

Packet Tracer - Verify IPv4 and IPv6 Addressing

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General Instruction

Place your answers (in **bold red**) inside the box provided on each question.

Addressing Table

Device	Interface	IP Address / Prefix		Default Gateway
R1	G0/0	10.10.1.97	255.255.255.224	N/A
	S0/0/1	2001:db8:1:1::1/64		N/A
		10.10.1.6	255.255.255.252	
		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	FE80::1
		2001:DB8:1:1::A/64		10.10.1.97
PC2	NIC	10.10.1.20	255.255.255.240	FE80::3
		2001:DB8:1:4::A/64		10.10.1.17

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.

- 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?

```
Tracing route to 10.10.1.20 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    10.10.1.97
  2  0 ms    1 ms    2 ms    10.10.1.5
  3  2 ms    2 ms    0 ms    10.10.1.10
  4  1 ms    0 ms    2 ms    10.10.1.20

Trace complete.
```

With which interfaces are the four addresses associated

G0/0 (R1), S0/0/0 (R2), S0/0/1 (R3), PC2 NIC

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

What addresses were encountered along the path?

```
Tracing route to 10.10.1.100 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    10.10.1.17
  2  0 ms    6 ms    1 ms    10.10.1.9
  3  2 ms    2 ms    1 ms    10.10.1.6
  4  2 ms    2 ms    10 ms   10.10.1.100

Trace complete.
```

With which interfaces are the four addresses associated?

G0/0 (R3), S0/0/1 (R2), S0/0/1 (R1), PC1 NIC

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
```

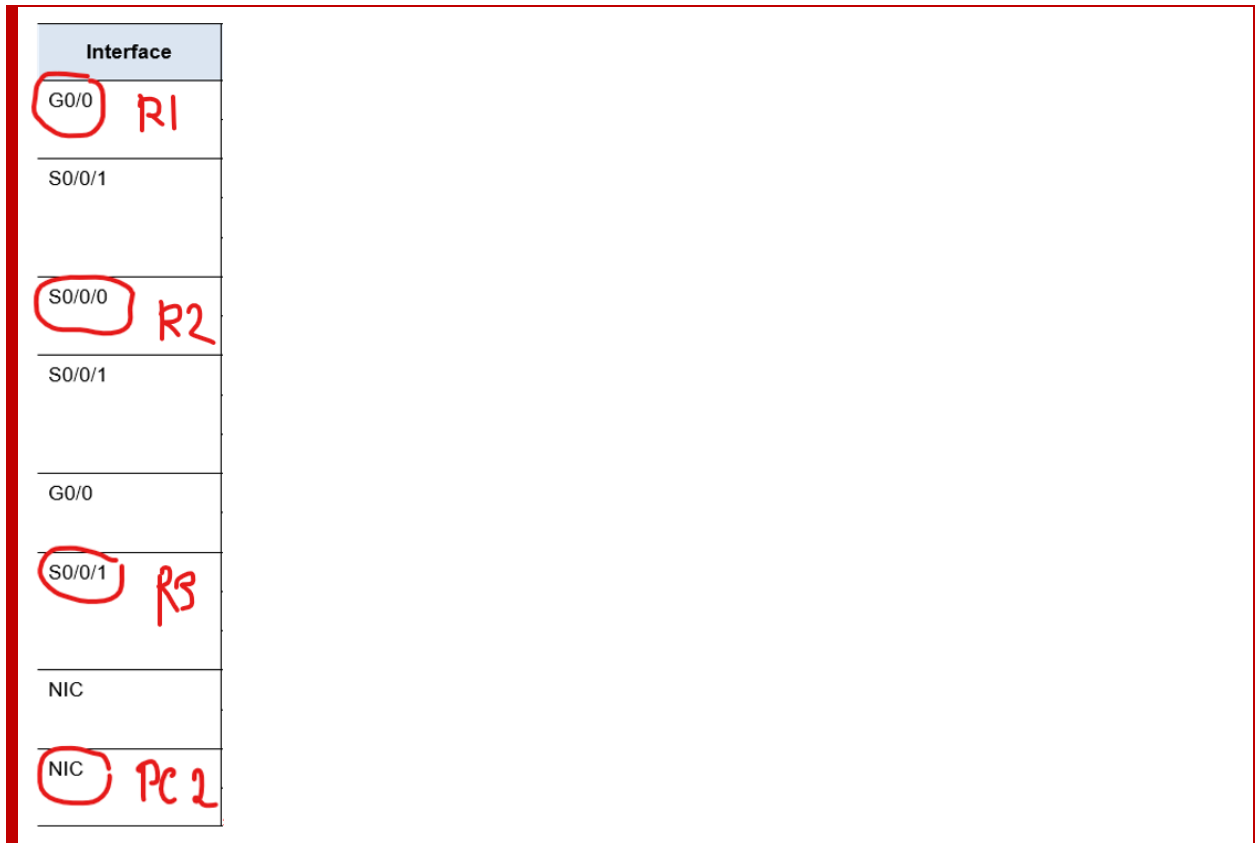
What addresses were encountered along the path?

```
Tracing route to 2001:db8:1:4::a over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    2001:DB8:1:1::1
  2  0 ms    2 ms    0 ms    2001:DB8:1:2::1
  3  3 ms    2 ms    2 ms    2001:DB8:1:3::2
  4  0 ms    0 ms    1 ms    2001:DB8:1:4::A

Trace complete.
```

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?

```
Tracing route to 2001:db8:1:1::A over a maximum of 30 hops:
  1  0 ms    0 ms    0 ms    2001:DB8:1:4::1
  2  1 ms    0 ms    0 ms    2001:DB8:1:3::1
  3  5 ms    1 ms    1 ms    2001:DB8:1:2::2
  4  2 ms    0 ms    1 ms    2001:DB8:1:1::A
Trace complete.
```

With which interfaces are the four addresses associated?

Interface
G0/0
S0/0/1 R1
S0/0/0
S0/0/1 R2
G0/0 R3
S0/0/1
NIC PC1
NIC