry deletion dialog box



**5** Click **OK**.

The selected devices are removed from the **NSNAS Configuration** tab in the content pane. If, as a result, the NSNAS subnet no longer has any associated devices, the NSNAS subnet folder is also removed from NSNA Manager.

## Displaying NSNAS status

To display the NSNAS status:

**1** In the navigation pane, select **Attributes**.

In the contents pane, the NSNA **Globals** tab appears (see [Figure 166](#)).

**2** Click the **NSNAS Status** tab.

The **NSNAS Status** tab appears (see [Figure 171](#)).

**Figure 171** NSNAS Status tab

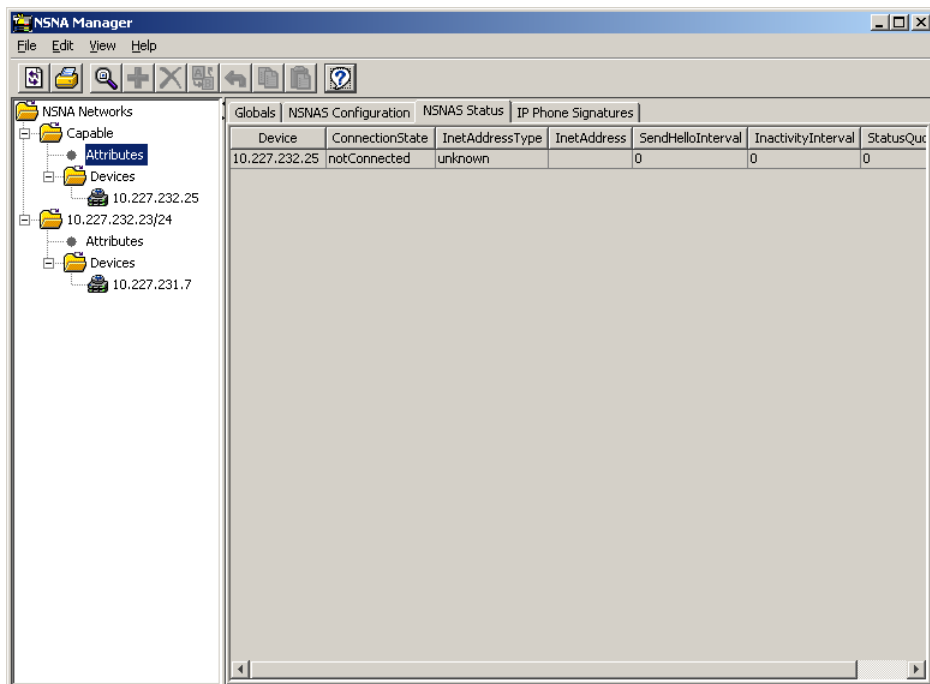




Table 263 describes the fields in the **NSNAS Status** tab.

**Table 263** NSNAS Status tab fields

| Field              | Description  |
|--------------------|--|
| Device             | Specifies devices by IP address.   |
| ConnectionState    | Indicates whether an NSNAS is currently connected to the switch.   |
| InetAddressType    | If an NSNAS is currently connected to the switch, this indicates the Internet address type from which the NSNAS is connected. The InetAddress field is of this type.<br>If no NSNAS is currently connected, the value is listed as unknown.  |
| InetAddress        | If an NSNAS is currently connected to the switch, this field indicates the internet address from which the NSNAS is connected. If there is no NSNAS currently connected, this is an empty string.  |
| SendHelloInterval  | The interval for sending Secure Switch Communication Protocol (SSCP) Hello messages for the current SSCP connection. If this period of time passes without any SSCP messages being sent, a Hello message is generated.<br>If no NSNAS is currently connected, this value is zero.  |
| InactivityInterval | The inactivity interval for the current SSCP connection. If this period of time passes without any SSCP messages being received, the SSCP connection will be closed. If no NSNAS is currently connected, this value is zero; otherwise it is non-zero.   |
| StatusQuoInterval  | The status-quo interval for the current or last SSCP connection.<br>If the NSNAS is disconnected from the switch for any reason, the switch waits this period of time before moving all NSNA-enabled ports to the Red VLAN. The maximum value, 65535, indicates that no status quo interval is used, and SSA-enabled ports are not moved to the Red VLAN.<br>If the NSNAS is disconnected and the status-quo interval timer is running, this value reflects the time remaining until the status-quo timer expires. |

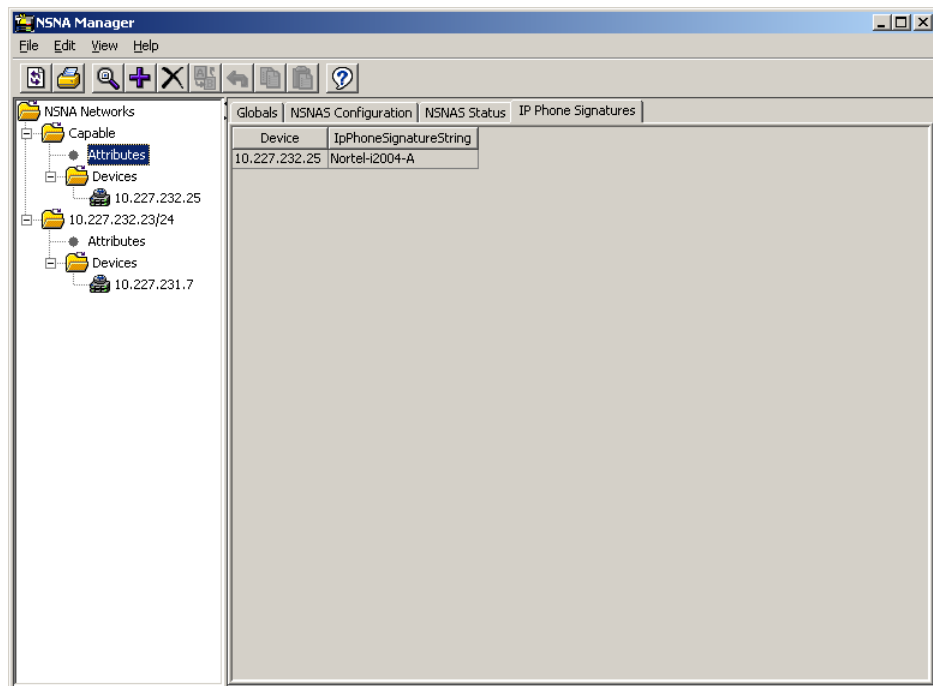
## Entering IP Phone signatures for NSNA

With ESM, you can apply IP Phone signatures to multiple devices for NSNA.

