CHAPTER 2

Using Cisco Fabric Manager and Device Manager

This chapter describes how to use Cisco Fabric Manager and Device Manager, and it includes the following sections:

Summary of Fabric and Device Management Tasks

Table 2-1 summarizes the tasks that you can perform using Fabric Manager and Device Manager. In general, you can perform tasks using Fabric Manager for multiple devices. Device Manager is more convenient to use when you are working with a single switch.

Table 2-1 Fabric and Device Management Tasks

Task	Tool	See
Troubleshoot connectivity and switch configuration.	Fabric Manager	"Troubleshooting Switch Configuration" section on page 2-9
Perform fabric discovery and view network topology	Fabric Manager	Chapter 1, "Getting Started with Cisco Fabric Manager"
Manage zones and activate zone sets	Fabric Manager	Chapter 3, "Managing Zones and Zone Sets"
Manage VSANs.	Fabric Manager or Device Manager	Chapter 4, "Managing VSANs"
Enable or disable ports.	Device Manager's Device View	"Managing Ports" section on page 2-24
Manage SNMP events and alarms.	Fabric Manager or Device Manager	Chapter 8, "Managing Events and Alarms"
Manage SNMP and CLI Security	Fabric Manager or Device Manager	Chapter 5, "Managing Administrator Access"
Copy and save configuration and image files	Fabric Manager or Device Manager	Chapter 6, "Managing Software and Configuration Files"

Table 2-1 Fabric and Device Management Tasks (continued)

Task	Tool	See
View hardware configuration	Fabric Manager or Device Manager	Chapter 9, “Managing the System and Components”
Manage Fibre Channel routing and FSPF.	Fabric Manager or Device Manager	Chapter 10, “Managing Fibre Channel Routing and FSPF”
Manage advanced features	Fabric Manager or Device Manager	Chapter 11, “Managing Advanced Features”

Using Fabric Manager

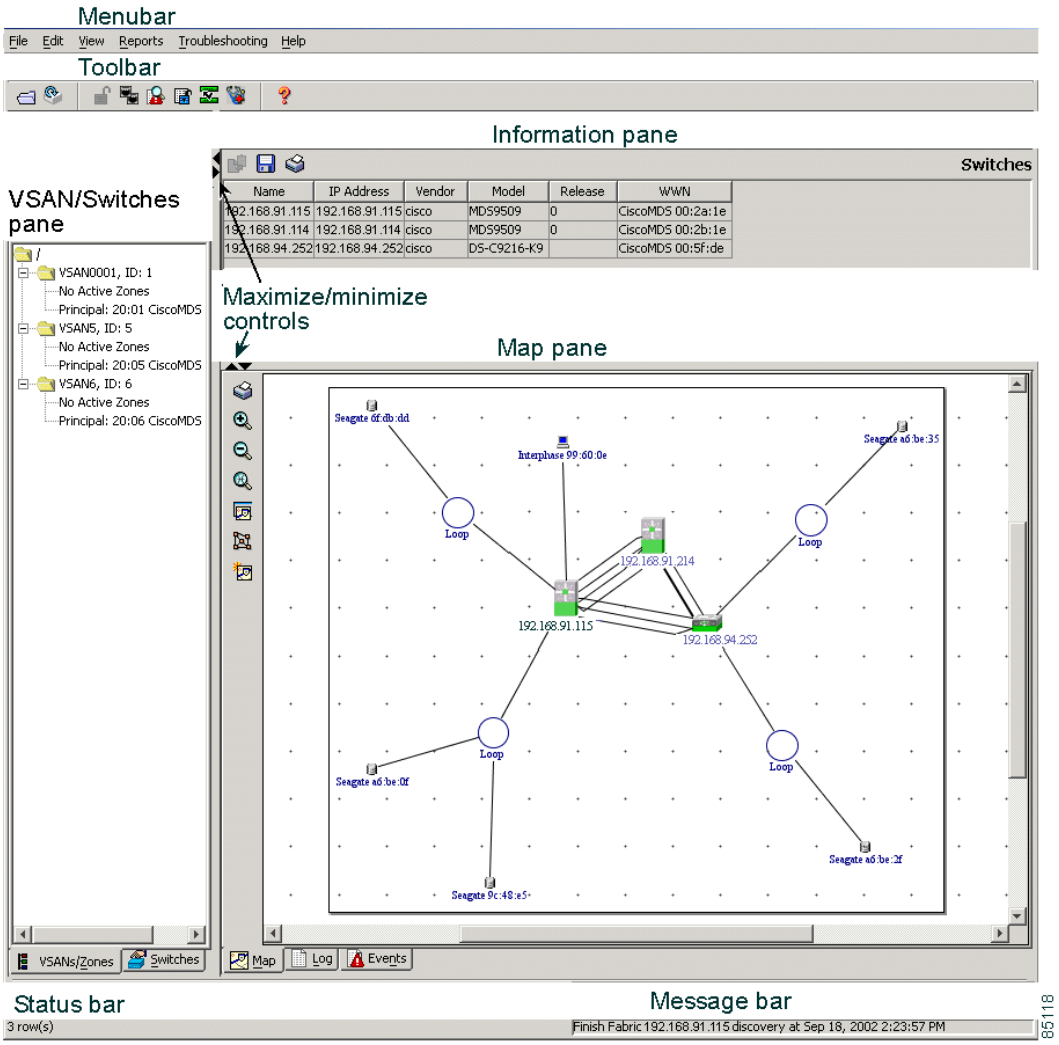
This section describes how to use Fabric Manager and summarizes the tasks that you can perform with it. It includes the following sections:

Fabric Mangaer Main Window

The Fabric Manager displays a view of your network fabric, including Cisco 9000 or third-party switches and end devices. To launch the Fabric Manager from your desktop, double-click the **Fabric Manager** icon and follow the instructions described in the “Launching Views” section on page 1-11. Figure 2-1 shows the Fabric Manager main window.

Note Changes made using Fabric Manager are applied to the running configuration of the switches you are managing and the changes may not be saved when the switch restarts. After you make a change to the configuration or perform an operation (such as activating zones), the system prompts you to save your changes before you exit.

Figure 2-1 Fabric Manager Main Window



The menu bar at the top of the Fabric Manager window provides access to options, that are organized by menus. The toolbar provides icons that duplicate the most commonly used options on the File, Tools, and Help menus.

The main window has a menu bar, toolbar, message bar, status bar, and three panes:

- VSAN/Switch pane—Displays a tree of configured VSANs and zones on the VSANs/Zones tab and a menu tree of available configuration tasks on the **Switch** tab.
- Information pane—Displays information about whatever option is selected in the menu tree.
- Map pane—Displays a map of the network fabric, including switches, hosts, and storage. It also provides tabs for displaying log and event data.

You can resize each pane by dragging the boundaries between each region or by clicking the **Minimize** or **Maximize** controls. (See Figure 2-1.)

