



## Managing Interfaces

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Fabric Manager allows you to configure and monitor interfaces on multiple Cisco 9000 switches. The Device Manager allows you to configure and monitor interfaces on a single Cisco 9000 switch.

For information about interfaces and configuring them using the command-line interface (CLI), refer to the *Cisco 9000 Family Configuration Guide*.

Procedures for managing interfaces fall under three general categories:

- [Managing General Port Attributes, page 7-1](#)
- [Managing PortChannel Interfaces, page 7-4](#)
- [Monitoring Port Statistics, page 7-6](#)
- [Managing Port Security, page 7-8](#)

## Managing General Port Attributes

To manage general port attributes, such as Alias, PortVsan, and Admin Mode from the Fabric Manager, select the **Physical** tab at the bottom of the screen and choose **IP** or **FC** from the menu tree.

To manage these attributes from the Device Manager, select a port, and then choose that type of port from the Interface menu. You can select FxPorts, xEPorts, Enabled Ports, All Ports, or the Mgmt Port.

The following are the different port types supported by the Cisco MDS 9000 Family.

- xE ports:
  - An E\_Port (expansion port) connects two switches and can carry frames between switches for configuration and management of the fabric for a single VSAN.
  - A TE\_Port (trunking expansion port) allows a link between two Cisco 9000 switches to carry traffic for multiple VSANs.
- Fx ports:
  - An F\_Port (fabric port) connects to an N\_Port (end node port) on a host node through a point-to-point link.
  - An FL\_Port (fabric loop port) connects to an NL\_Port (end node loop port) on a public loop through a point-to-point link or an arbitrated loop.
- A TL (translative loop) port may be connected to one or more private loop devices (NL ports). TL ports are unique to Cisco MDS 9000 Family switches and have similar properties to FL ports. The default is Auto, so the switch will autonegotiate the port speed.

For further information about port types, refer to the *Cisco 9000 Family Configuration Guide*.

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Procedures for enabling, disabling, configuring, and viewing port attributes and statistics include:

- [Enabling or Disabling Ports, page 7-2](#)
- [Managing Interface Attributes for Ports, page 7-2](#)
- [Viewing FLOGI Attributes, page 7-2](#)
- [Viewing Port ELP Attributes, page 7-3](#)
- [Viewing Trunking Information, page 7-3](#)
- [Managing Physical Attributes for a Port, page 7-4](#)
- [Viewing Port Capability Attributes, page 7-4](#)

## Enabling or Disabling Ports

To enable a port, right-click on a disabled port in Device Manager and choose **Enable** from the pop-up menu.

To disable a port, right-click on a enabled port in Device Manager and choose **Disable** from the pop-up menu.

To enable or disable multiple ports, Ctrl-click each port or drag the mouse around a group of ports. Then right-click any of the selected ports and click either **Enable** or **Disable** from the pop-up menu.



### Note

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Managing Interface Attributes for Ports

To manage port interface attributes from the Fabric Manager, choose **Physical Interfaces** from the menu tree and then choose one of the following port types to be configured:

- Port Channels
- xEPorts
- FxPorts
- Other Ports

To manage port interface attributes from the Device Manager, select a port on a module, and then choose a port type from the Interface menu.

The Fabric Manager Information pane displays interface attributes for multiple switches. The dialog box from Device Manager displays interface attributes for a single switch.

## Viewing FLOGI Attributes

To view fabric login (FLOGI) attributes, such as the Fibre Channel ID (FCID), port name, and class of service for FxPorts from the Fabric Manager, choose **FC > Physical Interfaces** on the menu tree, and click the **FLOGI** tab.

To view FLOGI attributes from the Device Manager, choose **FxPorts** or **All Ports** from the Interface menu and click the **FLOGI** tab.

