Configuring the Cisco Discovery Protocol

Cisco Discovery Protocol is a Layer 2, media-independent, and network-independent protocol that runs on Cisco devices and enables networking applications to learn about directly connected devices nearby. This protocol facilitates the management of Cisco devices by discovering these devices, determining how they are configured, and allowing systems using different network-layer protocols to learn about each other.

This module describes Cisco Discovery Protocol Version 2 and how it functions with SNMP.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About CDP

Cisco Discovery Protocol Overview

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

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

Each Cisco Discovery Protocol-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 Cisco Discovery Protocol information before discarding it. Each device also listens to the messages sent by other devices to learn about neighboring devices.

On the switch, Cisco Discovery Protocol enables Network Assistant to display a graphical view of the network. The switch uses Cisco Discovery Protocol 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.

- Cisco Discovery Protocol identifies connected endpoints that communicate directly with the switch.
- To prevent duplicate reports of neighboring devices, only one wired switch reports the location information.
- The wired switch and the endpoints both send and receive location information.

Related Topics

Configuring Cisco Discovery Protocol Characteristics, on page 2
Monitoring and Maintaining Cisco Discovery Protocol, on page 10

Default Cisco Discovery Protocol Configuration

This table shows the default Cisco Discovery Protocol configuration.

Feature	Default Setting
Cisco Discovery Protocol global state	Enabled
Cisco Discovery Protocol interface state	Enabled
Cisco Discovery Protocol timer (packet update frequency)	60 seconds
Cisco Discovery Protocol holdtime (before discarding)	180 seconds
Cisco Discovery Protocol Version-2 advertisements	Enabled

Related Topics

Enabling Cisco Discovery Protocol, on page 6
Disabling Cisco Discovery Protocol , on page 4
Enabling Cisco Discovery Protocol on an Interface, on page 9
Disabling Cisco Discovery Protocol on an Interface, on page 7

How to Configure CDP

Configuring Cisco Discovery Protocol Characteristics

You can configure these Cisco Discovery Protocol characteristics:

- Frequency of Cisco Discovery Protocol updates
- Amount of time to hold the information before discarding it
- Whether or not to send Version 2 advertisements

Note Steps 3 through 5 are all optional and can be performed in any order.

Follow these steps to configure the Cisco Discovery Protocol characteristics.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **cdp timer** *seconds*
4. **cdp holdtime** *seconds*
5. **cdp advertise-v2**
6. **end**
7. **show running-config**
8. **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Switch> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Switch# configure terminal`	Enters global configuration mode.
Step 3	**cdp timer** *seconds* **Example:** `Switch(config)# cdp timer 20`	(Optional) Sets the transmission frequency of Cisco Discovery Protocol updates in seconds. The range is 5 to 254; the default is 60 seconds.
Step 4	**cdp holdtime** *seconds* **Example:** `Switch(config)# cdp holdtime 60`	(Optional) Specifies the amount of time a receiving device should hold the information sent by your device before discarding it. The range is 10 to 255 seconds; the default is 180 seconds.

	Command or Action	Purpose
Step 5	**cdp advertise-v2** **Example:** `Switch(config)# cdp advertise-v2`	(Optional) Configures Cisco Discovery Protocol to send Version 2 advertisements. This is the default state.
Step 6	**end** **Example:** `Switch(config)# end`	Returns to privileged EXEC mode.
Step 7	**show running-config** **Example:** `Switch# show running-config`	Verifies your entries.
Step 8	**copy running-config startup-config** **Example:** `Switch# copy running-config startup-config`	(Optional) Saves your entries in the configuration file.

What to do next

Use the **no** form of the Cisco Discovery Protocol commands to return to the default settings.

Related Topics

Cisco Discovery Protocol Overview, on page 1
Monitoring and Maintaining Cisco Discovery Protocol, on page 10

Disabling Cisco Discovery Protocol

Cisco Discovery Protocol is enabled by default.

Note Switch clusters and other Cisco devices (such as Cisco IP Phones) regularly exchange Cisco Discovery Protocol messages. Disabling Cisco Discovery Protocol can interrupt cluster discovery and device connectivity.

Follow these steps to disable the Cisco Discovery Protocol device discovery capability.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **no cdp run**
4. **end**

5. **show running-config**
6. **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Switch> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Switch# configure terminal`	Enters global configuration mode.
Step 3	**no cdp run** **Example:** `Switch(config)# no cdp run`	Disables Cisco Discovery Protocol.
Step 4	**end** **Example:** `Switch(config)# end`	Returns to privileged EXEC mode.
Step 5	**show running-config** **Example:** `Switch# show running-config`	Verifies your entries.
Step 6	**copy running-config startup-config** **Example:** `Switch# copy running-config startup-config`	(Optional) Saves your entries in the configuration file.

What to do next

You must reenable Cisco Discovery Protocol to use it.

Related Topics

Enabling Cisco Discovery Protocol, on page 6
Default Cisco Discovery Protocol Configuration, on page 2

Enabling Cisco Discovery Protocol

Cisco Discovery Protocol is enabled by default.

Note Switch clusters and other Cisco devices (such as Cisco IP Phones) regularly exchange Cisco Discovery Protocol messages. Disabling Cisco Discovery Protocol can interrupt cluster discovery and device connectivity.

Follow these steps to enable Cisco Discovery Protocol when it has been disabled.

Before you begin

Cisco Discovery Protocol must be disabled, or it cannot be enabled.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **cdp run**
4. **end**
5. **show running-config**
6. **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Switch> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Switch# configure terminal`	Enters global configuration mode.
Step 3	**cdp run** **Example:** `Switch(config)# cdp run`	Enables Cisco Discovery Protocol if it has been disabled.
Step 4	**end** **Example:** `Switch(config)# end`	Returns to privileged EXEC mode.