Menu Bar, Toolbars, and Message Bar

The menu bar at the top of the Fabric Manager window provides options for managing and troubleshooting the current fabric and for controlling the display of information on the Map pane. The menu bar provides the following menus:

- File—Open a new fabric, rediscover the current fabric, locate switches, set preferences, print the map, and clear or export the Map pane log.
- Edit—Manage zones, zonesets, and various elements on the Fabric Manager map.
- View—Change the appearance of the map (these options are duplicated on the Map pane toolbar).
- Reports—Display summary reports, as described in the "Viewing Reports in Fabric Manager" section on page 2-16.
- Troubleshooting—Verify and troubleshoot connectivity and configuration, as described in the "Troubleshooting Switch Configuration" section on page 2-9.
- Help—Display on-line help topics for specific dialog boxes in the Information pane.

The Fabric Manager main toolbar provides buttons for accessing the most commonly used menu bar options. The Map pane toolbar provides buttons for managing the appearance of the map. The Information pane toolbar provides buttons for editing and managing the Information pane.

The message bar shows the last entry displayed by the discovery process, and the possible error message. It displays a dialog stating that something has changed in the fabric and a new discovery is needed. The status bar shows both short-term, transient messages (such as the number of rows displayed in the table), and long-term discovery issues.

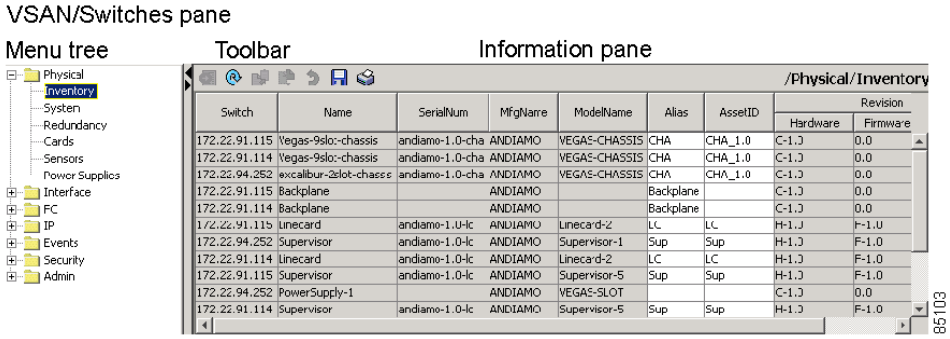
VSAN/Switch Pane

Use the VSAN tab on the VSAN/Switch pane to manage VSANs and zones in the currently discovered fabric. For information about managing VSANs see Chapter 4, "Adding and Configuring VSANs."

To manage zones, right-click one of the folders in the VSAN tree and click **Edit** Zones from the pop-up menu. You see the Edit Zones dialog box. For information about managing zones and zone sets, see Chapter 3, "Managing Zones and Zone Sets."

Use the Switch tab on the VSAN/Switch pane to display a menu tree of the options available for managing the switches in the currently discovered fabric. You see the menu tree shown in Figure 2-2.

Figure 2-2 Menu Tree and Dialog Box



To select an option, click a folder to display the options available and then click the option. You see the dialog box for the selected option in the Information pane. The menu tree provides the following main folders:

- Physical—View and configure hardware components.
- Interface—View, monitor, and configure ports and PortChannel interfaces.
- FC—View and configure Fibre Channel network configurations.
- IP—View and configure TCP/IP (management) network configurations.
- Events—View and configure events, alarms, thresholds, notifications, and informs.
- Security—View and configure SNMP and CLI security.
- Admin—Download software images; copy and save configuration files.

Information Pane

The Information pane displays tables or other information associated with the option selected from the menu tree. The Information pane toolbar provides buttons for performing one or more of the following operations:

- Create—Insert a new row into a table.
- Delete Row—Delete the selected row from a table.
- Copy…Ctrl+C — Copy data from one row to another.
- Paste…Ctrl +V—Paste the data from one row to another.
- Apply Changes—Apply configuration changes.

Note After making changes you must save the configuration or the changes will be lost when the device is restarted.

- Refresh Values—Refresh table values.
- Undo Changes…Ctrl-Z—Undo the most recent change.
- Print Table —Print the contents of the Information pane.
- Export—Export and save information to a tab-delimited file.

- Log—Displays messages describing system operations, such as fabric discovery.

Note The buttons that appear on the toolbar vary according to the option you select. They are activated or deactivated (grayed) according to the field or other object that you select in the Information pane.

Map Pane

There are three tabs on the bottom of the Map pane:

- Map—Displays a graphical view of the network fabric with switches, hosts, and storage subsystems.
- Events—Displays information about the SNMP traps received by the management station.

When you right-click an icon, you see a pop-up menu with options that vary depending on the type of icon selected. The various options available for different objects include the following:

- Open an instance of Device Manager for the selected switch.
- Open a CLI session for the selected switch.
- Copy the display name of the selected object.
- Execute a **ping** or **traceroute** command for the device.
- Show or hide end devices.
- Create or delete an enclosure.
- Set the VSAN ID for an edge port (link).
- Set the trunking mode for an ISL.
- Create or add to a PortChannel for selected ISLs.

The Map pane has its own toolbar with options for saving, printing, and changing the appearance of the map. When you right-click on the map, a pop-up menu appears that provides options (duplicated on the toolbar) for changing the appearance of the map.

Note When a VSAN, zone, or zone member is selected in the VSAN tree, the map highlighting changes to identify the selected objects. To remove this highlighting, click the **Clear Highlight** button on the Map pane toolbar or choose **Clear Highlight** from the pop-up menu.

Locating Other Switches

The Locate Switches option uses SNMPv2 and discovers devices responding to SNMP requests with the read-only community string *public*. To enable your Cisco MDS 9000 Family switches to respond to SNMPv2 requests, see Chapter 5, “Managing Administrator Access.”

To locate switches that are not included in the currently discovered fabric, follow these steps:

Step 1 Choose **File** > **Locate Switches** from the Fabric View main window.

You see the Locate Devices dialog box.

Step 2 Enter a range of specific addresses belonging to a specific subnet which limit the research for the switches. To look for a Cisco MDS 9000 switch belonging to subnet 192.168.199.0, use the follwing string:

192.168.100.[1-254]

Multiple ranges can be specified, separated by commas. For example, to look for all the devices in the two subnets 192.168.199.0 and 192.169.100.0, use the following string:

192.168.100.[1-254], 192.169.100.[1-254]

Step 3 Enter the appropriate read community string in the Read Community field.

The default value for this string is “public.”

Step 4 Click **Display Cisco MDS 9000 Only** to display only the Cisco MDS 9000 Family switches in your network fabric.

Step 5 Click **Search** to discover switches and devices in your network fabric. You see the results of the discover in the Locate Devices window.

Note The number in the lower left corner of the screen increments as the device locator attempts to discover the devices in your network fabric. When the discovery process is complete, the number indicates the number of rows displayed.

To manage the discovered switches, follow these steps:

Step 1 Choose **File > Open** from the Fabric Manager menu bar.

Step 2 Enter the IP address of a switch in the Device Name field on the Open dialog box.

Step 3 Enter your user name and password in the User Name and Auth Password fields.

If the SNMPv3 Privacy feature is implemented, enter the encryption password as well.

Step 4 Check the SNMPv3 check box to select SNMP version 3.

Step 5 Click **Open**.

