

Packet Tracer - Configure IPv6 Addressing

Addressing Table

Device	Interface	IPv6 Address/Prefix	Default Gateway
R1	G0/0	2001:db8:1:1::1/64	N/A
		fe80::1	
	G0/1	2001:db8:1:2::1/64	N/A
		fe80::1	
	S0/0/0	2001:db8:1:a001::2/64	N/A
		fe80::1	
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
ISP	S0/0/0	2001:db8:1:a001::1	fe80::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

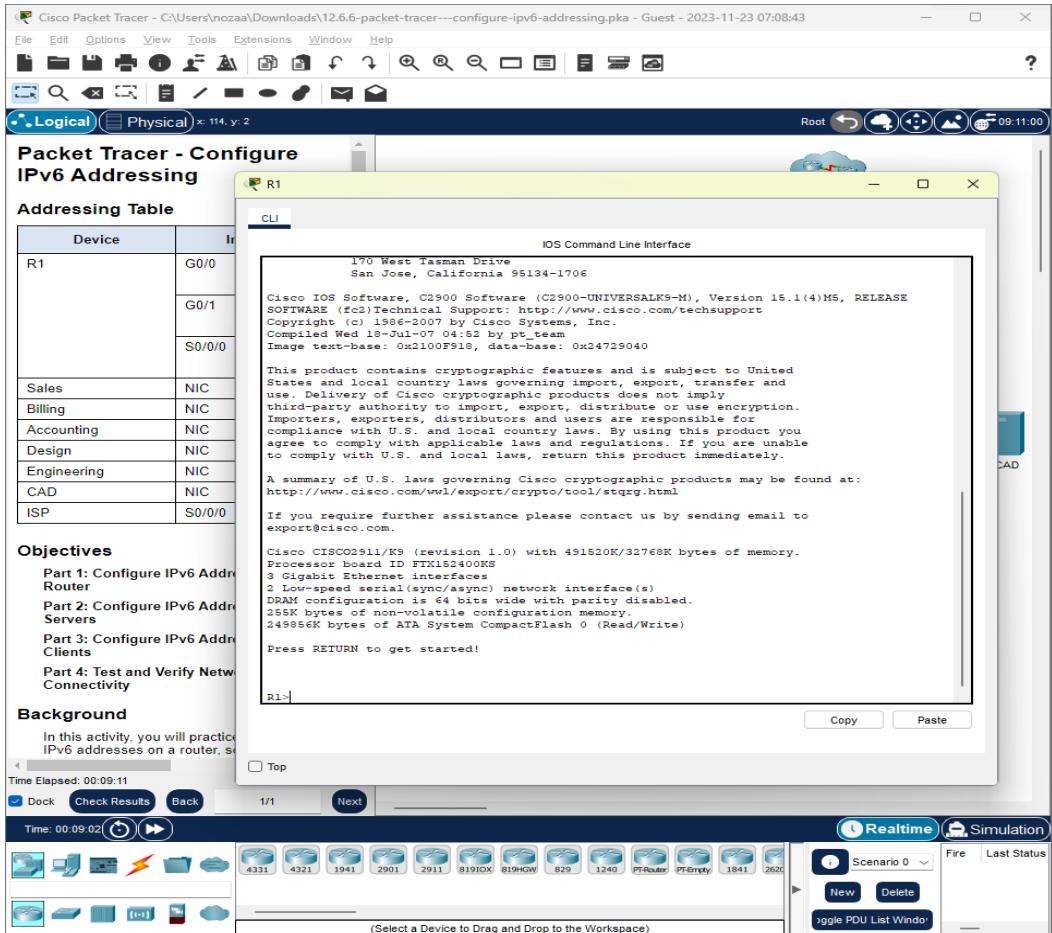
Background

