Configuring Interface Parameters

This chapter contains the following sections:

Information About the Basic Interface Parameters

Description

For the vEthernet, Ethernet, and management interfaces, you can configure the description parameter to provide a 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.

By default, the description for vEthernet interfaces is automatically formatted to contain information about the connected device. The description for a virtual Network Interface Card (vNIC), for example, contains the VM name and network adapter number. You keep this default description or you can override it with a description of your choosing.

Speed and Duplex Modes

The speed and duplex modes are interrelated for each Ethernet and management interface. By default, each interface autonegotiates its speed and duplex modes 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 settings on both interfaces or use autonegotiation for at least one of the interfaces.

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, the MTU size for each port is 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 9000 bytes in size, which is also the fixed system jumbo MTU size in the Cisco Nexus 1000V.

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.

Cisco Discovery Protocol

The Cisco Discovery Protocol (CDP) is a Layer 2 protocol that enables two devices that run CDP to learn about each other. You can use CDP to troubleshoot the network by displaying information about the neighboring devices that are linked through each interface. By default, CDP is enabled.

Port Channel

A port channel is an aggregation of multiple 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.

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

Guidelines and Limitations

Interface parameters have the following configuration guidelines and limitations:

- You usually configure Ethernet port speed and duplex mode parameters to auto to allow negotiation of the speed and duplex modes between ports. If you decide to configure the port speed and duplex modes manually for these ports, consider the following:

    ◦ If you set the Ethernet port speed to auto, the device automatically sets the duplex mode to auto.

    ◦ If you enter the **no speed**, command the device automatically sets both the speed and duplex parameters to auto (the **no speed** command produces the same results as the **speed auto** command).

◦ 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 modes if the connecting port is configured to a value other than auto.

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

• To specify an interface in the CLI, use the following guidelines:

◦ For an Ethernet port, use the **ethernet** *slot/port* command, where *slot* is the module slot number and *port* is the port number.

◦ For a vEthernet port, use the **vethernet** *number* command, where *number* is a number from 1 to 1048575.

◦ A space is not required between the interface type and the slot/port or interface number. For example, for the Ethernet slot 4, port 5 interface, you can specify either the **ethernet 4/5** command or the **ethernet4/5** command.

Configuring the Basic Interface Parameters

Specifying an Interface to Configure

You can use this procedure to specify an interface to configure.

Before You Begin

You are logged in to the CLI in EXEC mode.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface** *interface*	Enters interface configuration mode for the specified interface.
Step 3	switch(config-if)# **show interface** *interface*	(Optional) Displays the current configuration of interfaces. The interface argument is defined as follows:

	Command or Action	Purpose
		• For an Ethernet port, use **ethernet** *slot/port*, where *slot* is the module slot number and *port* is the port number.
		• For the management interface, use **mgmt 0** or **mgmt0**.
		• For a vEthernet port, use **vethernet** *number*, where *number* is a number from 1 to 1048575.

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# show interface ethernet 2/1
switch(config-if)#
```

Configuring a Description

You can use this procedure to add a description to av Ethernet, vEthernet, or management interface.

Before You Begin

- You are logged in to the CLI in EXEC mode.
- A description is case-sensitive and can be up to 80 alphanumeric characters in length.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface** *interface*	Enters interface configuration mode for the specified interface.
Step 3	switch(config-if)# **description** *string*	Adds a description of up to 80 alphanumeric characters for the interface and saves it in the running configuration.
Step 4	switch(config-if)# **show interface** *interface*	(Optional) Displays the interface status, which includes the description.
Step 5	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

The following example shows how to set the interface description to Ethernet port 24 on module 3:

```
switch# configure terminal
switch(config)# interface ethernet 3/24
switch(config-if)# description Ethernet port 24 on module 3
switch(config-if)#
```

Configuring the Interface Speed and Duplex Modes

You can use this procedure to configure the interface speed and duplex modes.

Before You Begin

- You are logged in to the CLI in EXEC mode.

- The interface speed and duplex modes are interrelated, so you should configure both at the same time. To see the speeds and duplex modes that you can configure together for Ethernet and management interfaces, see Speed and Duplex Modes, on page 1.

  Note Check underlying NIC hardware capability before setting speed and duplex modes.

- 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.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config-if)# **speed** {{**10** | **100** | **1000** | {**auto** [**10 100** [**1000**]]}} | {**10000** | **auto**}}	Designates the port speed. • For Ethernet ports on the 48-port 10/100/1000 modules, sets the speed at 10 Mbps, 100 Mbps, or 1000 Mbps, or sets the port to auto negotiate its speed with the other 10/100/1000 port on the same link. • For Ethernet ports on the 32-port 10-Gigabit Ethernet modules, sets the speed at 10,000 Mbps (10 Gbps) or sets the port to autonegotiate its speed with the other 10-Gigabit Ethernet port on the link. • For management interfaces, sets the speed as 1000 Mbps or sets the port to autonegotiate its speed.
Step 3	switch(config-if)# **duplex** {**full** | **half** | **auto**}	Specifies the duplex mode as full, half, or autonegotiate.
Step 4	switch(config-if)# **show interface** *interface*	(Optional) (Optional) Displays the interface configuration.

	Command or Action	Purpose
Step 5	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

The following example shows how to set the interface description to Ethernet port 24 on module 3:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# speed 1000
switch(config-if)# duplex full
switch(config-if)# show interface mgmt0
switch(config-if)#
```

Configuring the MTU Size for an Ethernet Interface

You can use this procedure to configure the size of the maximum transmission unit (MTU) for a Layer 2 Ethernet interface.

