



## Fabric Manager Server

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Fabric Manager Server is a platform for advanced MDS monitoring, troubleshooting, and configuration capabilities. No additional software must be installed. The server capabilities are an integral part of the Cisco Fabric Manager software.

This chapter contains the following sections:

- [Fabric Manager Server Overview, page 2-1](#)
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## Fabric Manager Server Overview

Install Cisco Fabric Manager Server on a computer that you want to provide centralized MDS management services and performance monitoring. SNMP operations are used to efficiently collect fabric information. The Cisco Fabric Manager software, including the server components requires about 20 MB of hard disk space on your workstation. Cisco Fabric Manager Server runs on Windows 2000, 2003, XP, Solaris 8.x or later, and Red Hat Linux.

Each computer configured as a Cisco Fabric Manager Server can monitor multiple Fibre Channel SAN fabrics. Up to 16 clients (by default) can connect to a single Cisco Fabric Manager Server concurrently. The Cisco Fabric Manager clients can also connect directly to an MDS switch in fabrics that are not monitored by a Cisco Fabric Manager Server, which ensures you can manage any of your MDS devices from a single console.

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## Fabric Manager Server Features

Cisco Fabric Manager Server has the following features:

- **Multiple Fabric Management**—Fabric Manager Server monitors multiple physical fabrics under the same user interface. This facilitates managing redundant fabrics. A licensed Fabric Manager Server maintains up-to-date discovery information on all configured fabrics so device status and interconnections are immediately available when you open the Fabric Manager client.




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**Note** The unlicensed Cisco Fabric Manager can only monitor and configure one fabric at a time. You must use the Open menu to switch to a new fabric, which causes the application to stop monitoring the previous one and to rediscover the new fabric.

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- **Continuous Health Monitoring**—MDS health is monitored continuously, so any events that occurred since the last time you opened the Fabric Manager client are captured.
- **Roaming User Profiles**—The licensed Fabric Manager Server uses the roaming user profile feature to store your preferences and topology map layouts on the server, so that your user interface will be consistent regardless of what computer you use to manage your storage networks.




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**Note** You must have the same release of Fabric Manager Client and Fabric Manager Server.

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## Installing and Configuring Fabric Manager Server




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**Note** Prior to running Fabric Manager Server, you should create a special Fabric Manager administrative user on each switch in the fabric or on a remote AAA server. Use this user to discover your fabric topology. See the [“Best Practices for Discovering a Fabric”](#) section on page 7-3.

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To install Fabric Manager Server and set the initial configuration, follow these steps:

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- Step 1** Install Fabric Manager and Fabric Manager server on your workstation. See the [“Installing Fabric Manager Server”](#) section on page 2-3.
  - Step 2** Set the seed switch. See the [“Setting the Seed Switch”](#) section on page 2-4.
  - Step 3** Optionally, create flows and collections for Performance Manager to monitor your fabric. See the [“Configuring Flows and Collections with Performance Manager”](#) section on page 2-4.
  - Step 4** Set Fabric Manager Server to continuously monitor the fabric. See the [“Fabric Manager Server Fabric Monitoring and Removal”](#) section on page 2-7.
  - Step 5** Repeat [Step 2](#) through [Step 4](#) for each fabric that you want to manage through Fabric Manager Server.
  - Step 6** Install Web Services. See the [“Installing Fabric Manager Web Services”](#) section on page 2-6.
  - Step 7** Verify Performance Manager is collecting data. See the [“Verifying Performance Manager Collections”](#) section on page 2-6.
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## Installing Fabric Manager Server

When you install Fabric Manager, the basic version of the Fabric Manager Server (unlicensed) is installed with it. After you click the Fabric Manager icon, a dialog box opens and you can enter the IP address of a computer running the Fabric Manager Server component. If you do not see the Fabric Manager Server IP address text box, click **Options** to expand the list of configuration options. If the server component is running on your local machine, leave **localhost** in that field. If you try to run Fabric Manager without specifying a valid server, you are prompted to start the Fabric Manager Server locally.

On a Windows PC, you install the Fabric Manager Server as a service. This service can then be administered using Services in the Administrative Tools. The default setting for the Fabric Manager Server service is that the server is automatically started when the Windows PC is rebooted. You can change this behavior by modifying the properties in Services.

## Unlicensed Versus Licensed Fabric Manager Server

When you install Fabric Manager, the basic unlicensed version of Fabric Manager Server is installed with it. To get the licensed features, such as Performance Manager, remote client support, and continuously monitored fabrics, you need to buy and install the Fabric Manager Server package.

However, trial versions of these licensed features are available. To enable the trial version of a feature, you run the feature as you would if you had purchased the license. You see a dialog box explaining that this is a demo version of the feature and that it is enabled for a limited time.

