Packet Tracer - Verify IPv4 and IPv6 Addressing (Instructor Version)

**Instructor Note**: Red font color or gray highlights indicate text that appears in the instructor copy only.

# Addressing Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Device | Interface | IP Address / Prefix | | Default Gateway |
| R1 | G0/0 | 10.10.1.97 | 255.255.255.224 | N/A |
| R1 | G0/0 | 2001:db8:1:1::1/64 | | 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 | 10.10.1.17 | 255.255.255.240 | N/A |
| R3 | G0/0 | 2001:db8:1:4::1/64 | | 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 | 10.10.1.100 | 255.255.255.224 | 10.10.1.97 |
| PC1 | NIC | 2001:db8:1:1::a/64 | | fe80::1 |
| PC2 | NIC | 10.10.1.20 | 255.255.255.240 | 10.10.1.17 |
| PC2 | NIC | 2001:db8:1:4::a/64 | | fe80::3 |

# Objectives

Part 1: Complete the Addressing Table Documentation

Part 2: Test Connectivity Using Ping

Part 3: Discover the Path by Tracing the Route

# Background

Dual-stack allows IPv4 and IPv6 to coexist on the same network. In this activity, you will investigate a dual-stack implementation including documenting the IPv4 and IPv6 configuration for end devices, testing connectivity for both IPv4 and IPv6 using **ping**, and tracing the path from end to end for IPv4 and IPv6.

# Instructions

## Complete the Addressing Table Documentation

### Use ipconfig to verify IPv4 addressing.

* + - 1. Click **PC1** and open the **Command Prompt.**
      2. Enter the **ipconfig /all** command to collect the IPv4 information. Fill-in the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.
      3. Click **PC2** and open the **Command Prompt.**
      4. Enter the **ipconfig /all** command to collect the IPv4 information. Fill-in the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.

### Use ipv6config to verify IPv6 addressing.

* + - 1. On **PC1**, enter the **ipv6config /all** command to collect the IPv6 information. Fill-in the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.
      2. On **PC2**, enter the **ipv6config /all** command to collect the IPv6 information. Fill-in the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.

## Test Connectivity Using Ping

### Use ping to verify IPv4 connectivity.

* + - 1. From **PC1**, ping the IPv4 address for **PC2**.

#### Question:

Was the result successful?

Type your answers here.

Yes

* + - 1. From **PC2**, ping the IPv4 address for **PC1**.

#### Question:

Was the result successful?

Type your answers here.

Yes

### Use ping to verify IPv6 connectivity.

* + - 1. From **PC1**, ping the IPv6 address for **PC2**.

#### Question:

Was the result successful?

Type your answers here.

Yes

* + - 1. From **PC2**, ping the IPv6 address of **PC1**.

#### Question:

Was the result successful?

Type your answers here.

Yes

## Discover the Path by Tracing the Route

### Use tracert to discover the IPv4 path.

* + - 1. From **PC1**, trace the route to **PC2**.

PC> **tracert 10.10.1.20**

#### Questions:

What addresses were encountered along the path?

Type your answers here.

10.10.1.97, 10.10.1.5, 10.10.1.10, 10.10.1.20

With which interfaces are the four addresses associated

Type your answers here.

G0/0 of R1, S0/0/0 on R2, S0/0/01 on R3, NIC of PC2

* + - 1. From **PC2**, trace the route to **PC1**.

#### Questions:

What addresses were encountered along the path?

Type your answers here.

10.10.1.17, 10.10.1.9, 10.10.1.6, 10.10.1.100

With which interfaces are the four addresses associated?

Type your answers here.

G0/0 of R3, S0/0/1 of R2, S0/0/1 of R1, NIC of PC1

### Use tracert to discover the IPv6 path.

* + - 1. From **PC1**, trace the route to the IPv6 address for **PC2**.

PC> **tracert 2001:db8:1:4::a**

#### Questions:

What addresses were encountered along the path?

Type your answers here.

2001:db8:1:1::1, 2001:db8:1:2::1, 2001:db8:1:3::2, 2001:db8:1:4::a

With which interfaces are the four addresses associated?

Type your answers here.

G0/0 of R1, S0/0/0 of r2, S0/0/1 of R3, NIC of PC2

* + - 1. From **PC2**, trace the route to the IPv6 address for **PC1**.

#### Questions:

What addresses were encountered along the path?

Type your answers here.

2001:db8:1:4::1, 2001:db8:1:3::1, 2001:db8:1:2::2, 2001:db8:1:1::a

With which interfaces are the four addresses associated?

Type your answers here.

G0/0 of R3, S0/0/1 of R2, S0/0/1 of R1, NIC of PC1

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