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

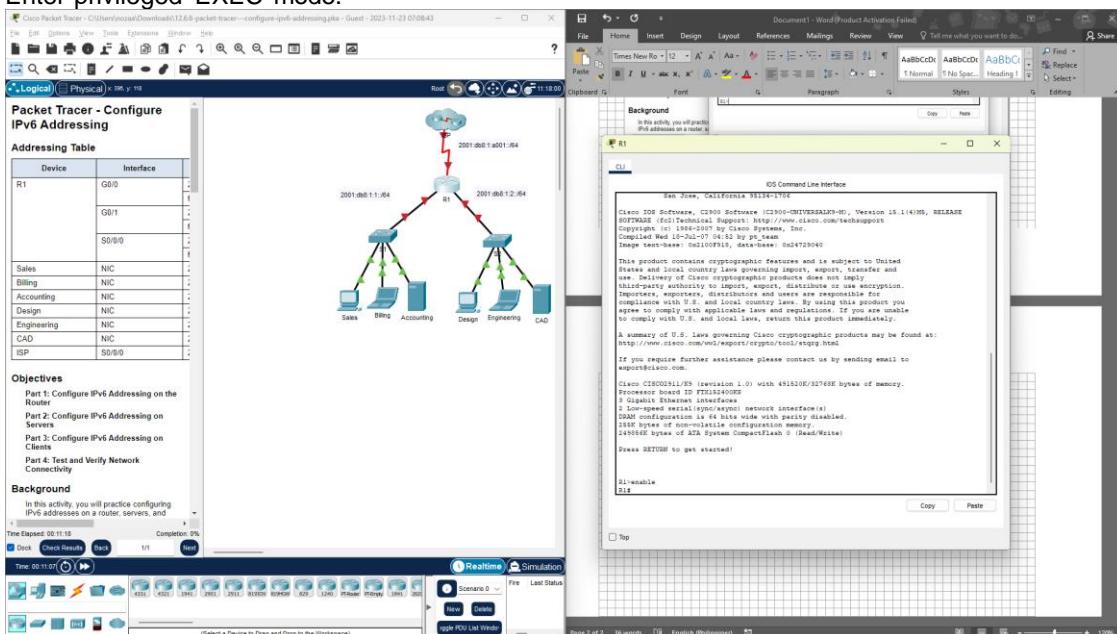
Part 1: Configure IPv6 Addressing on the Router

Step 1: Enable the router to forward IPv6 packets.

- Click R1 and then the **CLI** tab. Press **Enter**.

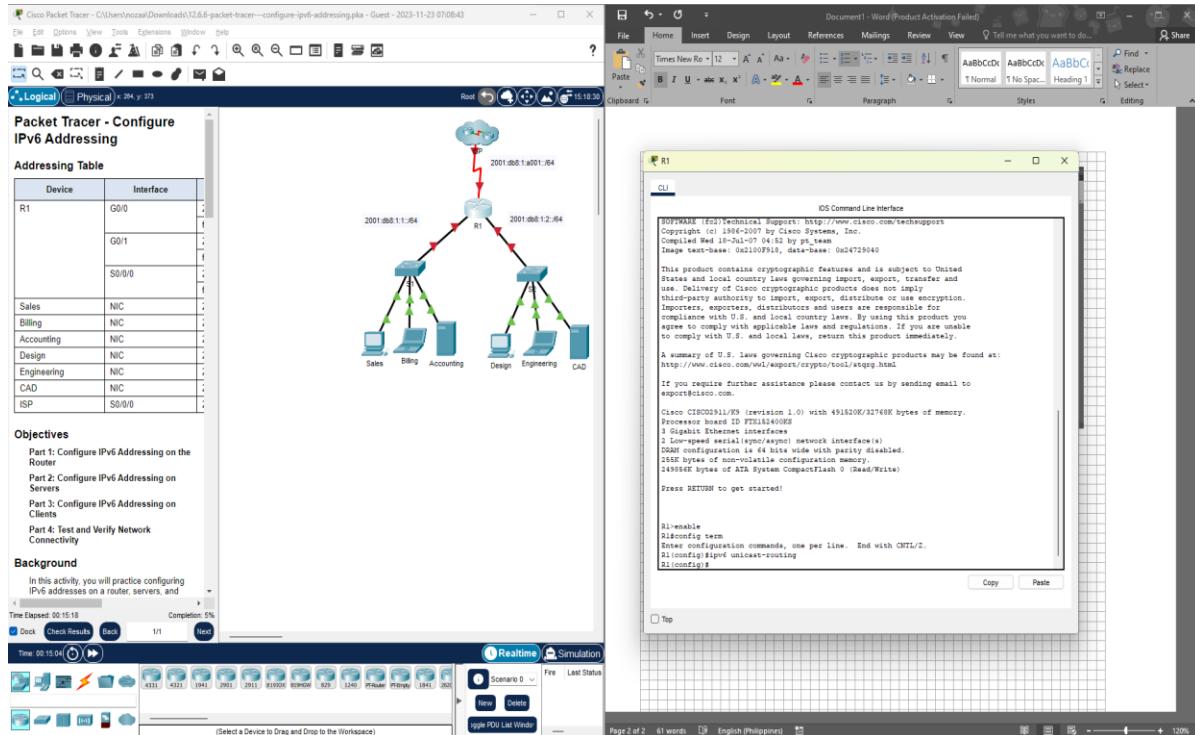


b. Enter privileged EXEC mode.



c. Enter the **ipv6 unicast-routing** global configuration command. This command must be entered to enable the router to forward IPv6 packets.