If you are evaluating one of these Fabric Manager Server features and want to stop the evaluation period for that feature, you can do that using Device Manager. See the [“Fabric Manager Server Licensing” section on page 9-13](#).

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## Setting the Seed Switch

When you run Fabric Manager, you must select a switch for Fabric Manager to use to discover the fabric.



### Note

If you have a mixed fabric of Cisco SAN-OS and Cisco FabricWare switches, we recommend that you securely open the fabric with a Cisco SAN-OS switch using SNMPv3. The SNMPv1/v2c communities for the Cisco FabricWare switches should be entered in the communities.properties file. See the [“Adding A Community String to the communities.properties File”](#) section on page 26-4.

To set the seed switch, follow these steps:

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- Step 1** Double-click the Fabric Manager client icon on your workstation. You see the Fabric Manager dialog box. Click **Options** if necessary to expand the optional settings in this dialog box.
  - Step 2** Set **FM Server** to the IP address where you installed the Fabric Manager Server or set it to **localhost** if you installed Fabric Manager Server on your local workstation.
  - Step 3** Set the **Fabric Seed Switch** to the MDS 9000 family switch that you want Fabric Manager to use.
  - Step 4** Set the username and password as required to start Fabric Manager Client.
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## Configuring Flows and Collections with Performance Manager

If you are managing your fabrics with Performance Manager, you need to set up an initial set of flows and collections on the fabric. See the [“Historical Performance Monitoring”](#) section on page 33-2 for a full description on Performance Manager features.

To create a flow in Performance Manager, follow these steps:

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- Step 1** Choose **Performance > Create Flows** to launch the wizard.
  - Step 2** Choose the **VSAN** from which you want to create flows. Flows are defined per VSAN.
  - Step 3** Click the **Type** radio button for the flow type you want to define.
  - Step 4** Check the **Clear old flows on modified switches** check box if you want to remove old flow data.
  - Step 5** Click **Next** to review the available flows for the chosen VSAN. Remove any flows you are not interested in.
  - Step 6** Click **Finish** to create the flow.
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## Using the Performance Manager Configuration Wizard

To create a collection using the Performance Manager Configuration Wizard in Fabric Manager, follow these steps:

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- Step 1** Choose **Performance > Create Collection** to launch the Performance Manager Configuration Wizard.
  - Step 2** Choose the VSANs from which you want to collect data or choose **All** to collect statistics across all VSANs in the fabric.

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- Step 3** Check the **Type** check boxes for each type of links flow or SAN element that you want included in your collection.
  - Step 4** If you want to ignore flows with zero counter values, check that check box.
  - Step 5** If you are using Cisco Traffic Analyzer, enter the URL where it is located on your network.
  - Step 6** Click **Next** to review the collection specification data. Remove any links, flows, or SAN elements you are not interested in.
  - Step 7** Click **Next** to configure other collection options.
  - Step 8** Check the appropriate check boxes if you want to include errors and discards in your collection, and if you want to interpolate data for missing statistics.
  - Step 9** Check the **Send event if traffic exceeds threshold** check box if you want to configure threshold events as explained in the [“Using Performance Thresholds”](#) section on page 33-4.
  - Step 10** Click the **Use absolute values** radio button if you want absolute value thresholds or click the **Baseline values over** radio button if you want baseline thresholds.
  - Step 11** Choose the time window for baseline calculations if baseline thresholds are configured.
  - Step 12** Choose the Critical and Warning threshold values as a percent of link capacity (for absolute value thresholds ) or weighted average (for baseline thresholds).
  - Step 13** Click **Finish** to create the collection configuration file. You see a dialog box asking if you want to restart Performance Manager.
  - Step 14** Click **Yes** to restart Performance Manager to use this new configuration file, or click **No** to exit the Performance Manager Configuration Wizard without restarting Performance Manager. If you choose No, Performance Manager will not use the new configuration file until you restart it by choosing **Performance Manager > Collector > Restart**.
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## Installing Fabric Manager Web Services

You must install Fabric Manager Web Services to view Performance Manager reports through a web browser.

For switches running Cisco MDS 9000 FabricWare, you need to install the Fabric Manager Web Services software from the CD-ROM included with your switch, or download Fabric Manager from Cisco.com.

To install Fabric Manager Web Services from the CD-ROM, navigate to the Fabric Manager installation notes and follow the directions.

To download the software from from Cisco.com, go to the following website:

<http://cisco.com/cgi-bin/tablebuild.pl/mds-fm>

To download and install the software on your workstation, follow these steps:

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- Step 1** Optionally, enter the IP address or host name of the supervisor module running Cisco MDS SAN-OS in the Location or Address field of your browser. You see the installation page displayed by the HTTP server of the supervisor module.

