



## Network Monitoring

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The primary purpose of Fabric Manager is to manage the network. In particular, SAN discovery and network monitoring are two of its key network management capabilities.

This chapter contains the following sections:

- [Information About SAN Discovery and Topology Mapping, page 28-1](#)
- [Health and Event Monitoring, page 28-4](#)

## Information About SAN Discovery and Topology Mapping

Fabric Manager provides extensive SAN discovery, topology mapping, and information viewing capabilities. Fabric Manager collects information on the fabric topology through SNMP queries to the switches connected to it. Fabric Manager recreates a fabric topology, presents it in a customizable map, and provides inventory and configuration information in multiple viewing options.

This section includes the following topics:

- [Device Discovery, page 28-1](#)
- [Topology Mapping, page 28-2](#)
- [Inventory Management, page 28-3](#)
- [Viewing Logs from Device Manager, page 28-4](#)

## Device Discovery

Once Fabric Manager is invoked, a SAN discovery process begins. Using information polled from a seed switch, including Name Server registrations, Fibre Channel Generic Services (FC-GS), Fabric Shortest Path First (FSPF), and SCSI-3, Fabric Manager automatically discovers all devices and interconnects on one or more fabrics. All available switches, host bus adapters (HBAs), and storage devices are discovered. Cisco SAN switches use Fabric-Device Management Interface (FMDI) to retrieve HBA model, serial number and firmware version, and host operating-system type and version discovery without host agents. Fabric Manager obtains this information through SNMP queries to each switch. The device information discovered includes device names, software revision levels, vendor, ISLs, SAN port channels, and VSANs.

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## Topology Mapping

Fabric Manager is built upon a topology representation of the fabric. Fabric Manager provides an accurate view of multiple fabrics in a single window by displaying topology maps based on device discovery information. You can modify the topology map icon layout with an easy-to-use, drag-and-drop interface. The topology map visualizes device interconnections, highlights configuration information such as zones, VSANs, and ISLs exceeding utilization thresholds. The topology map also provides a visual context for launching command-line interface (CLI) sessions, configuring SAN port channels, and opening device managers.

### Using the Topology Map

The Fabric Manager topology map can be customized to provide a view into the fabric that varies from showing all switches, end devices, and links, to showing only the core switches with single bold lines for any multiple links between switches. Use the icons along the left side of the topology map to control these views or right-click anywhere in the topology map to access the map controls.

You can zoom in or out on the topology map to see an overview of the SAN or focus on an area of importance. You can also open an overview window that shows the entire fabric. From this window, you can right-click and draw a box around the area you want to view in the main topology map view.

Another way to limit the scope of the topology display is to select a fabric or VSAN from the Logical Domains pane. The topology map displays only that fabric or VSAN.

Moving the mouse pointer over a link or switch provides a simple summary of that SAN component, along with a status indication. Right-clicking on the component brings up a pop-up menu. You can view the component in detail or access configuration or test features for that component.

Double-click a link to bring link status and configuration information to the information pane.  
Double-click a switch to bring up Device Manager for that switch.

### Saving a Customized Topology Map Layout

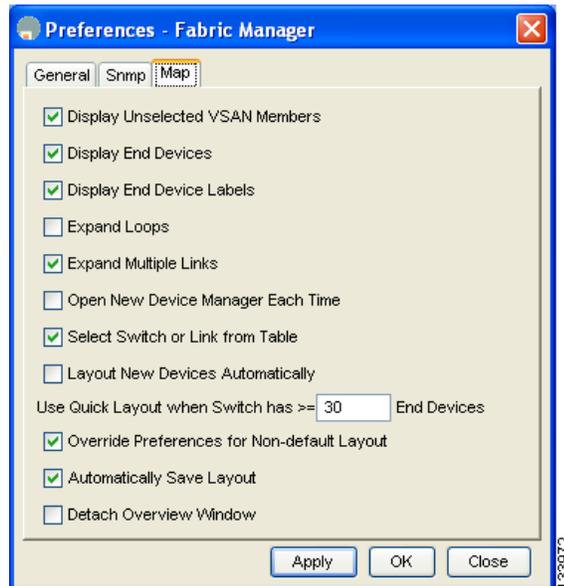
Changes made to the topology map can be saved so that the customized view is available any time you open the Fabric Manager Client for that fabric.

To save the customized layout using Fabric Manager, perform this task:

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- Step 1** Choose **File > Preferences** to open the Fabric Manager preferences dialog box.
  - Step 2** Click the **Map** tab and check the **Automatically Save Layout** check box to save any changes to the topology map (See [Figure 28-1](#)).