To specify IP Phone signatures for devices:

- 1 In the navigation pane, select **Attributes**.  
In the contents pane, the NSNA **Globals** tab appears (see [Figure 166](#)).
- 2 In the contents pane, select the **IP Phone Signatures** tab.  
The **IP Phone Signatures** tab appears (see [Figure 172](#)).

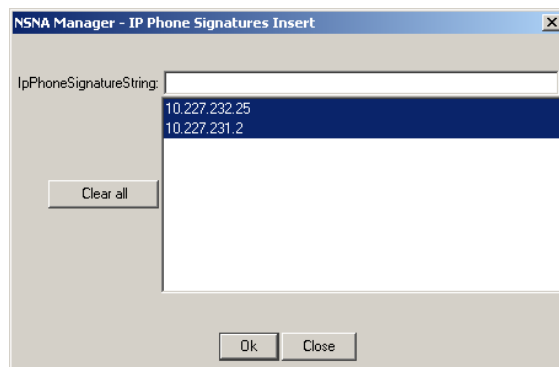
**Figure 172** IP Phone Signatures tab



- 3 Do one of the following:
  - From the NSNA Manager menu bar, choose **Edit > Insert**.
  - On the NSNA Manager toolbar, click **Insert**.

The **NSNA Manager - IP Phone Signatures Insert** dialog box appears (see [Figure 173](#)).

**Figure 173** NSNA Manager - IP Phone Signatures Insert dialog box



- 4 In the **IpPhoneSignatureString** field, type the IP Phone signature string (for example, Nortel-i2007-A).
- 5 In the device list, select the devices to which you want the IP Phone signature to apply.
- 6 Click **OK**.

The IP Phone signature you entered appears in the **IP Phone Signatures** tab for all selected devices.

## Removing NSNA IP Phone signatures

To remove an NSNA IP Phone signature:

- 1 In the navigation pane, select **Attributes**.  
In the contents pane, the NSNA **Globals** tab appears (see [Figure 166](#)).
- 2 Click the **IP Phone Signatures** tab.  
The **IP Phone Signatures** tab appears (see [Figure 173](#)).
- 3 Select the rows containing the IP phone signatures you want to remove.
- 4 Click **Delete**.

## Displaying NSNA VLANs

To display the NSNA VLANs:

➔ In the navigation pane, select a device.

In the contents pane, the **VLAN** tab appears (see [Figure 174](#)).

The **VLAN** tab displays the NSNA VLANs for this device. This is a view-only table.

You cannot use NSNA Manager to configure VLAN properties. To configure NSNA VLAN properties, you must use VLAN Manager. See [“Configuring VLANs for NSNA” on page 138](#).

**Figure 174** NSNA - VLAN tab

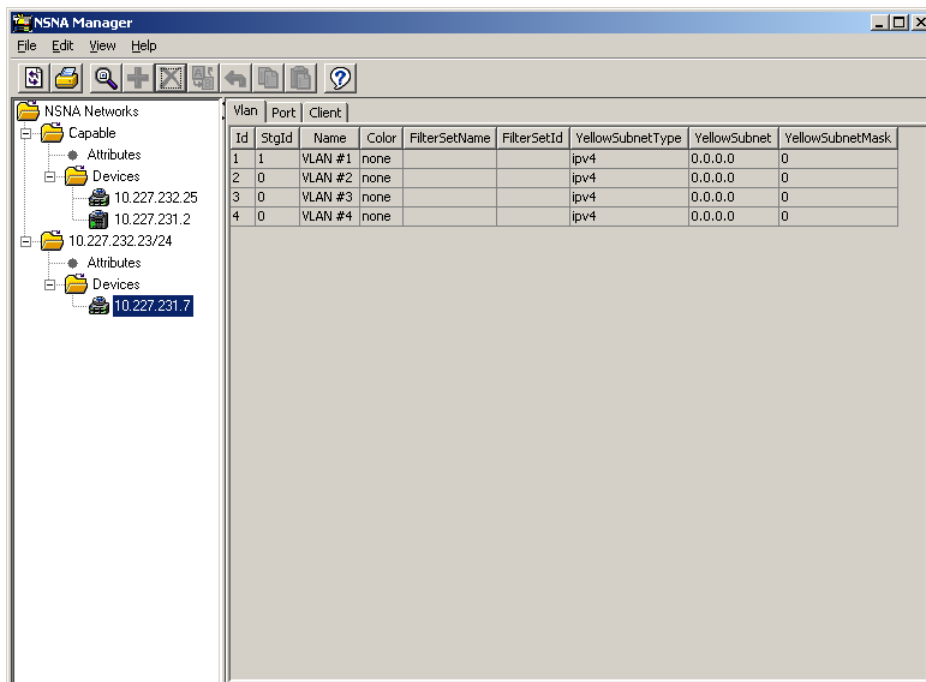


Table 264 describes the fields in the NSNA - VLAN tab fields.

**Table 264** NSNA - VLAN tab fields

| Field            | Description  |
|------------------|--|
| Id               | Specifies the VLAN ID.   |
| StgId            | Specifies the STG ID.  |
| Name             | Specifies the VLAN name  |
| Color            | Specifies the color of the NSNA VLAN (red, yellow, green, voip, or none).  |
| FilterSetName    | Specifies the name of the filter set.<br><b>Note:</b> This field is applicable only when the Color field is set to red, yellow, or green.  |
| FilterSetId      | Specifies the NSNA filter ID. Values are in the range 1–1024.<br><b>Note:</b> This field is applicable only to Ethernet Routing Switch 8300 devices. Further, this field is not allowed for configuration of a VoIP VLAN. VoIP filters are part of the Red/Yellow filter sets. |
| YellowSubnetType | Specifies the Ethernet type for the Yellow VLAN subnet (IPv4 is currently the only available option).<br><b>Note:</b> This field is applicable only when the Color field is set to yellow.   |
| YellowSubnet     | Specifies the subnet of the Yellow VLAN.<br><b>Note:</b> This field is applicable only when the Color field is set to yellow.  |
| YellowSubnetMask | Specifies the mask for the Yellow VLAN subnet.<br><b>Note:</b> This field is applicable only when the Color field is set to yellow.  |

## Enabling NSNA on ports

To enable NSNA on ports:

- 1 In the navigation pane, select a device.  
In the contents pane, the **VLAN** tab appears (see [Figure 174](#)).
- 2 Select the **Port** tab.  
The **Port** tab appears (see [Figure 175](#)).