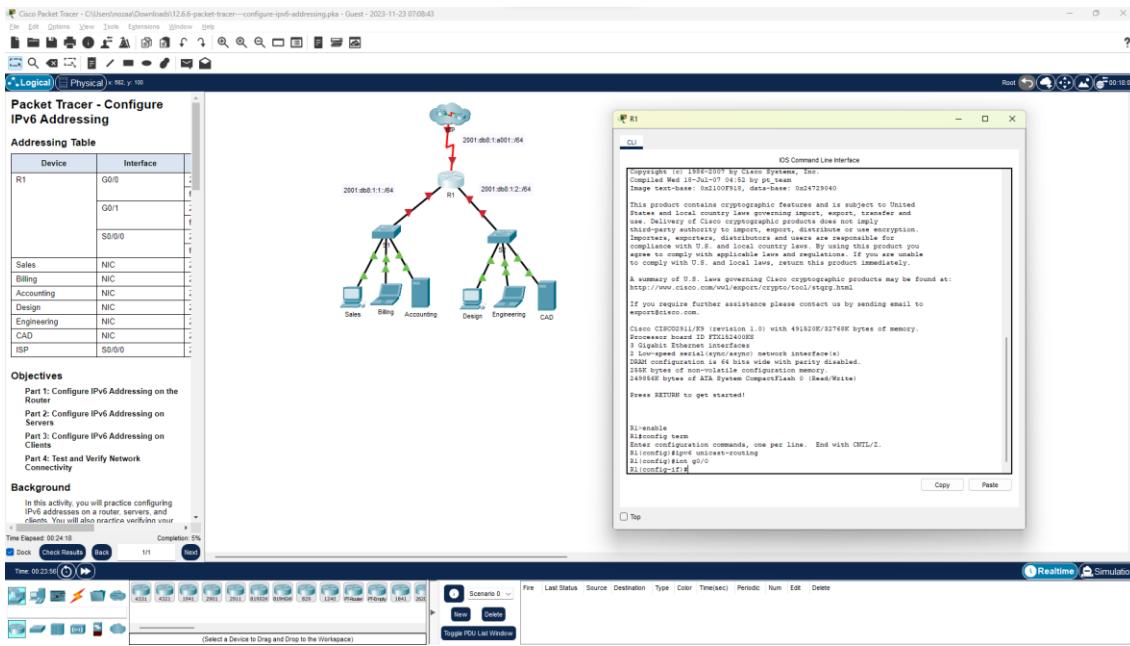
```
R1(config)# ipv6 unicast-routing
```



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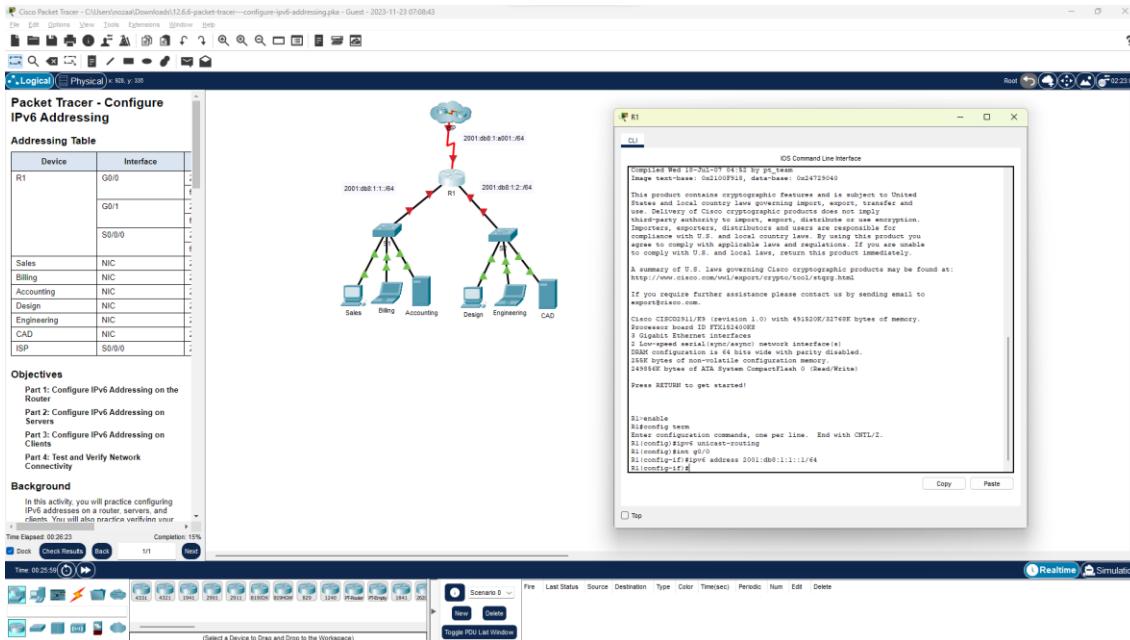
Step 2: Configure IPv6 addressing on GigabitEthernet0/0.

