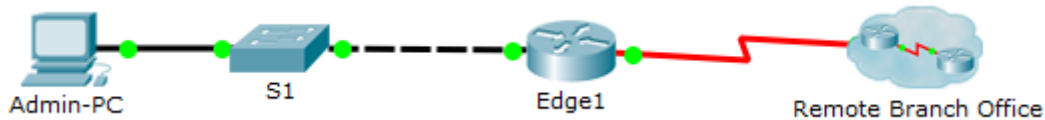


Packet Tracer – Map a Network Using CDP

Topology



Addressing Table

| Device | Interface | IP Address | Subnet Mask | Local Interface and Connected Neighbor |
|--------|-----------|----------------|---------------|----------------------------------------|
| Edge1 | G0/0 | 192.168.1.1 | 255.255.255.0 | G0/1 - S1 |
| | S0/0/0 | | | S0/0/0 - ISP |
| | S0/0/1 | 209.165.200.10 | | S0/0/1 - ISP |
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Objectives

Map a network using CDP and SSH remote access.

Background / Scenario

A senior network administrator requires you to map the Remote Branch Office network and discover the name of a recently installed switch that still needs an IP address to be configured. Your task is to create a map of the branch office network. You must record all of the network device names, IP addresses and subnet masks, and physical interfaces interconnecting the network devices, as well as the name of the switch that does not have an IP address.

To map the network, you will use SSH for remote access and the Cisco Discovery Protocol (CDP) to discover information about neighboring network devices, like routers and switches. Because CDP is a Layer 2 protocol, it can be used to discover information about devices that do not have IP addresses. You will record the

gathered information to complete the Addressing Table and provide a topology diagram of the Remote Branch Office network.

You will need the IP address for the remote branch office, which is 209.165.200.10. The local and remote administrative usernames and passwords are:

Local Network

Username: **admin01**

Password: **S3cre7P@55**

Branch Office Network

Username: **branchadmin**

Password: **S3cre7P@55**

Part 1: Use SSH to Remotely Access Network Devices

In Part 1, you will use the Admin-PC to remotely access the Edge1 gateway router. Next, from the Edge1 router you will SSH into the Remote Branch Office.

- a. On the Admin-PC, open a command prompt.
- b. SSH into the gateway router at 192.168.1.1 using the username **admin01** and the password **S3cre7P@55**.

```
PC> ssh -l admin01 192.168.1.1
```

Open

Password:

```
Edge1#
```

Note: Notice that you are placed directly into privileged EXEC mode. This is because the admin01 user account is set to privilege level 15.

- c. Use the **show ip interface brief** and **show interfaces** commands to document the Edge1 router's physical interfaces, IP addresses, and subnet masks in the Addressing Table.

```
Edge1# show ip interface brief
```

```
Edge1# show interfaces
```

- d. Using the Edge1 router's CLI, you will SSH into the Remote Branch Office at 209.165.200.10 with the username **branchadmin** and the same password:

```
Edge1# ssh -l branchadmin 209.165.200.10
```

Open

Password:

```
Branch-Edge#
```

After connecting to the Remote Branch Office at 209.165.200.10 what piece of previously missing information can now be added to the Addressing Table above?

Part 2: Use CDP to Discover Neighboring Devices

You are now remotely connected to the Branch-Edge router. Using CDP, begin looking for connected network devices.

- a. Issue the **show ip interface brief** and **show interfaces** commands to document the Branch-Edge router's network interfaces, IP addresses, and subnet masks. Add the missing information to the Addressing Table to map the network:

```
Branch-Edge# show ip interface brief
```

```
Branch-Edge# show interfaces
```

- b. Security best practice recommends only running CDP when needed, so CDP may need to be turned on. Use a **show cdp** command to test its status.

```
Branch-Edge# show cdp
```

```
% CDP is not enabled
```

- c. You need to turn on CDP, but it is a good idea to only broadcast CDP information to internal network devices and not to external networks. To do this, disable CDP on the s0/0/1 interface and then turn on the CDP protocol.

```
Branch-Edge# configure terminal
```

```
Branch-Edge(config)# interface s0/0/1
```

```
Branch-Edge(config-if)# no cdp enable
```

```
Branch-Edge(config-if)# exit
```

```
Branch-Edge(config)# cdp run
```

- d. Issue a **show cdp neighbors** command to find any neighboring network devices.

Note: CDP will only show connected Cisco devices that are also running CDP.

```
Branch-Edge# show cdp neighbors
```

Is there a neighboring network device? What type of device is it? What is its name? On what interface is it connected? Is the device's IP address listed? Record the information in the Addressing Table.

- e. To find the IP address of the neighboring device use the **show cdp neighbors detail** command and record the ip address:

```
Branch-Edge# show cdp neighbors detail
```

Aside from the neighboring device's IP address, what other piece of potentially sensitive information is listed?

- f. Now that you know the IP address of the neighbor device, you need to connect to it with SSH in order to discover other devices that may be its neighbors.

Note: To connect with SSH use the same Remote Branch Office username and password.

```
Branch-Edge# ssh -l branchadmin <the ip address of the neighbor device>
```

After successfully connecting with SSH, what does the command prompt show?

- g. You are remotely connected to the next neighbor. Use the **show cdp neighbors** command, and the **show cdp neighbors detail** command, to discover other connected neighbor devices.

What types of network devices neighbor this device? Record any newly discovered devices in the Addressing Table. Include their hostname, interfaces, and IP addresses.

- h. Continue discovering new network devices using SSH and the show CDP commands. Eventually, you will reach the end of the network and there will be no more devices to discover.

What is the name of the switch that does not have an IP address on the network?

- i. Draw a topology of the Remote Branch Office network using the information you have gathered using CDP.

Suggested Scoring Rubric

| Activity Section | Possible Points | Earned Points |
|----------------------------------------|-----------------|---------------|
| Part 1 Question | 2 | |
| Question d | 2 | |
| Part 2 Questions | 8 | |
| Question d | 2 | |
| Question e | 1 | |
| Question f | 1 | |
| Question g | 2 | |
| Question h | 2 | |
| Packet Tracer | 10 | |
| Addressing Scheme Documentation | 60 | |
| Topology Documentation | 20 | |
| Total Point | 100 | |