Figure 175 NSNA - Port tab

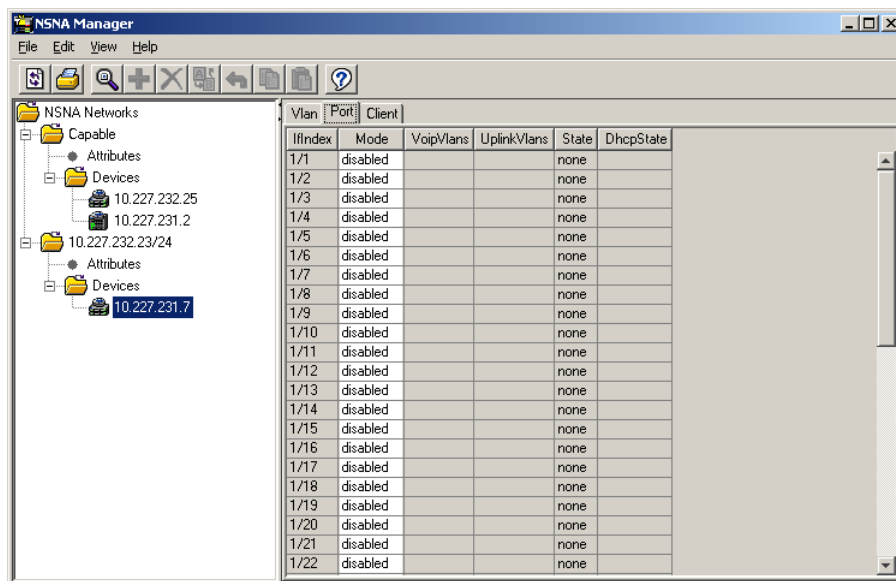


Table 265 describes the fields in the NSNA - **Port** tab fields.

Table 265 NSNA - Port tab field

| Field       | Description  |
|-------------|--|
| IfIndex     | The port interface identifier.   |
| Mode        | Specifies the NSNA mode for the port.<br>Options are as follows: <ul style="list-style-type: none"> <li>disabled</li> <li>dynamic</li> <li>uplink</li> </ul> |
| VoipVlans   | Specifies the VoIP VLANs to which this port belongs.<br><b>Note:</b> This field is only available when the port mode is dynamic.                             |
| UplinkVlans | Specifies the uplink VLANs to which this port belongs.<br><b>Note:</b> This field is only available when the port mode is uplink.                            |

**Table 265** NSNA - Port tab field

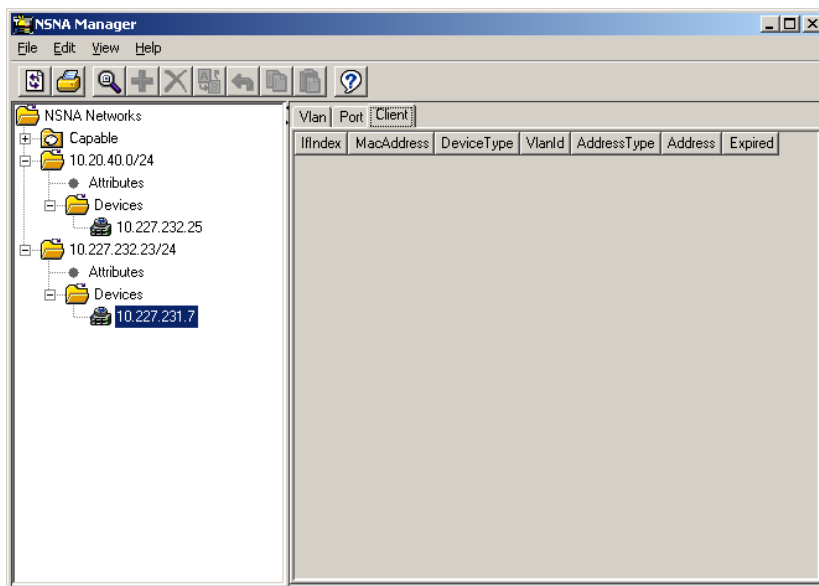
| Field     | Description   |
|-----------|---|
| State     | Specifies the current NSNA color of the port.<br>Possible states are as follows: <ul style="list-style-type: none"> <li>• none</li> <li>• red</li> <li>• yellow</li> <li>• green</li> </ul> |
| DhcpState | Specifies the DHCP state of the port.<br>Possible DHCP states are as follows: <ul style="list-style-type: none"> <li>• blocked</li> <li>• unblocked</li> </ul>                              |

- 3** To configure the port:
  - a** In the **Mode** column, select the port mode.
  - b** If the **VoipVlans** field is available for the port (that is, if it does not appear dimmed), enter the VoIP VLAN IDs.
  - c** If the **UplinkVlans** field is available for the port, enter the uplink VLAN IDs.
- 4** Click **Apply Changes**.

## Displaying information about NSNA clients

To display information about NSNA clients currently connected to the network access device:

- 1** In the navigation pane, select a device.  
In the contents pane, the **VLAN** tab appears (see [Figure 174](#)).
- 2** In the contents pane, select the **Client** tab.  
The **Client** tab appears (see [Figure 176](#)). Clients currently connected to the network access device appear in this tab.

**Figure 176** NSNA - Client tab

[Table 266](#) describes the fields in the NSNA - **Client** tab fields.