- Enter the commands necessary to move to interface configuration mode for GigabitEthernet0/0.



- Configure the IPv6 address with the following command:

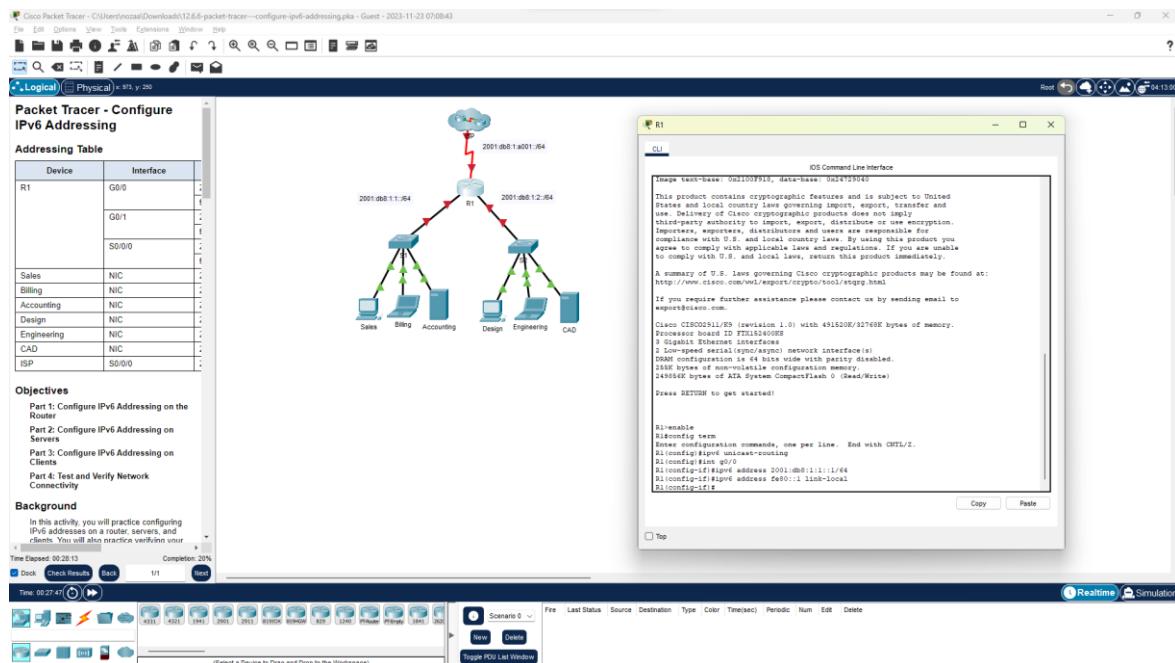
```
R1(config-if)# ipv6 address 2001:db8:1:1::1/64
```



