CHAPTER 2

Configuring CDP

This chapter describes how to configure the Cisco Discovery Protocol (CDP), and includes the following sections:

Information About CDP

This section includes the following topics:

CDP Overview

Cisco Discovery Protocol (CDP) runs over the data link layer and is used to advertise information to all attached Cisco devices, and to discover and view information about attached Cisco devices. CDP runs on all Cisco-manufactured equipment.

CDP gathers protocol addresses of neighboring devices and discovers the platform of those devices. CDP runs over the data link layer only. Two systems that support different Layer 3 protocols can learn about each other.

Each device you configure for CDP sends periodic advertisements to a multicast address. Each device advertises at least one address at which it can receive SNMP messages. The advertisements also contain hold-time information, which indicates the length of time that a receiving device should hold CDP information before discarding it. You can configure the advertisement or refresh timer and the hold timer.

CDP Version 2 (CDPv2) allows you to track instances where the native VLAN ID or port duplex states do not match between connecting devices.

CDP advertises the following type-length-value fields (TLVs):

- Device ID
- Address
- Port ID
- Capabilities
- Version
- Platform
- Native VLAN
- Full/Half Duplex
- MTU
- SysName
- SysObjectID
- Management Address
- Physical Location

All CDP packets include a VLAN ID. The CDP packet is untagged, so it goes over the native/access VLAN, which is then also added to the packet.

For more information on VLANs, see the *Cisco Nexus 1000V Layer 2 Switching Configuration Guide, Release 4.0(4)SV1(1).*

High Availability

Stateless restarts are supported for CDP. After a reboot or a supervisor switchover, the running configuration is applied.

Configuration Guidelines and Limitations

CDP has the following configuration guidelines and limitations:

- CDP can discover up to 256 neighbors per port if the port is connected to a hub with 256 connections.
- CDP must be enabled globally before you can configure CDP on an interface. CDP is enabled globally by default, but can be disabled using the "Disabling the CDP Feature Globally" procedure on page 2-3.
- You can configure CDP on physical interfaces and port channels only.

Configuring CDP

This section includes the following topics:

Enabling the CDP Feature Globally

Use this procedure to enable CDP globally.Although DP is enabled globally by default, should it be disabled, you can use this procedure to enable it again.

BEFORE YOU BEGIN

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

- CDP must be enabled globally before you can configure it on an interface.
- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **config t**
2. **cdp enable**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you in the CLI Global Configuration mode.
Step 2	**cdp enable** **Example:** n1000v(config)# cdp enable	Enables the CDP feature globally.

Disabling the CDP Feature Globally

Use this procedure to globally disable CDP.

BEFORE YOU BEGIN

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

- When you globally disable the CDP feature, all CDP configurations are also disabled.
- CDP is currently globally enabled.
- CDP is enabled on each interface by default.

SUMMARY STEPS

1. **config t**
2. **no cdp enable**

DETAILED STEPS

	Command	Purpose

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

Step 2	**no cdp enable** **Example:** `n1000v(config)# no cdp enable`	Disables the CDP feature and removes all associated CDP configuration.

Enabling CDP on an Interface

Use this procedure to enable CDP on a specific interface.

BEFORE YOU BEGIN

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

- The CDP feature is enabled globally. CDP is enabled by default, but can also be re-enabled using the "Enabling the CDP Feature Globally" procedure on page 2-3.
- CDP is enabled by default on all interfaces.
- CDP is currently disabled on the specific interface you want to configure.
- For more information about CDP, see the "Information About CDP" section on page 2-1.

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you in the CLI Global Configuration mode.
Step 2	**interface** *interface-type number* **Example:** n1000v(config)# interface port-channel 2 n1000v(config-if)#	Places you in the CLI Interface Configuration mode for the specific interface.
Step 3	**no cdp enable** **Example:** n1000v(config-if)# no cdp enable	Disables CDP on this interface.
Step 4	**cdp enable** **Example:** n1000v(config-if)# cdp enable	Enables CDP on this interface.
Step 5	**show cdp interface** *interface-type number* **Example:** n1000v(config-if)# show cdp interface mgmt0 mgmt0 is up CDP disabled on interface Sending CDP packets every 60 seconds Holdtime is 180 seconds	(Optional) Displays CDP information for the specified interface.
Step 6	**copy running-config startup-config** **Example:** n1000v(config-if)# copy running-config startup-config	(Optional) Saves this configuration change in the startup configuration.

This example shows how to enable CDP on port channel 2:

```
Example:
n1000v# config t
n1000v(config)# interface port-channel 2
n1000v(config-if)# cdp enable
n1000v(config-if)# copy running-config startup-config
```

Disabling CDP on an Interface

Use this procedure to disable CDP on an interface.

