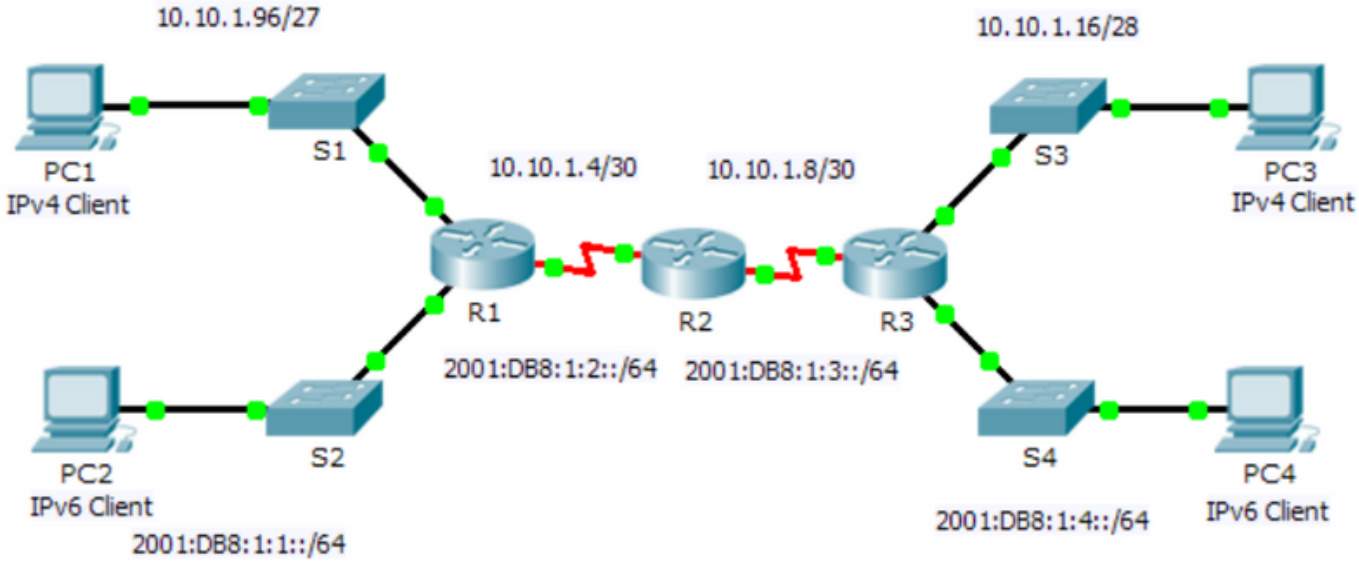
# LAB. 10: PINGING AND TRACING TO TEST THE PATH

**Topology**




Part 1:

## Addressing Table

| Part 2: D evice | Part 3: nterface | Part 4: IPv 4 Address | Part 5: Sub net Mask | Part 6: Defau lt Gateway |
|---|---|---|---|---|
| | | Part 7: 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 | 255.255.255.224 | 10.10.1.17 |
| PC4 | NIC | 2001:DB8:1:4::2/64 | | FE80::2 |

*G0/1 - R1*
*Link-local - R1*
*G0/1 - R3*
*Link-local - R2*

## Objectives

**Part 1: Test and Restore IPv4 Connectivity**

**Part 2: Test and Restore IPv6 Connectivity**

## Scenario

Part 8: 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.

Part 9: **Note:** The user EXEC password is **cisco**. The privileged EXEC password is **class**.

## Test and Restore IPv4 Connectivity

### 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.

### Locate the source of connectivity failure.

f. 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

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

h. 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

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

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

k. 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

l. 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?

10.10.1.4 10.10.1.30

m. Repeat step 2e to 2g with **R3** and 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.

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

### Propose a solution to solve the problem.

o. Compare your answers in Step 2 to the documentation you have available for the network. What is the error?

in R2 Serial 0/0/0 interface is configured with the wrong IP address

Instead of 10.10.1.2 , it should be 10.10.1.5

p. What solution would you propose to correct the problem?

Configure the correct IP address on R2 Serial 0/0/0 interface (10.10.1.5)

**Implement the plan.**

Implement the solution you proposed in Step 3b.

**Verify that connectivity is restored.**

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

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

Yes

**Document the solution.**

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