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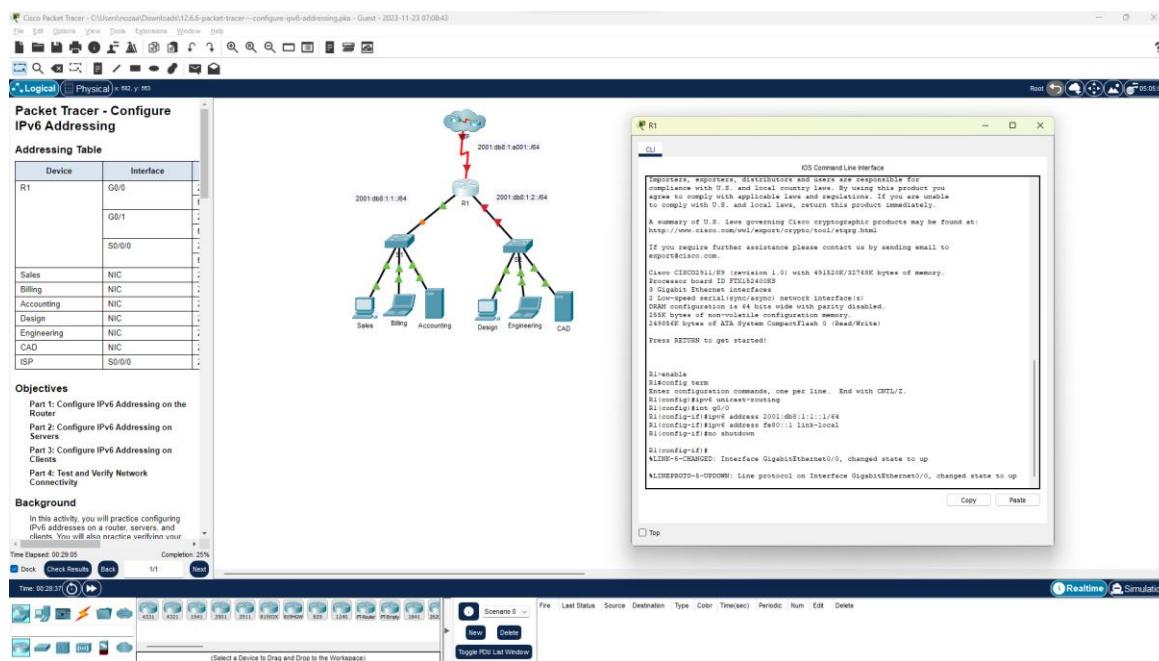
- c. Configure the link-local IPv6 address with the following command:

```
R1(config-if)# ipv6 address fe80::1 link-local
```



- d. Activate the interface.

