



Configuring CDP

This chapter describes how to configure Cisco Discovery Protocol (CDP) on your switch.



Note

For complete syntax and usage information for the commands used in this chapter, refer to the *Catalyst 2950 Desktop Switch Command Reference* for this release and the *Cisco IOS Configuration Fundamentals Command Reference for Release 12.1*.

This chapter consists of these sections:

- [Understanding CDP, page 19-1](#)
- [Configuring CDP, page 19-2](#)
- [Monitoring and Maintaining CDP, page 19-5](#)

Understanding CDP

CDP is a device discovery protocol that runs over Layer 2 (the data link layer) on all Cisco-manufactured devices (routers, bridges, access servers, and switches) and allows network management applications to discover Cisco devices that are neighbors of already known devices. With CDP, network management applications can learn the device type and the Simple Network Management Protocol (SNMP) agent address of neighboring devices running lower-layer, transparent protocols. This feature enables applications to send SNMP queries to neighboring devices.

CDP runs on all media that support Subnetwork Access Protocol (SNAP). Because CDP runs over the data-link layer only, two systems that support different network-layer protocols can learn about each other.

Each CDP-configured device sends periodic messages to a multicast address, advertising at least one address at which it can receive SNMP messages. The advertisements also contain time-to-live, or holdtime information, which is the length of time a receiving device holds CDP information before discarding it. Each device also listens to the messages sent by other devices to learn about neighboring devices.

On the Catalyst 2950 switch, CDP enables the Cluster Management Suite to display a graphical view of the network. The switch uses CDP to find cluster candidates and maintain information about cluster members and other devices up to three cluster-enabled devices away from the command switch by default.

The switch supports CDP version 2.

Configuring CDP

These sections include CDP configuration information and procedures:

- [Default CDP Configuration, page 19-2](#)
- [Configuring the CDP Characteristics, page 19-2](#)
- [Disabling and Enabling CDP, page 19-3](#)
- [Disabling and Enabling CDP on an Interface, page 19-4](#)

Default CDP Configuration

Table 19-1 shows the default CDP configuration.

Table 19-1 Default CDP Configuration

Feature	Default Setting
CDP global state	Enabled
CDP interface state	Enabled
CDP timer (packet update frequency)	60 seconds
CDP holdtime (before discarding)	180 seconds
CDP version-2 advertisements	Enabled

Configuring the CDP Characteristics

You can configure the frequency of CDP updates, the amount of time to hold the information before discarding it, and whether or not to send version-2 advertisements.

Beginning in privileged EXEC mode, follow these steps to configure the CDP timer, holdtime, and advertisement type.



Note

Steps 2 through 4 are all optional and can be performed in any order.

	Command	Purpose
Step 1	<code>configure terminal</code>	Enter global configuration mode.
Step 2	<code>cdp timer seconds</code>	(Optional) Set the transmission frequency of CDP updates in seconds. The range is from 5 to 254; the default is 60 seconds.
Step 3	<code>cdp holdtime seconds</code>	(Optional) Specify the amount of time a receiving device should hold the information sent by your device before discarding it. The range is from 10 to 255 seconds; the default is 180 seconds.
Step 4	<code>cdp advertise-v2</code>	(Optional) Configure CDP to send version-2 advertisements. This is the default state.
Step 5	<code>end</code>	Return to privileged EXEC mode.

	Command	Purpose
Step 6	<code>show cdp</code>	Verify configuration by displaying global information about CDP on the device.
Step 7	<code>copy running-config startup-config</code>	(Optional) Save your entries in the configuration file.

Use the **no** form of the CDP commands to return to the default settings.

This example shows how to configure and verify CDP characteristics.

```
Switch# configure terminal
Switch(config)# cdp timer 50
Switch(config)# cdp holdtime 120
Switch(config)# cdp advertise-v2
Switch(config)# end

Switch# show cdp

Global CDP information:
  Sending CDP packets every 50 seconds
  Sending a holdtime value of 120 seconds
  Sending CDPv2 advertisements is enabled
```

For additional CDP **show** commands, see the [“Monitoring and Maintaining CDP”](#) section on page 19-5.