Modifying Device Grouping

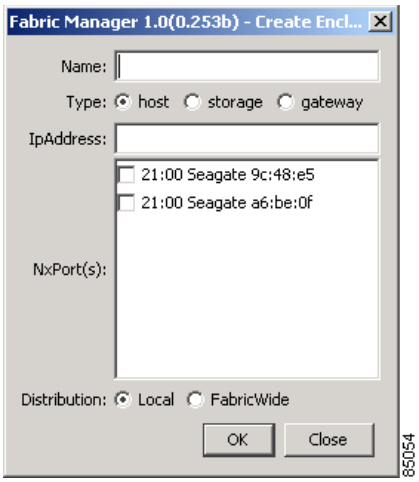
Because of not all the devices are capable of responding to FC-GS3 requests, different ports of a single server or storage subsystem may be displayed as individual end devices on the Fabric Manager map. To group end devices in a single enclosure in order to have them represented by a single icon on the map, follow these steps:

Step 1 Select the end devices in the Fabric Manager map (optional).

Step 2 Choose **Edit > Map** > **Create Enclosure** from the Fabric Manager menu bar.

You see the window shown in Figure 2-3.

Figure 2-3 Create Enclosure Window



Step 3 Enter a name to identify the new icon on the Fabric Manager Map pane in the Name field.

Step 4 Select the type of icon to use for Type:

- host—Servers and other devices containing host bus adapters (HBAs)
- storageDevice—Storage enclosures
- gateway—Routers

Step 5 Enter the IP address of the device in the IpAddress field (optional).

Step 6 Select the ports on the target device connected to the Cisco MDS 9000 switch in the NxPort(s) field.

The list of all ports in a fabric that are not already assigned to en enclosure are shown.

Step 7 Check the **FabricWide** checkbox if you want the information about the enclosure to be distributed across the fabric, in order to guarantee uniqueness for the enclosure in the all fabric for a particular VSAN. To keep the enclosure information locally on the configured switch and not have it propagated on the fabric, uncheck the **FabricWide** checkbox.

Step 8 Click **OK**.

Note To delete an enclosure, choose **Edit > Map > Delete Enclosure** from the menu bar.

Note To change an existing enclosure, delete the enclosure and create a new one.

Troubleshooting Switch Configuration

This section describes how to use the tools provided by the Fabric Manager and Device Manager to verify and troubleshoot fabric connectivity and switch configuration. It includes the following sections:

Analyzing Switch Device Health

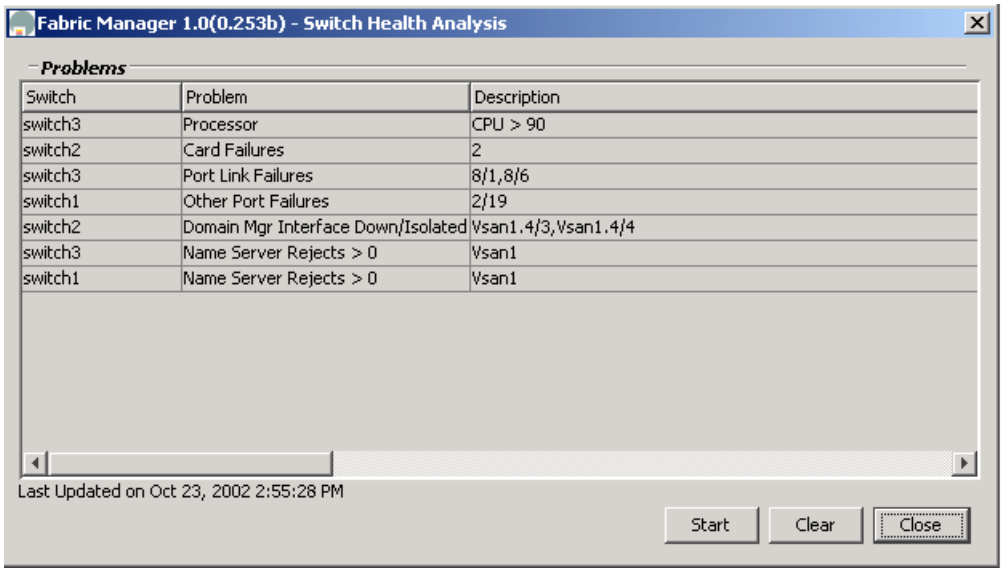
The Switch Health option lets you determine the status of the components of a specific switch.

To use the Switch Health option, follow these steps:

Step 1 Click **Switch Health** from the Fabric Manager Troubleshooting menu.

You see the window shown in Figure 2-4.

Figure 2-4 Switch Health Analysis Window



Step 2 Click **Start** to identify any problems that may currently be affecting the selected switch.

The Switch Health Analysis window displays any problems affecting the selected switches.

Step 3 Fix these problems.

Step 4 Click **Clear** to remove the contents of the Switch Health Analysis window.

Step 5 Click **Close** to close the window.

Analyzing End-to-End Connectivity

You can use the End to End Connectivity option to determine connectivity and routes among devices with the switch fabric. The connectivity tool checks to see that every pair of end devices can talk to each other, using a Ping test and by determining if they are in the same VSAN or in the same active zone.

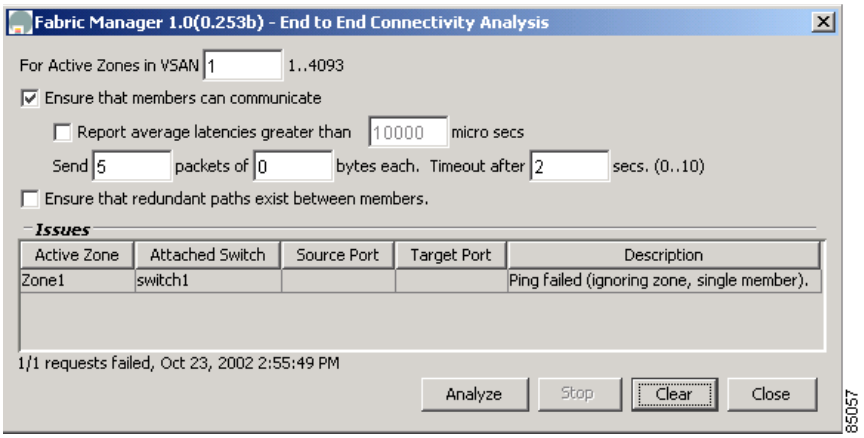
This option uses versions of the **ping** and **traceroute** commands modified for Fibre Channel networks.

To use this option, follow these steps:

Step 1 Choose **Troubleshooting** > **End to End Connectivity** from the Fabric Manager menu bar.

You see the window shown in Figure 2-5.

Figure 2-5 End to End Connectivity Analysis Window



Step 2 Enter the identifier of the VSAN in which you want to verify connectivity in the VSAN field.

Step 3 Identify any latency issues in the network fabric by clicking the option, **Report average latencies greater than** and entering the number of microseconds.

Step 4 Click **Ensure that members can communicate** to perform a Fibre Channel ping between the selected end points.

Step 5 Identify the number of packets, the size of each packet, and the timeout in milliseconds.

Step 6 Analyze the redundant paths between endpoints by clicking **Ensure that redundant paths exist between members**.

Step 7 Click **Analyze**.

The End to End Connectivity Analysis window displays the selected end points with the switch to which each is attached, and the source and target ports used to connect it.