**Table 266** NSNA - Client tab fields

| Field       | Description   |
|-------------|---|
| IfIndex     | Specifies the logical interface index assigned to the VLAN.   |
| MacAddress  | Specifies the MAC address of the host.  |
| DeviceType  | Specifies the type of client device (pc, ipPhone, or printer).                                      |
| VlanId      | Specifies the ID of the VLAN of which the client is a member.                                       |
| AddressType | Specifies the type of IP address used by this client (IPv4 is currently the only option available). |
| Address     | Specifies the IP address of the client.   |
| Expired     | Specifies whether this client has been aged-out.  |



## Viewing NSNAS subnet members in Enterprise Switch Manager

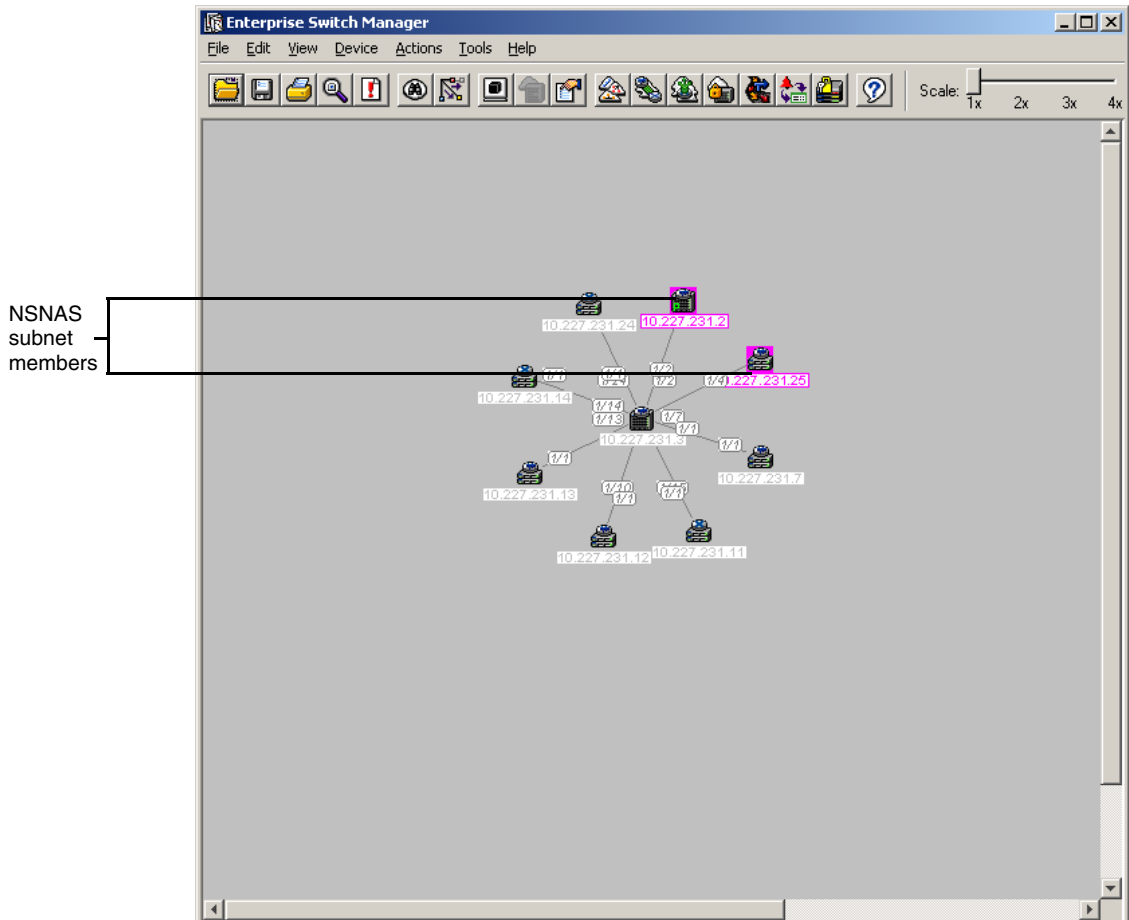
To view the members of an NSNAS subnet in Enterprise Switch Manager:

- 1 In the navigation pane, choose a device under the **Devices** folder, or choose an **Attributes** node.
- 2 From the NSNA Manager menu bar, choose **View > Highlight Topology**.
- 3 Return to the Enterprise Switch Manager window.

The selected topology view appears in the Enterprise Switch Manager contents pane.

[Figure 177](#) shows two devices that are members of the same NSNAS subnet.

Figure 177 NSNAS subnet topology in the ESM contents pane



---

## Chapter 11

# Using MIB Browser

---

The Management Information Base (MIB) Browser allows you to manage SNMP-enabled network devices and applications. MIB Browser enables loading, browsing, and searching MIBs, walking the MIB tree, and performing all other SNMP-related functions. MIB Browser also enables viewing and operating the data available through an SNMP agent in a managed device.

This chapter describes how to use MIB Browser to manage MIBs on Nortel Ethernet Switches and Nortel Ethernet Routing Switches. It includes the following information:

- [“Starting MIB Browser” on page 540](#)
- [“MIB Browser window” on page 540](#)
- [“Loading MIBs” on page 547](#)
- [“Unloading MIBs” on page 548](#)
- [“Finding a node” on page 549](#)
- [“SNMP Operations” on page 549](#)

## Starting MIB Browser

To start MIB Browser:

→ Do one of the following:

- From the Windows 95, Windows 98, Windows 2000, Windows 2003, Windows NT, or Windows XP Start menu, choose **Programs > Nortel > Enterprise Switch Manager > MibBrowser**.
- In a Windows environment, double-click the **MIB Browser** shortcut icon on your desktop, if it is present.
- In a Solaris/Linux terminal window, run the **MibBrowser.sh** file from the directory where MIB Browser has been installed.

## MIB Browser window

The following sections describe the MIB Browser window:

- [“Configuration”](#)
- [“SNMP communications”](#)
- [“Menu bar commands and toolbar buttons” on page 543](#)
- [“Navigation pane” on page 545](#)
- [“Node Properties pane” on page 546](#)
- [“Contents pane” on page 546](#)

## Configuration

The parameters, such as host, port, and community, can be set in the MIB Browser main window. Applications use the host name or the IP address of the device to communicate with the agent of the device in a particular port number. This remote port number is UDP port 161. By default, all the SNMP request messages are received in this port.

