



CHAPTER 2

Configuring Basic Interface Parameters

This chapter describes how to configure the basic interface parameters. These parameters are shared by multiple interfaces.

This chapter includes the following sections:

- [Information About the Basic Interface Parameters, page 2-1](#)
- [Licensing Requirements, page 2-8](#)
- [Prerequisites for Configuring the Basic Interface Parameters, page 2-8](#)
- [Guidelines and Limitations, page 2-8](#)
- [Configuring the Basic Interface Parameters, page 2-9](#)
- [Field Descriptions, page 2-22](#)



Note

To configure the parameters that are specifically used for Layer 2 interfaces (access or trunking interfaces), see [Chapter 3, “Configuring Layer 2 Interfaces.”](#) To configure parameters that are specifically used for Layer 3 interfaces (routed interfaces, subinterfaces, VLAN interfaces, loopback interfaces, and IP tunnels), see [Chapter 4, “Configuring Layer 3 Interfaces.”](#)

Information About the Basic Interface Parameters

This section includes the following topics:

- [Description, page 2-2](#)
- [Beacon, page 2-2](#)
- [Debounce Timer, page 2-2](#)
- [MDIX, page 2-2](#)
- [Speed Mode and Duplex Mode, page 2-2](#)
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- [Throughput Delay, page 2-5](#)
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- [Unidirectional Link Detection Parameter, page 2-5](#)

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- [Port Channel Parameters, page 2-7](#)

Description

For the Ethernet and management interfaces, you can configure the description parameter to provide a recognizable name for the interface. Using a unique name for each interface allows you to quickly identify the interface when you are looking at a listing of multiple interfaces.

For information on setting the description parameter for port-channel interfaces, see the [“Configuring a Port-Channel Description” section on page 5-18](#). For information on configuring this parameter for other interfaces, see the [“Configuring the Description” section on page 2-13](#).

Beacon

The beacon mode allows you to identify a physical port by flashing its link state LED with a green light. By default, this mode is disabled. To identify the physical port for an interface, you can activate the beacon parameter for the interface.

For information on configuring the beacon parameter, see the [“Configuring the Beacon Mode” section on page 2-13](#).

MDIX

The medium dependent interface crossover (MDIX) parameter enables or disables the detection of a crossover connection between devices. This parameter applies only to copper interfaces. By default, this parameter is enabled.

Debounce Timer

The debounce timer delays notification of a link change, which can decrease traffic loss due to network reconfiguration. You can configure the debounce timer separately for each Ethernet port and specify the delay time in milliseconds. By default, this parameter is set for 100 milliseconds.



Caution

Enabling the debounce timer causes the link-up and link-down detections to be delayed, which results in a loss of traffic during the debounce period. This situation might affect the convergence and reconvergence of some Layer 2 and Layer 3 protocols.

For information on configuring the debounce-timer parameters, see the [“Configuring the Debounce Timer” section on page 2-14](#).

Speed Mode and Duplex Mode

The speed mode and duplex mode are interrelated for each Ethernet and management interface. By default, each of these interfaces autonegotiates its speed and duplex mode with the other interface, but you can change these settings. If you change the settings, be sure to use the same speed and duplex mode setting on both interfaces, or use autonegotiation for at least one of the interfaces. [Table 2-1](#) shows the settings that work for each type of Ethernet and management interface.

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Table 2-1 Speed- and Duplex-Mode Settings Used for Ethernet and Management Interfaces

Module Type	Speed Mode Setting	Duplex Mode Setting	Operational Speed (Mbps)	Operational Duplex Mode
32-port 10 GE Ethernet	Auto ¹	Auto ¹	10,000	Full
48-port 10/100/1000 Ethernet	Auto ¹	Auto ¹	1000	Full
			10 or 100	Half
	1000	Auto ¹ or full	1000	Full
	100	Auto ¹ or half	100	Half
		Full	100	Full
	10	Auto ¹ or half	10	Half
Full		10	Full	
Management	Auto ¹	Auto ¹	1000	Full
			10 or 100	Half
	1000	Auto ¹ or full	1000	Full
	100	Auto ¹ or half	100	Half
		Full	100	Full
	10	Auto ¹ or half	10	Half
Full		10	Full	

1. Default setting

For information on setting the speed mode and duplex mode for port-channel interfaces, see the [“Configuring the Speed and Duplex Settings for a Port-Channel Interface”](#) section on page 5-18. For information on setting the speed and duplex speed for other interfaces, see the [“Configuring the Interface Speed and Duplex Mode”](#) section on page 2-15.

Flow Control

When the receive buffer for an Ethernet port that runs 1 Gbps or faster fills, flow control enables that port to send an IEEE 802.3x pause frame to the transmitting port to request it to stop transmitting data for a specified amount of time. Transmitting ports, running at any speed, can receive the pause frames to stop their transmission of data.

To allow flow control to work between two ports, you must set the corresponding receive and send flow control parameters for both ports as enabled or desired. When you set the parameter to enabled, the send or receive flow-control function is activated regardless of the setting of the other port. When you set the parameter to desired, the send or receive flow-control function is activated if you set the corresponding flow-control state of the other port to enabled or desired. If you set one of the flow control states to disabled, flow control is disabled for that transmission direction. To see how the different port flow-control states affect the link flow-control state, see [Table 2-2](#).

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Table 2-2 Port Flow-Control Influences on Link Flow Control

Port flow control states		Link Flow Control State
Port Receiving Data (Sends Pause Frames)	Port Transmitting Data (Receives Pause Frames)	
Enabled	Enabled	Enabled
Enabled	Desired	Enabled
Enabled	Disabled	Disabled
Desired	Enabled	Enabled
Desired	Desired	Enabled
Desired	Disabled	Disabled
Disabled	Enabled	Disabled
Disabled	Desired	Disabled
Disabled	Disabled	Disabled

For information on setting the flow-control parameters, see the [“Configuring the Flow Control”](#) section on page 2-16.

Port MTU Size

The maximum transmission unit (MTU) size specifies the maximum frame size that an Ethernet port can process. For transmissions to occur between two ports, you must configure the same MTU size for both ports. A port drops any frames that exceed its MTU size.

By default, each port has an MTU of 1500 bytes, which is the IEEE 802.3 standard for Ethernet frames. Larger MTU sizes are possible for more efficient processing of data with less overhead. The larger frames, called jumbo frames, can be up to 9216 bytes in size, which is also the default system jumbo MTU size.