BEFORE YOU BEGIN

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

- CDP is currently enabled on the device.

Note If CDP is disabled on the device, then it is also disabled for all interfaces.

- CDP is currently enabled on the specific interface you want to configure.
- For more information about CDP, see the "Information About CDP" section on page 2-1.

SUMMARY STEPS

1. **config t**
2. **interface** *interface-type number*
3. **no cdp enable**
4. (Optional) **show cdp interface** *interface-type number*
5. (Optional) **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

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

Step 2	**interface** *interface-type number*
	
	Example:
	`n1000v(config)# interface mgmt0`
	`n1000v(config-if)#`
		Places you in the CLI Interface Configuration mode for the specified interface.

Step 3	**no cdp enable** **Example:** `n1000v(config-if)# no cdp enable`	Disables CDP on the specified interface.
Step 4	**show cdp interface** *interface-type number* **Example:** `n1000v(config-if)# show cdp interface mgmt0`	(Optional) Displays CDP information for an interface.
Step 5	**copy running-config startup-config** **Example:** `n1000v(config-if)# copy running-config startup-config`	(Optional) Saves this configuration change.

This example shows how to disable CDP on mgmt0:

```
n1000v# config t
n1000v(config)# interface mgmt0
n1000v(config-if)# no cdp enable
n1000v(config-if)# show cdp interface mgmt0
mgmt0 is up
    CDP disabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
n1000v(config-if)# copy running-config startup-config
```

Assigning the Global CDP Version

Use this procedure to assign the CDP version to advertise on the device.

BEFORE YOU BEGIN

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

- You know the version of CDP currently supported on the device.
- Only one version of CDP (version 1 or version 2) is advertised at a time for all uplinks and port channels on the switch.
- For more information about CDP, see the "Information About CDP" section on page 2-1.

SUMMARY STEPS

1. **config t**
2. **cdp advertise {v1 | v2}**
3. (Optional) **show cdp global**
4. (Optional) **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

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

Step 2	**cdp advertise {v1 | v2}**
	
	Example 1:
	`n1000v(config)# cdp advertise v1`
	`n1000v(config)#`
	
	Example 2:
	`n1000v(config)# cdp advertise v2`
	`n1000v(config)#`
		Assigns the CPD version to advertise.
		• CDP Version 1
		• CDP Version 2

Step 3	**show cdp global**	(Optional) Displays the CDP configuration, indicating whether CDPv2 is enabled.

	Command	Purpose
	Example 1: n1000v(config)# **show cdp global** Global CDP information: CDP enabled globally Sending CDP packets every 60 seconds Sending a holdtime value of 180 seconds **Sending CDPv2 advertisements is disabled** Sending DeviceID TLV in Default Format **Example 2:** n1000v(config)# **show cdp global** Global CDP information: CDP enabled globally Sending CDP packets every 60 seconds Sending a holdtime value of 180 seconds Sending CDPv2 advertisements is enabled Sending DeviceID TLV in Default Format	
Step 4	**copy running-config startup-config** **Example:** n1000v(config)# copy running-config startup-config	(Optional) Saves this configuration change.

Configuring Optional CDP Parameters

Use this procedure to configure the following CDP parameters:

- the device ID format to use

Note Only the **system-name** device ID format is supported.

- the maximum hold time for neighbor information
- the refresh time for sending advertisements

BEFORE YOU BEGIN

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

- If you are setting the holdtime, you know how long you want CDP to retain neighbor information.
- You can view output from upstream cat6k switch using the **show cdp neighbor** command.
- If you are setting the CDP timer, you know how often you want CDP to advertise.
- For more information about CDP, see the "Information About CDP" section on page 2-1.

SUMMARY STEPS

1. **config t**
2. (Optional) **cdp format device-id system-name**
3. **show cdp neighbors** from the upstream device
4. **show cdp neighbors** from your device

5. (Optional) **cdp timer** *seconds*
6. (Optional) **cdp holdtime** *seconds*
7. (Optional) **show cdp global**
8. (Optional) **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** n1000v# config t n1000v(config)#	Places you in the CLI Global Configuration mode.
Step 2	**cdp format device-id system-name** Example: n1000v(config)# **cdp format device-id system-name** n1000v(config)#	(Optional) Specifies that CDP uses the system name for the device ID format.
Step 3	**show cdp neighbors**	Displays your device from the upstream device.