The output shows all the requests which have failed. The possible descriptions are:

- Ignoring empty zone—No requests are issued for this zone.
- Ignoring zone with single member—No requests are issued for this zone.
- Source/Target are unknown—No nameserver entries exist for the ports or we have not discovered the port during discovery.
- Both devices are on the same switch.
- No paths exist between the two devices.
- VSAN does not have an active zone set and the default zone is denied.

- Average time ... micro secs—The latency value was more than the threshold supplied.

Step 8 Click **Clear** to remove the contents of the window.

Step 9 Click **Close** to close the window.

Analyzing Switch Fabric Configuration

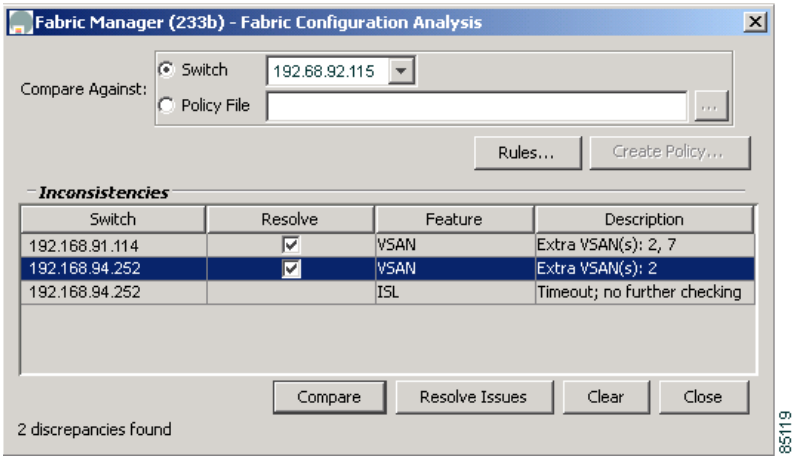
The Fabric Configuration option lets you analyze the configuration of a switch by comparing the current configuration to a specific switch or to a policy file. You can save a switch configuration to a file and then compare all switches against the configuration in the file.

To use the Fabric Configuration option to analyze the configuration of a switch, follow these steps:

Step 1 Click **Fabric Configuration** from the Fabric Manager Troubleshooting menu.

You see the window shown in Figure 2-6.

Figure 2-6 Fabric Configuration Analysis Window



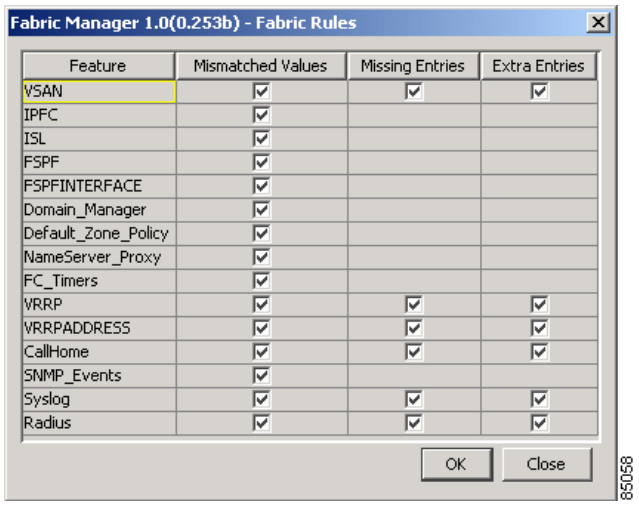
Step 2 Choose if you want to compare the selected switch to another switch or to a Policy File.

- If you are making a switch comparison, click **Switch** and then click the drop-down arrow to see a list of switches.
- If you are making a policy comparison, click **Policy File**. Then the button to the right of this option to browse your file system and select a policy file (*.XML).

Step 3 Click **Rules** to set the rules to apply when running the Fabric Configuration Analysis tool.

You see the window shown in Figure 2-7.

Figure 2-7 Fabric Configuration Rules



Step 4 Change the default rules as required and click **OK**.

Step 5 Click **Compare**.

The system analyzes the configuration and displays issues that arise as a result of the comparison.

Step 6 Click **Clear** to remove the contents of the window.

Step 7 Click **Close** to close the window.

You use a policy file to define the rules to be applied when running the Fabric Configuration Analysis tool. When you create a policy file, the system saves the rules selected for the selected switch.

To create a policy file, follow these steps:

Step 1 Choose **Tools** > **Fabric Configuration** from the Fabric Manager menu bar.

Step 2 Click **Policy File** and enter a name for the policy in the field provided.

Step 3 Click **Create Policy** and confirm the operation when prompted.

Analyzing the Results of Merging Zones

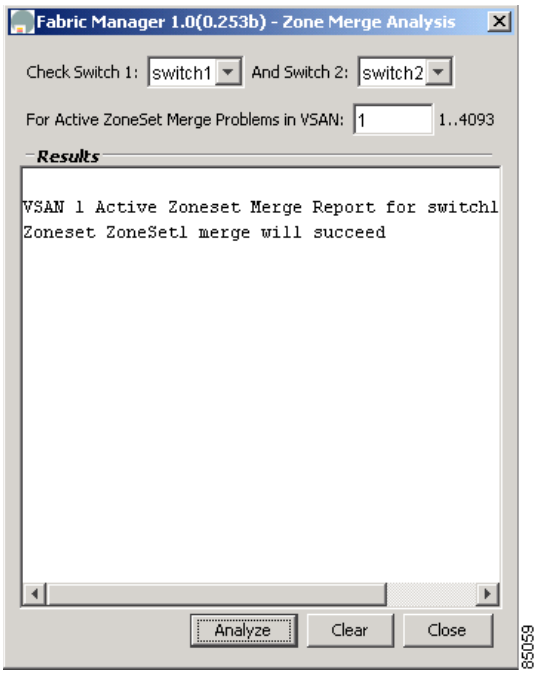
You can use the Zone Merge option on the Fabric Manager Troubleshooting menu to determine if two connected switches have compatible zone configurations.

To use the Zone Merge option, follow these steps:

Step 1 Choose **Zone Merge** from the Fabric Manager Troubleshooting menu.

You see the window shown in Figure 2-8.

Figure 2-8 Zone Merge Analysis Window



Step 2 Select a switch from each pull-down list.

Step 3 Identify the VSAN for which you want to perform the zone merge analysis.

Step 4 Click **Analyze**.

The Zone Merge Analysis window displays any inconsistencies between the zone configuration of the two selected switches.

Step 5 Click **Clear** to remove the contents of the window.

Step 6 Click **Close** to close the window.

Using Other Troubleshooting Tools

You can use the following options on the Troubleshooting menu to verify connectivity to a selected object or to open other management tools:

- Traceroute—Verify connectivity between two end devices that are currently selected on the Map pane.
- Device Manager— Launch the Device Manager for the switch selected on the Map pane.
- Command Line Interface—Open a Telnet or SSH session for the switch selected on the Map pane.