On a Layer 3 interface, you can configure an MTU size between 576 and 9216 bytes. You can configure up to 64 MTU settings for each I/O module.



Note

The global LAN port MTU size applies to the traffic through a Layer 3 Ethernet LAN port that is configured with a non-default MTU size.

For a Layer 2 port, you can configure an MTU size that is either the system default (1500 bytes) or the system jumbo MTU size (initially 9216 bytes).



Note

If you change the system jumbo MTU size, Layer 2 ports automatically use the system default MTU size (1500 bytes) unless you specify the new system jumbo MTU size for some or all of those ports.

For information on setting the MTU size, see the [“Configuring the MTU Size”](#) section on page 2-17.

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Bandwidth

Ethernet ports have a fixed bandwidth of 1,000,000 Kb at the physical level. Layer 3 protocols use a bandwidth value that you can set for calculating their internal metrics. The value that you set is used for informational purposes only by the Layer 3 protocols—it does not change the fixed bandwidth at the physical level. For example, the Interior Gateway Routing Protocol (IGRP) uses the minimum path bandwidth to determine a routing metric, but the bandwidth at the physical level remains 1,000,000 Kb.

For information on configuring the bandwidth parameter for port-channel interfaces, see the [Chapter 5, “Configuring Port Channels.”](#) For information on configuring the bandwidth parameter for other interfaces, see the [“Configuring the Bandwidth” section on page 2-19.](#)

Throughput Delay

Specifying a value for the throughput-delay parameter provides a value used by Layer 3 protocols; it does not change the actual throughput delay of an interface. The Layer 3 protocols can use this value to make operating decisions. For example, the IGRP can use the delay setting to differentiate between a satellite link and a land link. The delay value that you set is in the tens of microseconds.

For information on configuring the bandwidth parameter for port-channel interfaces, see the [Chapter 5, “Configuring Port Channels.”](#) For information on configuring the throughput-delay parameter, see the [“Configuring the Throughput Delay” section on page 2-19.](#)

Administrative Status

The administrative-status parameter determines whether an interface is up or down. When an interface is administratively down, it is disabled and unable to transmit data. When an interface is administratively up, it is enabled and able to transmit data.

For information on configuring the administrative status parameter for port channel interfaces, see the [“Shutting Down and Restarting the Port-Channel Interface” section on page 5-17.](#) For information on configuring the administrative-status parameter for other interfaces, see the [“Shutting Down and Activating the Interface” section on page 2-20.](#)

Unidirectional Link Detection Parameter

This section includes the following topics:

- [UDLD Overview, page 2-5](#)
- [Default UDLD Configuration, page 2-6](#)
- [UDLD Aggressive and Nonaggressive Modes, page 2-7](#)

UDLD Overview

The Cisco-proprietary Unidirectional Link Detection (UDLD) protocol allows devices that are connected through fiber-optic or copper (for example, Category 5 cabling) Ethernet cables to monitor the physical configuration of the cables and detect when a unidirectional link exists. When a device detects a unidirectional link, UDLD shuts down the affected LAN port and alerts the user. Unidirectional links can cause a variety of problems, including spanning tree topology loops.

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UDLD is a Layer 2 protocol that works with the Layer 1 protocols to determine the physical status of a link. At Layer 1, autonegotiation takes care of physical signaling and fault detection. UDLD performs tasks that autonegotiation cannot perform, such as detecting the identities of neighbors and shutting down misconnected LAN ports. When you enable both autonegotiation and UDLD, Layer 1 and Layer 2 detections work together to prevent physical and logical unidirectional connections and the malfunctioning of other protocols.

A unidirectional link occurs whenever traffic transmitted by the local device over a link is received by the neighbor but traffic transmitted from the neighbor is not received by the local device. If one of the fiber strands in a pair is disconnected, as long as autonegotiation is active, the link does not stay up. In this case, the logical link is undetermined, and UDLD does not take any action. If both fibers are working normally at Layer 1, then UDLD at Layer 2 determines whether those fibers are connected correctly and whether traffic is flowing bidirectionally between the correct neighbors. This check cannot be performed by autonegotiation, because autonegotiation operates at Layer 1.

The Nexus 7000 Series device periodically transmits UDLD frames to neighbor devices on LAN ports with UDLD enabled. If the frames are echoed back within a specific time frame and they lack a specific acknowledgment (echo), the link is flagged as unidirectional and the LAN port is shut down. Devices on both ends of the link must support UDLD in order for the protocol to successfully identify and disable unidirectional links.

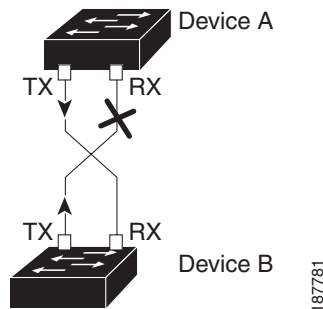


Note

By default, UDLD is locally disabled on copper LAN ports to avoid sending unnecessary control traffic on this type of media.

Figure 2-1 shows an example of a unidirectional link condition. Device B successfully receives traffic from device A on the port. However, device A does not receive traffic from device B on the same port. UDLD detects the problem and disables the port.

Figure 2-1 Unidirectional Link



Default UDLD Configuration

Table 2-3 shows the default UDLD configuration.

Table 2-3 UDLD Default Configuration

Feature	Default Value
UDLD global enable state	Globally disabled
UDLD aggressive mode	Disabled

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Table 2-3 UDLD Default Configuration

Feature	Default Value
UDLD per-port enable state for fiber-optic media	Enabled on all Ethernet fiber-optic LAN ports
UDLD per-port enable state for twisted-pair (copper) media	Disabled on all Ethernet 10/100 and 1000BASE-TX LAN ports

For information on configuring the UDLD for the device and its port, see the “[Configuring the UDLD Mode](#)” section on page 2-21.

UDLD Aggressive and Nonaggressive Modes

UDLD aggressive mode is disabled by default. You can configure UDLD aggressive mode only on point-to-point links between network devices that support UDLD aggressive mode. If UDLD aggressive mode is enabled, when a port on a bidirectional link that has a UDLD neighbor relationship established stops receiving UDLD frame, UDLD tries to reestablish the connection with the neighbor. After eight failed retries, the port is disabled.