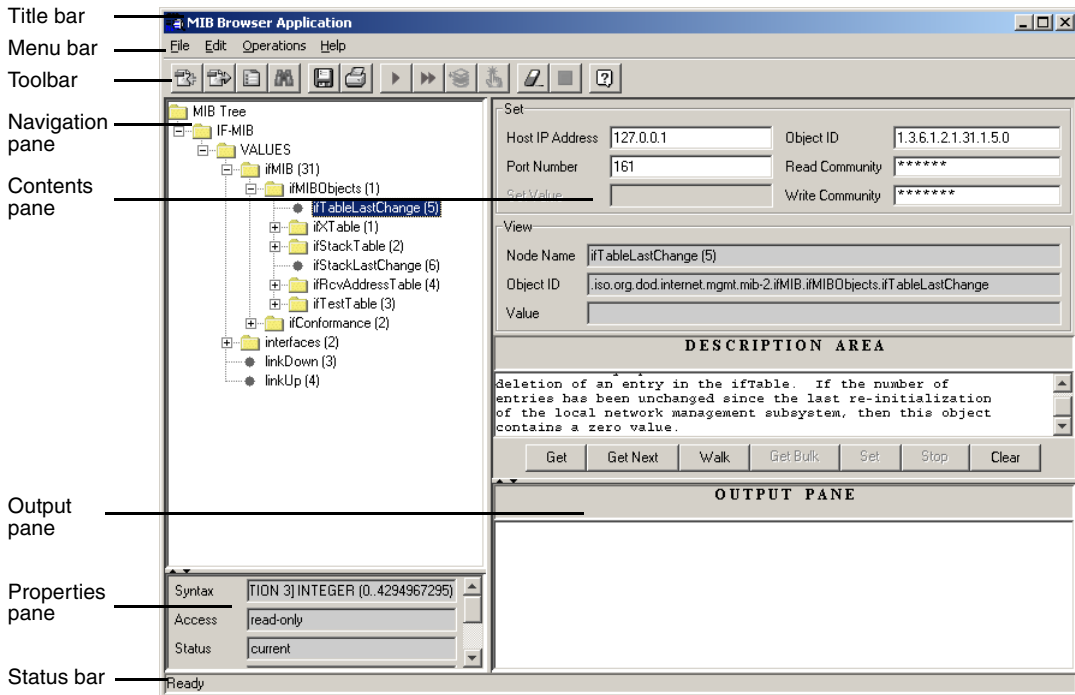
## SNMP communications

SNMP mandates that SNMP agents must accept request messages only if the community string in the message matches its community name. Therefore, the management application must always communicate with the agents using the associated community name. The default SNMP community names are "public" for read-only (Get) operations and "private" for read-write (Set) operations. Management applications must have provision to include the community names in their request messages.

Community strings are used to authenticate SNMP Protocol Data Units (PDU). Since SNMP packets are usually sent using UDP packets, there is no connection established as in the case of TCP/IP packets. Therefore, when a UDP packet is sent to the agent, the agent validates the packet. It accepts and sends a response if the community string of the PDU is equal to that set on the agent, or else drops the packet. The agent does not change the community name after communicating. Applications typically communicate with the SNMP agents by specifying the community name of the agent.

The MIB Browser window contains the parts identified in [Figure 178](#).

**Figure 178** MIB Browser window



[Table 267](#) describes the parts of the MIB Browser window.

**Table 267** MIB Browser window parts

| Part                            | Description   |
|---------------------------------|---|
| Title bar                       | Displays the MIB Manager name.  |
| Menu bar                        | Provides access to all MIB Browser commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons,”</a> next.                 |
| Toolbar                         | Provides quick access to commonly-used MIB Browser commands. For more information, see <a href="#">“Menu bar commands and toolbar buttons,”</a> next. |
| <a href="#">Navigation pane</a> | Provides a navigation tree showing MIB resources. For more information, see <a href="#">“Navigation pane”</a> on page 545.                            |
| <a href="#">Contents pane</a>   | Displays information selected in the navigation pane. For more information, see <a href="#">“Contents pane”</a> on page 546.                          |

**Table 267** MIB Browser window parts (continued)






| Part            | Description   |
|-----------------|---|
| Output pane     | Displays the output for operations.   |
| Properties pane | Displays the properties of the selected MIB. For more information, see <a href="#">“Node Properties pane” on page 546</a> . |
| Status bar      | Displays command status.  |

## Menu bar commands and toolbar buttons









The menu bar and toolbar provide menus and toolbar buttons for operating the MIB Browser.

[Table 268](#) lists the MIB Browser menus and toolbar buttons.

**Table 268** MIB Browser menu commands and toolbar buttons

| Menu | Command         | Toolbar button  | Shortcut Key | Description   |
|------|-----------------|---|--------------|---|
| File | Load MIB        |    | [Ctrl]+O     | Loads a MIB file. For more information, see <a href="#">“Loading MIBs” on page 547</a> .  |
|      | Unload MIB      |    | Delete       | Unloads the selected MIB file. For more information, see <a href="#">“Unloading MIBs” on page 548</a> .   |
|      | Save Results As |   | [Ctrl]+S     | Opens the Save dialog box, to save the result as displayed in the Output pane.  |
|      | Print Results   |  | [Ctrl]+P     | Opens the Print dialog box, to print the result as displayed in the Output pane.  |
|      | Exit            |   | [Ctrl] + Q   | Closes the application.   |
| Edit | SNMP            |   |              | Specifies the SNMP version to use: SNMP, SNMPv2c or SNMPV3.   |
|      | Settings        |   |              | Specifies the settings for: <ul style="list-style-type: none"> <li>SNMP GetBulk (see <a href="#">“SNMP GetBulk” on page 551</a>)</li> <li>SNMPv3 (see <a href="#">“SNMPv3 Settings” on page 553</a>)</li> </ul> |
|      | Find Node       |  | [Ctrl] + F   | Allows you to search for a specific node in the MIB tree.   |