	Command or Action	Purpose
Step 5	**show running-config** **Example:** `Switch# show running-config`	Verifies your entries.
Step 6	**copy running-config startup-config** **Example:** `Switch# copy running-config startup-config`	(Optional) Saves your entries in the configuration file.

What to do next

Use the **show run all** command to show that Cisco Discovery Protocol has been enabled. If you enter only **show run**, the enabling of Cisco Discovery Protocol may not be displayed.

Related Topics

Default Cisco Discovery Protocol Configuration, on page 2
Disabling Cisco Discovery Protocol , on page 4

Disabling Cisco Discovery Protocol on an Interface

Cisco Discovery Protocol is enabled by default on all supported interfaces to send and to receive Cisco Discovery Protocol information.

Note Switch clusters and other Cisco devices (such as Cisco IP Phones) regularly exchange Cisco Discovery Protocol messages. Disabling Cisco Discovery Protocol can interrupt cluster discovery and device connectivity.

Note Cisco Discovery Protocol bypass is not supported and may cause a port go into err-disabled state.

Follow these steps to disable Cisco Discovery Protocol on a port.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *interface-id*
4. **no cdp enable**
5. **end**
6. **show running-config**
7. **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Switch> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Switch# configure terminal`	Enters global configuration mode.
Step 3	**interface** *interface-id* **Example:** `Switch(config)# interface gigabitethernet 0/1`	Specifies the interface on which you are disabling Cisco Discovery Protocol, and enters interface configuration mode.
Step 4	**no cdp enable** **Example:** `Switch(config-if)# no cdp enable`	Disables Cisco Discovery Protocol on the interface specified in Step 3.
Step 5	**end** **Example:** `Switch(config)# end`	Returns to privileged EXEC mode.
Step 6	**show running-config** **Example:** `Switch# show running-config`	Verifies your entries.
Step 7	**copy running-config startup-config** **Example:** `Switch# copy running-config startup-config`	(Optional) Saves your entries in the configuration file.

Related Topics

Enabling Cisco Discovery Protocol on an Interface, on page 9
Default Cisco Discovery Protocol Configuration, on page 2

Enabling Cisco Discovery Protocol on an Interface

Cisco Discovery Protocol is enabled by default on all supported interfaces to send and to receive Cisco Discovery Protocol information.

Note Switch clusters and other Cisco devices (such as Cisco IP Phones) regularly exchange Cisco Discovery Protocol messages. Disabling Cisco Discovery Protocol can interrupt cluster discovery and device connectivity.

Note Cisco Discovery Protocol bypass is not supported and may cause a port go into err-disabled state.

Follow these steps to enable Cisco Discovery Protocol on a port on which it has been disabled.

Before you begin

Cisco Discovery Protocol must be disabled on the port that you are trying to Cisco Discovery Protocol enable on, or it cannot be enabled.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *interface-id*
4. **cdp enable**
5. **end**
6. **show running-config**
7. **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Switch> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Switch# configure terminal`	Enters global configuration mode.
Step 3	**interface** *interface-id* **Example:** `Switch(config)# interface gigabitethernet0/1`	Specifies the interface on which you are enabling Cisco Discovery Protocol, and enters interface configuration mode.

	Command or Action	Purpose
Step 4	**cdp enable** **Example:** `Switch(config-if)# cdp enable`	Enables Cisco Discovery Protocol on a disabled interface.
Step 5	**end** **Example:** `Switch(config)# end`	Returns to privileged EXEC mode.
Step 6	**show running-config** **Example:** `Switch# show running-config`	Verifies your entries.
Step 7	**copy running-config startup-config** **Example:** `Switch# copy running-config startup-config`	(Optional) Saves your entries in the configuration file.

Related Topics

Default Cisco Discovery Protocol Configuration, on page 2
Disabling Cisco Discovery Protocol on an Interface, on page 7

Monitoring and Maintaining Cisco Discovery Protocol

Table 1: Commands for Displaying Cisco Discovery Protocol Information

Command	Description
clear cdp counters	Resets the traffic counters to zero.
clear cdp table	Deletes the Cisco Discovery Protocol table of information about neighbors.
show cdp	Displays global information, such as frequency of transmissions and the holdtime for packets being sent.

Command	Description
show cdp entry *entry-name* [**version**] [**protocol**]	Displays information about a specific neighbor. You can enter an asterisk (*) to display all Cisco Discovery Protocol 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 [*interface-id*]	Displays information about interfaces where Cisco Discovery Protocol is enabled. You can limit the display to the interface about which you want information.
show cdp neighbors [*interface-id*] [*detail*]	Displays information about neighbors, including device type, interface type and number, holdtime settings, capabilities, platform, and port ID. You can limit the display to neighbors of a specific interface or expand the display to provide more detailed information.
show cdp traffic	Displays Cisco Discovery Protocol counters, including the number of packets sent and received and checksum errors.

Related Topics

Configuring Cisco Discovery Protocol Characteristics, on page 2
Cisco Discovery Protocol Overview, on page 1

Additional References

Related Documents

Related Topic	Document Title
System Management Commands	

Error Message Decoder

Description	Link
To help you research and resolve system error messages in this release, use the Error Message Decoder tool.	https://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi

Standards and RFCs

Standard/RFC	Title
None	-

MIBs

MIB	MIBs Link
All supported MIBs for this release.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support

Feature History and Information for Cisco Discovery Protocol

Release	Modification
Cisco IOS Release 15.2(5)E	This feature was introduced.