Example:

```
swordfish-6k-2#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID        Local Intrfce     Holdtme    Capability  Platform  Port ID

02000c000000     Gig 1/16          14             S       Soft Swit Eth 2/4
02000c000000     Gig 1/17          14             S       Soft Swit Eth 2/5
02000c000000     Gig 1/14          14             S       Soft Swit Eth 2/2
02000c000000     Gig 1/15          14             S       Soft Swit Eth 2/3
02000c000000     Gig 1/18          13             S       Soft Swit
```

Step 4	**show cdp neighbors**	Displays the upstream device from your device,

```
n1000v(config)# show cdp neighbors
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute

Device ID              Local Intrfce   Hldtme  Capability  Platform      Port ID

swordfish-6k-2         Eth2/2          169     R S I    WS-C6503-E    Gig1/14
swordfish-6k-2         Eth2/3          139     R S I    WS-C6503-E    Gig1/15
swordfish-6k-2         Eth2/4          135     R S I    WS-C6503-E    Gig1/16
swordfish-6k-2         Eth2/5          177     R S I    WS-C6503-E    Gig1/17
swordfish-6k-2         Eth2/6          141     R S I    WS-C6503-E    Gig1/18
```

Step 5	**cdp holdtime** *seconds* **Example:** n1000v(config)# cdp holdtime 10	(Optional) Sets the maximum amount of time that CDP holds onto neighbor information before discarding it. • The range is from 10 to 255 seconds. • The default is 180 seconds.

	Command	Purpose
Step 6	**cdp timer** *seconds* **Example:** `n1000v(config)# cdp timer 5`	(Optional) Sets the refresh time for CDP to send advertisements to neighbors. • The range is from 5 to 254 seconds. • The default is 60 seconds.
Step 7	**show cdp global**	Displays the global CDP configuration.

	Example:
	`n1000v(config)# show cdp global`
	`Global CDP information:`
	`  CDP enabled globally`
	`  Sending CDP packets every 5 seconds`
	`  Sending a holdtime value of 10 seconds`
	`  Sending CDPv2 advertisements is disabled`
	`  Sending DeviceID TLV in Mac Address Format`	

Step 8	**copy running-config startup-config** **Example:** `n1000v(config-if)# copy running-config startup-config`	(Optional) Saves this configuration change.

Clearing CDP Statistics

To clear CDP statistics, use one of the following commands.

Command	Purpose
clear cdp counters	Clears CDP statistics on all interfaces.
clear cdp counters interface *number*	Clears CDP statistics on the specified interface.
clear cdp table	Clears the CDP cache for one or all interfaces.

Verifying the CDP Configuration

To display CDP configuration information, use one of the following commands:

Command	Purpose
show cdp all	Displays all interfaces that have CDP enabled. See Example 2-1 on page 2-11
show cdp entry {**all** | **name** *entry-name*}	Displays the CDP database entries. See Example 2-2 on page 2-11
show cdp global	Displays the CDP global parameters. See Example 2-4 on page 2-13
show cdp interface *interface-type slot/port*	Displays the CDP interface status. See Example 2-5 on page 2-13

Command	Purpose
show cdp neighbors {**detail** | **interface** *interface-type slot/port*}	Displays the CDP neighbor status. See Example 2-6 on page 2-13
show cdp traffic interface *interface-type slot/port*	Displays the CDP traffic statistics on an interface. See Example 2-7 on page 2-14

Example 2-1 show cdp all

```
n1000v# show cdp all
Ethernet2/2 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
Ethernet2/3 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
Ethernet2/4 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
Ethernet2/5 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
Ethernet2/6 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
mgmt0 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
```

Example 2-2 show cdp entry *name*

```
n1000v# show cdp entry name swordfish-6k-2
----------------------------------------
Device ID:swordfish-6k-2
System Name:
Interface address(es):
    IPv4 Address: 172.28.30.2
Platform: cisco WS-C6503-E, Capabilities: Router Switch IGMP Filtering
Interface: Ethernet2/2, Port ID (outgoing port): GigabitEthernet1/14
Holdtime: 152 sec

Version:
Cisco IOS Software, s72033_rp Software (s72033_rp-IPBASE-M), Version 12.2(33)SXH2a,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 25-Apr-08 09:11 by prod_rel_team
```

