Packet Tracer – Troubleshooting Challenge - Documenting the Network

Topology

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
PC1	NIC			
PC2	NIC			
PC3	NIC			
PC4	NIC			
PC5	NIC			
PC6	NIC			
PC7	NIC			
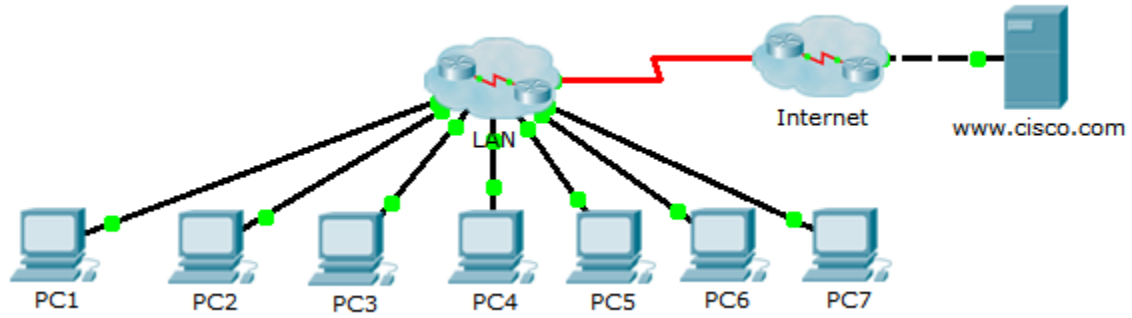
Objectives

Part 1: Test Connectivity

Part 2: Discover PC Configuration Information

Part 3: Discover the Configuration Information of the Default Gateway

Part 4: Discover Routes and Neighbors in the Network

Part 5: Draw the Network Topology

Background / Scenario

This activity covers the steps to take to discover a network using primarily the Telnet, **show cdp neighbors detail**, and **show ip route** commands. This is Part I of a two-part activity. Part II is **Packet Tracer - Troubleshooting Challenge - Using Documentation to Solve Issues**.

The topology you see when you open the Packet Tracer activity does not reveal all of the details of the network. The details have been hidden using the cluster function of Packet Tracer. The network infrastructure has been collapsed, and the topology in the file shows only the end devices. Your task is to use your knowledge of networking and discovery commands to learn about the full network topology and document it.

Part 1: Test Connectivity

Packet Tracer needs a little time to converge the network. Ping between the PCs and the www.cisco.com server to verify convergence and to test the network. All PCs should be able to ping one another as well as the server. Remember it may take a few pings before they are successful.

Part 2: Discover PC Configuration Information

Step 1: Access the PC1 command prompt.

Click **PC1**, the **Desktop** tab, and then **Command Prompt**.

Step 2: Determine the addressing information for PC1.

To determine the current IP addressing configuration, enter the **ipconfig /all** command.

Note: In Packet Tracer, you must enter a space between **ipconfig** and **/all**.

Step 3: Document the information for PC1 in the addressing table.

Step 4: Repeat Steps 1 to 3 for PCs 2 to 7.

Part 3: Discover the Configuration Information of the Default Gateway

Step 1: Test connectivity between PC1 and its default gateway.

From PC1, ping the default gateway to ensure that you have connectivity.

Step 2: Telnet to the default gateway.

Use the **telnet** *ip-address* command. The IP address is that of the default gateway. When prompted for the password, type **cisco**.

Step 3: View current interface configurations.

a. Use both the **show ip interface brief** and **show protocols** command to determine the current interface configurations.

b. Document the subnet mask information from the **show protocols** command.

Step 4: Document the hostname and interface configuration of the PC1 gateway router in the addressing table.

Part 4: Discover Routes and Neighbors in the Network

Step 1: On the gateway router for PC1, display the routing table.

a. Display the routing table with the **show ip route** command. You should see five connected routes and six routes learned through EIGRIP, one of which is a default route.

b. In addition to the routes, record any other useful information that the routing table provides to help you further discover and document the network.

c. Determine if there are more IP addresses you can Telnet to continue discovering the network.

Step 2: Discover directly connected Cisco devices.

On the gateway router for PC1, use the **show cdp neighbors detail** command to discover other directly connected Cisco devices.

Step 3: Document the neighbor information and test connectivity.

The **show cdp neighbors detail** command lists information for one neighbor, including its IP address. Document the hostname and IP address of the neighbor, and then ping the IP address to test connectivity. The first two or three pings fail while ARP resolves the MAC address.

Step 4: Telnet to the neighbor and discover directly connected Cisco devices.

a. Telnet to the neighbor and use the **show cdp neighbors detail** command to discover other directly connected Cisco devices.

b. You should see three devices listed this time. The PC1 gateway router may be listed for each subinterface.

   Note: Use the **show interfaces** command on the switches to determine the subnet mask information.

Step 5: Document the hostnames and IP addresses of the neighbors and test connectivity.

Document and ping the new neighbors you have discovered. Remember, the first two or three pings fail while ARP resolves MAC addresses.

Step 6: Telnet to each neighbor and check for additional Cisco devices.

Telnet to each of the new neighbors you have discovered, and use the **show cdp neighbors detail** command to check for any additional Cisco devices. The access password is **cisco**.

Step 7: Continue discovering and documenting the network.

Exit the Telnet sessions to return to the default gateway router for PC1. From this router, Telnet to other devices in the network to continue discovering and documenting the network. Remember to use the **show ip route** and **show cdp neighbors** commands to discover IP addresses you can use for Telnet.

Note: Use the **show interfaces** command on the switches to determine the subnet mask information.

Step 8:   Repeat Steps 1 to 7 as necessary to discover the entire network topology.

Part 5:   Draw the Network Topology

Step 1:   Draw a topology.

Now that you have discovered all the network devices and documented their addresses, use the Addressing Table information to draw a topology.

Hint: There is a Frame Relay cloud in the middle of the network.

Step 2:   Keep this documentation.

a.   Show your topology diagram and Addressing Table to the instructor for verification.

b.   Your topology diagram and Addressing Table are needed for Part II of this activity.

Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 5: Draw the Network Topology	Step 2-a	100	
Part 5 Total		100	
Packet Tracer Score		0	
Total Score		100	