**Packet Tracer - Verify IPv4 and IPv6 Addressing**

**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 | *blank*10.10.1.97 |
| *PC1* | *NIC* | *blank*2001:DB8:1:1::A | | *blank*FE80::1 |
| PC2 | NIC | *blank*10.10.1.20 | *blank*255.255.255.240 | 10.10.1.17 |
| *PC2* | *NIC* | 2001:DB8:1:4::A | | 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.Complete the Addressing Table Documentation

**Step 1: Use ipconfig to verify IPv4 addressing.**

a.     Click **PC1**and open the **Command Prompt.**

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

c.     Click **PC2**and open the **Command Prompt.**

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

**Step 2: Use ipv6config to verify IPv6 addressing.**

a.     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.

b.     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.

**Part 2: Test Connectivity Using Ping**

**Step 1: Use ping to verify IPv4 connectivity.**

a.     From **PC1**, ping the IPv4 address for **PC2**.

Question:

Was the result successful?

**Ans: Yes**

b.     From **PC2**, ping the IPv4 address for **PC1**.

Question:

Was the result successful?

**Ans:**

**Step 2: Use ping to verify IPv6 connectivity.**

a.     From **PC1**, ping the IPv6 address for **PC2**.

Question:

Was the result successful?

**Ans: yes**

From **PC2**, ping the IPv6 address of **PC1**.

Question:

Was the result successful?

**Ans: yes**

**Part 3: Discover the Path by Tracing the Route**

**Step 1: Use tracert to discover the IPv4 path.**

a.     From **PC1**, trace the route to **PC2**.

PC> **tracert 10.10.1.20**

Questions:

What addresses were encountered along the path?

**Ans: 10.10.1.97,10.10.1.5, 10.10.1.10,10.10.1.20**

With which interfaces are the four addresses associated

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

b.     From **PC2**, trace the route to **PC1**.

Questions:

What addresses were encountered along the path?

**Ans: 10.10.1.17, 10.10.1.9, 10.10.1.6, 10.10.1.100**

With which interfaces are the four addresses associated?

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

**Step 2: Use tracert to discover the IPv6 path.**

a.     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?

**Ans: 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?

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

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

Questions:

What addresses were encountered along the path?

**Ans: 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?

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

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