**Table 268** MIB Browser menu commands and toolbar buttons (continued)

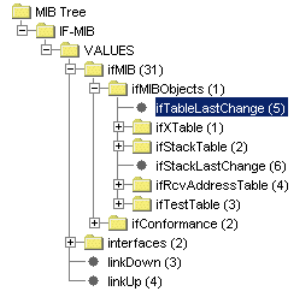
| Menu        | Command           | Toolbar button   | Shortcut Key | Description  |
|-------------|-------------------|--|--------------|--|
| Description |                   |   |              |  |
| Operations  | Get               |   | [Ctrl]+G     | Retrieves the value of the leaf object from the managed objects. For more information, see <a href="#">“SNMP Get” on page 550</a> .  |
|             | GetNext           |   | [Ctrl]+N     | Similar to the SNMP Get operation, but retrieves the value of the next OID in the tree. For more information, see <a href="#">“SNMP GetNext” on page 550</a> .               |
|             | Walk              |  | [Ctrl]+A     | If the selected node in the MIB tree has child nodes or columnar nodes, retrieves the values for all the nodes under that sub-tree <a href="#">“SNMP Walk” on page 551</a> . |
|             | GetBulk           |   | [Ctrl]+B     | Retrieves data from a large table. For more information, see <a href="#">“SNMP GetBulk” on page 551</a> .  |
|             | Set               |   | [Ctrl]+W     | Allows you to modify the data for one or more MIB variables. For more information, see <a href="#">“SNMP Set” on page 553</a> .  |
|             | Stop              |   | [Ctrl]+C     | Stops the ongoing query.   |
|             | Clear             |   | [Ctrl]+L     | Clears the display area of the output pane.  |
| Help        | Contents          |  | F1           | Opens a Web browser and loads the Help files.  |
|             | About MIB Browser |  |              | Displays information about MIB Browser.  |



## Navigation pane

The MIB Browser navigation pane (Figure 179) is located on the left side of the window. When you select a MIB folder, the tree expands, and the MIB configuration information is displayed in the contents pane.

**Figure 179** MIB Browser navigation pane

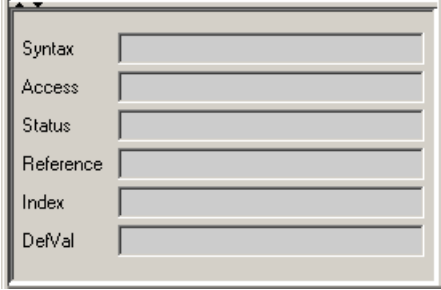


The navigation pane displays all the loaded MIBs. The MIB tree allows you to view and select the loaded MIBs, and navigate the tree.

## Node Properties pane

The Node Properties pane ([Figure 180](#)) displays the properties of the selected MIB node. When you select a MIB node, the MIB definition is displayed in the properties pane.

**Figure 180** Node Properties pane



The screenshot shows a window titled "Node Properties pane" with a light gray background. On the left side, there are six labels: "Syntax", "Access", "Status", "Reference", "Index", and "DefVal". To the right of each label is a rectangular text input field. The fields are currently empty.

## Contents pane

When you select a MIB node in the navigation pane, the MIB information displays in the contents pane ([Figure 181](#)). The contents pane contains text fields to specify the basic parameters, such as host, community, and so on. It also contains a text area to display the results.

**Figure 181** MIB information in the contents pane

The screenshot shows the MIB Browser interface with the following sections:

- Set:**
  - Host IP Address: 192.168.249.21
  - Object ID: 1.3.6.1.2.1.89.1.2.1.9
  - Port Number: 161
  - Read Community: \*\*\*\*\*
  - Set Value: (empty)
  - Write Community: \*\*\*\*\*
- View:**
  - Node Name: copsClientServerKeepaliveTime (9)
  - Object ID: copsClientMIBObjects.copsClientStatusGroup.copsClientServerCurrentTable.copsC
  - Value: (empty)
- DESCRIPTION AREA:**

The value of the COPS protocol Keepalive timeout, in centiseconds, currently in use by this client, as specified by this COPS server in the Client-Accept operation. A value of zero indicates no keepalive activity is expected.
- Buttons:** Get, Get Next, Walk, Get Bulk, Set, Stop, Clear
- OUTPUT PANE:** (empty)

To view the MIB information in the contents pane:

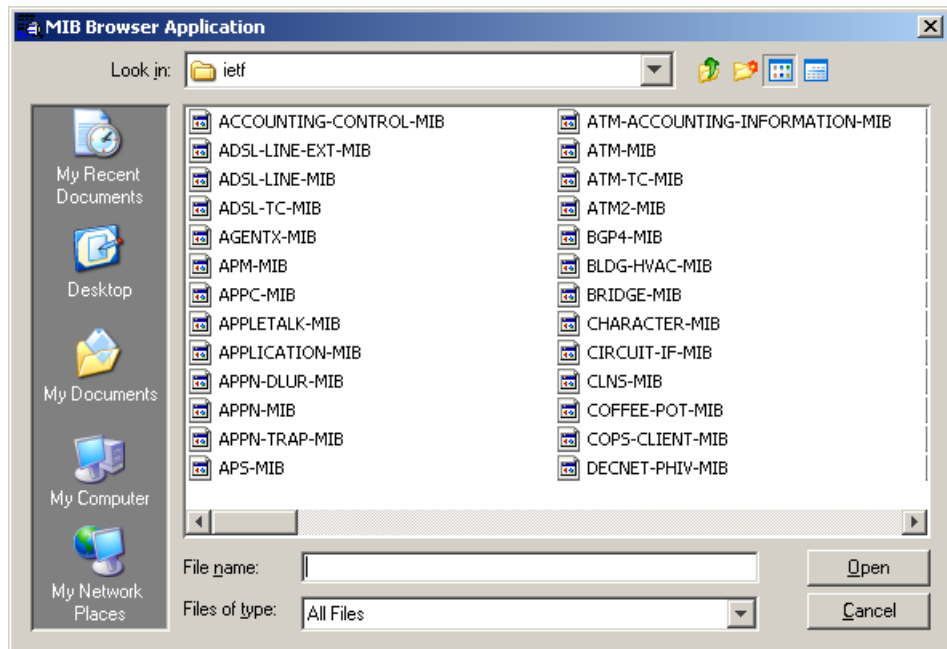
➔ In the navigation pane, select a MIB node.

## Loading MIBs

To load a MIB:

- 1 Do one of the following:
  - From the menu bar, select **File > Load MIB**.
  - From the toolbar, select the **Load MIB** button.

The MIB file dialog box appears (Figure 182).

**Figure 182** MIB file dialog box

- 2 In the file dialog box, pick the desired MIB file from the MIBs folder.
- 3 Click **Open**.