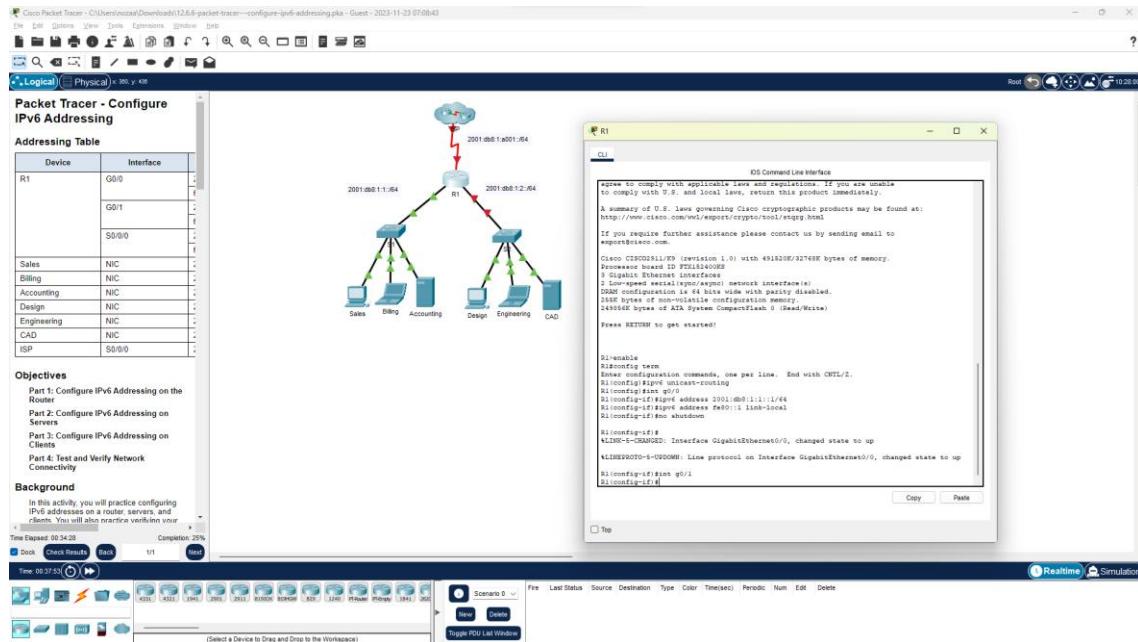
```
R1(config-if)# no shutdown
```



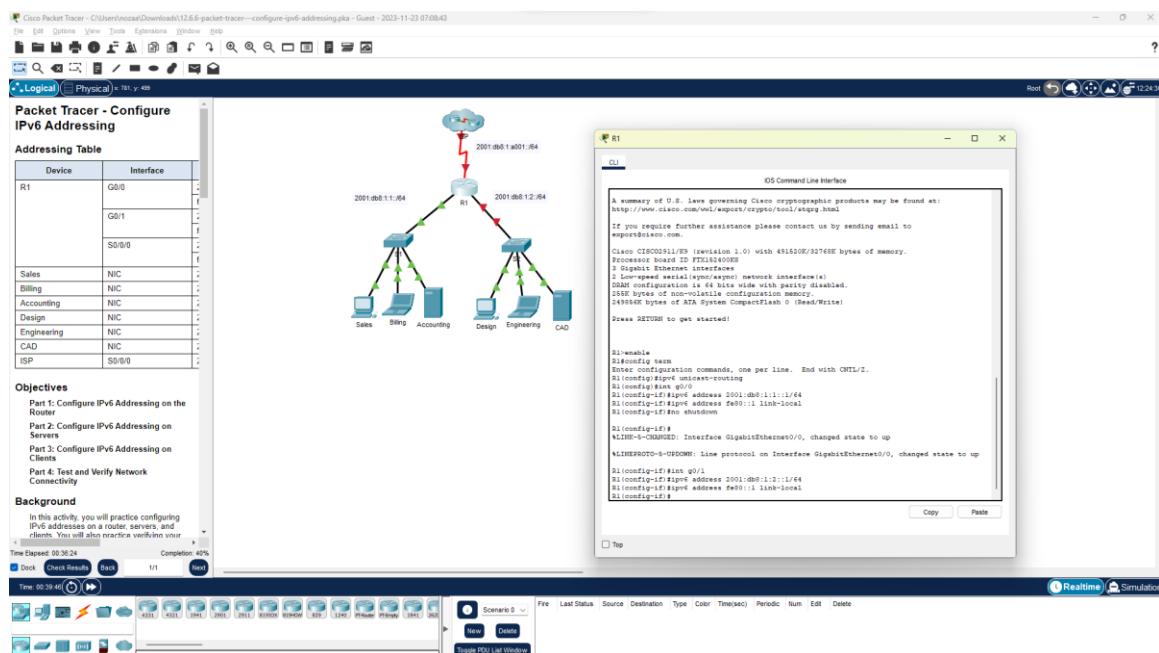
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Step 3: Configure IPv6 addressing on GigabitEthernet0/1.

- Enter the commands necessary to move to interface configuration mode for GigabitEthernet0/1.