Example 2-3 show cdp entry all

```
n1000v# show cdp entry all
```

```
----------------------------------------
Device ID:swordfish-6k-2
System Name:
Interface address(es):
    IPv4 Address: 172.28.30.2
Platform: cisco WS-C6503-E, Capabilities: Router Switch IGMP Filtering
Interface: Ethernet2/2, Port ID (outgoing port): GigabitEthernet1/14
Holdtime: 140 sec

Version:
Cisco IOS Software, s72033_rp Software (s72033_rp-IPBASE-M), Version 12.2(33)SXH2a,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 25-Apr-08 09:11 by prod_rel_team

Advertisement Version: 1

----------------------------------------
Device ID:swordfish-6k-2
System Name:
Interface address(es):
    IPv4 Address: 172.28.30.2
Platform: cisco WS-C6503-E, Capabilities: Router Switch IGMP Filtering
Interface: Ethernet2/3, Port ID (outgoing port): GigabitEthernet1/15
Holdtime: 129 sec

Version:
Cisco IOS Software, s72033_rp Software (s72033_rp-IPBASE-M), Version 12.2(33)SXH2a,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 25-Apr-08 09:11 by prod_rel_team

Advertisement Version: 1

----------------------------------------
Device ID:swordfish-6k-2
System Name:
Interface address(es):
    IPv4 Address: 7.7.8.1
Platform: cisco WS-C6503-E, Capabilities: Router Switch IGMP Filtering
Interface: Ethernet2/4, Port ID (outgoing port): GigabitEthernet1/16
Holdtime: 154 sec

Version:
Cisco IOS Software, s72033_rp Software (s72033_rp-IPBASE-M), Version 12.2(33)SXH2a,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 25-Apr-08 09:11 by prod_rel_team

Advertisement Version: 1

----------------------------------------
Device ID:swordfish-6k-2
System Name:
Interface address(es):
    IPv4 Address: 7.7.8.1
Platform: cisco WS-C6503-E, Capabilities: Router Switch IGMP Filtering
Interface: Ethernet2/5, Port ID (outgoing port): GigabitEthernet1/17
Holdtime: 156 sec

Version:
```

```
Cisco IOS Software, s72033_rp Software (s72033_rp-IPBASE-M), Version 12.2(33)SXH2a,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 25-Apr-08 09:11 by prod_rel_team

Advertisement Version: 1

---------------------------------------
Device ID:swordfish-6k-2
System Name:
Interface address(es):
    IPv4 Address: 172.28.15.229
Platform: cisco WS-C6503-E, Capabilities: Router Switch IGMP Filtering
Interface: Ethernet2/6, Port ID (outgoing port): GigabitEthernet1/18
Holdtime: 171 sec

Version:
Cisco IOS Software, s72033_rp Software (s72033_rp-IPBASE-M), Version 12.2(33)SXH2a,
RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 25-Apr-08 09:11 by prod_rel_team

Advertisement Version: 1
```

Example 2-4 show cdp global

```
n1000v(config)# show cdp global
Global CDP information:
    CDP enabled globally
    Sending CDP packets every 60 seconds
    Sending a holdtime value of 180 seconds
    Sending CDPv2 advertisements is disabled
    Sending DeviceID TLV in Default Format
```

Example 2-5 show cdp interface

```
n1000v(config)# show cdp interface ethernet 2/3
Ethernet2/3 is up
    CDP enabled on interface
    Sending CDP packets every 60 seconds
    Holdtime is 180 seconds
```

Example 2-6 show cdp neighbors interface

```
n1000v(config)# show cdp neighbors interface ethernet 2/3
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute


Device ID              Local Intrfce   Hldtme  Capability  Platform      Port ID

swordfish-6k-2         Eth2/3          173     R S I    WS-C6503-E    Gig1/15
```

Example 2-7 show cdp traffic interface

```
n1000v(config)# show cdp traffic interface ethernet 2/3
----------------------------------------
Traffic statistics for Ethernet2/3
Input Statistics:
    Total Packets: 98
    Valid CDP Packets: 49
        CDP v1 Packets: 49
        CDP v2 Packets: 0
    Invalid CDP Packets: 49
        Unsupported Version: 49
        Checksum Errors: 0
        Malformed Packets: 0

Output Statistics:
    Total Packets: 47
        CDP v1 Packets: 47
        CDP v2 Packets: 0
    Send Errors: 0
```

CDP Example Configuration

This example enables the CDP feature and configures the refresh and hold timers:

```
config t
cdp enable
cdp timer 50
cdp holdtime 100
```

Default Settings

Table 2-1 lists the default settings for CDP parameters.

Table 2-1 Default CDP Parameters

Parameters	Default
CDP	Enabled globally and on all interfaces
CDP version	Version 2
CDP device ID	System name
CDP timer	60 seconds
CDP hold timer	180 seconds

Additional References

This section includes the following additional information related to CDP:

- Related Documents, page 2-15
- Standards, page 2-15

Related Documents

Related Topic	Document Title
VLAN	*Cisco Nexus 1000V Layer 2 Switching Configuration Guide, Release 4.0(4)SV1(1)*

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

Feature History for CDP

This section provides the CDP feature release history.

Feature Name	Releases	Feature Information
CDP	4.0	This feature was introduced.