Disabling and Enabling CDP

CDP is enabled by default.



Note

Creating and maintaining switch clusters is based on the regular exchange of CDP messages. Disabling CDP can interrupt cluster discovery. For more information, see [Chapter 6, “Clustering Switches.”](#)

Beginning in privileged EXEC mode, follow these steps to disable the CDP device discovery capability:

	Command	Purpose
Step 1	<code>configure terminal</code>	Enter global configuration mode.
Step 2	<code>no cdp run</code>	Disable CDP.
Step 3	<code>end</code>	Return to privileged EXEC mode.

Beginning in privileged EXEC mode, follow these steps to enable CDP when it has been disabled:

	Command	Purpose
Step 1	<code>configure terminal</code>	Enter global configuration mode.
Step 2	<code>cdp run</code>	Enable CDP after disabling it.
Step 3	<code>end</code>	Return to privileged EXEC mode.

This example shows how to enable CDP if it has been disabled.

```
Switch# configure terminal
Switch(config)# cdp run
Switch(config)# end
```

Disabling and Enabling CDP on an Interface

CDP is enabled by default on all supported interfaces to send and receive CDP information.

Beginning in privileged EXEC mode, follow these steps to disable CDP on an interface:

	Command	Purpose
Step 1	configure terminal	Enter global configuration mode.
Step 2	interface <i>interface-id</i>	Enter interface configuration mode, and enter the interface on which you are disabling CDP.
Step 3	no cdp enable	Disable CDP on an interface.
Step 4	end	Return to privileged EXEC mode.
Step 5	copy running-config startup-config	(Optional) Save your entries in the configuration file.

Beginning in privileged EXEC mode, follow these steps to enable CDP on an interface when it has been disabled:

	Command	Purpose
Step 1	configure terminal	Enter global configuration mode.
Step 2	interface <i>interface-id</i>	Enter interface configuration mode, and enter the interface on which you are enabling CDP.
Step 3	cdp enable	Enable CDP on an interface after disabling it.
Step 4	end	Return to privileged EXEC mode.
Step 5	copy running-config startup-config	(Optional) Save your entries in the configuration file.

This example shows how to enable CDP on an interface when it has been disabled.

```
Switch# configure terminal
Switch(config)# interface fastethernet0/5
Switch(config-if)# cdp enable
Switch(config-if)# end
```

Monitoring and Maintaining CDP

To monitor and maintain CDP on your device, perform one or more of these tasks, beginning in privileged EXEC mode.

Command	Description
clear cdp counters	Reset the traffic counters to zero.
clear cdp table	Delete the CDP table of information about neighbors.
show cdp	Display global information, such as frequency of transmissions and the holdtime for packets being sent.
show cdp entry <i>entry-name</i> [protocol version]	Display information about a specific neighbor. You can enter an asterisk (*) to display all CDP neighbors, or you can enter the name of the neighbor about which you want information. You can also limit the display to information about the protocols enabled on the specified neighbor or information about the version of software running on the device.
show cdp interface [<i>type number</i>]	Display information about interfaces where CDP is enabled. You can limit the display to the type of interface or the number of the interface about which you want information (for example, entering gigabitethernet 0/1 displays information only about Gigabit Ethernet port 1).
show cdp neighbors [<i>type number</i>] [detail]	Display information about neighbors, including device type, interface type and number, holdtime settings, capabilities, platform, and port ID. You can limit the display to neighbors on a specific type or number of interface or expand the display to provide more detailed information.
show cdp traffic	Display CDP counters, including the number of packets sent and received and checksum errors.