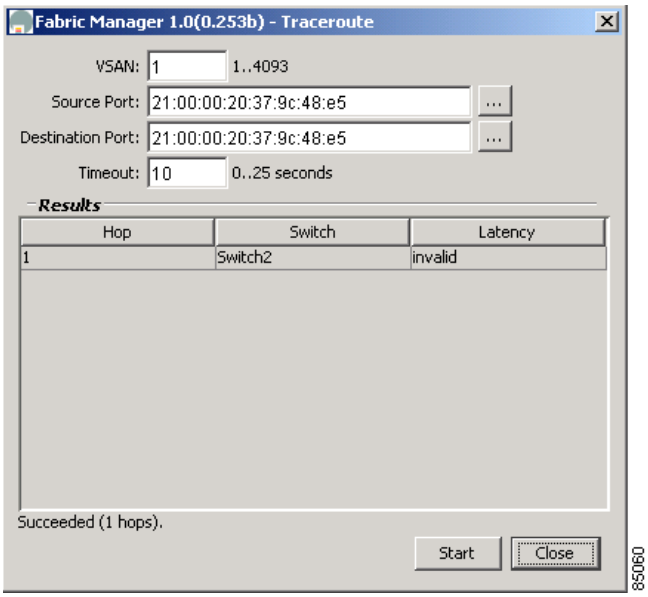
To use the Traceroute option to verify connectivity, follow these steps:

Step 1 Select two or more endpoints on the Fabric Manager map.

Step 2 Click **Traceroute** from the Troubleshooting menu, or right-click one of the endpoints and click **Traceroute** from the pop-up menu.

You see the window shown in Figure 2-9.

Figure 2-9 Traceroute Window



Step 3 Change the timeout value if the default (30 seconds) is too short or too long.

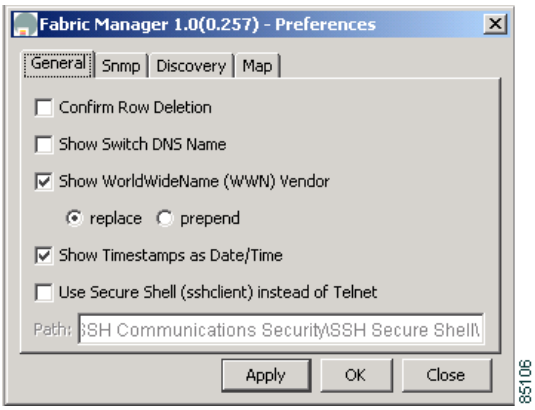
Step 4 Click **OK**.

The results of the Traceroute operation appear in the Results box.

Setting Preferences

To set your preferences for the behavior of the Fabric Manager, choose **File** > **Preferences** from the Fabric Manager menu bar. You see the dialog box shown in Figure 2-10.

Figure 2-10 Fabric View Preferences



This dialog box has the following four tabs, which let you set your preferences for different components of the application:

- General
- SNMP
- Discovery
- Map

Table 2-2 describes the configurable attributes on each tab.

Table 2-2 Fabric Manager Preferences—Configurable Attributes

Attributes	Effect
General tab	
Confirm Row Deletion	The system prompts you and requires a confirmation before deleting any row in a table.
Show Switch DNS Name	The DNS host names (if any) for switches are displayed in the map and in tables.
Show WorldWideName (WWN) Vendor • replace • prepend	Show the vendor portion of the world wide name, either instead of the node portion (replace) or preceding that portion (prepend)
Show Timestamps as Date/Time	Show the time of events in Date/Time format.
Use Secure Shell(sshclient) instead of Telnet	Use SSH when making a console (CLI) connection to a device. The field below this radio button allows you to identify the location of the SSH application that you want to use.
Snmp tab	
Retry requests	Specifies the number of times an SNMP request will be issued.
Enable status polling every	Specifies the length of time (in seconds) between SNMP polling requests.
Trace SNMP packets in Log	Capture SNMP queries/replies in the Fabric Manager log.
Register for Events after Open, listen on Port 2162	Causes the system to listen for fabric events and display the changes automatically or prompt you to start a new discovery.
Discovery tab	
Trace Topology Discovery in Log	Enable the logging of discovery messages in the Fabric View log.
Use FCS Discovery Cache	Cache FCS discovery information instead of rediscovering the information every time.
Use DNS Name if No Management IP Address	Use any DNS name found during discovery if no management IP addess is configured for the device.
Max FCS Vsan Discovery Time	Specifies the time (in seconds) to allow discovery of a single VSAN.

Table 2-2 Fabric Manager Preferences—Configurable Attributes (continued)

Attributes	Effect
Max Lun Discovery Time	Specifies the time (in seconds) to allow discovery of a single LUN.
Map tab	
Display End Devices	Displays end devices in the Fabric Manager map.
Display Node Labels	Display node labels in the Fabric Manager map.
Collapse Loops	Collapse private or public loops in the Fabric Manager map.
Collapse Multiple Links	Collapse multiple links between devices into a single line in the Fabric Manager map.

Viewing Reports in Fabric Manager

The Fabric Manager provides a series of tables grouped under the Reports menu. To open the tables to view this information, click **Reports** on the Fabric Manager menu bar and select one of the following options:

- ISL Statistics, page 2-16
- ISLs, page 2-17
- Switches, page 2-17
- Hosts, page 2-18
- Storage, page 2-18
- LUNs, page 2-19

When you select one of these options, you see the available information in tabular form in the Information pane of the Fabric Manager main window. The following sections describe the tables provided by each option.

ISL Statistics

Choose **Reports** > **ISL Statistics** from the Fabric Manager menu bar to display information about the Inter-Switch Links in the currently discovered fabric. See Table 2-3.

Table 2-3 Reports > ISL Statistics

Field	Description
Between: Switch	Displays the IP address or host name of the switch from which the link originates.
Between: Interface	Displays the interface from which the link originates.
And: Switch	Displays the IP address or host name of the switch to which the link is destined.
And: Interface	Displays the interface to which the link is destined.
Speed	Displays the maximum bandwidth (in Mbits per second) of the link.

Table 2-3 Reports > ISL Statistics (continued)

Field	Description
Bandwidth %: Between	Displays the percentage of bandwidth utilized on the originating link.
Bandwidth %: And	Displays the percentage of bandwidth utilized on the destination link.
Errors	Displays the number of errors occurring on the link.
Discards	Displays the number of frames discarded on the link.

You can use the controls at the top of the table to change the following report parameters:

- Poll interval
- Scale

ISLs

Choose **Reports** > **ISLs** from the Fabric Manager menu bar to display information about the Inter-Switch links in the currently discovered fabric. See Table 2-4.

Table 2-4 Reports > ISLs

Field	Description
Between: Switch	Displays the IP address or host name of the switch from which the link originates.
Between: Interface	Displays the interface from which the link originates.
And: Switch	Displays the IP address or host name of the switch to which the link is destined.
And: Interface	Displays the interface to which the link is destined.
Mode	Displays the mode of the ISL trunk.
Speed	Displays the maximum bandwidth of the link.
Vsan: Port	Displays the VSAN to be configured on the interface from which the ISL originates.
Vsan: Active	Displays the active VSANs on the link in case trunking is enabled.
Vsan: Allowed(Between)	Displays the allowed VSANs on the interface from where the ISL is generated in case trunking is enabled.
Vsan: Allowed(And)	Displays the allowed VSANs on the interface to where the ISL is destined, in case truning is enabled.

Switches

Choose **Reports** > **Switches** from the Fabric Manager menu tree to display information about the switches in the currently discovered fabric. See Table 2-5.

