33(C). CDP and LLDP

C D P   (C I S C O   D I S C O V E R Y   P R O T O C O L)

CDP allows Cisco devices to tell their immediate neighbors about themselves. It runs atop osi L2, and so doesn't need ip addresses to be configured. The links just need to be up/up.

```
R5#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone,
                  D - Remote, C - CVTA, M - Two-port Mac Relay

Device ID       Local Intrfce   Holdtme    Capability  Platform  Port ID
R6              Gig 0/0         165             R S I   2851      Gig 0/0
S5              Gig 0/1         179               S I   WS-C3550- Fas 0/24
```
Holdtime refers to how much longer an entry can stay in the list without being heard from.

The port ID in the last column is the port number on the remote machine, "Local Intrface" is ours.

```
R5# show cdp neighbors [gi0/1] detail
------------------------
Device ID: S5
Entry address(es):
  IP address: 172.16.0.5
Platform: Cisco WS-C3550-24-PWR,  Capabilities: Switch IGMP
Interface: GigabitEthernet0/1,  Port ID (outgoing port): FastEthernet0/24
Holdtime : 177 sec

Version :
Cisco IOS Software, C3550 Software (C3550-IPSERVICESK9-M), Version 12.2(44)SE6,
              RELEASE SOFTWARE (fc1)
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Compiled Mon 09-Mar-09 20:28 by gereddy

advertisement version: 2
Protocol Hello:  OUI=0x00000C, Protocol ID=0x0112; payload len=27,
              value=00000000FFFFFFFF010221FF000000000000000DED24C280FF0000
VTP Management Domain: ''
Native VLAN: 1
Duplex: full
Application: VoIP using vlan 3

R5# show cdp entry R6
```
This gives the same output as show cdp neighbors detail, but limited to one device
```
------------------------
Device ID: R6
Entry address(es):
  IP address: 10.0.0.6
Platform: Cisco 2851,  Capabilities: Router Switch IGMP
Interface: GigabitEthernet0/0,  Port ID (outgoing port): GigabitEthernet0/0
Holdtime : 160 sec

Version :
Cisco IOS Software, 2800 Software (C2800NM-ADVIPSERVICESK9-M), Version 15.1(4)M4,
              RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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Compiled Tue 20-Mar-12 18:13 by prod_rel_team

advertisement version: 2
VTP Management Domain: ''
Duplex: full
```

Configuring CDP—CDP is on by default and enabled on all interfaces. Cisco best practice is to turn it off anywhere it isn't needed.

```
R5(config)# [no] cdp run
```
Turn CDP on or off for the entire device
```
R5(config-if)# [no] cdp enable
```
Turn CDP on or off on a single interface

CDP Diagnostics

```
R5# show cdp
Global CDP information:
        Sending CDP packets every 60 seconds
        Sending a holdtime value of 180 seconds
        Sending CDPv2 advertisements is  enabled

R5# show cdp interface [gi0/0]
GigabitEthernet0/0 is up, line protocol is up
  Encapsulation ARPA
  Sending CDP packets every 60 seconds
  Holdtime is 180 seconds

R5# show cdp traffic
CDP counters :
        Total packets output: 812, Input: 775
        Hdr syntax: 0, Chksum error: 0, Encaps failed: 2
        No memory: 0, Invalid packet: 0, Fragmented: 0
        CDP version 1 advertisements output: 0, Input: 0
        CDP version 2 advertisements output: 812, Input: 775
```

L L D P   (L I N K   L A Y E R   D I S C O V E R Y   P R O T O C O L)

LLDP is an IEEE standard (802.1AB) that serves the same purpose as CDP, but needs to be explicitly enabled and isn't available on older versions of IOS. Commands are very similar to CDP.

	CDP	LLDP
On/off—whole device	(config)# **[no] cdp run**	(config)# **[no] lldp run**
On/off—one interface	(config-if)# **[no] cdp enable**	(config-if)# **[no] lldp transmit** (config-if)# **[no] lldp receive**
Diagnostics	# **show cdp** # **show cdp interface [Gi0/0]** # **show cdp traffic**	# **show lldp** # **show lldp interface [Gi0/0]** # **show lldp traffic**
Brief Output	# **show cdp neighbors**	# **show lldp neighbors**
Details	# **show cdp entry R6**	# **show cdp entry R6**