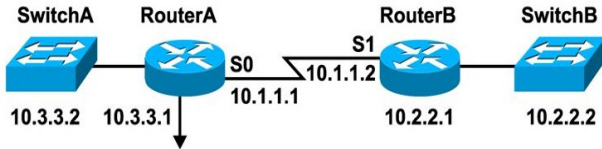


# CDP (Cisco Discovery protocol) and LLDP (Link Layer Discovery Protocol)

## Cisco Discovery Protocol (CDP)

- » Cisco proprietary
- » Layer 2 protocol for neighbor discovery
- » Provides information of platform, interface, IP address, and OS version
- » Equivalent to the open standard LLDP
- » Helps with preparing network diagram



```
RouterA#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 Interface    Holdtime    Capability    Platform    Port ID
RouterB      Ser 0              148         R             2522        Ser 1
SwitchA0050BD855780 Eth 0          167         T S           1900        2
```

SwitchA also provides its MAC address (Catalyst 1900 only).

## Configuration

- » Enabling CDP
  - Router(config)# cdp run
  - Router(config)# cdp timer <seconds>
- » Disabling CDP
  - Router(config)# no cdp run
  - Router(config-if)# no cdp enable

```
s1>enable
s1#show cdp
Global CDP information:
  Sending CDP packets every 60 seconds
  Sending a holdtime value of 180 seconds
  Sending CDPv2 advertisements is enabled

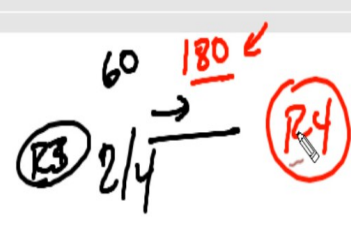
s1#show cdp ne
s1#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID    Local Interface    Holdtime    Capability    Platform    Port ID
s2           Fas 0/24           152         S             2960        Fas 0/24
s3           Fas 0/23           152         S             2960        Fas 0/1
s1#
```

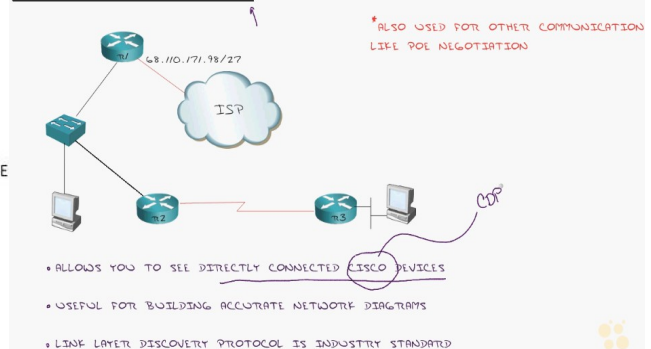
```
Router_2500#show cdp neighbors detail
-----
Device ID: switch_A
Entry address(es):
Platform: cisco WS-C2950-24, Capabilities: Switch IGMP
Interface: Ethernet1, Port ID (outgoing port): FastEthernet0/1
Holdtime : 149 sec

Version :
Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-1604L2-M), Version 12.1(14)EA1a, RELEASE SOFTWARE
(fc1)
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Tue 02-Sep-03 03:33 by antonino
-----
Device ID: Router_B
Entry address(es):
  IP address: 172.16.2.1
Platform: cisco 1801, Capabilities: Router
Interface: Serial0, Port ID (outgoing port): Serial0
Holdtime : 130 sec

Version :
Cisco Internetwork Operating System Software
--More--
[ ] Frame 1: 349 bytes on wire (2792 bits), 349 bytes captured (2792 bits) on interface
[ ] IEEE 802.3 Ethernet
[ ] Destination: CDP/VTP/DTP/PAGP/UDLD (01:00:0c:cc:cc:cc)
[ ] Source: c2:03:23:ac:f2:04 (c2:03:23:ac:f2:04)
  Length: 335
[ ] Logical-Link control
[ ] Cisco Discovery Protocol
  Version: 2
  TTL: 180 seconds
[ ] Checksum: 0x1421 [correct]
[ ] Device ID: R3
[ ] Software Version
[ ] Platform: Cisco 3725
[ ] Addresses
[ ] Port ID: FastEthernet2/4
[ ] Capabilities
[ ] VTP Management Domain:
[ ] Native VLAN: 1
[ ] Duplex: Full
```



## UNDERSTANDING CDP AND LLDP



**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

**Default LLDP Configuration**

Feature	Default Setting
LLDP global state	Disabled
LLDP holdtime (before discarding)	120 seconds
LLDP timer (packet update frequency)	30 seconds
LLDP reinitialization delay	2 seconds

If an HP switch is connected between Cisco's R1 and R2 and when it receives the **01:00:0c:cc:cc:cc** MAC (Multicast Address) it flood it out on all the ports and then R1/R2 will think they are directly connected, which is misleading so use lldp on those ports. This MAC address is used by CDP/VTP/DTP/PAGP/UDLD.

LLDP uses a Multicast MAC address of **01:80:c2:00:00:0e**

It carries the information in Type link value (TLV) Field. LLDP has an extension MED (Media Discovery Protocol) that carried more information.

!(Enabled by default)  
R(config)#cdp run  
R(config)#cdp timer 5       !(5 secs instead of default 60 secs)  
R(config)#cdp holdtime 35   !(32 secs instead of default 180 secs)  
R(config)#no cdp run  
R(config-if)#cdp enable  
R(config-if)#no cdp run       !(turn it off on ports it is not needed | security measure)  
!(lldp has same commands as cdp, just use lldp instead of cdp in the same commands)  
R(config-if)#lldp receive     !(receive only)  
R(config-if)#lldp transmit    !(transmit only)  
R(config-if)#no lldp receive  
R(config-if)#no lldp transmit

**Verification and Tshoot command:**

(always check both cdp and lldp)(lldp commands contains more information)

sh cdp  
sh cdp neigh  
sh cdp neigh detail  
sh cdp neigh f0/0 detail  
sh cdp entry \*  
sh cdp entry SW\*  
sh cdp int  
sh cdp int fa0/0  
sh cdp traffic