Packet Tracer - Use Ping and Traceroute to Test Network Connectivity

# Addressing Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Device | Interface | IP Address / Prefix | | Default Gateway |
| R1 | G0/0 | 2001:db8:1:1::1/64 | | N/A |
| R1 | G0/1 | 10.10.1.97 | 255.255.255.224 | N/A |
| R1 | S0/0/1 | 10.10.1.6 | 255.255.255.252 | N/A |
| R1 | S0/0/1 | 2001:db8:1:2::2/64 | | N/A |
| R1 | S0/0/1 | fe80::1 | | N/A |
| R2 | S0/0/0 | 10.10.1.5 | 255.255.255.252 | N/A |
| R2 | S0/0/0 | 2001:db8:1:2::1/64 | | N/A |
| R2 | S0/0/1 | 10.10.1.9 | 255.255.255.252 | N/A |
| R2 | S0/0/1 | 2001:db8:1:3::1/64 | | N/A |
| R2 | S0/0/1 | fe80::2 | | N/A |
| R3 | G0/0 | 2001:db8:1:4::1/64 | | N/A |
| R3 | G0/1 | 10.10.1.17 | 255.255.255.240 | N/A |
| R3 | S0/0/1 | 10.10.1.10 | 255.255.255.252 | N/A |
| R3 | S0/0/1 | 2001:db8:1:3::2/64 | | N/A |
| R3 | S0/0/1 | fe80::3 | | N/A |
| PC1 | NIC | 10.10.1.98 | 255.255.255.224ank | 10.10.1.97 |
| PC2 | NIC | 2001:DB8:1:1::2 | | FE80::1 |
| PC3 | NIC | blank10.10.1.18 | blank255.255.255.240 | blank10.10.1.17 |
| PC4 | NIC | 2001:DB8:1:4::2 | | FE80::2 |

# 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**.

# Instructions

## Test and Restore IPv4 Connectivity

### Use ipconfig and ping to verify connectivity.

* + - 1. Click **PC1** and open the **Command Prompt**.
      2. Enter the **ipconfig /all** command to collect the IPv4 information. Complete the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.
      3. Click **PC3** and open the **Command Prompt**.
      4. Enter the **ipconfig /all** command to collect the IPv4 information. Complete the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.
      5. Use the **ping** command to test connectivity between **PC1** and **PC3**. The ping should fail.

### Locate the source of connectivity failure.

* + - 1. From **PC1**, enter the necessary command to trace the route to **PC3**.

#### Question:

What is the last successful IPv4 address that was reached?

**Ans. 10.10.1.97**

Type your answers here.

* + - 1. The trace will eventually end after 30 attempts. Enter **Ctrl**+**C** to stop the trace before 30 attempts.
      2. From **PC3**, enter the necessary command to trace the route to **PC1**.

#### Question:

What is the last successful IPv4 address that was reached?

Ans. 10.10.1.17

pe your answers here.

* + - 1. Enter **Ctrl**+**C** to stop the trace.

Open configuration window

* + - 1. Click **R1**. Press **ENTER** and log in to the router.
      2. 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.

#### Question:

What is the other?

Type your answers here.

**Ans. 10.10.1.6**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.

#### Question:

What are they?

Type your answers here.

**Ans. 10.10.1.4/30 and 10.10.1.6/32**

* + - 1. Repeat steps 2e through 2g with **R3** and record your answers.

Ans. The other IPv4 address on R3 is: 10.10.1.10, the two networks are: 10.10.1.8/30, 10.10.1.10/32r answers here.

* + - 1. Click **R2**. Press **ENTER** and log into the router.
      2. Enter the **show ip interface brief** command and record your addresses.

Ans. Serial0/0/0 10.10.1.2

Serial0/0/1 10.10.1.9Type your addresses here.

* + - 1. Run more tests if it helps visualize the problem. Simulation mode is available.

Close configuration window

### Propose a solution to solve the problem.

Compare your answers in Step 2 to the documentation you have available for the network.

#### Question:

What is the error?

Ans. The IPv4 Address of the Serial0/0/0 interface of R2 is incorrect your answers here.

What solution would you propose to correct the problem?

**Ans. The S0/0/0 interface of Router-2 needs to be updated to the given IP Address of 10.10.1.5 from 10.10.1.2**

### Implement the plan.

Implement the solution you proposed in Step 3b.

### Verify that connectivity is restored.

* + - 1. From **PC1** test connectivity to **PC3**.
      2. From **PC3** test connectivity to **PC1**.

#### Question:

Is the problem resolved?

**Ans: Yes, the problem is resolved now since the pings are successful.**

answers here.

### Document the solution.

## Test and Restore IPv6 Connectivity

### Use ipv6config and ping to verify connectivity.

* + - 1. Click **PC2** and open the **Command Prompt**.
      2. Enter the **ipv6config /all** command to collect the IPv6 information. Complete the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.
      3. Click **PC4** and open the **Command Prompt**.
      4. Enter the **ipv6config /all** command to collect the IPv6 information. Complete the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.
      5. Test connectivity between **PC2** and **PC4**. The ping should fail.

### Locate the source of connectivity failure.

* + - 1. From **PC2**, enter the necessary command to trace the route to **PC4**.

#### Question:

What is the last successful IPv6 address that was reached?

Ans. 2001:DB8:1:3::2 your answers here.

* + - 1. The trace will eventually end after 30 attempts. Enter **Ctrl**+**C** to stop the trace before 30 attempts.
      2. From **PC4**, enter the necessary command to trace the route to **PC2**.

#### Question:

What is the last successful IPv6 address that was reached?

**Ans. No IPV6 was found.**

Type your answers here.

* + - 1. Enter **Ctrl**+**C** to stop the trace.
      2. Click **R3**. Press **ENTER** and log in to the router.
      3. 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.

#### Question:

Is there a discrepancy?

Ans. Yes. your answers here.

* + - 1. Run more tests if it helps visualize the problem. Simulation mode is available.

### Propose a solution to solve the problem.

Compare your answers in Step 2 to the documentation you have available for the network.

#### Question:

What is the error?

**Ans. PC4’s default gateway address was incorrect, it did not match with the default gateway of R3.**

What solution would you propose to correct the problem?

**Ans. We have to update PC4’s default gateway address using the IP Configuration, and change it to R3’s s0/0/1 address, i.e the value should be FE80::3.**

e your answers here.

### Implement the plan.

Implement the solution you proposed in Step 3b.

### Verify that connectivity is restored.

* + - 1. From **PC2** test connectivity to **PC4**.
      2. From **PC4** test connectivity to **PC2**.

#### Question:

Is the problem resolved?

Ans.Yes here.

### Document the solution.

End of document