Table 2-5 Reports > Switches

Field	Description
Name	Displays the host name of the switch.
IP Address	Displays the IP address of the switch.
Vendor	Displays the manufacturer of the switch, as derived from the hardware address of the device.
Model	Displays the model of the switch (if discovered).
Release	Displays the release of the switch software.
WWN	Displays the world wide name (WWN) of the switch.

Hosts

Choose **Reports** > **Hosts** from the Fabric Manager menu tree to display information about the hosts in the currently discovered fabric. See Table 2-6.

Table 2-6 Reports > Hosts

Field	Description
Name	Displays the name of the host.
IP Address	Displays the IP address of the host.
Vsan	Displays the VSAN to which the host belongs.
Port WWN	Displays the Nx Port WWN for this host.
Attached To	Displays the switch name and Fx port through which this host is connected to the fabric.

Storage

Choose **Reports** > **Storage** from the Fabric Manager menu tree to display information about the links to hosts and storage in the currently discovered fabric. See Table 2-7.

Table 2-7 Reports > Storage

Field	Description
Name	Displays the assigned name for the selected storage device.
IP Address	Displays the IP address assigned to the selected storage device.
Vsan	Displays the VSAN containing the selected storage device.
Port WWN	Displays the Port WWN of the storage device interface.
FcId	Displays the Fibre Channel ID of the storage device interface.
Attached To	Displays the switch through which the selected device is attached.
Type	Displays the type of the storage device.
Vendor	Displays the vendor name for the selected storage device.
ProductID	Displays the product ID of the storage device.

Table 2-7 Reports > Storage (continued)

Field	Description
RevLevel	Displays the revision level of the software running on the storage device.
Details	Displays other information that may be available about the storage device.
Total Capacity (M)	Displays the total capacity in Mbytes for the selected storage device.
Number LUNs	Displays the number of LUNs on the selected storage device.

LUNs

Choose the **Reports** > **LUNs** option from the Fabric Manager menu tree to display information about the LUNs in the currently discovered fabric. See Table 2-8.

Table 2-8 Reports > LUNs

Field	Description
Port WWN	Displays the Port WWN of the storage device interface where the LUN is exported.
Fcid	Displays the Fibre Channel identifier of the storage device interface where the LUN is exported.
Attached To	Displays the switch through which the LUN is connected.
Number	Displays the numerical identifier of the LUN.
Capacity	Displays the capacity (in Mbytes) of the LUN.
SerialNum	Displays the serial number of the LUN device.

Using Device Manager

This section describes how to use the Device Manager to manage the configuration of specific devices. It includes the following sections:

Overview of Device Manager

Device Manager provides a physical representation of your switch chassis, with the modules, ports, power supplies, and fan assemblies (Figure 2-11). The menu bar at the top of the Device Manager window provides access to options, organized into menus that correspond to the menu tree in Fabric Manager (Figure 2-12).

The legend at the bottom right of the Device Manager indicates port status, as follows:

- Green—The port is up.
- Brown—The port is administratively down.
- Red—The port is down or has failed.
- Gray—The port is unreachable.

Launching Device Manager from Fabric Manager

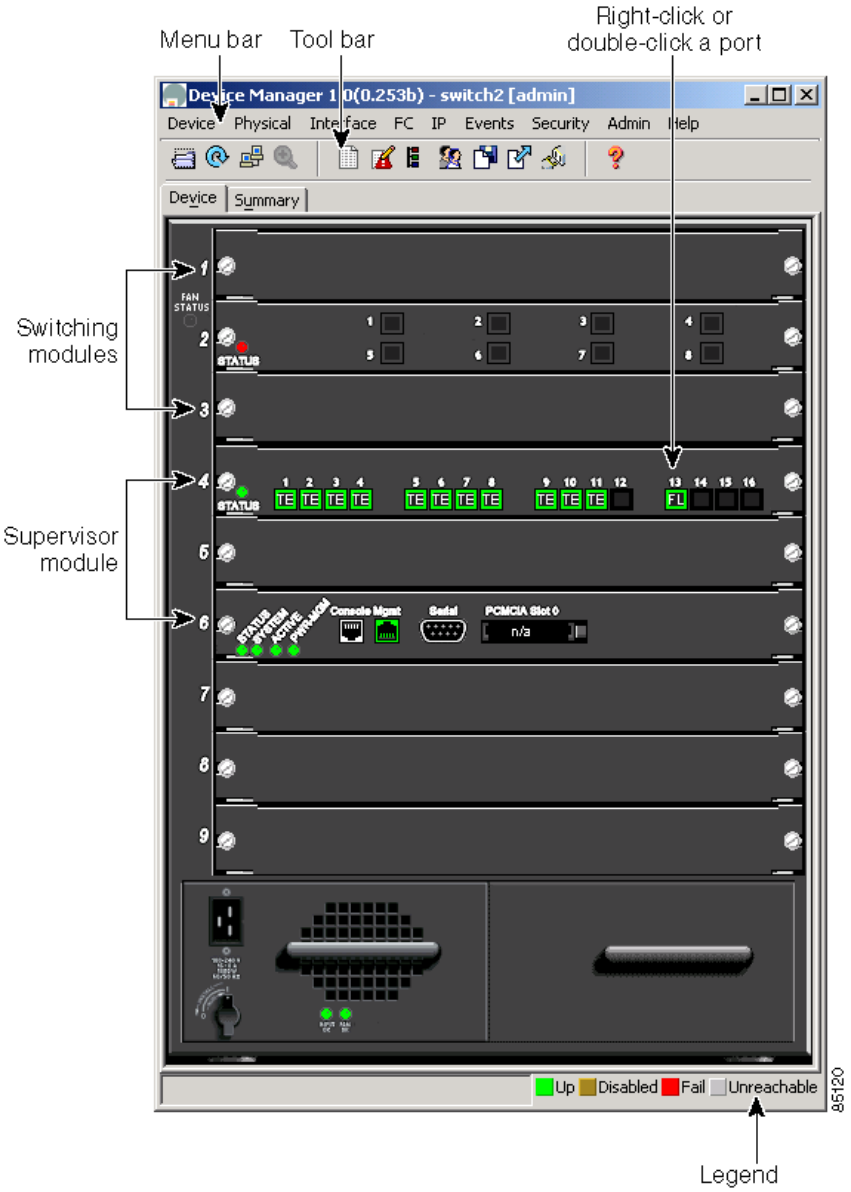
Device Manager gives a graphic representation of a Cisco MDS 9000 Family switch, including the installed switching modules, the supervisor modules, the power supplies, and the status of each port within each module.

To launch the Device Manager from your desktop, double-click the Device Manager icon and follow the instructions described in the "Launching Views" section on page 1-11.

To launch Device Manager from Fabric Manager , right-click the switch you want to manage on the Fabric Manager map and click **Device Manager** from the pop-up menu that appears. The Device Manager main window is shown in Figure 2-11.

Device Manager can also be started by double-clicking on a switch in the Fabric Manager topology view.