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**Figure 28-1 Fabric Manager Preferences**



**Step 3** Click **Apply**, then **OK** to save this change.

## Using Enclosures with Fabric Manager Topology Maps

Because not all devices are capable of responding to FC-GS-3 requests, different ports of a single server or storage subsystem may be displayed as individual end devices on the topology map. See the [“Modifying the Device Grouping” section on page 5-20](#) to group these ports into a single enclosure for Fabric Manager.

Choosing **Alias->Enclosure** displays hosts and storage elements in the Information pane. This is a shortcut to naming enclosures. To use this shortcut, highlight each row in the host or storage table that you want grouped in an enclosure, and then choose **Alias -> Enclosure**. This automatically sets the enclosure names of each selected row with the first token of the alias.

## Mapping Multiple Fabrics

To log into multiple fabrics, the same username and password must be used. The information for both fabrics is displayed, with no need to select a seed switch. To see details of a fabric, click the tab for that fabric at the bottom of the Fabric pane, or double-click the fabric’s cloud icon.

To continuously manage a fabric using Fabric Manager, follow the instructions in the [“Managing a Fabric Manager Server Fabric” section on page 3-3](#).

## Inventory Management

The Information pane in Fabric Manager shows inventory, configuration, and status information for all switches, links, and hosts in the fabric. Inventory management includes vendor name and model, and software or firmware versions. Select a fabric or VSAN from the Logical Domains pane, and then choose

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the **Summary** tab in the Information pane to get a count of the number of VSANS, switches, hosts, and storage elements in the fabric. See the “[Fabric Manager Client Quick Tour](#)” section on page 5-6 for more information on the Fabric Manager user interface.

### Using the Inventory Tab from Fabric Manager Web Server

If you have configured Fabric Manager Web Server, you can launch this application and access the Inventory tab to see a summary of the fabrics managed by the Fabric Manager Server. The Inventory tab shows an inventory of the selected SAN, fabric, or switch.

See the *Cisco MDS 9000 Family Fabric Manager Configuration Guide* for additional information on how to configure and use Fabric Manager Web Server.

To view system messages remotely using Fabric Manager Web Server, perform this task:

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- Step 1** Point your browser at the Fabric Manager Web Server.
  - Step 2** Click the **Events** tab, and then choose **Details** to view the system messages.

The columns in the events table are sortable. In addition, you can use the Filter button to limit the scope of messages within the table.

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### Viewing Logs from Device Manager

You can view system messages from Device Manager if Device Manager is running from the same workstation as the Fabric Manager Server. Choose **Logs > Events > current** to view the system messages on Device Manager. The columns in the events table are sortable. In addition, you can use the Find button to locate text within the table.

You can view switch-resident logs even if you have not set up your local syslog server or your local PC is not in the switch’s syslog server list. Due to memory constraints, these logs will wrap when they reach a certain size. The switch syslog has two logs: an NVRAM log that holds a limited number of critical and greater messages and a nonpersistent log that contains notice or greater severity messages. Hardware messages are part of these logs.

## Health and Event Monitoring

Fabric Manager works with the Cisco SAN switches to show the health and status of the fabric and switches. Information about the fabric and its components is gathered from multiple sources, including Online System Health Management, Call Home, system messages, and SNMP notifications. This information is then made available from multiple menus on Fabric Manager or Device Manager.

### Fabric Manager Events Tab

The Fabric Manager Events tab, available from the topology window, displays the events Fabric Manager received from sources within the fabric. These sources include SNMP events, RMON events, system messages, and system health messages. The Events tab shows a table of events, including the event name, the source and time of the event, a severity level, and a description of the event. The table is sortable by any of these column headings.

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## Event Information in Fabric Manager Web Server Reports

The Fabric Manager web server client displays collections of information gathered by the Performance Manager. This information includes events sent to the Fabric Manager Server from the fabric. To open these reports, choose **Performance Manager > Reports**. This opens the web client in a web browser and displays a summary of all fabrics monitored by the Fabric Manager Server. Choose a fabric, and then choose the **Events** tab to see a summary or detailed report of the events that have occurred in the selected fabric. The summary view shows how many switches, ISLs, hosts, or storage elements are down on the fabric and how many warnings have been logged for that SAN entity. The detailed view shows a list of all events that have been logged from the fabric and can be filtered by severity, time period, or type.

## Events in Device Manager

Device Manager displays the events when you choose **Logs > Events**. Device Manager can display the current list of events or an older list of events that has been stored on the Fabric Manager host. The event table shows details on each event, including time, source, severity, and a brief description of the event.

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