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The Information pane in Fabric Manager displays attributes for multiple switches. The dialog box from Device Manager displays attributes for a single switch.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Viewing Port ELP Attributes

To monitor exchange link parameter (ELP) attributes, such as port and node world wide names and class of service from the Fabric Manager, choose **FC > Physical Interfaces** from the menu tree and click the **ELP** tab.

To monitor these attributes from the Device Manager, choose **xEPorts** or **All Ports** from the Interface menu and click the **ELP** tab.

The Information pane in Fabric Manager displays attributes for multiple switches. The dialog box from Device Manager displays attributes for a single switch.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Viewing Trunking Information

To monitor trunking for ports from the Fabric Manager, choose **FC > Physical Interfaces** from the menu tree, and then click the **Trunk Status** tab.

To view trunking for ports from the Device Manager, choose **xEPorts** from the Interface menu and then click the **Trunk Status** tab.

The Information pane in Fabric Manager displays attributes for multiple switches. The dialog box from Device Manager displays attributes for a single switch.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

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## Managing Physical Attributes for a Port

To configure beacon mode and monitor physical attributes for ports from the Fabric Manager, choose **Physical Interfaces** from the menu tree and click the **Physical** tab.

To configure beacon mode and monitor physical attributes for ports from the Device Manager, choose the type of port from the Interface menu and click the **Physical** tab.

The Information pane in Fabric Manager displays attributes for multiple switches. The dialog box from Device Manager displays attributes for a single switch.

To enable or disable beacon mode, check the **BeaconMode** check box. When beacon mode is enabled, an interface LED flashes to identify the interface.



### Note

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Viewing Port Capability Attributes

To monitor port capability attributes, such as buffer-to-buffer credit, hold time, and class of service from the Fabric Manager, choose **Physical Interface** from the menu tree and click the **Capability** tab.

To monitor these attributes from the Device Manager, choose the type of port from the Interface menu and click the **Capability** tab.

The Information pane in Fabric Manager displays attributes for multiple switches. The dialog box from Device Manager displays attributes for a single switch.



### Note

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Managing PortChannel Interfaces

PortChanneling, also called port bundling, is the aggregation of multiple physical ports into one logical port to provide higher bandwidth, load balancing, and link redundancy. The Fabric Manager allows you to configure and monitor PortChannel interfaces on multiple Cisco 9000 switches. The Device Manager allows you to configure and monitor PortChannel interfaces on a single Cisco 9000 switch.

Procedures for configuring PortChannel interfaces using the Fabric Manager and the Device Manager include:

- [Managing PortChannel General Attributes, page 7-5](#)
- [Managing PortChannel Interface Attributes, page 7-5](#)

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## Managing PortChannel General Attributes

To manage PortChannels from the Fabric Manager, choose **Switches > PortChannels** from the menu tree. The Information pane in Fabric Manager displays attributes for multiple switches.

To manage PortChannels from the Device View, choose **PortChannels** from the Interface menu. The dialog box from Device Manager displays attributes for a single switch.

To add ports to a PortChannel, click **Create**. You see the Create PortChannel dialog box.

To add members to the PortChannel, enter the IP address of the switch into the MemberList field. Identify the other options you want to use and click **OK**.

**Note**

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You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

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## Managing PortChannel Interface Attributes

To manage PortChannel interface attributes, such as the port mode and trunking from the Fabric Manager, choose the **Switches > PortChannels** from the menu tree.

To manage PortChannel interface attributes from the Device Manager, choose **PortChannels** from the Interface menu and click the **Interfaces** tab.

The Information pane in Fabric Manager displays attributes for multiple switches. The dialog box from Device Manager displays attributes for a single switch.

**Note**

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## Monitoring Port Statistics

You can use Device Manager to monitor different types of port statistics. These options are available on the Interface menu from Device Manager's Device View or Summary View.