To prevent spanning tree loops, nonaggressive UDLD with the default interval of 15 seconds is fast enough to shut down a unidirectional link before a blocking port transitions to the forwarding state (with default spanning tree parameters).

When you enable the UDLD aggressive mode, the following occurs:

- One side of a link has a port stuck (both transmission and receive)
- One side of a link remains up while the other side of the link is down

In these cases, the UDLD aggressive mode disables one of the ports on the link, which prevents traffic from being discarded.



Note

In Cisco NX-OS 4.0(3) and later releases, you can configure the carrier delay timer using the command line interface. See the *Cisco NX-OS Layer 2 Switching Configuration Guide* for information on configuring the carrier delay timer.

Port Channel Parameters

A port channel is an aggregation of physical interfaces that comprise a logical interface. You can bundle up to eight individual interfaces into a port channel to provide increased bandwidth and redundancy. Port channeling also load balances traffic across these physical interfaces. The port channel stays operational if at least one physical interface within the port channel is operational.

You can create a Layer 2 port channel by bundling compatible Layer 2 interfaces, or you can create Layer 3 port channels by bundling compatible Layer 3 interfaces. You cannot combine Layer 2 and Layer 3 interfaces in the same port channel.

Any configuration changes that you apply to the port channel are applied to each interface member of that port channel.

For information on port channels and for information on configuring port channels, see [Chapter 5, “Configuring Port Channels.”](#)

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Licensing Requirements

The interface command and its sub commands do not require licenses.

Prerequisites for Configuring the Basic Interface Parameters

Before you begin configuring the basic interface parameters, make sure that you are in the correct VDC. To change the VDC, choose **Virtual Devices** from the Feature Selector pane.

Guidelines and Limitations

Follow these guidelines and limitations for configuring the basic interface parameters:

- Fiber-optic Ethernet ports must use Cisco-supported transceivers. To verify that the ports are using Cisco-supported transceivers, use the **show interface transceivers** command. Interfaces with Cisco-supported transceivers are listed as functional interfaces.
- A port can be either a Layer 2 or a Layer 3 interface; it cannot be both simultaneously. By default, each port is a Layer 3 interface.
- When configuring flow control for a local port, consider the following:
 - To receive pause frames when you do not know how the remote port send parameter is configured, set the local port receive parameter to desired.
 - To receive pause frames when you know that the remote port send parameter is enabled or desired, set the local port receive parameter to enabled.
 - To ignore received pause frames, set the local port receive parameter to disabled.
 - To send pause frames when you do not know how the remote port receive parameter is configured, set the local port send parameter to desired.
 - To send pause frames when you know that the remote port receive parameter is enabled or desired, set the local port send parameter to enabled.
 - To prevent the sending of pause frames, set the local port send parameter to disabled.
- You usually configure Ethernet port speed and duplex mode parameters to auto to allow DC-OS to negotiate the speed and duplex mode between ports. If you decide to configure the port speed and duplex modes manually for these ports, consider the following:
 - Before you configure the speed and duplex mode for an Ethernet or management interface, see [Table 2-1 on page 2-3](#) for the combinations of speeds and duplex modes that can be configured at the same time.
 - If you set the Ethernet port speed to auto, the device automatically sets the duplex mode to auto.
 - If you configure an Ethernet port speed to a value other than auto (for example, 10, 100, or 1000 Mbps), you must configure the connecting port to match. Do not configure the connecting port to negotiate the speed.



Note

The device cannot automatically negotiate the Ethernet port speed and duplex mode if the connecting port is configured to a value other than auto.

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**Caution**

Changing the Ethernet port speed and duplex mode configuration might shut down and reenable the interface.

Configuring the Basic Interface Parameters

When you configure an interface, you must specify the interface before you can configure its parameters.

The following sections explain how to specify the interface and configure each of its basic parameters:

- [Specifying the Interfaces to Configure, page 2-9](#)
- [Configuring the Description, page 2-13](#)
- [Configuring the Beacon Mode, page 2-13](#)
- [Configuring the MDIX Parameter, page 2-14](#)
- [Configuring the Debounce Timer, page 2-14](#)
- [Configuring the Interface Speed and Duplex Mode, page 2-15](#)
- [Configuring the Flow Control, page 2-16](#)
- [Configuring the MTU Size, page 2-17](#)
- [Configuring the Bandwidth, page 2-19](#)
- [Configuring the Throughput Delay, page 2-19](#)
- [Shutting Down and Activating the Interface, page 2-20](#)
- [Enabling or Disabling CDP, page 2-20](#)
- [Configuring the UDLD Mode, page 2-21](#)

Specifying the Interfaces to Configure

Before you can configure the parameters for one or more interfaces of the same type, you must specify the type and the identities of the interfaces. [Table 2-4](#) shows the interface types and identities that you should use for specifying the Ethernet and management interfaces.

Table 2-4 Information Needed to Identify an Interface for Configurations

Interface Type	Identity
Ethernet	I/O module slot numbers and port numbers on the module.
Management	0 (for port 0)

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To verify the current configuration of interfaces, you can display their properties. You can choose an interface and see its parameter values in the Details pane.

DETAILED STEPS

To specify the interfaces to configure, follow these steps:

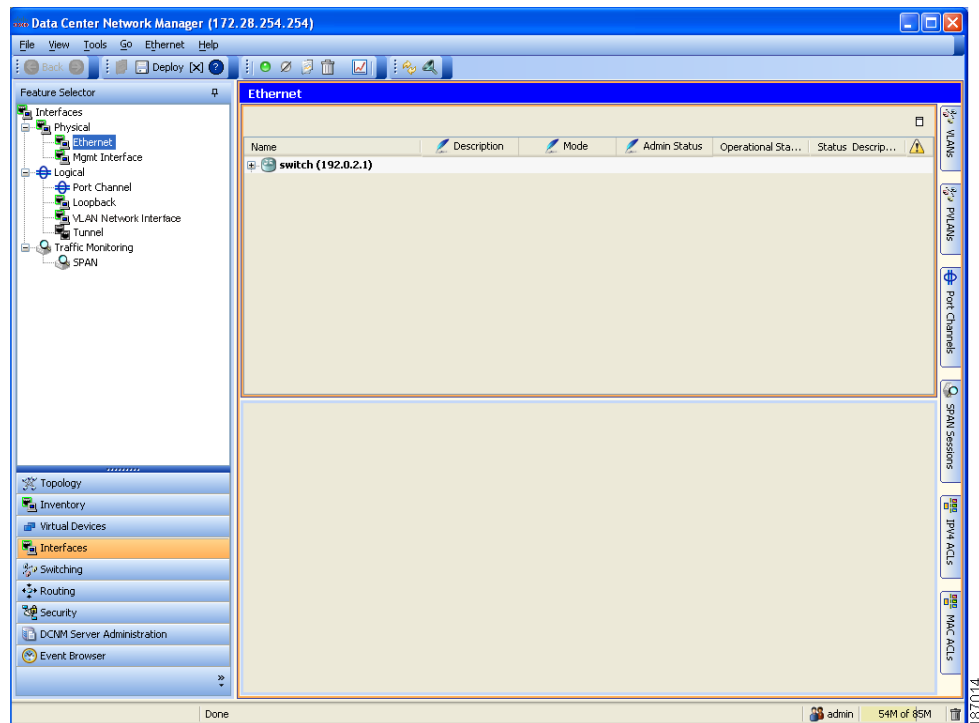
-
- Step 1** From the Feature Selector pane, specify the type of interfaces that you are configuring by following these steps:
- a. Choose **Interfaces**.
 - b. Choose **Physical** or **Logical**.
 - To work with Ethernet interfaces or the management interface, choose **Physical**.
 - To work with port-channel interfaces, loopback interfaces, VLAN network interfaces, or tunnel interfaces, choose **Logical**.
 - c. If you are working with physical interfaces, choose one of the following interface types:
 - To configure Ethernet interface parameters, choose **Ethernet**.
 - To configure management interface parameters, choose **Mgmt Interface**.
 - d. If you are working with logical interfaces, choose one of the following interface types:
 - **Port Channel** (see [Chapter 5, “Configuring Port Channels”](#))
 - **Loopback** (see [Chapter 4, “Configuring Layer 3 Interfaces”](#))
 - **VLAN Network Interface** (see [Chapter 4, “Configuring Layer 3 Interfaces”](#))
 - **IP tunnels** (see [Chapter 3, “Configuring Layer 2 Interfaces”](#))

The devices with the interface type that you specified appear in the Summary pane.

[Figure 2-2](#) shows the three Feature Selector items to choose to specify an interface type.

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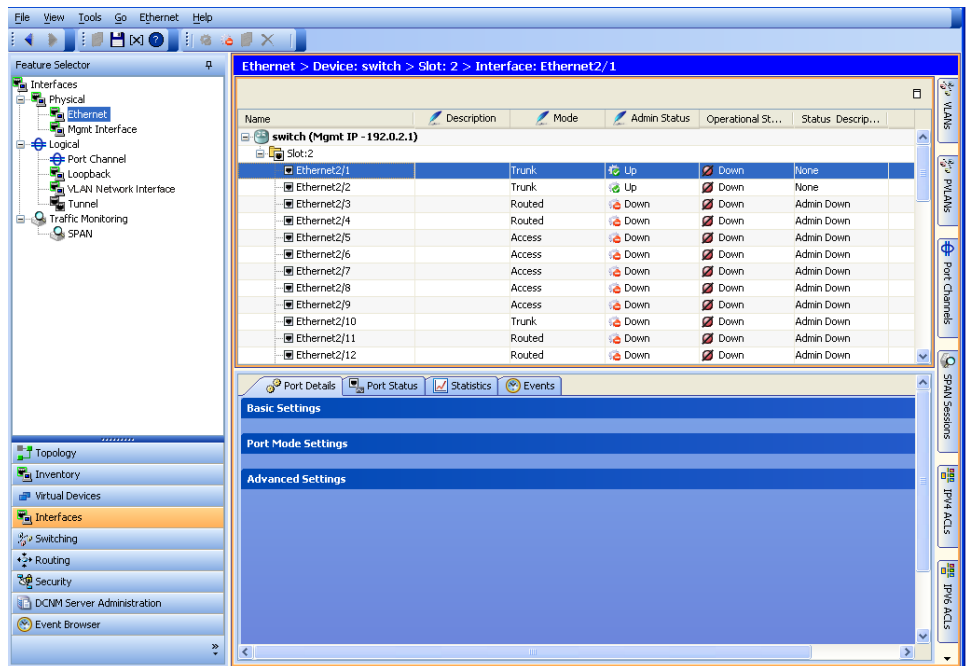
Figure 2-2 Specifying an Interface Type



- Step 2** From the Summary pane, specify the device and (optionally) the port in one of the following ways:
- If you specified the Ethernet interface type, expand the device, expand the slot for the appropriate I/O module, and click the appropriate port as shown in [Figure 2-3](#).

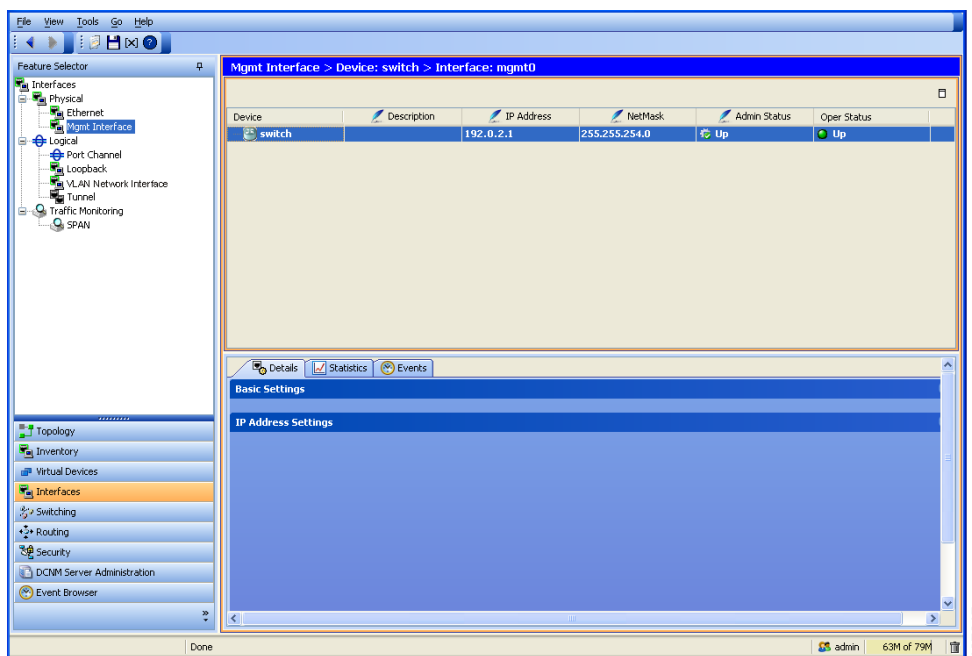
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Figure 2-3 Specifying a Port for an Ethernet Interface



- If you specified the management interface type, click the device as shown in [Figure 2-4](#).