These are examples of outputs from the CDP **show** privileged EXEC commands:

```
Switch# show cdp
Global CDP information:
  Sending CDP packets every 50 seconds
  Sending a holdtime value of 120 seconds
  Sending CDPv2 advertisements is enabled

Switch# show cdp entry *
-----
Device ID: C2950T-155
Entry address(es):
  IP address: 172.20.135.155
Platform: cisco WS-C2950T-24, Capabilities: Switch IGMP
Interface: FastEthernet0/3, Port ID (outgoing port): FastEthernet0/3
Holdtime : 126 sec

Version :
Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-I6Q4L2-M), Experimental Version 12.1(20011119:23
611) [eleza-cal2_throttle 141]
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Tue 05-Feb-02 09:06 by eleza
```

```

advertisement version: 2
Protocol Hello: OUI=0x00000C, Protocol ID=0x0112; payload len=27, value=000000
0FFFFFFF010221FF000000000000000196000040FF0001
VTP Management Domain: 'monica'
Native VLAN: 1
Duplex: full

```

```

-----
Device ID: C2950C-146
Entry address(es):
  IP address: 172.20.135.146
Platform: cisco WS-C2950C-24, Capabilities: Switch IGMP
Interface: FastEthernet0/2, Port ID (outgoing port): FastEthernet0/2
Holdtime : 137 sec

```

```

Version :
Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-I6Q4L2-M), Experimental Version 12.1(20011119:233
611) [eleza-cal2_throttle 141]
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Tue 05-Feb-02 09:06 by eleza

```

```

advertisement version: 2
Protocol Hello: OUI=0x00000C, Protocol ID=0x0112; payload len=27, value=0000000
0FFFFFFF010221FF0000000000000008A33A1980FF0001
VTP Management Domain: 'monica'
Native VLAN: 1
Duplex: full

```

<output truncated>

```

Switch# show cdp entry * protocol
Protocol information for C2950T-155 :
  IP address: 172.20.135.155
Protocol information for C2950C-146 :
  IP address: 172.20.135.146
Protocol information for sjc19-sdf2-vstorm2.cisco.com :
  IP address: 172.20.141.83
  IP address: 172.20.141.79

```

```

Switch# show cdp interface
FastEthernet0/1 is up, line protocol is up
  Encapsulation ARPA
  Sending CDP packets every 60 seconds
  Holdtime is 180 seconds
FastEthernet0/2 is up, line protocol is up
  Encapsulation ARPA
  Sending CDP packets every 60 seconds
  Holdtime is 180 seconds
FastEthernet0/3 is up, line protocol is up
  Encapsulation ARPA
  Sending CDP packets every 60 seconds
  Holdtime is 180 seconds

```

<output truncated>

```
Switch# show cdp neighbor
```

```
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater
```

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
C2950T-155	Fas 0/3	132	S I	WS-C2950T-Fas	0/3
C2950C-146	Fas 0/2	126	S I	WS-C2950C-Fas	0/2
sjc19-sdf2-vstorm	Fas 0/1	143	T S	WS-C3548-XFas	0/17
C2950-12-147	Fas 0/11	146	S I	WS-C2950-1Fas	0/12
C2950-12-147	Fas 0/12	146	S I	WS-C2950-1Fas	0/11
C2950-12-147	Fas 0/9	146	S I	WS-C2950-1Fas	0/10
C2950-12-147	Fas 0/10	146	S I	WS-C2950-1Fas	0/9
C2950-12-147	Fas 0/7	146	S I	WS-C2950-1Fas	0/8
C2950-12-147	Fas 0/8	146	S I	WS-C2950-1Fas	0/7
C2950-12-147	Fas 0/5	146	S I	WS-C2950-1Fas	0/6

```
Switch# show cdp traffic
```

```
CDP counters :
```

```
Total packets output: 50882, Input: 52510
Hdr syntax: 0, Chksum error: 0, Encaps failed: 0
No memory: 0, Invalid packet: 0, Fragmented: 0
CDP version 1 advertisements output: 0, Input: 0
CDP version 2 advertisements output: 50882, Input: 52510
```

