Packet Tracer - Configuring IPv6 Addressing (Instructor Version)

**Instructor Note:** Red font color or Gray highlights indicate text that appears in the instructor copy only.

1. Topology



1. Addressing Table

|  |  |  |  |
| --- | --- | --- | --- |
| Device | Interface | IPv6 Address/Prefix | Default Gateway |
| R1 | G0/0 | 2001:DB8:1:1::1/64 | N/A |
| G0/1 | 2001:DB8:1:2::1/64 | N/A |
| S0/0/0 | 2001:DB8:1:A001::2/64 | N/A |
| Link-local | FE80::1 | N/A |
| Sales | NIC | 2001:DB8:1:1::2/64 | FE80::1 |
| Billing | NIC | 2001:DB8:1:1::3/64 | FE80::1 |
| Accounting | NIC | 2001:DB8:1:1::4/64 | FE80::1 |
| Design | NIC | 2001:DB8:1:2::2/64 | FE80::1 |
| Engineering | NIC | 2001:DB8:1:2::3/64 | FE80::1 |
| CAD | NIC | 2001:DB8:1:2::4/64 | FE80::1 |

1. Objectives

Part 1: Configure IPv6 Addressing on the Router

Part 2: Configure IPv6 Addressing on Servers

Part 3: Configure IPv6 Addressing on Clients

Part 4: Test and Verify Network Connectivity

1. Background

In this activity, you will practice configuring IPv6 addresses on a router, servers, and clients. You will also practice verifying your IPv6 addressing implementation.

1. Configure IPv6 Addressing on the Router
	1. Enable the router to forward IPv6 packets.
		1. Enter the ipv6 unicast-routing global configuration command. This command must be configured to enable the router to forward IPv6 packets. This command will be discussed in a later semester.

R1(config)# ipv6 unicast-routing

* 1. Configure IPv6 addressing on GigabitEthernet0/0.
		1. Click **R1** and then the **CLI** tab. Press **Enter**.
		2. Enter privileged EXEC mode.
		3. Enter the commands necessary to transition to interface configuration mode for GigabitEthernet0/0.
		4. Configure the IPv6 address with the following command:

R1(config-if)# **ipv6 address 2001:DB8:1:1::1/64**

* + 1. Configure the link-local IPv6 address with the following command:

R1(config-if)# **ipv6 address FE80::1 link-local**

* + 1. Activate the interface.
	1. Configure IPv6 addressing on GigabitEthernet0/1.
		1. Enter the commands necessary to transition to interface configuration mode for GigabitEthernet0/1.
		2. Refer to the **Addressing Table** to obtain the correct IPv6 address.
		3. Configure the IPv6 address, the link-local address and activate the interface.
	2. Configure IPv6 addressing on Serial0/0/0.
		1. Enter the commands necessary to transition to interface configuration mode for Serial0/0/0.
		2. Refer to the **Addressing Table** to obtain the correct IPv6 address.
		3. Configure the IPv6 address, the link-local and activate the interface.
1. Configure IPv6 Addressing on the Servers
	1. Configure IPv6 addressing on the Accounting Server.
		1. Click **Accounting** and click the **Desktop** tab > **IP Configuration**.
		2. Set the **IPv6 Address** to **2001:DB8:1:1::4** with a prefix of **/64**.
		3. Set the **IPv6 Gateway** to the link-local address, **FE80::1**.
	2. Configure IPv6 addressing on the CAD Server.

Repeat Steps 1a to 1c for the **CAD** server. Refer to the **Addressing Table** for the IPv6 address.

1. Configure IPv6 Addressing on the Clients
	1. Configure IPv6 addressing on the Sales and Billing Clients.
		1. Click **Billing** and then select the **Desktop** tab followed by **IP Configuration**.
		2. Set the **IPv6 Address** to **2001:DB8:1:1::3** with a prefix of **/64**.
		3. Set the **IPv6 Gateway** to the link-local address, **FE80::1**.
		4. Repeat Steps 1a through 1c for **Sales**. Refer to the **Addressing Table** for the IPv6 address.
	2. Configure IPv6 Addressing on the Engineering and Design Clients.
		1. Click **Engineering** and then select the **Desktop** tab followed by **IP Configuration**.
		2. Set the **IPv6 Address** to **2001:DB8:1:2::3** with a prefix of **/64**.
		3. Set the **IPv6 Gateway** to the link-local address, **FE80::1**.
		4. Repeat Steps 1a through 1c for **Design**. Refer to the **Addressing Table** for the IPv6 address.
2. Test and Verify Network Connectivity
	1. Open the server web pages from the clients.
		1. Click **Sales** and click the **Desktop** tab. Close the **IP Configuration** window, if necessary.
		2. Click **Web Browser**. Enter **2001:DB8:1:1::4** in the URL box and click **Go**. The **Accounting** website should appear.
		3. Enter **2001:DB8:1:2::4** in the URL box and click **Go**. The **CAD** website should appear.
		4. Repeat steps 1a through 1d for the rest of the clients.
	2. Ping the ISP.
		1. Open any client computer configuration window by clicking the icon.
		2. Click the **Desktop** tab > **Command Prompt**.
		3. Test connectivity to the ISP by entering the following command:

PC> **ping 2001:DB8:1:A001::1**

* + 1. Repeat the **ping** command with other clients until full connectivity is verified.