Figure 2-4 Specifying a Device for a Management Interface



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Tabs and sections for displaying detailed information for the interface that you specified appear in the Details pane.

Configuring the Description

You can provide textual interface descriptions for the Ethernet and management interfaces. Descriptions can be a maximum of 80 case-sensitive alphanumeric characters.

DETAILED STEPS

To provide an interface description for Ethernet and management interfaces, follow these steps:

- Step 1** From the Feature Selector pane, choose **Interfaces > Physical**.
- Step 2** Choose **Ethernet** or **Mgmt Interface**.
- The devices with the interface type that you specified appear in the Summary pane.
- Step 3** From the Summary pane, specify the interface by doing one of the following:
- To configure the Ethernet interface, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.
 - To configure the management interface, click the device that you are configuring.
Tabs appear for the device information in the Details pane. The Details tab is active but its sections are not expanded.
- Step 4** From the Details pane, expand the **Basic Settings** section.
- The Basic Settings shows the basic parameters.
- Step 5** In the Description field, enter the appropriate textual description for the interface.
- Step 6** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the Beacon Mode

You can enable the beacon mode for an Ethernet port to flash its LED to confirm its physical location.

DETAILED STEPS

To enable or disable the beacon mode, follow these steps:

- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
- The devices with Ethernet interfaces appear in the Summary pane.
- Step 2** From the Summary pane, expand the device, expand the slot, and click the port.
- Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.

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- Step 3** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
- Step 4** From the Beacon drop-down list, choose **Enabled** or **Disabled**.
- Step 5** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the MDIX Parameter

If you need to detect the type of connection (crossover or straight) with another copper Ethernet port, enable the medium dependent independent crossover (MDIX) parameter for the local port. By default, this parameter is enabled.

BEFORE YOU BEGIN

MDIX must be enabled for the remote port.

DETAILED STEPS

To enable or disable an MDIX connection, follow these steps:

-
- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
The devices with Ethernet interfaces appear in the Summary pane.
- Step 2** From the Summary pane, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.
- Step 3** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
- Step 4** From the Mdx drop-down list, choose either **enabled** or **disabled**.
- Step 5** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the Debounce Timer

You can enable or disable the debounce timer by using the Link Debounce and Debounce Time fields. In the Link Debounce field, you enable or disable the timer. In the Debounce Time field, you specify the time in milliseconds (ms).



Note

If you specify a time of 0 ms, the timer is disabled even if you enable the timer in the Link Debounce field.

DETAILED STEPS

To enable or disable the debounce timer, follow these steps:

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-
- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
The devices with Ethernet interfaces appear in the Summary pane.
- Step 2** From the Summary pane, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.
- Step 3** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
- Step 4** From the Link Debounce drop-down list, choose **Enabled** or **Disabled**.
- Step 5** From the Debounce Time field, type the number of milliseconds (0 to 5000) for the debounce time.
A time of 0 milliseconds effectively disables the debounce timer. A time of 1 to 5000 milliseconds is used only if you enabled the timer.
- Step 6** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the Interface Speed and Duplex Mode

The interface speed and duplex mode are interrelated, so you should configure both of their parameters at the same time.

To see which speeds and duplex modes you can configure together for Ethernet and management interfaces, see [Table 2-1 on page 2-3](#).



Note

The interface speed that you specify can affect the duplex mode used for an interface, so you should set the speed before setting the duplex mode. If you set the speed for autonegotiation, the duplex mode is automatically set to be autonegotiated. If you specify 10- or 100-Mbps speed, the port is automatically configured to use half-duplex mode, but you can specify full-duplex mode instead. If you specify a speed of 1000 Mbps (1 Gbps) or faster, full duplex is automatically used.

BEFORE YOU BEGIN

Make sure that the remote port has a speed setting that supports your changes for the local port. If you want to set the local port to use a specific speed, you must set the remote port for the same speed or set the local port to autonegotiate the speed.

DETAILED STEPS

To configure the interface speed and duplex mode, follow these steps:

-
- Step 1** From the Feature Selector pane, choose **Interfaces > Physical**.
- Step 2** Choose **Ethernet** or **Mgmt Interface**.
The devices with the interface type that you specified appear in the Summary pane.
- Step 3** From the Summary pane, specify the interface by doing one of the following:
- To configure the Ethernet interface, expand the device, expand the slot, and click the port.

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Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.

- To configure the management interface, click the device that you are configuring.

Tabs appear for the device information in the Details pane. The Details tab is active but its sections are not expanded.

Step 4 From the Details pane, expand the **Basic Settings** section.

The Basic Settings shows the basic parameters.

Step 5 In the Speed field, choose the appropriate speed for your port.

Step 6 In the Duplex field, choose **full**, **half**, or **auto**.

If one of these options is not available, change the interface speed (see the previous step).

Step 7 From the menu bar, choose **File > Deploy** to apply your changes to the device.

Configuring the Flow Control

For Ethernet ports that run at 1 Gbps or faster, you can enable or disable the port's ability to send and receive flow-control pause frames. For Ethernet ports that run slower than 1 Gbps, you can enable or disable only the port's ability to receive pause frames.

When enabling flow control for the local port, you either fully enable the local port to send or receive frames regardless of the flow-control setting of the remote port, or you set the local port to use the desired setting used by the remote port. If you enable both the local and remote port for flow control, or set the desired flow control of the other port, or set a combination of those two states, flow control is enabled for those ports.



Note

For ports that run at 10 Gbps, you cannot use the desired state for the send or receive parameter.

For information on configuring flow control, refer to [Flow Control, page 2-3](#).

BEFORE YOU BEGIN

Make sure that the remote port has the corresponding setting for the flow control that you need. If you want the local port to send flow-control pause frames, the remote port has a receive parameter set to on or desired. If you want the local port to receive flow-control frames, you must make sure that the remote port has a send parameter set to on or desired. If you do not want to use flow control, you can set the remote port's send and receive parameters to off.