Procedures for monitoring port statistics include:

- [Monitoring and Charting Traffic Statistics, page 7-6](#)
- [Monitoring Port Traffic \(Bytes\), page 7-6](#)
- [Monitoring Port Traffic \(Frames\), page 7-7](#)
- [Monitoring Port Discards, page 7-7](#)
- [Monitoring Port Class 2 Errors, page 7-7](#)
- [Monitoring Port Link Errors, page 7-7](#)
- [Monitoring Port Sequence Errors, page 7-7](#)
- [Monitoring Port Frame Errors, page 7-8](#)

## Monitoring and Charting Traffic Statistics

To monitor port traffic, discards, and errors for ports from the Device Manager, right-click on one or more ports and choose **Monitor Selected** from the Interface menu or right-click on one or more ports and choose **Monitor** from the pop-up menu. The the Monitor Traffic Statistics dialog box is displayed.

You can change the display by changing the following attributes from the Monitor Selected dialog box:

- Interval—Specifies the polling interval for the display in seconds, minutes, hours.
- AbsoluteValue—The actual counter value for the interface.
- Cumulative—The difference between the original absolute value and the last value retrieved for the interface.
- Average/sec —The average last value since the category was first displayed.
- Minimum/sec—The smallest last value.
- Maximum/sec—The largest last value.
- LastValue/sec—The difference between the current and previous counter values, normalized to per/second.

To display a line, area, or bar chart graph, select a traffic statistic and click one of the chart icons on the left side of the dialog box.



### Note

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Traffic (Bytes)

To monitor port traffic bytes from the Device Manager, choose the **Port Traffic (Bytes)** tab from the Port Monitor dialog box.

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**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Traffic (Frames)

To monitor port traffic frames from the Device Manager, choose the **Port Traffic (Frames)** tab on the Monitor Selected dialog box.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Discards

To monitor port discards from the Device Manager, click the **Discards** tab on the Monitor Selected dialog box.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Class 2 Errors

To monitor port class 2 errors from the Device Manager, click the **Class 2 Errors** tab on the Monitor Selected dialog box.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Link Errors

To monitor port link errors from the Device Manager, click the **Link Errors** tab on the Monitor Selected dialog box.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Sequence Errors

To monitor port sequence errors from Device Manager, click the **Seq Errors** tab on the Monitor Selected dialog box.

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**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Monitoring Port Frame Errors

To monitor port frame errors from Device Manager, click the **Frame Errors** tab on the Monitor Selected dialog box.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Managing PortChannels

To create a PortChannel from Fabric Manager, click on the PortChannel wizard icon in the Fabric Manager toolbar.

To add a link to an existing PortChannel, right-click an ISL on the Fabric Manager map and select **Add to PortChannel** from the pop-up menu. The PortChannel wizard is displayed.

**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.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Managing Port Security

To configure Port Security from the Fabric Manager, you select Port Security from one of the VSANs shown in the Logical tab of the menu tree. Port Security is VSAN-based, and consists of the following steps:

- Identify the WWN of the ports that need to be secured
- Bind the fWWN to an authorized nWWN or pWWN
- Activate the port binding database for the required VSAN
- Enable auto-learning

The list below shows the Port Security tasks you can perform with Fabric Manager. Port Security is not available from Device Manager.

- [Turning AutoLearning On or Off, page 7-9](#)
- [Activating a Binding, page 7-9](#)



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- [Copying an Active Configuration to the Running Configuration, page 7-10](#)
- [Configuring a Binding, page 7-10](#)
- [Deleting a Binding](#)
- [Displaying Activated Bindings, page 7-11](#)
- [Displaying Port Security Statistics, page 7-12](#)
- [Displaying Port Security Violations, page 7-12](#)

## Turning AutoLearning On or Off

To turn AutoLearning on or off, perform the following steps.

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- Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree. The information pane of the Fabric Manager displays Port Security information for that VSAN.
- Step 2** Click the **Action** tab. The switches for that VSAN are displayed.
- Step 3** Click in the **AutoLearn** column next to the switch for which you want to enable AutoLearning. A drop-down menu is displayed, with the selections **on** and **off**.
- Step 4** Select **on** to turn on AutoLearning; select **off** to turn off AutoLearning for that switch.




