

## 13.2.6 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
		2001:db8:1:1::1/64		
	S0/0/1	10.10.1.6	255.255.255.252	N/A
		2001:db8:1:2::2/64		
		fe80::1		
R2	S0/0/0	10.10.1.5	255.255.255.252	N/A
		2001:db8:1:2::1/64		
	S0/0/1	10.10.1.9	255.255.255.252	N/A
		2001:db8:1:3::1/64		
		fe80::2		
R3	G0/0	10.10.1.17	255.255.255.240	N/A
		2001:db8:1:4::1/64		
	S0/0/1	10.10.1.10	255.255.255.252	N/A
		2001:db8:1:3::2/64		
		fe80::3		
PC1	NIC	10.10.1.100	255.255.255.224	10.10.1.97
		2001:db8:1:1::a/64		fe80::1
PC2	NIC	10.10.1.20	255.255.255.240	10.10.1.17
		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.

### Part 1: Complete the Addressing Table Documentation

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

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

- 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.
- 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.

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

Was the result successful?

**Yes**

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

Was the result successful?

**Yes**

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

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

Was the result successful?

**Yes**

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

Was the result successful?

**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
```

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

- b. 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 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
```

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 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**.

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