DETAILED STEPS

To configure the interface flow control, follow these steps:

Step 1 From the Feature Selector, choose **Interfaces > Physical > Ethernet**.

The Summary pane lists the devices with Ethernet interfaces.

Step 2 From the Summary pane, expand the switch, expand the slot, and select the port.

The Details pane shows tabs and an unexpanded Basic Settings area for the port.

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- Step 3** From the Details pane, click **Port Details** and **Basic Settings**.
The Basic Settings area expands to show the basic parameters used for multiple features.
- Step 4** From the Flow Control Receive drop-down list, choose how to receive flow control frames as follows:
- To disable the receiving of pause frames, choose **off**.
 - To use the send flow control setting for the receive flow control setting, choose **desired**.
 - To enable the receiving of pause frames regardless of the send setting for the other port, choose **on**.
- Step 5** From the Flow Control Send drop-down list, choose **desired**, **on**, or **off**.
- To disable the sending of pause frames, choose **off**.
 - To use the receive flow control setting for the send flow control setting, choose **desired**.
 - To enable the sending of pause frames regardless of the receive setting for the other port, choose **on**.
- Step 6** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the MTU Size

You can configure the maximum transmission unit (MTU) size for Layer 2 and Layer 3 Ethernet interfaces. For Layer 3 interfaces, you can configure the MTU to be between 576 and 9216 bytes (even values are required). For Layer 2 interfaces, you can configure the MTU to be either the system default MTU (1500 bytes) or the system jumbo MTU size (which has the default size of 9216 bytes).



Note

You can change the system jumbo MTU size, but if you change that value, you should also update the Layer 2 interfaces that use that value so that they use the new system jumbo MTU value. If you do not update the MTU value for Layer 2 interfaces, those interfaces will use the system default MTU (1500 bytes).

By default, DCNM configures Layer 3 parameters. If you want to configure Layer 2 parameters, you need to switch the port mode to Layer 2.

You change the port mode by clicking Port Details and Port Mode Settings in the Details pane and then choosing a Layer 2 mode (Access, Trunk, PVLAN Host, or PVLAN Promiscuous).

After changing the port mode to Layer 2, you can return to configuring Layer 3 interfaces by changing the port mode again, by clicking Port Details and Port Mode Settings, and then choosing a Layer 3 mode (Routed).

This section includes the following topics:

- [Configuring the Interface MTU Size, page 2-17](#)
- [Configuring the System Jumbo MTU Size, page 2-18](#)

Configuring the Interface MTU Size

For Layer 3 interfaces, you can configure an MTU size that is between 576 and 9216 bytes.


For Layer 2 interfaces, you can configure all Layer 2 interfaces to use either the default MTU size (1500 bytes) or the system jumbo MTU size (default size of 9216 bytes).

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If you need to use a different system jumbo MTU size for Layer 2 interfaces, see the “Configuring the System Jumbo MTU Size” section on page 2-18.

DETAILED STEPS

To change an interface MTU size, follow these steps:

-
- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
The devices with Ethernet interfaces appear in the Summary pane.
- Step 2** From the Summary pane, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.
- Step 3** If you are configuring Layer 2 interfaces, from the Summary pane, double-click the Mode settings, and then choose **Access**, **Trunk**, **PVLAN Host**, or **PVLAN Promiscuous** from the Mode drop-down list.
-  **Note** If you need to switch back to working with Layer 3 interfaces, choose **Routed** from the Mode drop-down list.
-
- Step 4** From the Details pane, expand the **Basic Settings** section.
The Basic Settings shows the basic parameters.
- Step 5** In the MTU field, type the preferred MTU size as follows:
- For Layer 2 interfaces, type either the default MTU size (1500) or the system jumbo MTU size (default size of 9216). If you have changed the system jumbo MTU size, you can use the new size for the system jumbo MTU size.
 - For Layer 3 interfaces, type an MTU size between 576 and 9216.
- Step 6** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the System Jumbo MTU Size

You can configure the system jumbo MTU size, which can be used to specify the MTU size for Layer 2 interfaces. You can specify an even number between 1500 and 9216. If you do not configure the system jumbo MTU size, it defaults to 1500 bytes.

DETAILED STEPS

To configure the system jumbo MTU size, follow these steps:

-
- Step 1** From the Feature Selector, choose **Interfaces > Physical > Ethernet**.
The devices for the type that you specified appear in the Summary pane.
- Step 2** From the Summary pane, click on the device.
Tabs appear for the device information in the Details pane. The Details tab is active but its sections are not expanded.
- Step 3** From the Details pane, expand the **MTU Settings** section.

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- Step 4** The MTU Settings shows the system jumbo MTU information.
 - Step 5** In the Jumbo MTU field, enter the size as an even integer between 1500 and 9216.
 - Step 6** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the Bandwidth

You can configure the bandwidth for Ethernet interfaces. The physical level uses an unchangeable bandwidth of 1 GB, but you can configure a value of 1 to 10,000,000 Kb for Level 3 protocols.

DETAILED STEPS

To change the interface bandwidth, follow these steps:

- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
The devices with Ethernet interfaces appear in the Summary pane.
 - Step 2** From the Summary pane, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.
 - Step 3** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
 - Step 4** In the Bandwidth field, type the number of kilobits (between 1 and 10,000,000 [omit the commas]) for the bandwidth.
 - Step 5** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Configuring the Throughput Delay

You can configure the interface throughput delay for Ethernet interfaces. The actual delay time does not change, but you can set an informational value between 1 and 16777215, where the value represents the number of tens of microseconds.

For more information on configuring an informational delay value, see the [“Throughput Delay” section on page 2-5](#).

DETAILED STEPS

To change the informational value of the interface throughput delay, follow these steps:

- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
The devices with Ethernet interfaces appear in the Summary pane.
- Step 2** From the Summary pane, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.

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- Step 3** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
- Step 4** In the Delay field, type the number of tens of microseconds to use for the delay time.
For example, for a delay of 10,000 microseconds, type 1000.
- Step 5** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Shutting Down and Activating the Interface

You can shut down and restart Ethernet or management interfaces. When you shut down interfaces, they become disabled and all monitoring displays show them as being down. This information is communicated to other network servers through all dynamic routing protocols. When the interfaces are shut down, the interface is not included in any routing updates. To activate the interface, you must restart the device.