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**Note** You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

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## Activating a Binding

To activate a Port Security binding, perform the following steps.

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- Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree. The information pane of the Fabric Manager displays Port Security information for that VSAN.
- Step 2** Click the **Action** tab. The switches for that VSAN are displayed.
- Step 3** Click in the **Action** column under **Activation**, next to the switch for which you want to activate a binding. A drop-down menu is displayed, with the following selections:
- activate** - valid port bindings are activated
  - activate (TurnLearningOff)** - valid port bindings are activated and autolearn turned off
  - forceActivate** - activation is forced
  - forceActivate(TurnLearningOff)** - activation is forced and autolearn is turned off

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**deactivate** - deactivates all currently active port bindings

**NoSelection** - no action is taken

**Step 4** Select the option you want to specify a binding action for that switch.



**Note** You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Copying an Active Configuration to the Running Configuration

To turn AutoLearning on or off, perform the following steps.

**Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree.

The information pane of the Fabric Manager displays Port Security information for that VSAN.

**Step 2** Click the **Action** tab.

The switches for that VSAN are displayed.

**Step 3** Click in the **CopyActive ToConfig** checkbox next to the switch for which you want to copy the configuration.

The active configuration is copied to the running configuration when the binding is activated.

**Step 4** Uncheck the checkbox if you do not want the configuration copied when the binding is activated.



**Note** You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Configuring a Binding

To configure a binding on a switch, perform the following steps.

**Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree.

The information pane of the Fabric Manager displays Port Security information for that VSAN.

**Step 2** Click the **Config** tab.

The Port Security configured bindings for that VSAN are displayed.

**Step 3** Click the Create Row icon.

The Create Binding dialog box is displayed.

**Step 4** Select the switch from the dropdown list for which you want to create the binding.

**Step 5** Select the WWN DEVICE device type for that switch.

**Step 6** Enter the PORT ID of the switch to bind to.

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**Step 7** Enter the port type.

**Step 8** Enter the Interface (e.g. fc1/1)

**Step 9** Click **Create** to creating the binding, or click **Close** to close the Create Binding dialog without creating a binding.



**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Deleting a Binding

To delete a binding on a switch, perform the following steps.

**Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree.

The information pane of the Fabric Manager displays Port Security information for that VSAN.

**Step 2** Click the **Config** tab.

The Port Security configured bindings for that VSAN are displayed.

**Step 3** Click the row you want to delete.

**Step 4** Click the Delete Row icon.

The confirmation dialog is displayed. Click Yes to delete the row, click No to close the confirmation dialog without deleting.



**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

## Displaying Activated Bindings

To display Port Security Active Bindings, perform the following steps.

**Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree.

The information pane of the Fabric Manager displays Port Security information for that VSAN.

**Step 2** Click the **Active** tab.

The Port Security active bindings for that VSAN are displayed.



**Note**

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## Displaying Port Security Statistics

To display Port Security Statistics, perform the following steps.

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- Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree.  
The information pane of the Fabric Manager displays Port Security information for that VSAN.
- Step 2** Click the **Statistics** tab.  
The Port Security statistics for that VSAN are displayed.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

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## Displaying Port Security Violations

Port violations are invalid login attempts (for example, login requests from unauthorized Fibre Channel devices). You can display a list of these attempts on a per-VSAN basis, using Fabric Manager. To display Port Security Violations, perform the following steps.

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- Step 1** From the Fabric Manager, choose **Port Security** from one of the VSANs on the menu tree.  
The information pane of the Fabric Manager displays Port Security information for that VSAN.
- Step 2** Click the **Violations** tab.  
The Port Security violations for that VSAN are displayed.

**Note**

You can access the field descriptions for the windows or dialog boxes in this procedure in the Reference section of the Fabric Manager or Device Manager help systems.

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