Before You Begin

- You are logged in to the CLI in EXEC mode.

- You can specify an MTU size between 1500 and 9000 bytes for an Ethernet interface.

- Make sure the MTU value you set is supported by the VEM physical NIC. See your Microsoft documentation for more information about supported MTU for physical NICs.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface ethernet** *slot/port*	Specifies an Ethernet interface to configure, and enters interface configuration mode.
Step 3	switch(config-if)# **mtu** *size*	Specifies an MTU size between 1500 (the default) and 9000 bytes.
Step 4	switch(config-if)# **show interface ethernet** *slot/port*	(Optional) Displays the interface status, which includes the MTU size. The interface argument is defined as follows:
Step 5	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

The following example shows how to configure the Ethernet interface 3/1 with the default MTU size of 1500 bytes:

```
switch# configure terminal
switch# interface ethernet 3/1
switch(config-if)# mtu 1500
switch(config-if)#
```

Shutting Down and Activating an Interface

You can use this procedure to shut down and restart Ethernet or management interfaces.

Before You Begin

- You are logged in to the CLI in EXEC mode.

- When you shut down an interface, it becomes disabled and the output of monitoring commands show it as being down.

- To activate an interface that has been shut down, you must restart the device.

Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface** *interface*	Specifies an Ethernet interface to configure, and enters interface configuration mode.
Step 3	switch(config-if)# **shutdown**	Disables the interface in the running configuration .
Step 4	switch(config-if)# **show interface** *interface*	(Optional) Displays the interface status, which includes the administrative status.
Step 5	switch(config-if)# **no shutdown**	Reenables the interface in the running configuration .
Step 6	switch(config-if)# **show interface** *interface*	(Optional) Displays the interface status, which includes the administrative status. • For an Ethernet port, use **ethernet** *slot/port*, where *slot* is the module slot number and *port* is the port number. • For the management interface, use **mgmt 0** or **mgmt0**.

	Command or Action	Purpose
Step 7	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

The following example shows how to configure the Ethernet interface 3/1 with the default MTU size of 1500 bytes:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# shutdown
switch(config-if)# no shutdown
switch(config-if)#
```

Enabling or Disabling CDP

You can use this procedure to enable or disable the Cisco Discovery Protocol (CDP) for Ethernet and management interfaces.

Before You Begin

- You are logged in to the CLI in EXEC mode.

- Make sure that CDP is enabled at both ends of the link.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface** *interface*	Specifies the interface that you are configuring. The *interface* argument is defined as follows: • For an Ethernet port, use **ethernet** *slot/port*, where *slot* is the module slot number and *port* is the port number. • For the management interface, use **mgmt 0** or **mgmt0**.
Step 3	switch(config-if)# [**no**] **cdp enable**	Enables or disables CDP for the interface in the running configuration. To work, this parameter must be enabled for both interfaces on the same link. As soon as you disable CDP for one of two interfaces, CDP is disabled for the link.
Step 4	switch(config-if)# **show interface** *interface*	(Optional) Displays the CDP status for the interface in the running configuration. The *interface* argument is defined as follows: • For an Ethernet port, use **ethernet** *slot/port*, where *slot* is the module slot number and *port* is the port number.

	Command or Action	Purpose
		• For the management interface, use **mgmt 0** or **mgmt0**.
Step 5	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

The following example shows how to enable CDP for Ethernet port 3/1:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# cdp enable
switch(config-if)#
```
The following example shows how to disable CDP for Ethernet port 3/1:

```
n1000v# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# no cdp enable
switch(config-if)#
```

Clearing the Interface Counters

You can use this procedure to clear the Ethernet, vEthernet, and management interface counters.

Before You Begin

You are logged in to the CLI in EXEC mode, configuration mode, or interface configuration mode.

Procedure

	Command or Action	Purpose
Step 1	switch# **clear counters** *interface*	Clears the counters for the specified interface: • **ethernet** *slot/port* • **vethernet** *number* • **mgmt 0** or **mgmt0**
Step 2	switch# **show interface** *interface*	(Optional) Displays the interface status, which includes the counters, for the specified interface: • **ethernet** *slot/port* • **vethernet** *number* • **mgmt 0** or **mgmt0**

The following example shows how to clear and reset the counters on Ethernet port 5/5:

```
switch# clear counters ethernet 5/5
switch#
```

Verifying the Basic Interface Parameters

Use one of the following commands to verify the configuration:

Command	Purpose
show cdp	Displays the CDP status.
show interface *interface*	Displays the configured states of one or all interfaces.
show interface brief	Displays a table of interface states.
show interface switchport	Displays the status of Layer 2 ports.

Feature History for Basic Interface Parameters

Feature Name	Releases	Feature Information
Basic interface parameters	5.2(1)SM1(5.1)	This feature was introduced.