The MIB file is loaded.

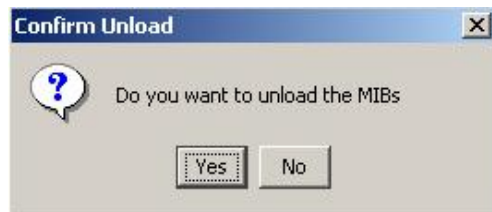
## Unloading MIBs

To unload a MIB:

- 1 In the navigation pane, select the MIB node to delete, and do one of the following:
  - From the menu bar, select **File > UnLoad MIB**.
  - From the toolbar, click the **Unload MIB** button.
  - Press **Delete**.

The confirmation dialog box dialog box appears (Figure 183).

**Figure 183** Confirm Unload dialog box



2 Select **Yes** to unload the MIB module.

## Finding a node

To find a specific node in the MIB tree:

→ Do one of the following:

- From the menu bar, select **Edit > Find Node**.
- From the toolbar, click the **Find Node** icon.

## SNMP Operations

The MIB Browser allows you to perform standard SNMP operations. The operations are categorized as follows:

- Retrieving Data:
  - **Get**
  - **GetNext**
  - **GetBulk**
- Altering Variables
  - **Set**

To perform any basic operation as categorized above, it is essential to specify the Object ID, the instance, host name, and the community string.

Changes can also be made to the parameters in the MIB Browser's **Set** panel in the contents pane.

- **Host IP Address:** To enter the IP Address or the Host name of the SNMP agent.
- **Port Number:** To enter the port number of the SNMP agent
- **Object ID:** To enter the OID of the variable on which the SNMP operation is to be carried
- **Read Community:** To enter the read community string of the SNMP agent
- **Write Community:** To enter the write community string of the SNMP agent.

## SNMP Get

The Get operation is performed to get the value of the leaf object from the managed objects.

To perform SNMP Get:

- 1 In the navigation pane, select the desired node from the MIB tree.
- 2 Do one of the following:
  - From the menu bar, select **Operations > Get**.
  - From the toolbar, click **Get SNMP** variable

The MIB Browser gets the specified object, or the specific object instance, if a MIB node is specified.

## SNMP GetNext

This operation is similar to the SNMP Get operation, but it retrieves the value of the next OID in the tree. This operation is used for traversing the MIB tree.

To perform SNMP GetNext:

- 1 In the navigation pane, select the desired node from the MIB tree.
- 2 Do one of the following:
  - From the menu bar, select **Operations > GetNext**.

- From the toolbar, click the **Get Next SNMP** variable button.

The MIB Browser gets the next object after the specified object, or the specific object instance, if a MIB node is specified.

## SNMP Walk

This operation is similar to the SNMP GetNext operation, which gets all objects under the selected MIB object. If the selected node in the MIB tree has child nodes or columnar nodes, this operation is performed to retrieve the values for all the nodes under that sub-tree.

To perform SNMP Walk:

- 1 In the navigation pane, select the desired node from the MIB tree.
- 2 From the menu bar, select **Operations > Walk**.

The MIB Browser retrieves the values for all the nodes under the sub-tree.

## SNMP GetBulk

To retrieve voluminous data from a large table, use the GetBulk operation. A GetBulk request is performed by specifying an OID along with two additional parameters, Max-Repetitions and Non-Repeaters. The GetBulk operation is performed only on SNMPv2c and SNMPv3.

To perform SNMP GetBulk.

- 1 Select the desired node in the MIB tree.
- 2 Ensure that the SNMP version is set to either SNMPv2c or SNMPv3.
  - From the menu bar, choose **Edit > SNMP**, and select **SNMPv2c** or **SNMPV3**.
- 3 From the menu bar, select **Edit > Settings > SNMP BULK**.

The **GetBulk Settings** pane appears, replacing the output pane ([Figure 184](#)).

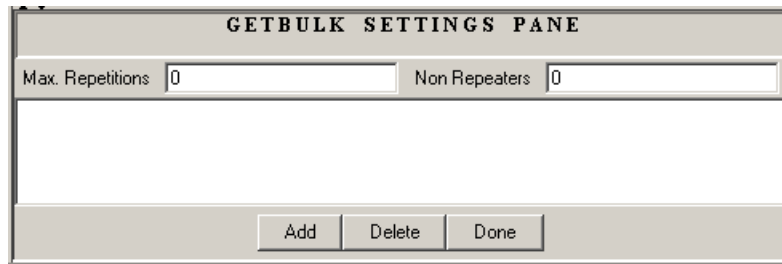
**Figure 184** GetBulk Settings pane

Table 269 describes the parts of the **GetBulk Settings** pane.

**Table 269** GetBulk Settings pane

| Part             | Description   |
|------------------|---|
| Max. Repetitions | The Max-Repetitions value specifies the number of lexicographic successors to be returned for the remaining variables in the variable-bindings list.  |
| Non Repeaters    | The Non-Repeaters value specifies the number of variables in the variable-bindings list for which a single lexicographic successor is to be returned. |
| Add              | Adds the selected MIB variable to the variable-bindings list,   |
| Delete           | Removes the selected node from the variable-bindings list.  |
| Done             | Closes the GetBulk Settings pane.   |

- 4 To add a MIB variable to the variable-bindings list, select the node from the MIB tree and click the **Add** button.
- 5 Specify the values for the **Max-Repetitions** field and the **Non-Repeaters** field.
- 6 To retrieve the bulk SNMP data, do one of the following:
  - From the menu bar, choose **Operation > GetBulk**.
  - From the toolbar, click the **Get Bulk SNMP Data** button or icon.

The MIB Browser retrieves the sequence of next objects immediately after the specified object. The number of object instances returned is equal to the Max-Repetitions field.



## SNMP Set

Most network devices have a default value maintained by the agent. Sometimes applications modify the data for one or more MIB variables, thereby using the SNMP Set operation. The following steps will guide one to understand how one can perform the Set operation.