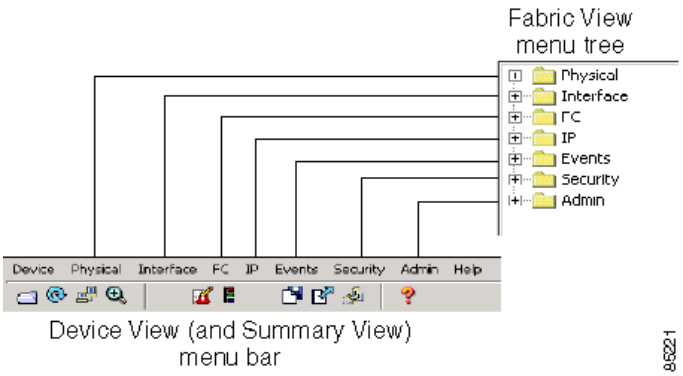
Figure 2-11 Device Manager, Deview Tab



Comparing Device Manager to Fabric Manager

As shown in Figure 2-12, the menu bar at the top of the Device Manager contains the same menus as the Fabric Manager menu tree.

Figure 2-12 Device Manager Menu Bar Compared to the Fabric Manager Menu Tree

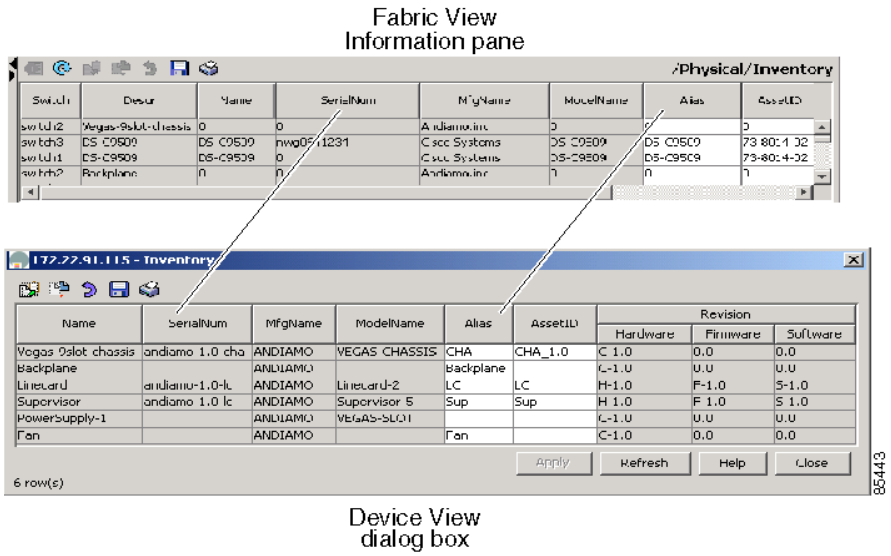


For information about the options provided by these menus, see the "VSAN/Switch Pane" section on page 2-4. The Device menu, which is unique to the Device View and Summary View, provides the following options:

- Open—Open the Device Manager for a different switch.
- Open Last—Open the Device Manager for the most recently managed switch.
- Preferences—Set management preferences for controlling the behavior and appearance of the Device Manager.
- Refresh—Update the current display.
- Message Log—Display messages regarding the current operation of the Device Manager application.
- Command Line Interface—Open a Telnet/SSH session with the current switch.
- Exit—Close the Device Manager application.

As shown in Figure 2-13, the tables in the Fabric Manager correspond to the dialog boxes that appear in Device Manager. However, the Fabric Manager tables show values for multiple switches and so the first column identifies the specific switch. The Device Manager dialog box shows values for a single switch, while the Fabric Manager shows the same values for one or more switches.

Figure 2-13 Device Manager Dialog Box Compared to Fabric Manager



The toolbar on the Device Manager dialog box provides the same options as the toolbar on the Information pane in Fabric Manager , as summarized here:

- Create—Insert a new row into a table (if applicable).
- Delete Row—Delete the selected row from a table (if applicable).
- Copy…Ctrl+C — Copy data from one row to another.
- Paste…Ctrl +V—Paste the data from one row to another.
- Apply Changes—Apply configuration changes.

Note After making changes you must save the configuration the changes will be lost when the device is restarted.

- Refresh Values—Refresh table values.
- Reset Changes…Ctrl-Z—Undo the most recent change.
- Print table…— Print the contents of the Information pane.

Tip You can copy values from one cell in a table to the rest of the column. Copy the value to the clipboard, hold down the shift key while pressing the down arrow key (or click on the bottom cell in the column). Then paste the value to all the selected cells and click **Apply**.

When you click the **Create** button, you see a dialog box that lets you enter the values required for the specific table. Figure 2-14 shows dialog boxes for creating a new VSAN. As you can see the fields and options are the same from both views, but the appearance of the window may vary slightly. For instance, the dialog box from Fabric Manager may have an option for selecting a specific switch, while the dialog box from Device Manager may have additional port-level detail.

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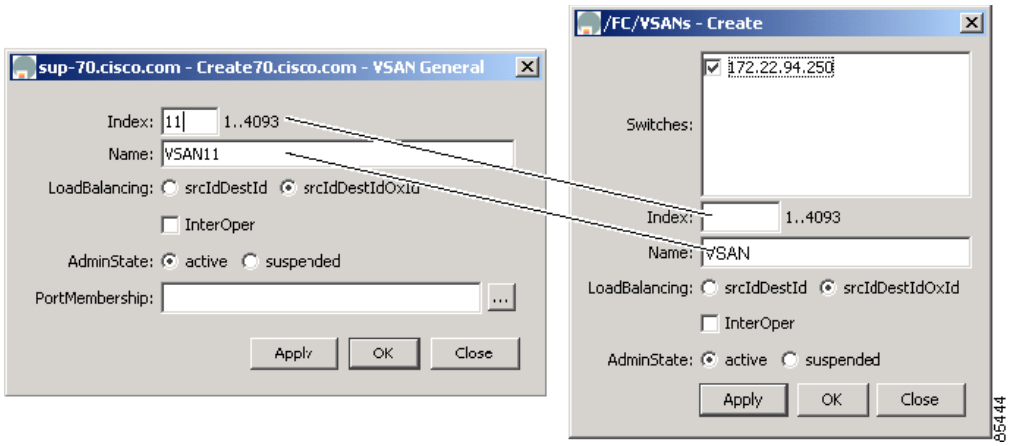
Figure 2-14 Create Dialog Boxes in Fabric Manager and Device Manager



Managing Ports

Tip You can select multiple ports in Device Manager and apply options to all the selected ports at one time. Either select the ports by dragging the mouse around them, or hold down the shift key and click on each port.

To enable or disable a port, right-click the port and click **Enable** or **Disable** from the pop-up menu. To enable or disable multiple ports, drag the mouse to select the ports and then right-click the selected ports. Then click **Enable** or **Disable** from the pop-up menu.

To manage trunking on one or more ports, right-click the ports and click **Configure**. On the dialog box that appears, in the Trunk column, right-click the current value and click **nonTrunk**, **trunk**, or **auto** from the pull-down list.

To create PortChannels using Device Manager, click **PortChannels** from the Interface menu. For detailed instructions, see the "Managing PortChannel Interfaces" section on page 7-12. You can also use Fabric Manager to conveniently create a PortChannel.

Note To create a PortChannel, all the ports on both ends of the link must have the same port speed, trunking type, and administrative state.