When you connect to the server for the first time, it checks to see if you have the correct Sun Java Virtual Machine version installed on your workstation. If you do not have the correct version installed, a link is provided to the appropriate web page on the Sun Microsystems website so you can install it.

- a. Click the **Sun Java Virtual Machine** software link (if required) to install the software.
- b. Using the instructions provided by the Sun Microsystems website, reconnect to the supervisor module by reentering the IP address or host name in the Location or Address field of your browser.




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**Note** Fabric Manager requires Java version 1.4(x). We recommend Java version 1.4.2. To change the Java Runtime Environment (JRE) version, start Java Web Start and set the Java preferences.

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- Step 2** Click the **Fabric Manager Web Services** installation link. You see a prompt asking for permission to install the application on your workstation.

- Step 3** Click **Yes** to run the installer, which detects the installed version of the software, and prompts for upgrades/downgrades and other options if applicable.




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**Note** If TCP port 80 is in use, Fabric Manager Web Services checks port 8080 next. If that port is also in use, Fabric Manager Web Services uses the next available port. You can set the TCP port that you want Fabric Manager Web Services to use during the installation process.

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## Verifying Performance Manager Collections

Once Performance Manager collections have been running for five or more minutes, you can verify that the collections are gathering data by choosing **Performance Manager > Reports** in Fabric Manager. You see the first few data points gathered in the graphs and tables.

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**Note**

Viewing reports requires installing Fabric Manager Web Services. See the “[Installing Fabric Manager Web Services](#)” section on page 5-4.

## Fabric Manager Server Fabric Monitoring and Removal

Fabric Manager Server can continuously monitor a fabric, whether or not an instance of Fabric Manager (client) is monitoring that fabric. A continuously monitored fabric is automatically reloaded and monitored by Fabric Manager Server after the server starts up. Fabrics that are monitored by Fabric Manager Server can have their data managed by Performance Manager. Both the Continuous Monitor feature and Performance Manager require the Fabric Manager Server license. However, you can “check out” these features without a license for a limited time.

### Designating a Fabric for Continuous Monitoring

When you quit the Fabric Manager client, you are prompted as to whether or not you would like to have Fabric Manager Server continuously monitor that fabric. Alternatively, you can use Fabric Manager client to select a fabric to monitor.

To continuously monitor a fabric, follow these steps:

- Step 1** From Fabric Manager, select **Server > Admin**. You see a list of fabrics in the Server Admin dialog box.
- Step 2** Check the **Continuously Monitor** check box next to the fabric(s) you want Fabric Manager Server to monitor.
- Step 3** Click **Apply**.

The Continuously Monitor feature requires the purchase of the Fabric Manager Server license package. If you have not purchased and installed this package, you see a popup window informing you that you are about to enable a demo license for this feature. Click **Yes** to enable the demo license.

**Note**

When you are finished trying the licensed features, you can “check in” the feature by clicking the **Check In FM** button as described in the “[Fabric Manager Server Licensing](#)” section on page 9-13.

- Step 4** Click **Close** to close the Server Admin dialog box.

**Note**

If you will be collecting data on these fabrics using Performance Manager, you should now configure flows and define the data collections. These procedures are described in [Chapter 32, “Network Monitoring.”](#)

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## Removing a Fabric from Monitoring

To remove a fabric from the Fabric Manager Server monitoring list, follow these steps:

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- Step 1** From Fabric Manager, choose **Server > Admin**. You see a list of fabrics in the Server Admin dialog box.
  - Step 2** Uncheck the **Continuously Monitor** check box next to the fabrics you no longer want Fabric Manager Server to monitor.
  - Step 3** Click **Apply**.
  - Step 4** Click **Close** to close the Server Admin dialog box.
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## Fabric Manager Server Properties File

The Fabric Manager Server properties file (MDS 9000\server.properties) contains a list of properties that determine how the Fabric Manager Server will function. You can edit this file with a text editor, or you can set the properties through the Fabric Manager Web Services GUI, under the Admin tab.

The server properties file contains these five general sections:

- **RMI SPECIFIC**—Contains the settings for the RMI registry.
- **SNMP SPECIFIC**—Contains the settings for SNMP requests, responses, and traps.
- **SNMP PROXY SERVER SPECIFIC**—Contains the settings for SNMP proxy server configuration and TCP port designation.
- **GLOBAL FABRIC**—Contains the settings for fabrics, such as discovery and loading.
- **CLIENT SESSION**—Contains the settings for Fabric Manager clients that can log into the server.
- **EVENTS**—Contains the settings for syslog messages.