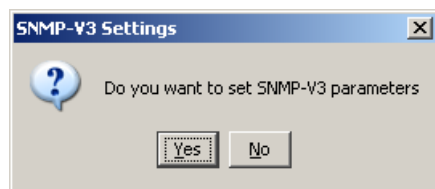
- 1 Select the desired node in the MIB Tree to which the value has to be set. The Set operation can be performed only on a node that has read-write access.
- 2 Set the value in the **Set Value** field.
- 3 Do one of the following:
  - From the menu bar, select **Operations > Set**.
  - From the toolbar, click the **Set SNMP Variable** icon.

## SNMPv3 Settings

To perform operations based on SNMPv3, several security related parameters are required.

- 1 From the menu bar, select **Edit > SNMP > SNMP V3**.  
The SNMP-V3 confirmation dialog box appears ([Figure 185](#)).

**Figure 185** SNMPv3 confirmation dialog box



- 2 Click **Yes**.

The **SNMP-V3 Settings** dialog box appears (Figure 186).

**Figure 186** SNMP-V3 Settings dialog box

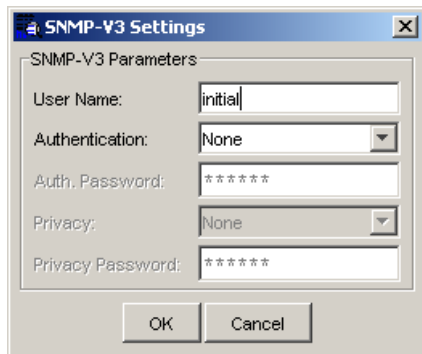


Table 270 describes the parts of the **SNMP-V3 Settings** dialog box.

**Table 270** SNMP-V3 Settings dialog box

| Part             | Description  |
|------------------|--|
| User Name        | Specifies the SNMPv3 user name.                              |
| Authentication   | Specifies the Authentication protocol used.                  |
| Auth Password    | Specifies password that is used for authentication purposes. |
| Privacy          | Specifies the privacy protocol used.                         |
| Privacy Password | Specifies the password that is used for privacy purposes.    |



**Note:** You can also access the **SNMP-V3 Settings** dialog box by selecting **Edit > Settings > SNMP V3** from the menu bar.

- 3** Complete the fields in the **SNMPv3 Settings** dialog box.
- 4** Click **OK**.

In the contents pane, the **Read Community** and **Write Community** parameters of SNMP V1 and SNMP V2C are replaced by the SNMPv3 parameters **Context Name** and **Context Engine** (Figure 187).

**Figure 187** SNMPv3 properties parts

The screenshot shows a configuration window for SNMPv3 properties. It is divided into two main sections: 'Set' and 'View'.  
 In the 'Set' section, there are six input fields:  
 - Host IP Address: 127.0.0.1  
 - Port Number: 161  
 - Set Value: (empty)  
 - Object ID: 1.3.6.1.2.1.17.3  
 - Context Name: (empty)  
 - Context Engine: (empty)  
 In the 'View' section, there are three input fields:  
 - Node Name: dot1dSr (3)  
 - Object ID: .internet.mgmt.mib-2.dot1dBridge.dot1dSr  
 - Value: (empty)

Table 271 describes the SNMPv3 settings parts in the contents pane.

**Table 271** SNMPv3 Settings parts

| Part              | Description  |
|-------------------|--|
| SNMP context name | The collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context. An SNMP entity potentially has access to many contexts. In other words, if management information has been defined under certain context by an SNMPv3 entity, any management application can access that information by giving that context name. |
| Context Engine    | Indicates the SNMP engine's administratively-unique identifier.  |

**5** Complete the SNMPv3 fields.



---

## Appendix A

### Additional reference sources

---

For more information about networking concepts, protocols, and topologies, you may want to consult the following sources:

- RFC 951 (BootP)
- RFC 1058 (RIP version 1)
- RFC 1723 (RIP version 2)
- RFC 1389 (RIP 2 Management Information Base (MIB))
- RFC 1213 (Network Management of TCP/IP MIB II)
- RFC 1493 (Bridge MIB)
- RFC 1573 (IANA If Type)
- RFC 1643 (Ether-like MIB)
- RFC 2131 (DHCP)
- RFC 2338 (VRRP)
- RFCs 1271 and 1757 (RMON)
- RFC 1850 (OSPF MIB)
- RFCs 1253, 1583 and 2178 (OSPF)
- RFCs 2474 and 2475 (DiffServ)
- RFCs 2597 and 2598 (DiffServ Per Hop Behavior)
- RFC 1112 (IGMP version 1)
- RFC 2236 (IGMP version 2)
- IEEE 802.1D (Standard for Spanning Tree Protocol)
- IEEE 802.3 (Ethernet)
- IEEE 802.1Q (VLAN Tagging)



---

## Appendix B

# Troubleshooting and error messages

---

The following sections describe how to resolve Enterprise Switch Manager problems, and also describe Enterprise Switch Manager error codes:

- [“Resolving problems,”](#) next
- [“Error messages”](#) on page 560

## Resolving problems

[Table 272](#) describes common Enterprise Switch Manager problems and solutions.

**Table 272** Enterprise Switch Manager problems and solutions

| Problem   | Solution   |
|---|--|
| Enterprise Switch Manager does not display all network devices in the topology map. | <ul style="list-style-type: none"> <li>• Use the <code>ping</code> command to verify that the network device is connected.</li> <li>• Choose Edit &gt; Preferences, and verify that the Automatically Relayout after discovery check box is selected in the Map section.</li> <li>• Increase the maximum hop count in the Preferences dialog box.</li> </ul>   |
| Some devices have timed out.  | <p>View the error log to determine if the timeout is due to the following, and take the recommended action:</p> <ul style="list-style-type: none"> <li>• Invalid read-community string—add the correct community in the Edit Communities dialog box.</li> <li>• Slow network—Increase the retry count in the SNMP section of the Edit Preferences dialog box.</li> <li>• NMS socket overflow—Set the Max Outstanding Requests in the SNMP preferences section of the Edit Preferences dialog box.</li> </ul> |

## Error messages

[Table 273](#) describes Enterprise Switch Manager messages and their meanings.

**Table 273** Enterprise Switch Manager error messages

| Message                                    | Meaning  |
|--|--|
| Discrepancies were found, see View > Audit | The submanager can still function, but it has found discrepancies between nodes. From the submanager menu bar, choose View > Audit to view the Audit dialog box. |
| Bad Assignment                             | You attempted to edit a read-only item.  |



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