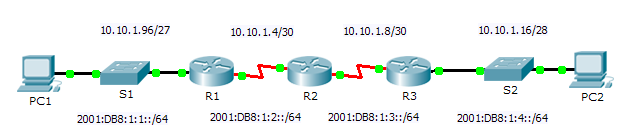
Packet Tracer - Verifying IPv4 and IPv6 Addressing

1. Topology



Addressing Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Device | Interface | IPv4 Address | Subnet Mask | Default Gateway |
| IPv6 Address/Prefix | |
| R1 | G0/0 | 10.10.1.97 | 255.255.255.224 | N/A |
| 2001:DB8:1:1::1/64 | | 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 | 10.10.1.17 | 255.255.255.240 | N/A |
| 2001:DB8:1:4::1/64 | | 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 | 10.10.1.100 | 255.255.255.224 | **10.10.1.97** |
| 2001:DB8:1:1::A | | FE80::1 |
| PC2 | NIC | 10.10.1.20 | 255.255.255.240 | 10.10.1.17 |
| 2001:DB8:1:4::A | | FE80::3 |

1. Objectives

Part 1: Complete the Addressing Table Documentation

Part 2: Test Connectivity Using Ping

Part 3: Discover the Path by Tracing the Route

1. 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.

1. Complete the Addressing Table Documentation
   1. Use ipconfig to verify IPv4 addressing.
      1. Click **PC1** and click the **Desktop** tab > **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 click the **Desktop** tab > **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.
   2. 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.
2. Test Connectivity Using Ping
   1. Use ping to verify IPv4 connectivity.
      1. From **PC1**, ping the IPv4 address for **PC2**. Was the result successful? \_\_\_\_\_yes\_\_\_\_\_
      2. From **PC2**, ping the IPv4 address for **PC1**. Was the result successful? \_\_\_\_yes\_\_\_\_\_\_
   2. Use ping to verify IPv6 connectivity.
      1. From **PC1**, ping the IPv6 address for **PC2**. Was the result successful? \_\_\_\_yes\_\_\_\_\_\_
      2. From **PC2**, ping the IPv6 address of **PC1**. Was the result successful? \_\_yes\_\_\_\_\_\_\_\_
3. Discover the Path by Tracing the Route
   1. Use tracert to discover the IPv4 path.
      1. From **PC1**, trace the route to **PC2**.

PC> **tracert 10.10.1.20**

What addresses were encountered along the path?

10.10.1.97

10.10.1.5

10.10.1.10

10.10.1.20

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

With which interfaces are the four addresses associated?

G0/0 R1, S0/0/0 R2, S0/0/01 R3, NIC PC2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

What addresses were encountered along the path?

10.10.1.17

10.10.1.9

10.10.1.6

10.10.1.100

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

With which interfaces are the four addresses associated?

\_ G0/0 R3, S0/0/1 f R2, S0/0/1 R1, NIC PC1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. 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**

What addresses were encountered along the path?

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?

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

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

What addresses were encountered along the path?

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?

\_ G0/0 R3, S0/0/1 f R2, S0/0/1 R1, NIC PC1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Suggested Scoring Rubric

|  |  |  |  |
| --- | --- | --- | --- |
| Activity Section | Question Location | Possible Points | Earned Points |
| Part 1: Complete the Addressing Table Documentation | Step 1b | 10 |  |
| Step 1d | 10 |  |
| Step 2a | 10 |  |
| Step 2b | 10 |  |
| **Part 1 Total** | | **40** |  |
| Part 2: Test Connectivity Using Ping | Step 1a | 7 |  |
| Step 1b | 7 |  |
| Step 2a | 7 |  |
| Step 2b | 7 |  |
| **Part 2 Total** | | **28** |  |
| Part 3: Discover the Path by Tracing the Route | Step 1a | 8 |  |
| Step 1b | 8 |  |
| Step 2a | 8 |  |
| Step 2b | 8 |  |
| **Part 3 Total** | | **32** |  |
| **Total Score** | | **100** |  |