Setting Preferences

To set your preferences for the behavior of the Device Manager application, choose **Preferences** from the Device menu. You see the dialog box shown in

Figure 2-15 Device Manager Preferences

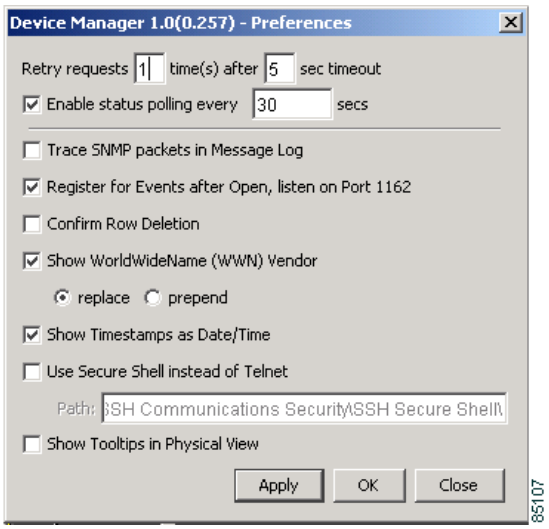


Table 2-9 describes the configurable attributes on this dialog box.

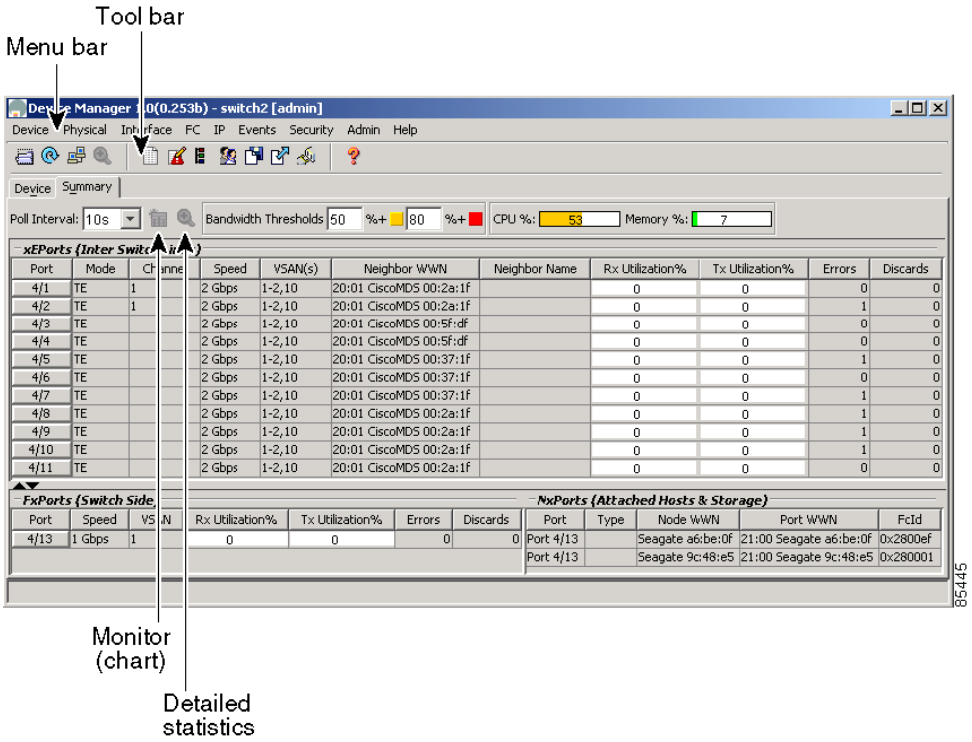
Table 2-9 Fabric Manager Preferences—Configurable Attributes

Attributes	Effect
General tab	
Retry requests	Specifies the number of times an SNMP request will be issued.
Enable status polling every	Specifies the length of time (in seconds) between SNMP polling requests.
Trace SNMP packets in Message Log	Capture SNMP packets in the message log.
Register for Events after Open, listen on Port 2162	Causes the system to listen for events and display changes in port status.
Confirm Row Deletion	The system prompts you and requires a confirmation before deleting any row in a table.
Show WorldWideName (WWN) Vendor • replace • prepend	Show the vendor portion of the world wide name, either instead of the node portion (replace) or preceding that portion (prepend)
Show Timestamps as Date/Time	Show the time of events in Date/Time format.
Use Secure Shell(sshclient) instead of Telnet	Use SSH when making a console (CLI) connection to a device. The field below this radio button allows you to identify the location of the SSH application that you want to use.
Show Tooltips in Device View	Show tooltips for different graphic elements in the Device Manager .

Using Summary View

Click the **Summary** tab on the Device Manager main window to see a summary of xEPorts, FxPorts, and NxPorts on a single switch. Figure 2-16 shows the Summary View.

Figure 2-16 Summary View



The Summary View displays attributes for a single switch, such as port speed, link utilization, and other traffic statistics. It has the same menu bar and toolbar buttons as the Device View.

To monitor traffic for selected objects, click the **Monitor** icon. To display detailed statistics for selected objects, click the **Detailed Statistics** icon.

The Summary View provides the same menus and options that are available from the Device View and shows the display-only information described in Table 2-10.

Table 2-10 Summary View Display-Only Attributes

Display-Only Attribute	Description
CPU %	Displays percentage of CPU utilization for the active supervisor module.
Disk %	Displays percentage of disk utilization for the active supervisor module.
Memory %	Displays percentage of memory utilization for the active supervisor module.
xEPorts (Inter-Switch Links)	
Port	Displays the port ID.

Table 2-10 Summary View Display-Only Attributes (continued)

Display-Only Attribute	Description
Channel	Displays the channel ID.
Speed	Displays port speed.
ActiveVsans	Displays active VSANs.
Nbr Switch WWN	Displays the neighbor switch world wide name (WWN).
Rx Utilization%	Displays the percentage of receive transmission utilization or bandwidth.
Tx Utilization%	Displays the percentage of transmit utilization or bandwidth.
Errors	Displays the errors for this link.
Discards	Displays the frames (or packets) discarded for this link.
FxPorts (Switch Side)	
Port	Displays the port ID.
Speed	Displays port speed.
VSAN	Displays the VSAN to which this port is assigned.
Rx Utilization%	Displays the percentage of receive transmission utilization or bandwidth.
Tx Utilization%	Displays the percentage of transmit utilization or bandwidth.
Errors	Displays the errors for this link.
Discards	Displays the frames (or packets) discarded for this link.
NxPorts (Attached Hosts and Storage)	
Port	Displays the port ID.
Type	Displays the device type; for example, disk, node, etc.
Node WWN	Displays the WWN for this node.
Port WWN	Displays the WWN for this port.
Fcid	Displays the Fibre Channel ID for this port.

Table 2-11 describes the configurable attributes on the Summary View.

Table 2-11 Summary View—Configurable Attributes

Configurable Attribute	Description
Poll Interval	Sets polling intervals at: • 10 or 30 seconds • 1, 5, or 30 minutes • 1 hour
Scale%	Specifies when the Rx and Tx bars should change from green to orange (warning) to red (danger) in the inline bar chart feature. For example, setting the orange scale to 50% indicates that the Rx and Tx bars should change from green to orange when Rx and Tx utilization exceeds 50%.