DETAILED STEPS

To change the administrative status for an interface, follow these steps:

- Step 1** From the Feature Selector pane, choose **Interfaces > Physical**.
- Step 2** Choose **Ethernet** or **Mgmt Interface**.
The devices with the interface type that you specified appear in the Summary pane.
- Step 3** From the Summary pane, specify the interface by doing one of the following:
- To configure the Ethernet interface, expand the device, expand the slot, and click the port.
Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.
 - To configure the management interface, click the device that you are configuring.
Tabs appear for the device information in the Details pane. The Details tab is active but its sections are not expanded.
- Step 4** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
- Step 5** From the Admin Status drop-down list, choose **Down**.
- Step 6** From the Admin Status drop-down list, choose **Up**.
- Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Enabling or Disabling CDP



Note

For complete information on configuring the Cisco Discovery Protocol (CDP), see the *Cisco NX-OS System Management Configuration Guide*.

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You can enable or disable CDP for Ethernet and management interfaces. This protocol works only when you have it enabled on both interfaces on the same link.

BEFORE YOU BEGIN

Make sure that the remote port also has this protocol enabled.

DETAILED STEPS

To enable or disable CDP for an interface, follow these steps:

Step 1 Choose **Interfaces > Physical**.

Step 2 Choose **Ethernet** or **Mgmt Interface**.

The devices with the interface type that you specified appear in the Summary pane.

Step 3 From the Summary pane, specify the interface by doing one of the following:

- To configure the Ethernet interface, expand the device, expand the slot, and click the port.

 Tabs appear for the port information in the Details pane. The Port Details tab is active but its sections are not expanded.

- To configure the management interface, click the device that you are configuring.

 Tabs appear for the device information in the Details pane. The Details tab is active but its sections are not expanded.

Step 4 From the Details pane, expand the **Basic Settings** section.

The Basic Settings section shows the basic parameters.

Step 5 From the CDP Enabled drop-down list, choose **Enabled** or **Disabled**.



Note For CDP to function, you must set both interfaces on the same link to Enabled. CDP cannot function if one or both interfaces have their CDP Enabled parameter set to Disabled.

Step 6 From the menu bar, choose **File > Deploy** to apply your changes to the device.

Configuring the UDLD Mode

You can configure normal or aggressive unidirectional link detection (UDLD) modes for Ethernet interfaces on devices configured to run UDLD. Before you can enable a UDLD mode for an interface, you must make sure that UDLD is already enabled on the device that includes the interface. UDLD must also be enabled on the other linked interface and its device.

To use the normal UDLD mode, you must configure one of the ports for normal mode and configure the other port for the normal or aggressive mode. To use the aggressive UDLD mode, you must configure both ports for the aggressive mode.

By default, UDLD is disabled for the 48-port, 10/100/1000 Ethernet module ports but the normal UDLD mode is enabled for the 32-port, 10 gigabit Ethernet module ports.

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BEFORE YOU BEGIN

UDLD must be enabled for the other linked port and its device.

DETAILED STEPS

To enable or disable the beacon mode, follow these steps:

-
- Step 1** From the Feature Selector pane, choose **Interfaces > Physical > Ethernet**.
 - Step 2** The devices with Ethernet interfaces appear in the Summary pane.
 - Step 3** From the Summary pane, click the device with the interface that will be using UDLD.
 - Step 4** Choose **Ethernet > Enable UDLD**.
 - Step 5** From the Summary pane, expand the switch, expand the slot, and click the port.
Tabs and unexpanded sections for the port appear in the Details pane.
 - Step 6** From the Details pane, expand the **Basic Settings** section.
The Basic Settings section shows the basic parameters.
 - Step 7** From the UDLD Enabled drop-down list, choose **Enabled, Disabled, Aggressive, or Global**.
 - Step 8** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Field Descriptions

This section describes the fields shown on the Ethernet pane and includes the following:

- [Device: Device Details: MTU Settings Section, page 2-22](#)
- [Device: Device Status Tab, page 2-23](#)
- [Port: Port Details: Basic Settings Section, page 2-23](#)
- [Port: Port Details: Port Mode Settings Section, page 2-24](#)
- [Port: Port Details: Advanced Settings Section, page 2-26](#)

Device: Device Details: MTU Settings Section

Table 2-5 *Device: Device Details: MTU Settings Section*

Field	Description
Jumbo MTU	System jumbo maximum transmission unit (MTU) size in bytes. The range is 1500 to 9216. The default is 1500.

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Device: Device Status Tab

Table 2-6 Device: Device Status Tab

Field	Description
Port Mode	<i>Display only.</i> Operational mode of the interface. It will be one of the following types: <ul style="list-style-type: none"> • Access • Trunk • PVLAN Host • PVLAN Promiscuous • Routed
Total	<i>Display only.</i> The total number of each port mode available in the device.
Active	<i>Display only.</i> The number of active ports for each port mode.
Admin Down	<i>Display only.</i> The number of ports that are administratively down for each port mode.
Operationally Down	<i>Display only.</i> The number of ports that are operationally down for each port mode.

Port: Port Details: Basic Settings Section

Table 2-7 Port: Port Details: Basic Settings Tab

Field	Description
Name	<i>Display only.</i> Interface name.
Description	Textual description (80 character maximum) of the interface.
MTU	Maximum transmission unit size in bytes. The range is 576 to 9216. The default is 1500.
Bandwidth	Bandwidth informational value used by Layer 3 protocols (this value does not change the actual bandwidth of the interface). The range is 1 to 10,000,000. The default is 10,000,000.
Delay	Throughput delay informational value used by Layer 3 protocols (this value does not change the actual throughput delay for the interface). The range is 1 to 16,777,215. The default is 1.
Admin status	Administrative status for the interface. Choices are Up or Down. Default is Down.
CDP Enabled	Cisco Discovery Protocol used to learn about other connected devices. Choices are enabled or disabled. Default is Enabled.
Mdix	Medium dependent interface crossover (MDIX) detects crossover connections between interfaces. Choices are Enabled or Disabled. Default is Enabled.

