CHAPTER 2

Configuring Interface Parameters

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

This chapter includes the following sections:

- Information About the Basic Interface Parameters, page 2-1
- Guidelines and Limitations, page 2-5
- Configuring the Basic Interface Parameters, page 2-6
- Verifying the Basic Interface Parameters, page 2-20
- Clearing the Interface Counters, page 2-21

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, page 2-2
- Speed Mode and Duplex Mode, page 2-2
- Port MTU Size, page 2-3
- Bandwidth, page 2-4
- Throughput Delay, page 2-4
- Administrative Status, page 2-4
- Cisco Discovery Protocol, page 2-4
- Port Channel Parameter, page 2-5
- Port Channel Parameter, page 2-5

Description

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.

For information about setting the description parameter for port channel interfaces, see the "Configuring a Port Channel Description" section on page 5-18.

For information about configuring this parameter for other interfaces, see the "Configuring the Description" section on page 2-7.

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.

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 about 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 5-21.

For information about setting the speed and duplex speed for other interfaces, see the "Configuring the Interface Speed and Duplex Mode" section on page 2-10.

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 about setting the MTU size, see the "Configuring the MTU Size" section on page 2-12.

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 see the "Configuring Bandwidth" section on page 2-15.

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 see the "Configuring the Throughput Delay" section on page 2-16.

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 see the following:

- "Shutting Down and Restarting a Port Channel Interface" section on page 5-17.
- "Shutting Down and Activating the Interface" section on page 2-17.

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.

For information see the following:

- "Enabling or Disabling CDP" section on page 2-19.

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.

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.

To configure port channels, see the "Configuring Port Channels" section on page 5-1.

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. You can change a Layer 3 interface into a Layer 2 interface by using the **switchport** command. Conversely, you can change a Layer 2 interface into a Layer 3 interface by using the **no switchport** command.
- Flow control, that is using IEEE 802.3x pause frames for controlling flow, is not supported.
- You usually configure Ethernet port speed and duplex mode parameters to auto to allownegotiation of 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:
  - 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 mode if the connecting port is configured to a value other than auto.

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

Configuring the Basic Interface Parameters

This section includes the following topics:

- Specifying the Interfaces to Configure, page 2-6
- Configuring the Description, page 2-7
- Configuring Bandwidth, page 2-15
- Configuring the Throughput Delay, page 2-16
- Shutting Down and Activating the Interface, page 2-17
- Enabling or Disabling CDP, page 2-19

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. The following table shows the interface types and identities that you should use for specifying the Ethernet and management interfaces.

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

To verify the current configuration of interfaces, you can display their properties. Use the **show interface** command along with a specification of the interface type and identities.

SUMMARY STEPS

1. **config t**
2. **interface** *interface*

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you into the CLI Global Configuration mode.
Step 2	**interface** *type number*	Specifies the interface that you are configuring. For an Ethernet port, use "ethernet *slot*/*port*." For the management interface, use "mgmt0." **Note** You do not need to add a space between the interface type and the port or slot/port number. For example, for the Ethernet slot 4, port 5 interface, you can specify either "ethernet 4/5" or "ethernet4/5." The management interface is either "mgmt0" or "mgmt 0."
	Example 1: n1000v(config)# interface ethernet 2/1 n1000v(config-if)#	This example shows how to specify the slot 2, port 1 Ethernet interface.
	Example 2: n1000v(config)# interface mgmt0 n1000v(config-if)#	This example shows how to specify the management interface.

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.

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you into the CLI Global Configuration mode.
Step 2	**interface** *interface* **Example:** n1000v(config)# interface ethernet 2/1 n1000v(config-if)# n1000v(config)# interface mgmt0 n1000v(config-if)#	Specifies an Ethernet or vEthernet interface to configure, and places you into the Interface Configuration mode for that interface. Example 1 shows how to specify the slot 2 port, 1 Ethernet interface. Example 2 shows how to specify the management interface.
Step 3	**description** *text* **Example:** n1000v(config-if)# description Ethernet port 3 on module 1. n1000v(config-if)#	Adds the description 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	**exit** **Example:** n1000v(config-if)# exit n1000v(config)#	Exits the interface mode.
Step 6	**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.

