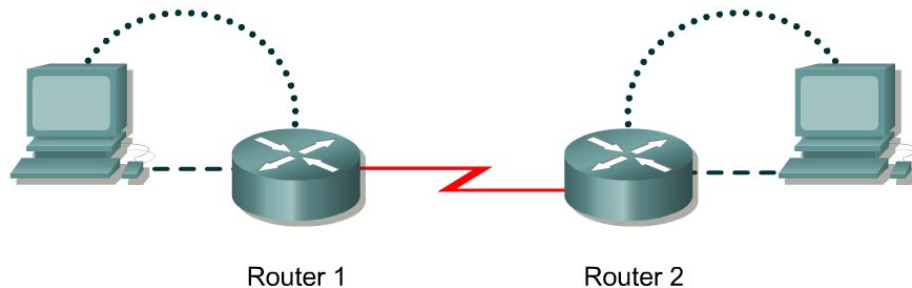






## Lab 4.1.6 Using CDP Commands



Router Designation	Router Name	Interface type	Serial 0 Clock	Serial 0 Address	Ethernet 0 Address	Subnet mask (all interfaces)
Router 1	GAD	DCE	56000	192.168.15.1	192.168.14.1	255.255.255.0
Router 2	BHM	DTE	Not set	192.168.15.2	192.168.16.1	255.255.255.0

Straight-through cable	
Serial cable	
Console (Rollover)	
Crossover cable	

## Objective

- Use CDP commands to obtain information about neighboring networks and devices.
- Display information on how CDP is configured for its advertisement and discovery frame transmission.
- Display CDP updates received on the local router.

## Background/Preparation

CDP discovers and shows information about directly connected Cisco devices, including routers and switches. CDP is a Cisco proprietary protocol that runs at the data link layer of the OSI model. The data link layer is Layer 2 of the OSI model. This allows devices that may be running different network Layer 3 protocols, such as IP or IPX, to learn about each other. CDP begins automatically upon a device system startup. CDP may be enabled globally using the `cdp run` command. It may be enabled on any interface as required using the `cdp enable` command. CDP is enabled on all interfaces by default. Using the command `show cdp interface` gathers the information that CDP uses for its advertisement and discovery frame transmission. Use `show cdp neighbors` and `show cdp neighbors detail` to display the CDP updates received on the local router.

Cable a network similar to the one in the diagram. Any router that meets the interface requirements may be used. Possible routers include 800, 1600, 1700, 2500, 2600 routers, or a combination. Refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers.

Any other router used may produce slightly different output. The following steps are intended to be executed on each router unless specifically instructed otherwise.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

**Note:** Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

### Step 1 Log on to Router 1 (GAD)

### Step 2 Configure the routers

- Configure the routers according to the information in the table above in order for CDP to be able to collect information about them. Refer to prior labs on configuring serial and Ethernet interfaces and making changes to configurations if you need help.

**Note:** Do not use the `no shutdown` command on either of the router interfaces at this time.

- What is the clock rate to be set to and which interface is it set on?
- 

### Step 3 Gather information about the router interfaces

- Enter `show interface` command at either the user EXEC or the privileged EXEC router prompt.

Document the following information about the router:

- What is the name of the router? \_\_\_\_\_
- List operational status of each interface.

Interface	Interface Up or Down? (Carrier Detect Signal)	Line Protocol Up/Down? (Keep Alives Being received)

### Step 4 Enable the interfaces on Router 1 (GAD)

```
Router(config)#interface serial 0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface FastEthernet 0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#exit
```

### Step 5 Gather information about the router interfaces

- Enter `show interface` command at either the user EXEC or the privileged EXEC router prompt.
- Document the following information about the router:
- What is the name of the router? \_\_\_\_\_

- d. List operational status of each interface:

Interface	Interface Up or Down? (Carrier Detect Signal)	Line Protocol Up/Down? (Keep Alives Being received)

### Step 6 Display the values of the CDP timers, the interface status, and encapsulation used

- Enter `show cdp interface` command at the router prompt.
- How often is the router sending CDP packets? \_\_\_\_\_
- What is the holdtime value? \_\_\_\_\_
- Global CDP settings can be seen using the `show cdp` command by itself.
- What information is not shown in the `show cdp` command?  
\_\_\_\_\_

### Step 7 Display the CDP updates received on the local router

- Enter `show cdp neighbors` command at the router prompt.
- Fill in the following table:

Device and Port ID	Local Interface	Hold Time	Capability	Platform

### Step 8 Enable serial 0 interface on Router 2 (BHM)

- Enter the `no shutdown` command on the serial 0 interface of Router 2. Return to Router 1 and enter the `show cdp neighbors` command at the router prompt. Notice how the router now appears in the `cdp neighbor` command display.

### Step 9 Display details about CDP updates received on the local router

- Enter `show cdp neighbors detail` from the router prompt.
- Fill in the following table:

Information Gathered	Device 1	Device 2
Neighbor device name		
Neighbor device type		
IP address of interface attached to your router		
Port ID of your router that the neighbor is on		
Port ID of neighbor router that your router is on		
IOS version of neighbor router		

### Step 10 Observe CDP packets being sent and received on the router

- a. Enter the `debug cdp packets` command from the privileged EXEC mode.
- b. What is the output? (Wait for at least two minutes)  

---
- c. After observing the output enter the `undebug all` command to stop debugging activity.

### Step 11 Observe CDP packet traffic

- a. Enter the following commands at the privileged EXEC mode prompt and record the results.
- b. `show cdp traffic`  

---
- c. `clear cdp counters`  

---
- d. `show cdp traffic`  

---

## Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?  
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router(config)#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary					
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	
In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.					