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Table 2-7 Port: Port Details: Basic Settings Tab

Field	Description
UDLD Enabled	Unidirectional Link Detection monitors the physical connections between interfaces to detect and disable unidirectional links. Choices are Enabled or Disabled. Default is Enabled.
Flow Control Receive	Receives pause frames that request a pause in data transmission for a specific amount of time. This feature can be turned off, turned on, or set to a desired state (enabled if the Flow Control Send parameter for the other interface is enabled or set to desired). Choices are off, desired, or on. Default is desired.
Flow Control Send	Sends pause frames that request a pause in data transmission for the other interface for a specific amount of time. This feature can be turned off, turned on, or set to a desired state (enabled if the Flow Control Receive parameter for the other interface is enabled or set to desired). Choices are off, desired, or on. Default is desired.
Port Channel Id	Choose 10 for switched port type or 20 for routed port type.
Speed	Interface speed in megabits per second (Mbps). Choices are 10, 100, 1000, or auto. Default is auto. The setting for this parameter determines the values that you can use for duplex mode.
Duplex mode	Sets the duplex mode for the interface. Choices are full, half, and auto. Default is auto.
Beacon	Activates an LED to identify the interface on its module in the chassis. Choices are Enabled or Disabled. Default is Disabled.
Link Debounce	Delays notification of a link change. Choices are Enabled or Disabled. Default is Enabled.
Debounce Time	Specifies the debounce delay time in milliseconds. The range is 0 to 5000. Default is 100.

Port: Port Details: Port Mode Settings Section

Table 2-8 Port: Port Details: Port Mode Settings: Section

Field	Description
Mode	Valid values are: <ul style="list-style-type: none"> • Access • Trunk • PVLAN Host • PVLAN Promiscuous • Routed
Access	
Access VLAN	Access VLAN for this access port. The default access VLAN is the default VLAN, or VLAN1.

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Table 2-8 Port: Port Details: Port Mode Settings: Section (continued)

Field	Description
Trunk	
Encapsulation	Field not available. IEEE 802.1Q is the only supported encapsulation method.
Allowed VLANs	VLANs allowed to transmit data on this port. The range is 1 to 4094, and the default is 1. Note VLANs 3968 to 4047 and 4094 are allocated for internal device use and do not carry data traffic.
Native VLAN	Native VLAN for this trunk port. The default Native VLAN is the default VLAN, or VLAN1.
PVLAN Host	
Primary Vlan	<i>Display only.</i> The primary VLAN associated with the secondary VLAN(s) to which this port belongs Note This value displays after you choose the secondary VLAN using the Secondary VLAN field.
Secondary VLAN	Secondary VLAN paired with primary VLAN. The type of secondary VLANs is either community or isolated.
PVLAN Promiscuous	
Primary Vlan	<i>Display only.</i> The primary VLAN associated with the secondary VLAN(s) to which this port belongs Note This value displays after you choose the secondary VLAN using the Secondary VLAN field.
Secondary VLAN	Secondary VLAN paired with primary VLAN. The type of secondary VLANs is either community or isolated. Note You can select multiple secondary VLANs, all that have the same primary VLAN, for each private VLAN promiscuous port.
Routed	
IPv4 Address Settings	
Primary	IPv4 Address, in dotted decimal notation.
Net mask	Network mask for the IPv4 address in dotted decimal notation.
Secondary: IP Address	Secondary IPv4 Address, in dotted decimal notation. You can configure multiple secondary addresses for an interface.
Secondary: Net mask	Network mask for the secondary IPv4 address in dotted decimal notation.
Helper: IP Address	Helper address used to enable the forwarding of User Datagram Protocol (UDP) broadcasts.
IPv6 Address Settings	
Primary/Prefix-length	IPv6 prefix in x:x:x::x/length format.
EUI64	IPv6 address that is in the extended universal identifier (EUI)-64 format.
Link Local	IPv6 link local address in an x:x:x::x format.
Use local only	Link local address that overrides automatically generated IPv6 address.

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Table 2-8 Port: Port Details: Port Mode Settings: Section (continued)

Field	Description
Secondary: IP Address	Secondary IPv6 prefix in an x:x:x::x/length format. You can configure multiple secondary addresses for an interface.
Secondary: EUI64	Secondary IPv6 address that is in the extended universal identifier (EUI)-64 format.

Port: Port Details: Advanced Settings Section

Table 2-9 Port: Port Details: Advance Settings Section

Field	Description
IPv4 ACL	
Incoming Ipv4 Traffic	IPv4 ACL that filters ingress traffic on the interface. By default, this list is blank.
Outgoing Ipv4 Traffic	IPv4 ACL that filters egress traffic on the interface. By default, this list is blank.
IPv6 ACL	
Incoming Ipv6 Traffic	IPv6 ACL that filters ingress traffic on the interface. By default, this list is blank.
Outgoing Ipv6 Traffic	IPv6 ACL that filters egress traffic on the interface. By default, this list is blank.
MAC ACL	
Incoming Traffic	MAC ACL that filters ingress traffic on the interface. By default, this list is blank.
Security	
Dot1x	<i>Display only.</i> Whether Dot1x is enabled or disabled.
Traffic Storm Control	<i>Display only.</i> Whether traffic storm control is enabled or disabled.
IP Source Guard	<i>Display only.</i> Whether IP Source Guard is enabled or disabled.
Port Security	<i>Display only.</i> Whether port security is enabled or disabled.
SPAN	
Use Interface as SPAN	Source or destination for this interface.
Session ID	SPAN session ID where interface is applied.
Type	<i>Display only.</i> Session type.
Direction: Ingress	Monitor ingress packets.
Direction: Egress	Monitor egress packets.

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Port: Port Status Tab

Table 2-10 Port: Port Status Tab

Field	Description
Operational Status	<i>Display only.</i> Operational status of the interface. The default is down. Valid values are: <ul style="list-style-type: none"> • Up • Down
Status Description	<i>Display only.</i> Description of operational status.
Speed	<i>Display only.</i> Transmission speed of the interface. The default is auto.
Duplex	<i>Display only.</i> Duplex operation on the interface. The default is auto.
UDLD	<i>Display only.</i> Status of UDLD. The default is disabled. Valid values are: <ul style="list-style-type: none"> • Enabled • Disabled
Flow Control Send	<i>Display only.</i> Status of sending pause frames. The default is off. Valid values are: <ul style="list-style-type: none"> • off • desired • on
Flow Control Receive	<i>Display only.</i> Status of receiving pause frames. The default is off. Valid values are: <ul style="list-style-type: none"> • off • desired • on
Hardware Type	<i>Display only.</i> Hardware type of the port.

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