This 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)#
```

Dedicating Bandwidth to One Port

When you dedicate the bandwidth to one port, you must first administratively shut down the four ports in the group, change the rate mode to dedicated, and then bring the dedicated port administratively up.

SUMMARY STEPS

1. **config t**
2. **interface ethernet** *slot/port,* **ethernet** *slot/port,* **ethernet** *slot/port,* **ethernet** *slot/port*
3. **shutdown**
4. **interface ethernet** *slot/port*
5. **rate-mode dedicated**
6. **no shutdown**
7. **show interface ethernet** *slot/port*
8. **exit**
9. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

Step 1	**config t**
	
	Example:
	`n1000v# config t`
	`n1000v(config)#`
		Places you into the CLI Global Configuration Mode.

Step 2	**interface ethernet** *slot/port*, **ethernet** *slot/port*, **ethernet** *slot/port*, **ethernet** *slot/port*
	
	Example:
	`n1000v(config)# interface ethernet 3/1, ethernet 3/3, ethernet 3/5, ethernet 3/7`
	`n1000v(config-if)#`
		Specifies an Ethernet interface to configure, and enters interface configuration mode.
		
		The example shows how to specify one port for the dedicated mode.

Step 3	**shutdown** **Example:** `n1000v(config)# shutdown`	Administratively shuts down the ports in the running configuration.

Step 4	**interface ethernet** *slot/port*
	
	Example:
	`n1000v(config)# interface ethernet 3/1`
	`n1000v(config)#`
		Specifies the first Ethernet interface in a group of interfaces.

Step 5	**rate-mode dedicated**
	
	Example:
	`n1000v(config-if)# rate-mode dedicated`
	`n1000v(config-if)#`
		Full bandwidth of 10 Gb is dedicated to one port in the running configuraiton. When you dedicate the bandwidth, all subsequent commands for the port are for dedicated mode.

	Command	Purpose
Step 6	**no shutdown** **Example:** n1000v(config-if)# no shutdown	Brings the port administratively up in the running coniguration.
Step 7	**show interface ethernet** *slot/port* **Example:** n1000v(config)# show interface ethernet 3/1	Displays the interface information including the current rate mode.
Step 8	**exit** **Example:** n1000v(config-if)# exit n1000v(config)#	Exits the interface mode.
Step 9	**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.

This example shows how to configure the dedicated mode for Ethernet port 4/17 in the group that includes ports 4/17, 4/19, 4/21, and 4/23:

```
n1000v# config t
n1000v(config)# interface ethernet 4/17, ethernet 4/19, ethernet 4/21, ethernet 4/23
n1000v(config-if)# shutdown
n1000v(config-if)# interface ethernet 4/17
n1000v(config-if)# rate-mode dedicated
n1000v(config-if)# no shutdown
n1000v(config-if)#
```

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 .

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.

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. **exit**
7. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** svs# config t svs(config)#	Enters the global configuration mode.
Step 2	**interface** *interface* **Example 1:** svs(config)# interface ethernet 2/1 svs(config-if)# **Example 2:** svs(config)# interface mgmt0 svs(config-if)#	Specifies the interface that you are configuring. You can specify the interface type and identity. For an Ethernet port, use "ethernet *slot*/*port*." For the management interface, use "mgmt0." Example 1 shows how to specify the slot 2 port 1 Ethernet interface. Example 2 shows how to specify the management interface.
Step 3	**speed** {{**10** | **100** | **1000** | {**auto** [**10 100** [**1000**]]}} | {**10000** | **auto**}} **Example:** svs(config-if)# speed 1000 svs(config-if)#	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 GE modules, sets the speed at 10,000 Mbps (10 Gbps) or sets the port to autonegotiate its speed with the other 10 GE port on the link. For management interfaces, sets the speed as 1000 Mbps or sets the port to autonegotiate its speed.

	Command	Purpose
Step 4	**duplex** {**full** | **half** | **auto**} **Example:** svs(config-if)# duplex full	Specifies the duplex mode as full, half, or autonegotiate.
Step 5	**show interface** *interface* **Example:** svs(config)# show interface *mgmt0*	Displays the interface status, which includes the speed and duplex mode parameters.
Step 6	**exit** **Example:** svs(config-if)# exit svs(config)#	Exits the interface mode.
Step 7	**copy running-config startup-config** **Example:** svs(config)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

This 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:

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

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).

This section includes the following topics:

- Configuring the Interface MTU Size, page 2-12
- Configuring the System Jumbo MTU Size, page 2-14

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). 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 2-14.

SUMMARY STEPS

1. **config t**
2. **interface ethernet** *slot/port*
3. **switchport** | {**no switchport**}
4. **mtu** *size*
5. **show interface ethernet** *slot/port*
6. **exit**
7. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** svs# config t svs(config)#	Places you into the CLI Global Configuration Mode.
Step 2	**interface ethernet** *slot/port* **Example:** svs(config)# interface ethernet 3/1 svs(config-if)#	Specifies an Ethernet interface to configure, and enters interface configuration mode.
Step 3	**switchport** | {**no switchport**}	Specifies to use Layer 2 or Layer 3.
Step 4	**mtu** ***size*** **Example:** svs(config-if)# mtu 9216 svs(config-if)#	For a Layer 2 interface, specifies either the default MTU size (1500) or the system jumbo MTU size (9216 unless you have changed the system jumbo MTU size). For a Layer 3 interface, specifies any even number between 576 and 9216.
Step 5	**show interface ethernet** *slot/port* **Example:** svs(config)# show interface *type slot/port*	Displays the interface status, which includes the MTU size.
Step 6	**exit** **Example:** svs(config-if)# exit svs(config)#	Exits the interface mode.
Step 7	**copy running-config startup-config** **Example:** svs(config)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

This example shows how to configure the Layer 2 Ethernet port 3/1 with the default MTU size (1500).

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

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.

SUMMARY STEPS

1. **config t**
2. **system jumbomtu** *size*
3. **show running-config**
4. **interface** *type slot/port*
5. **mtu** *size*
6. **exit**
7. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

Step 1	**config t**
	
	Example:
	`svs# config t`
	`svs(config)#`
		Places you into the CLI Global Configuration Mode.

Step 2	**system jumbomtu** *size*
	
	Example:
	`svs(config)# system jumbomtu 8000`
	`svs(config-if)#`
		Specifies the system jumbo MTU size. Use an even number between 1500 and 9216.

Step 3	**show running-config** **Example:** `svs(config)# show running-config`	Displays the current operating configuration, which includes the system jumbo MTU size.
Step 4	**interface** *type slot/port*	Specifies an interface to configure and enters the interface configuration mode.
Step 5	**mtu** *size*	For a Layer 2 interface, specifies either the default MTU size (1500) or the system jumbo MTU size that you specified earlier. For a Layer 3 interface, specifies any even size between 576 and 9216.

Step 6	**exit**
	
	Example:
	`svs(config-if)# exit`
	`svs(config)#`
		Exits the interface mode.

Step 7	**copy running-config startup-config** **Example:** `svs(config)# copy running-config startup-config`	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

This example shows how to configure the system jumbo MTU as 8000 bytes and how to change the MTU specification for an interface that was configured with the previous jumbo MTU size:

```
svs# config t
svs(config)# system jumbomtu 8000
svs(config)# show running-config
svs(config)# interface ethernet 2/2
svs(config-if)# switchport
svs(config-if)# mtu 8000
svs(config-if)#
```

Configuring 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.

SUMMARY STEPS

1. **config t**
2. **interface ethernet** *slot/port*
3. **bandwidth** *value*
4. **show interface ethernet** *slot/port*
5. **exit**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you into the CLI Global Configuration Mode.
Step 2	**interface ethernet** *slot/port* **Example:** n1000v(config)# interface ethernet 3/1 n1000v(config-if)#	Specifies an Ethernet interface to configure, and enters interface configuration mode.
Step 3	**bandwidth** *value* **Example:** n1000v(config-if)# bandwidth 1000000 n1000v(config-if)#	Assigns the specified bandwidth to the interface in the running configuration. The bandwide is an information-only value between 1 and 10,000,000.
Step 4	**show interface ethernet** *slot/port* **Example:** n1000v(config)# show interface ethernet *slot/port*	Displays the interface status, which includes the bandwidth value.

	Command	Purpose
Step 5	**exit** **Example:** n1000v(config-if)# exit n1000v(config)#	Exits the interface mode.
Step 6	**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.

This example shows how to configure an informational value of 1,000,000 Kb for the Ethernet slot 3 port 1 interface bandwidth parameter:

```
n1000v# config t
n1000v(config)# interface ethernet 3/1
n1000v(config-if)# bandwidth 1000000
n1000v(config-if)#
```

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.

SUMMARY STEPS

1. **config t**
2. **interface ethernet** *slot/port*
3. **delay** *tens_of_microseconds*
4. **show interface ethernet** *slot/port*
5. **exit**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you into the CLI Global Configuration Mode.
Step 2	**interface ethernet** *slot/port* **Example:** n1000v(config)# interface ethernet 3/1 n1000v(config-if)#	Specifies an interface to configure, and enters Interface Configuration mode.

	Command	Purpose
Step 3	**delay** *value* **Example:** n1000v(config-if)# delay 10000 n1000v(config-if)#	Assigns the delay time to the interface in the running configuration. The delay time is specified in tens of microseconds.
Step 4	**show interface ethernet** *slot/port* **Example:** n1000v(config)# show interface ethernet 3/1 n1000v(config-if)#	Displays the interface status, which includes the throughput-delay time.
Step 5	**exit** **Example:** n1000v(config-if)# exit n1000v(config)#	Exits the interface mode.
Step 6	**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.

This example shows how to configure the throughput-delay time to 100,000 microseconds for the slot 3 port 1 Ethernet interface:

```
n1000v# config t
n1000v(config)# interface ethernet 3/1
n1000v(config-if)# delay 10000
n1000v(config-if)#
```

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.

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you into the CLI Global Configuration mode.
Step 2	**interface** *interface* **Example:** n1000v(config)# interface ethernet 2/1 n1000v(config-if)# n1000v(config)# interface mgmt0 n1000v(config-if)#	Specifies the interface that you are configuring. You can specify the interface type and identity. For an Ethernet port, use "ethernet *slot*/*port*." For the management interface, use "mgmt0." Example 1 shows how to specify the slot 2, port 1 Ethernet interface. Example 2 shows how to specify the management interface.
Step 3	**shutdown** **Example:** n1000v(config-if)# shutdown n1000v(config-if)#	Disables the interface in the running configuration.
Step 4	**show interface** *interface* **Example:** n1000v(config-if)# show interface ethernet 2/1 n1000v(config-if)#	Displays the interface status, which includes the administrative status.
Step 5	**no shutdown** **Example:** n1000v(config-if)# no shutdown n1000v(config-if)#	Reenables the interface in the running configuration.
Step 6	**show interface** *interface* **Example:** n1000v(config-if)# show interface ethernet 2/1 n1000v(config-if)#	Displays the interface status, which includes the administrative status.
Step 7	**exit** **Example:** n1000v(config-if)# exit n1000v(config)#	Exits the interface mode.
Step 8	**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.

This 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 enable or disable the Cisco Discovery Protocol (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 CDP enabled.

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose

Step 1	**config t**
	
	Example:
	`n1000v# config t`
	`n1000v(config)#`
		Places you into the CLI Global Configuration mode.

Step 2	**interface** *interface*
	
	Example 1:
	`n1000v(config)# interface ethernet 2/1`
	`n1000v(config-if)#`
	
	Example 2:
	`n1000v(config)# interface mgmt0`
	`n1000v(config-if)#`
		Specifies an Ethernet or vEthernet interface to configure, and places you into the Interface Configuration mode for that interface.
		
		Example 1 shows how to specify the slot 2 port 1 Ethernet interface.
		
		Example 2 shows how to specify the management interface.

Step 3	**cdp enable**
	
	Example:
	`n1000v(config-if)# cdp enable`
	`n1000v(config-if)#`
		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`
	`n1000v(config-if)#`
		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.

	Command	Purpose
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.
Step 5	**exit** **Example:** n1000v(config-if)# exit n1000v(config)#	Exits the interface mode.
Step 6	**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.

This example shows how to enable CDP for the Ethernet slot 3, port 1 interface:

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

This example shows how to disable CDP for the Ethernet slot 3, port 1 interface:

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

Verifying the Basic Interface Parameters

You can verify the basic interface parameters by displaying their values. You can also clear the counters listed when you display the parameter values.

DETAILED STEPS

To display Layer 2 port configuration information, use the appropriate **show** command for the parameters you need to display.

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.

Clearing the Interface Counters

You can clear the Ethernet and management interface counters shown with the **show interfaces** command. You can perform this task from the EXEC mode, configuration mode, or interface configuration mode.

SUMMARY STEPS

1. **clear counters** *interface*
2. **show interface** *interface*

DETAILED STEPS

	Command	Purpose

Step 1	**clear counters** *interface*
	
	Example:
	`n1000v# clear counters ethernet 2/1`
	`n1000v#`
		Clears the Ethernet or management interface counters.

Step 2	**show interface** ***interface***	Displays the interface status, which includes the counters.

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

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