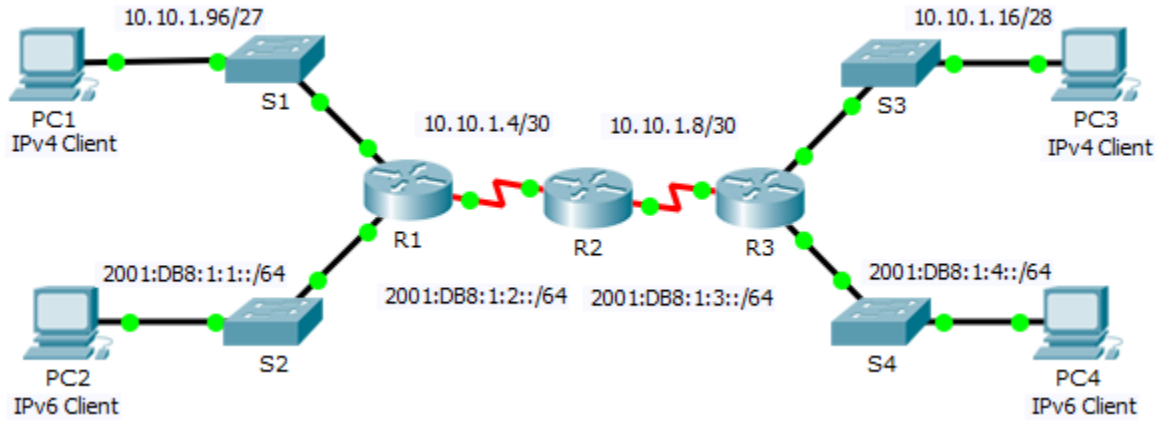
Packet Tracer - Pinging and Tracing to Test the Path

Topology



Addressing Table

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
		IPv6 Address/Prefix		
R1	G0/0	2001:DB8:1:1::1/64		N/A
	G0/1	10.10.1.97	255.255.255.224	N/A
	S0/0/1	10.10.1.6	255.255.255.252	N/A
		2001:DB8:1:2::2/64		N/A
	Link-local	FE80::1		N/A
R2	S0/0/0	10.10.1.5	255.255.255.252	N/A
		2001:DB8:1:2::1/64		N/A
	S0/0/1	10.10.1.9	255.255.255.252	N/A
		2001:DB8:1:3::1/64		N/A
	Link-local	FE80::2		N/A
R3	G0/0	2001:DB8:1:4::1/64		N/A
	G0/1	10.10.1.17	255.255.255.240	N/A
	S0/0/1	10.10.1.10	255.255.255.252	N/A
		2001:DB8:1:3::2/64		N/A
	Link-local	FE80::3		N/A
PC1	NIC	10.10.1.98	255.255.255.224	10.10.1.97
PC2	NIC	2001:DB8:1:1::2/64		FE80::1
PC3	NIC	10.10.1.18	255.255.255.240	10.10.1.17
PC4	NIC	2001:DB8:1:4::2/64		F380::1

Objectives

Part 1: Test and Restore IPv4 Connectivity

Part 2: Test and Restore IPv6 Connectivity

Scenario

There are connectivity issues in this activity. In addition to gathering and documenting information about the network, you will locate the problems and implement acceptable solutions to restore connectivity.

Note: The user EXEC password is **cisco**. The privileged EXEC password is **class**.

Part 1: Test and Restore IPv4 Connectivity

Step 1: Use ipconfig and ping to verify connectivity.

a. Click **PC1** and click the **Desktop** tab > **Command Prompt**.

b. Enter the **ipconfig /all** command to collect the IPv4 information. Complete the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.

c. Click **PC3** and click the **Desktop** tab > **Command Prompt**.

d. Enter the **ipconfig /all** command to collect the IPv4 information. Complete the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.

e. Test connectivity between **PC1** and **PC3**. The ping should fail.

