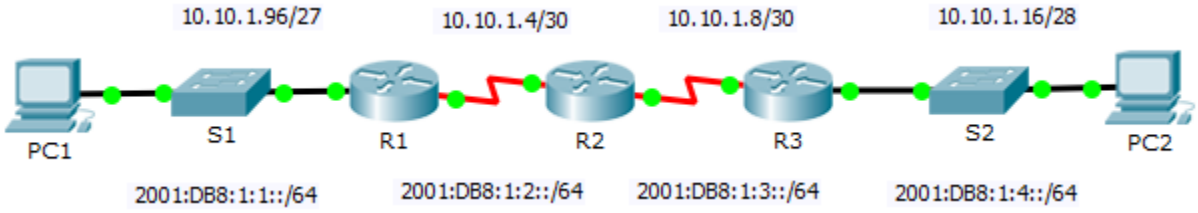
Packet Tracer - Verifying IPv4 and IPv6 Addressing

Topology



Addressing Table

Device	Interface	IPv4 Address / IPv6 Address/Prefix	Subnet Mask	Default Gateway
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			
PC2	NIC			

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.

Part 1: Complete the Addressing Table Documentation

Step 1: Use ipconfig to verify IPv4 addressing.

a. Click **PC1** and click the **Desktop** tab > **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 click the **Desktop** tab > **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**. Was the result successful? _____

b. From **PC2**, ping the IPv4 address for **PC1**. Was the result successful? _____

Step 2: Use ping to verify IPv6 connectivity.

a. From **PC1**, ping the IPv6 address for **PC2**. Was the result successful? _____

b. From **PC2**, ping the IPv6 address of **PC1**. Was the result successful? _____

Step 3: Create a full screen shot

a. Leave any existing Packet Tracer windows open

b. Open the **Notepad** application

c. Type your **full name** and **student number** into the Notepad window

d. Arrange the Notepad window so it is not covering up the Packet Tracer window(s)

e. Using **Snipping Tool** (or similar screen capture app), take a FULL SCREEN shot (include the task bar)

f. Paste the screen shot into the Word worksheet document

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
```

What addresses were encountered along the path? _____

With which interfaces are the four addresses associated?

_____

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

What addresses were encountered along the path? _____

With which interfaces are the four addresses associated?

_____

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
```

What addresses were encountered along the path?

_____

With which interfaces are the four addresses associated?

_____

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

What addresses were encountered along the path?

_____

With which interfaces are the four addresses associated? _____