



CHAPTER 2

Configuring Interface Parameters

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

This chapter includes the following sections:

- [Information About the Basic Interface Parameters, page 2-1](#)
- [Guidelines and Limitations, page 2-3](#)
- [Configuring the Basic Interface Parameters, page 2-4](#)
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Note

To configure Layer 2 access or trunking interfaces, see [Chapter 2, “Configuring Interface Parameters.”](#)

Information About the Basic Interface Parameters

This section includes the following topics:

- [Description Parameter, page 2-2](#)
- [Speed and Duplex Modes, page 2-2](#)
- [Port MTU Size, page 2-2](#)
- [Administrative Status, page 2-2](#)
- [Cisco Discovery Protocol, page 2-3](#)
- [Port Channel Parameter, page 2-3](#)

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Description Parameter

For the vEthernet, 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.

By default, the description for vEthernet interfaces is auto-formatted to contain information about the device connected. The description for a VNIC, for example, contains the VM name and network adapter number. You keep this default description or can also override it with a description of your choosing.

For information about setting the description parameter for port channel interfaces, see the [“Adding a Description to a Port Channel Interface”](#) section on page 5-37.

For information about configuring this parameter for other interfaces, see the [“Configuring a Description”](#) section on page 2-5.

Speed and Duplex Modes

The speed and duplex modes are interrelated for each Ethernet and management interface. By default, each of these interfaces 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.

For information about setting the speed and duplex modes for port channel interfaces, see the [“Configuring the Speed and Duplex Settings for a Port Channel Interface”](#) section on page 5-38.

For information about setting the speed and duplex modes for other interfaces, see the [“Configuring the Interface Speed and Duplex Modes”](#) section on page 2-6.

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.

For a Layer 2 port, you can configure an MTU size as the system default of 1500 bytes or the system default jumbo MTU size of 9000 bytes.

For information about setting the MTU size, see the [“Configuring the MTU Size for an Ethernet Interface”](#) section on page 2-8.

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 more information, see the following sections:

- [Shutting Down and Restarting a Port Channel Interface, page 5-36.](#)

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- [Shutting Down and Activating an Interface](#), page 2-10.

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.

To configure CDP, see the [“Enabling or Disabling CDP”](#) section on page 2-11.

Port Channel Parameter

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.

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

To configure port channels, see the [“Configuring Port Channels”](#) section on page 5-1.

Guidelines and Limitations

Interface parameters have the following 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 reenables the interface.

- To specify an interface in the CLI, use the following guidelines:
 - For an Ethernet port— use **ethernet slot/port**, where *slot* is the module slot number and *port* is the port number.

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- 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.
- 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 of the following:
ethernet 4/5
ethernet4/5
- Jumbo frames are only supported on the vmxnet3 driver. Attempts to change the MTU appear to succeed but the adapter always drops frames larger than 1500 bytes. For more information see the VMware KB article [1015556](#).

Configuring the Basic Interface Parameters

This section includes the following topics:

- [Specifying an Interface to Configure, page 2-4](#)
- [Configuring a Description, page 2-5](#)
- [Configuring the Interface Speed and Duplex Modes, page 2-6](#)
- [Configuring the MTU Size for an Ethernet Interface, page 2-8](#)
- [Shutting Down and Activating an Interface, page 2-10](#)
- [Enabling or Disabling CDP, page 2-11](#)

Specifying an Interface to Configure

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

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

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

SUMMARY STEPS

1. **config t**
2. **interface** *interface*
3. **show interface** *interface*

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DETAILED STEPS

	Command	Purpose
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	interface interface Example: n1000v(config)# interface ethernet 2/1 n1000v(config-if)#	Enters interface configuration mode for the specified interface.
Step 3	show interface interface Example: n1000v(config-if)# show interface ethernet 2/1	Displays the current configuration of interfaces. The <i>interface</i> argument is defined as follows: <ul style="list-style-type: none"> • For an Ethernet port, use ethernet slot/port, where <i>slot</i> is the module slot number and <i>port</i> is the port number. • For the management interface, use mgmt 0 or mgmt0. • For a vEthernet port, use vethernet number, where <i>number</i> is a number from 1 to 1048575.

Configuring a Description

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

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- 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.

