

Device Discovery with LLDP

10.2.1

LLDP Overview

The Link Layer Discovery Protocol (LLDP) does the same thing as CDP, but it is not specific to Cisco devices. As a bonus, you can still use it if you have Cisco devices. One way or another, you will get your network map.

LLDP is a vendor-neutral neighbor discovery protocol similar to CDP. LLDP works with network devices, such as routers, switches, and wireless LAN access points. This protocol advertises its identity and capabilities to other devices and receives the information from a physically-connected Layer 2 device.



10.2.2

Configure and Verify LLDP

Depending on the device, LLDP may be enabled by default. To enable LLDP globally on a Cisco network device, enter the `lldp run` command in the global configuration mode. To disable LLDP, enter the `no lldp run` command in the global configuration mode.

Similar to CDP, LLDP can be configured on specific interfaces. However, LLDP must be configured separately to transmit and receive LLDP packets.

- 1) To disable the sending of LLDP messages on an interface enter `no lldp transmit`
- 2) To disable the receiving of LLDP messages on the interface enter `no lldp receive`

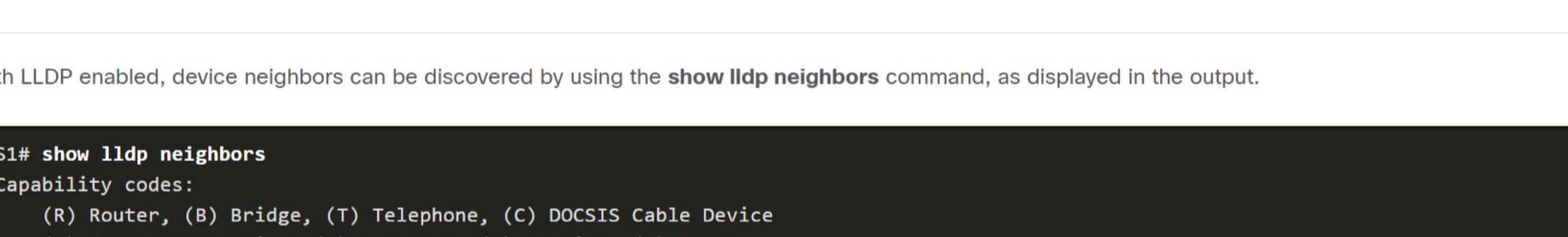
To verify LLDP has been enabled on the device, enter the `show lldp` command in privileged EXEC mode.

```
Switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# lldp run
Switch(config)# interface gigabitethernet 0/1
Switch(config-if)# lldp transmit
Switch(config-if)# lldp receive
Switch(config-if)# end
Switch# show lldp
Global LLDp Information:
  Status: ACTIVE
  LLDP advertisements are sent every 30 seconds
  LLDP hold time advertised is 120 seconds
  LLDP interface reinitialisation delay is 2 seconds
```

10.2.3

Discover Devices by Using LLDP

Consider the lack of documentation in the topology shown in the figure. The network administrator only knows that S1 is connected to two devices.

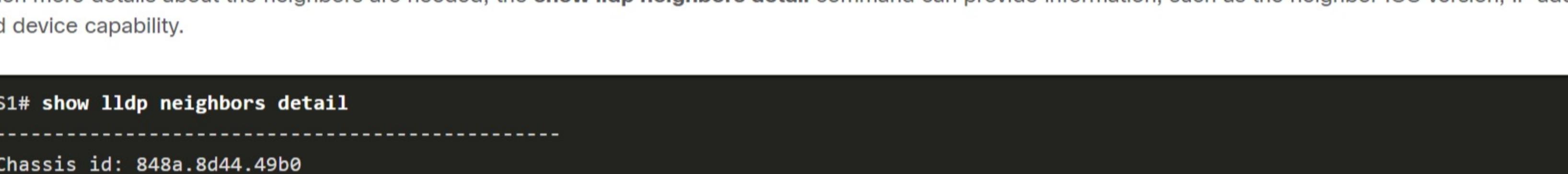


With LLDP enabled, device neighbors can be discovered by using the `show lldp neighbors` command, as displayed in the output.

```
S1# show lldp neighbors
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other
Device ID      Local Intf   Hold-time  Capability   Port ID
R1            Fa0/5       117        R           Gi0/0/1
S2            Fa0/1       112        B           Fa0/1
Total entries displayed: 2
```

The network administrator discovers that S1 has a router and a switch as neighbors. For this output, the letter B for bridge also means switch.

From the results of `show lldp neighbors`, a topology from S1 can be constructed, as displayed in the figure.



When more details about the neighbors are needed, the `show lldp neighbors detail` command can provide information, such as the neighbor IOS version, IP address, and device capability.

```
S1# show lldp neighbors detail
-----
Chassis id: 848a.8d44.49b0
Port id: Gi0/0/1
Port Description: GigabitEthernet0/0/1
System Name: R1

System Description:
Cisco IOS Software [Fuji], ISR Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version 16.9.4, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2019 by Cisco Systems, Inc.
Compiled Thu 22-Aug-19 18:09 by mcpre

Time remaining: 111 seconds
System Capabilities: B,R
Enabled Capabilities: R
Management Addresses - not advertised
Auto Negotiation - not supported
Physical media capabilities - not advertised
Media Attachment Unit type - not advertised
Vlan ID: - not advertised

-----
Chassis id: 0025.83e6.4b00
Port id: Fa0/1
Port Description: FastEthernet0/1
System Name: S2

System Description:
Cisco IOS Software, C3960 Software (C3960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2013 by Cisco Systems, Inc.
Compiled Wed 26-Jun-13 02:49 by prod_rel_team

Time remaining: 107 seconds
System Capabilities: B
Enabled Capabilities: B
Management Addresses - not advertised
Auto Negotiation - supported, enabled
Physical media capabilities:
  10base-T(FD)
  10base-T(HD)
  10base-T(FD)
  10base-T(HD)
Media Attachment Unit type: 16
Vlan ID: 1

Total entries displayed: 2
```

10.2.4

Syntax Checker – Configure and Verify LLDP

Practice configuring and verifying LLDP.

Complete the following steps to configure LLDP on R1:

- Enter global configuration mode and enable LLDP globally.
- Enter interface configuration mode for g0/0/0. Use `g0/0/0` as the interface designation.
- Disable the sending of LLDP messages on the interface.
- Disable the receiving of LLDP messages on the interface.
- Use the `end` command to return to global configuration mode.

```
R1# configure terminal
R1(config)#
```

[Reset](#) [Show Me](#) [Show All](#)

10.2.5

Check Your Understanding – Compare CDP and LLDP

Check your understanding of CDP and LLDP by choosing the correct protocol for each characteristic.

1. Which protocol is used to gather information about Cisco devices which share the same data link?

CDP

LLDP

2. Which protocol works with network devices, such as routers, switches, and wireless LAN access points across multiple manufacturers' devices?

CDP

LLDP

[Check](#)

[Show Me](#)

[Reset](#)

10.2.6

Packet Tracer – Use LLDP to Map a Network

In this Packet Tracer activity, you will complete the following objectives:

- Build the Network and Configure Basic Device Settings
- Network Discovery with CDP
- Network Discovery with LLDP

[Use LLDP to Map a Network](#)

[Use LLDP to Map a Network](#)