The following are new or changed server properties for Fabric Manager Release 2.x:

- **fabric.globalAlias**—Specifies whether Fabric Manager Server should discover aliases from a global alias server (deviceAlias) or a VSAN-based alias server (fcAlias). Global aliases of a fabric are fetched if this value is set to **true** and a manageable global alias server exists in the fabric.
- **java.rmi.data.portRange**—Specifies the TCP port range that RMI uses to send/receive data. The starting port number is also the Fabric Manager Server port, so that it should always be set to a non-zero value. The port range is also used in configuring TCP port access on a firewall. This property replaces the **java.rmi.server.remoteObjPort** property in earlier releases.
- **fabric.autoReload**—Specifies whether to automatically reload persistent fabrics from DB when server starts up. The default is true if unspecified.
- **fabric.loadFromDB**—Specifies whether to load fabric from DB when it is opened. The default is false if unspecified. This is equivalent to the Accelerate Discovery check box on the login dialog box.
- **proxy.autostart**—Specifies whether to automatically start SNMP proxy server when Fabric Manager Server starts. Default is true if unspecified. Note, proxy will not be started if **snmp.proxy** is specified as a non-localhost.



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- `proxy.localaddress`—Specifies the local network interface name, e.g. "eth0", "eth1", or a local IP address, to bind proxy server socket on a multi-homed localhost. If IP address 0.0.0.0 is specified, proxy will be bound to the wildcard address, an IP address chosen by the kernel.
- `proxy.localport`—Specifies the local TCP port to listen for client connection. If port 0 is specified, proxy will be bound to a port chosen by the kernel. Default is 9198.

For more information on setting the server properties, see [Chapter 5, “Fabric Manager Web Services.”](#)

## Modifying Fabric Manager Server

Fabric Manager Release 2.1(2) or later allows you to modify certain Fabric Manager Server settings without stopping and starting the server. These settings include:

- [Changing the Fabric Manager Server Username and Password, page 2-9](#)
- [Changing the Polling Period and Fabric Rediscovery Time, page 2-9](#)

## Changing the Fabric Manager Server Username and Password

You can modify the username or password used to access a fabric from Fabric Manager client without restarting Fabric Manager Server.

To change the username or password used by Fabric Manager Server, follow these steps:

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- Step 1** In Fabric Manager, select **Server > Admin**. You see the Admin dialog box displayed.
  - Step 2** For each fabric that you are monitoring with Fabric Manager Server, set the **Username** or **Password**.
  - Step 3** Click **Apply** to save these changes or click **Close** to exit the dialog box without saving any changes.
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## Changing the Polling Period and Fabric Rediscovery Time

Fabric Manager Server periodically polls the monitored fabrics and periodically rediscovers the full fabric at a default interval of five cycles. You can modify these settings from Fabric Manager client without restarting Fabric Manager Server.

To change the polling period or full fabric rediscovery setting used by Fabric Manager Server, follow these steps:

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- Step 1** In Fabric Manager, select **Server > Admin**. You see the Admin dialog box displayed.
  - Step 2** For each fabric that you are monitoring with Fabric Manager Server, set the **Polling Interval** to configure how frequently Fabric Manager Server polls the fabric elements for status and statistics.
  - Step 3** For each fabric that you are monitoring with Fabric Manager Server, set **Rediscovery Cycles** to configure how often Fabric Manager Server rediscovers the full fabric.
  - Step 4** Click **Apply** to save these changes or click **Close** to exit the dialog box without saving any changes.
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## Using Device Aliases or FC Aliases

You can change whether Fabric Manager uses FC Aliases or global devices aliases from Fabric Manager client without restarting Fabric Manager Server.

To change whether Fabric Manager uses FC Aliases or global devices aliases, follow these steps:

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- Step 1** In Fabric Manager, select **Server > Admin**. You see the Admin dialog box displayed.
  - Step 2** For each fabric that you are monitoring with Fabric Manager Server, check the **Device Alias** check box to use global device aliases, or uncheck to use FC Aliases..
  - Step 3** Click **Apply** to save these changes or click **Close** to exit the dialog box without saving any changes.
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## Saving Device Aliases to the Switch

If you choose to use global device aliases on Fabric Manager Server, these changes are not reflected on the local switch. The switch continues to use FC aliases until you save the device aliases to the switch.

To save global devices aliases on a switch using Fabric Manager, follow these steps:

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- Step 1** Select **Switches > Hosts** or **Switches > Storage**. You see the end devices in the Information pane.
  - Step 2** For each device alias that you want the switch to recognize, highlight and right-click on the **Device Alias** and select **Save Selected Device Aliases**.
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