SUMMARY STEPS

1. **config t**
2. **interface interface**
3. **description string**
4. **show interface interface**
5. **copy running-config startup-config**

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DETAILED STEPS

	Command	Purpose
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	interface interface Example: n1000v(config)# interface ethernet 2/1 n1000v(config-if)#	Enters interface configuration mode for the specified interface.
Step 3	description string Example: n1000v(config-if)# description Ethernet port 3 on module 1. n1000v(config-if)#	Adds a description of up to 80 alphanumeric characters for the interface and saves it in the running configuration.
Step 4	show interface interface Example: n1000v(config)# show interface ethernet 2/1	Displays the interface status, which includes the description.
Step 5	copy running-config startup-config Example: n1000v(config)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

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

```
n1000v# config t
n1000v(config)# interface ethernet 3/24
n1000v(config-if)# description server1
n1000v(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

Before beginning this procedure, you must know or do the following:

- 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 the [“Speed and Duplex Modes”](#) section on page 2-2.

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**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 a speed of 10 Mbps or 100 Mbps, 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.

- 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.

SUMMARY STEPS

1. **config t**
2. **interface** *interface*
3. **speed** { { **10** | **100** | **1000** | { **auto** [**10** **100** [**1000**]] } } | { **10000** | **auto** }
4. **duplex** { **full** | **half** | **auto** }
5. **show interface** *interface*
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters the global configuration mode.
Step 2	interface <i>interface</i> Example: n1000v(config)# interface ethernet 2/1 n1000v(config-if)#	Enters interface configuration mode for the specified interface.

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	Command	Purpose
Step 3	<pre>speed {{10 100 1000 {auto [10 100 [1000]]}} {10000 auto}}</pre> <p>Example: n1000v(config-if)# speed 1000 n1000v(config-if)#</p>	Designates the port speed. <ul style="list-style-type: none"> 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 4	<pre>duplex {full half auto}</pre> <p>Example: n1000v(config-if)# duplex full</p>	Specifies the duplex mode as full, half, or autonegotiate.
Step 5	<pre>show interface interface</pre> <p>Example: n1000v(config)# show interface mgmt0</p>	Displays the configuration
Step 6	<pre>copy running-config startup-config</pre> <p>Example: n1000v(config)# copy running-config startup-config</p>	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

The following example shows how to set the speed of Ethernet port 1 on the 48-port 10/100/1000 module in slot 3 to 1000 Mbps and full-duplex mode:

```
n1000v# config t
n1000v(config)# interface ethernet 3/1
n1000v(config-if)# speed 1000
n1000v(config-if)# duplex full
n1000v(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

Before beginning this procedure, you must know or do the following:

- 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.

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- Make sure the MTU value you set is supported by the VEM physical NIC. See your VMware documentation for more information about supported MTU for physical NICs.
- Jumbo frames are only supported on the vmxnet3 driver. Attempts to change the MTU appear to succeed but the adapter always drops frames larger than 1500 bytes. For more information see the VMware KB article [1015556](#).

SUMMARY STEPS

1. **config t**
2. **interface ethernet *slot/port***
3. **mtu *size***
4. **show interface ethernet *slot/port***
5. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	interface ethernet <i>slot/port</i> Example: n1000v(config)# interface ethernet 3/1 n1000v(config-if)#	Specifies an Ethernet interface to configure, and enters interface configuration mode.
Step 3	mtu <i>size</i> Example: n1000v(config-if)# mtu 9000	Specifies an MTU size between 1500 (the default) and 9000 bytes.
Step 4	show interface ethernet <i>slot/port</i> Example: n1000v(config-if)# show interface type <i>slot/port</i>	Displays the interface status, which includes the MTU size.
Step 5	copy running-config startup-config Example: n1000v(config)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

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

```
n1000v# config t
n1000v(config)# interface ethernet 3/1
n1000v(config-if)# mtu 1500
n1000v(config-if)#
```

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Shutting Down and Activating an Interface

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

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- 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.

SUMMARY STEPS

1. **config t**
2. **interface** *interface*
3. **shutdown**
4. **show interface** *interface*
5. **no shutdown**
6. **show interface** *interface*
7. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	interface <i>interface</i> Example 1: n1000v(config)# interface ethernet 2/1 n1000v(config-if)#	Specifies the interface that you are configuring. The <i>interface</i> argument is defined as follows: <ul style="list-style-type: none"> • For an Ethernet port, use ethernet <i>slot/port</i>, where <i>slot</i> is the module slot number and <i>port</i> is the port number. • For the management interface, use mgmt 0 or mgmt0.
Step 3	shutdown Example: n1000v(config-if)# shutdown	Disables the interface in the running configuration.
Step 4	show interface <i>interface</i> Example: n1000v(config-if)# show interface ethernet 2/1	Displays the interface status, which includes the administrative status.

