

Configuring Cisco Discovery Protocol on Cisco Routers and Switches Running Cisco IOS

Document ID: 43485

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Introduction

This document explains how to configure Cisco Discovery Protocol (CDP) on Cisco routers and switches that run Cisco IOS®. Specifically, the document covers how to enable, verify, and disable CDP on Cisco devices and some known issues related to CDP.

CDP is a Cisco proprietary Layer 2 protocol that is media- and protocol-independent, and runs on all Cisco-manufactured equipment that includes:

- routers
- bridges
- access servers
- switches

A Cisco device enabled with CDP sends out periodic interface updates to a multicast address in order to make itself known to neighbors. Since it is a layer two protocol, these packets (frames) are not routed. Use of SNMP with the CDP MIB allows network management applications to learn the device type and the SNMP agent address of neighboring devices, and to send SNMP queries to those devices. CDP uses the CISCO-CDP-MIB.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions. This document applies to all Cisco routers and switches running Cisco IOS as well as router modules such as WS-X4232-L3, RSM, and MSFC.

The information in this document was created from the devices in a specific lab environment. All of the

devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Configure Cisco Discovery Protocol

Enable/Disable CDP on a Cisco IOS Device

CDP is enabled on Cisco routers by default. If you prefer not to use the CDP capability, disable it with the **no cdp run** command. In order to reenable CDP, use the **cdp run** command in global configuration mode.

You can verify whether CDP is enabled or disabled on your Cisco device using the **show cdp neighbors** command.

```
Router#show cdp neighbors
% CDP is not enabled

!--- This message indicates that CDP is disabled on this device.

Router#
```

This command output indicates that CDP is enabled on the device, but no neighbor devices are discovered or connected to this device.

```
Router#show cdp neighbors
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
Router#

Router#show cdp
Global CDP information:
  Sending CDP packets every 60 seconds
  Sending a holdtime value of 180 seconds
  Sending CDPv2 advertisements is enabled
Router#
```

This command output shows that CDP is enabled and some neighbor devices are discovered by CDP protocol.

```
Router#show cdp neighbors
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
R2-AGS             Ser 1            129        R           2500      Ser 0
R6-2500            Eth 0            144        R           4000      Eth 0
Router#
```

The **show cdp neighbors** command displays this information:

- type of device that is discovered
- name of the device
- number and type of the local interface (port)
- number of seconds the CDP advertisement is valid for the port

- device type
- device product number
- port ID

The **show cdp neighbors detail** and **show cdp entry** commands displays additional information about the neighboring devices that include network-layer protocol information and version.

```
router#show cdp neighbors detail
-----
Device ID: lab-7206
Entry address(es):
IP address: 172.19.169.83
Platform: cisco 7206VXR, Capabilities: Router
Interface: Ethernet0, Port ID (outgoing port): FastEthernet0/0/0
Holdtime : 123 sec
Version :
Cisco Internetwork Operating System Software
IOS (tm) 5800 Software (C5800-P4-M), Version 12.1(2)
Copyright (c) 1986-2002 by Cisco Systems, Inc.
advertisement version: 2
Duplex: half
-----
Device ID: lab-as5300-1
Entry address(es):
IP address: 172.19.169.87
Platform: cisco AS5300, Capabilities: Router
--More--
```

!--- Output is suppressed.

```
router#show cdp entry lab-7206
-----
Device ID: lab-7206
Entry address(es):
IP address: 172.19.169.83
Platform: cisco 7206VXR, Capabilities: Router
Interface: Ethernet0, Port ID (outgoing port): FastEthernet0/0/0
Holdtime : 123 sec
Version :
Cisco Internetwork Operating System Software
IOS (tm) 5800 Software (C5800-P4-M), Version 12.1(2)
Copyright (c) 1986-2002 by Cisco Systems, Inc.
advertisement version: 2
Duplex: half
```

Enable/Disable CDP on an Interface

When CDP is enabled globally using the **cdp run** command, it is enabled by default on all supported interfaces (except for Frame Relay multipoint subinterfaces) to send and receive CDP information. You can disable CDP on an interface that supports CDP with the **no cdp enable** command.

```
Router#show cdp neighbors
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
R2-AGS             Ser 1           129        R           2500      Ser 0
R6-2500            Eth 0           144        R           4000      Eth 0
Router#
```

On this router, CDP is enabled on Serial 1 and Ethernet 0 interfaces. Disable CDP on the Serial 1 interface and verify if the neighbor device is discovered on the serial 1 interface, as this output shows:

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface s1
Router(config-if)#no cdp enable
Router(config-if)#^Z
Router#4w5d: %SYS-5-CONFIG_I: Configured from console by console
```

The router does not remove the entry for the neighbor on CDP disabled interface unless the hold time expires. This output shows that the router discovered neighbor only on Ethernet 0 interface.

```
Router#show cdp neighbors
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
R6-2500           Eth 0           149        R           4000     Eth 0
Router#
```

Use the **show running-config** command in order to find whether CDP is enabled/disabled on a particular interface on your device.

```
Router#show running-config int s1
Building configuration...

Current configuration : 94 bytes
!
interface Serial1 ip address 40.40.40.1 255.255.255.0
ip router isis
no cdp enable

!--- This command indicates that CDP is disabled on the Serial 1 interface.

end

Router#
```

Note: You cannot enable/disable CDP on an interface unless it is enabled globally using the **cdp run** command.

Known Issues on CDP

CDP Can Consume All Router Memory

When a large amount of CDP neighbor announcements are sent, it is possible to consume all memory of an available device. This causes a crash or other abnormal behavior. Refer to Cisco's Response to the CDP Issue for more details:

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Related Information

- **Configuring Cisco Discovery Protocol using Cisco IOS**
- **Configuring CDP Using CatOS**
- **Technical Support & Documentation – Cisco Systems**

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Updated: Nov 21, 2006

Document ID: 43485