Step 2: Locate the source of connectivity failure.

a. From **PC1**, enter the necessary command to trace the route to **PC3**. What is the last successful IPv4 address that was reached? 10.10.1.97

b. The trace will eventually end after 30 attempts. Enter **Ctrl**+**C** to stop the trace before 30 attempts.

c. From **PC3**, enter the necessary command to trace the route to **PC1**. What is the last successful IPv4 address that was reached? 10.10.1.17

d. Enter **Ctrl**+**C** to stop the trace.

e. Click **R1** and then the **CLI** tab. Press **ENTER** and log in to the router.

f. Enter the **show ip interface brief** command to list the interfaces and their status. There are two IPv4 addresses on the router. One should have been recorded in Step 2a. What is the other? 10.10.1.6

g. Enter the **show ip route** command to list the networks to which the router is connected. Note that there are two networks connected to the **Serial0/0/1** interface. What are they? 10.10.1.5/32, 10.10.1.4/30

h. Repeat step 2e to 2g with **R3** and record the answers here. 10.10.1.10, 10.10.1.8/30, 10.10.1.10/32

Notice how the serial interface for R3 changes.

i. Run more tests if it helps visualize the problem. Simulation mode is available.

Step 3: Propose a solution to solve the problem.

a. Compare your answers in Step 2 to the documentation you have available for the network. What is the error?
R2's serial 0/0/0 interface is configured with the wrong ip address.

b. What solution would you propose to correct the problem?
configure the correct ip address on r2's serial 0/0/0 interface which would be 10.10.1.5

Step 4: Implement the plan.

Implement the solution you proposed in Step 3b.

Step 5: Verify that connectivity is restored.

a. From **PC1** test connectivity to **PC3**.

b. From **PC3** test connectivity to **PC1**. Is the problem resolved? Yes

Step 6: Document the solution.

Part 2: Test and Restore IPv6 Connectivity

Step 1: Use ipv6config and ping to verify connectivity.

a. Click **PC2** and click the **Desktop** tab > **Command Prompt**.

b. Enter the **ipv6config /all** command to collect the IPv6 information. Complete the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.

c. Click **PC4** and click the **Desktop** tab > **Command Prompt**.

d. Enter the **ipv6config /all** command to collect the IPv6 information. Complete the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.

e. Test connectivity between **PC2** and **PC4**. The ping should fail.

Step 2: Locate the source of connectivity failure.

a. From **PC2**, enter the necessary command to trace the route to **PC4**. What is the last successful IPv6 address that was reached? 2001:DB8:1:3::2

b. The trace will eventually end after 30 attempts. Enter **Ctrl**+**C** to stop the trace before 30 attempts.

c. From **PC4**, enter the necessary command to trace the route to **PC2**. What is the last successful IPv6 address that was reached? No ipv6 address was reached

d. Enter **Ctrl**+**C** to stop the trace.

e. Click **R3** and then the **CLI** tab. Press **ENTER** and log in to the router.

f. Enter the **show ipv6 interface brief** command to list the interfaces and their status. There are two IPv6 addresses on the router. One should match the gateway address recorded in Step 1d. Is there a discrepancy? Yes

g. Run more tests if it helps visualize the problem. Simulation mode is available.

Step 3: Propose a solution to solve the problem.

a. Compare your answers in Step 2 to the documentation you have available for the network. What is the error?
pc4 is using the wrong default gateway configuration

b. What solution would you propose to correct the problem?
configure pc4 with the correct default gateway address which is FE80::3.

Step 4: Implement the plan.

Implement the solution you proposed in Step 3b.

Step 5: Verify that connectivity is restored.

a. From **PC2** test connectivity to **PC4**.

b. From **PC4** test connectivity to **PC2**. Is the problem resolved? Yes

Step 6: Document the solution.

Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Test and Restore Connectivity Between PC1 and PC3	Step 1b	5	
	Step 1d	5	
	Step 2a	5	
	Step 2c	5	
	Step 2f	5	
	Step 2g	5	
	Step 2h	5	
	Step 3a	5	
	Step 3b	5	
	Part 1 Total	**45**	
Part 2: Test and Restore Connectivity Between PC2 and PC4	Step 1b	5	
	Step 1d	5	
	Step 2a	5	
	Step 2c	5	
	Step 2f	5	
	Step 3a	5	
	Step 3b	5	
	Part 2 Total	**35**	
	Packet Tracer Score	**20**	
	Total Score	**100**	