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	Command	Purpose
Step 5	no shutdown Example: n1000v(config-if)# no shutdown	Reenables the interface in the running configuration.
Step 6	show interface interface Example: n1000v(config-if)# show interface ethernet 2/1	Displays the interface status, which includes the administrative status. The <i>interface</i> argument is defined as follows: <ul style="list-style-type: none"> • For an Ethernet port, use ethernet slot/port, where <i>slot</i> is the module slot number and <i>port</i> is the port number. • For the management interface, use mgmt 0 or mgmt0.
Step 7	copy running-config startup-config Example: n1000v(config)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

The following example shows how to change the administrative status for Ethernet port 3/1 from disabled to enabled:

```
n1000v# config t
n1000v(config)# interface ethernet 3/1
n1000v(config-if)# shutdown
n1000v(config-if)# no shutdown
n1000v(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

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.
- Make sure that CDP is enabled at both ends of the link.

SUMMARY STEPS

1. **config t**
2. **interface interface**
3. **cdp enable**
no cdp enable
4. **show cdp interface interface**
5. **copy running-config startup-config**

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DETAILED STEPS

	Command	Purpose
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	interface interface Example 1: n1000v(config)# interface ethernet 3/1 n1000v(config-if)#	Specifies the interface that you are configuring. The <i>interface</i> argument is defined as follows: <ul style="list-style-type: none"> For an Ethernet port, use ethernet slot/port, where <i>slot</i> is the module slot number and <i>port</i> is the port number. For the management interface, use mgmt 0 or mgmt0.
Step 3	cdp enable Example: n1000v(config-if)# cdp enable	Enables CDP for the interface in the running configuration. To work, this parameter must be enabled for both interfaces on the same link.
	no cdp enable Example: n1000v(config-if)# no cdp enable	Disables CDP for the interface in the running configuration. As soon as you disable CDP for one of two interfaces, CDP is disabled for the link.
Step 4	show cdp interface interface Example: n1000v(config-if)# show cdp interface interface	Displays the CDP status for the interface in the running configuration. The <i>interface</i> argument is defined as follows: <ul style="list-style-type: none"> For an Ethernet port, use ethernet slot/port, where <i>slot</i> is the module slot number and <i>port</i> is the port number. For the management interface, use mgmt 0 or mgmt0.
Step 5	copy running-config startup-config Example: n1000v(config)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

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

```
n1000v# config t
n1000v(config)# interface ethernet 3/1
n1000v(config-if)# cdp enable
n1000v(config-if)#
```

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

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

Clearing the Interface Counters

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

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

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

SUMMARY STEPS

1. `clear counters interface-type interface-id`
2. `show interface interface`

DETAILED STEPS

	Command	Purpose
Step 1	<code>clear counters interface</code> Example: n1000v# clear counters ethernet 2/1 n1000v#	Clears the counters for the specified interface: <ul style="list-style-type: none"> • <code>ethernet slot/port</code> • <code>vethernet number</code> • <code>mgmt 0</code> or <code>mgmt0</code>
Step 2	<code>show interface interface</code> Example: n1000v# show interface ethernet 2/1	Displays the interface status, which includes the counters, for the specified interface: <ul style="list-style-type: none"> • <code>ethernet slot/port</code> • <code>vethernet number</code> • <code>mgmt 0</code> or <code>mgmt0</code>

EXAMPLES

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

```
n1000v# clear counters ethernet 5/5
n1000v#
```

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Verifying the Basic Interface Parameters

Use the commands listed here to display and verify the basic interface parameters.

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

Feature History for Basic Interface Parameters

This section provides the feature history for basic interface parameters.

Feature Name	Releases	Feature Information
System jumbo MTU	4.2(1)SV1(4)	The system jumbo MTU is fixed at 9000 and cannot be changed.
Interface MTU	4.2(1)SV1(4)	The interface MTU can be configured as a value between 1500 and 9000.
Basic interface parameters	4.0(4)SV1(1)	This feature was introduced.