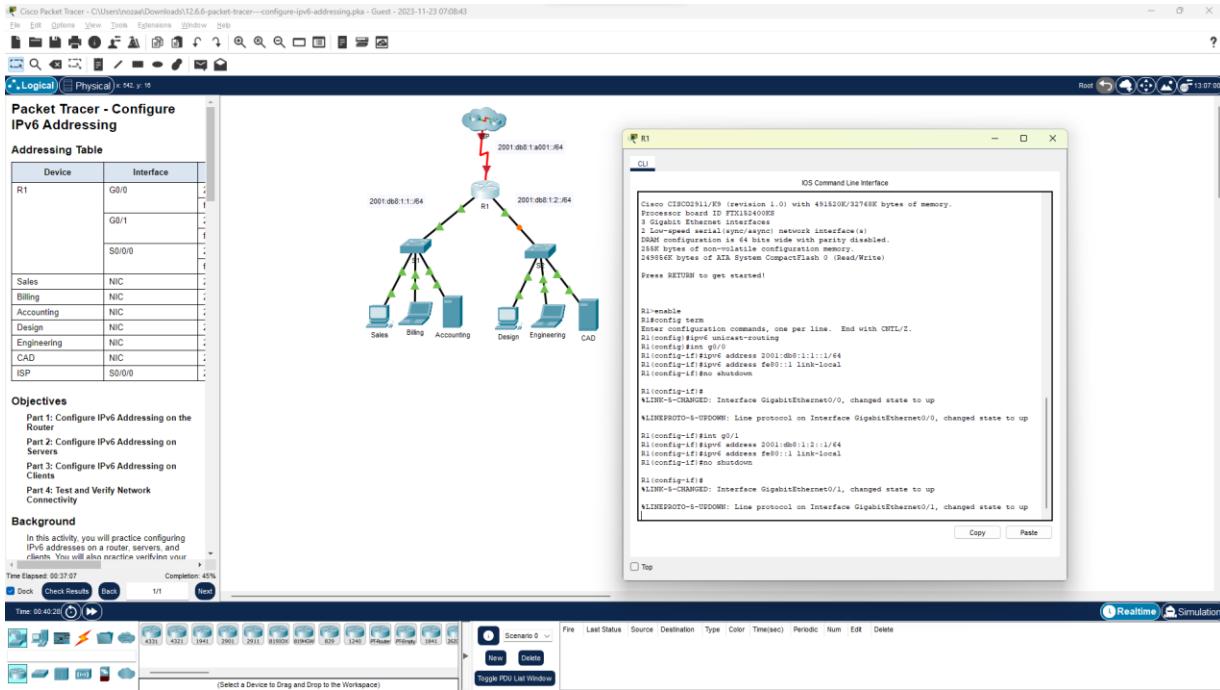


- Refer to the Addressing Table for the correct IPv6 address.



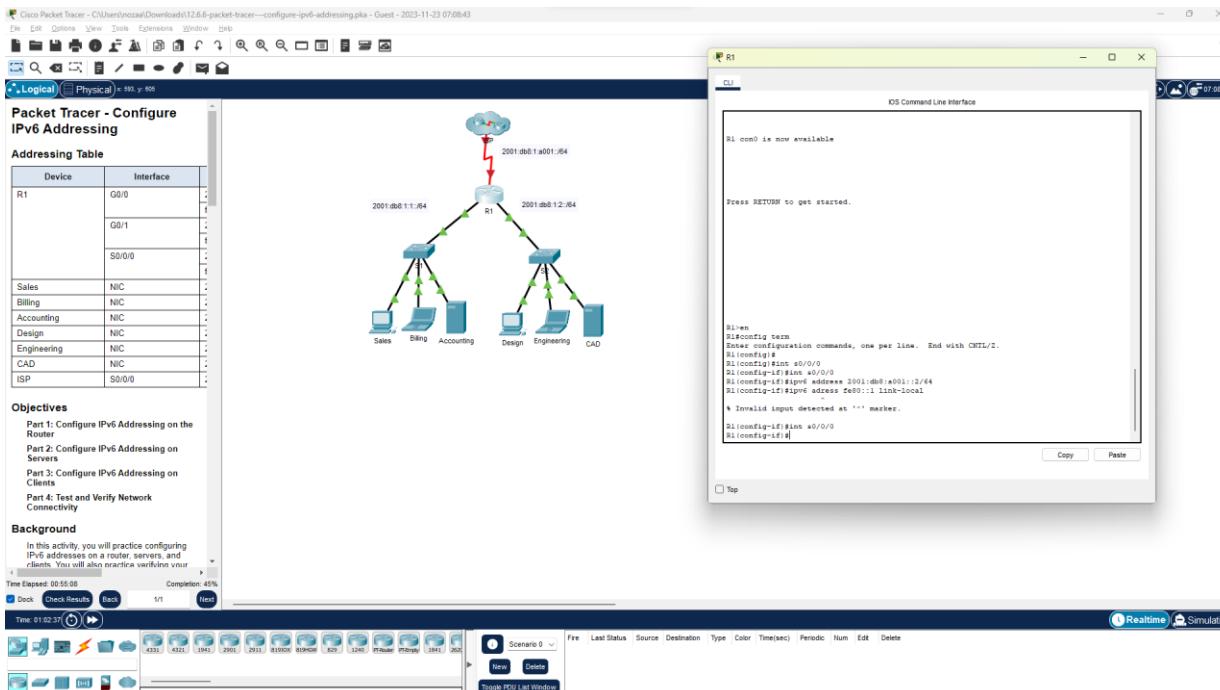
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- c. Configure the IPv6 address, the link-local address and activate the interface.



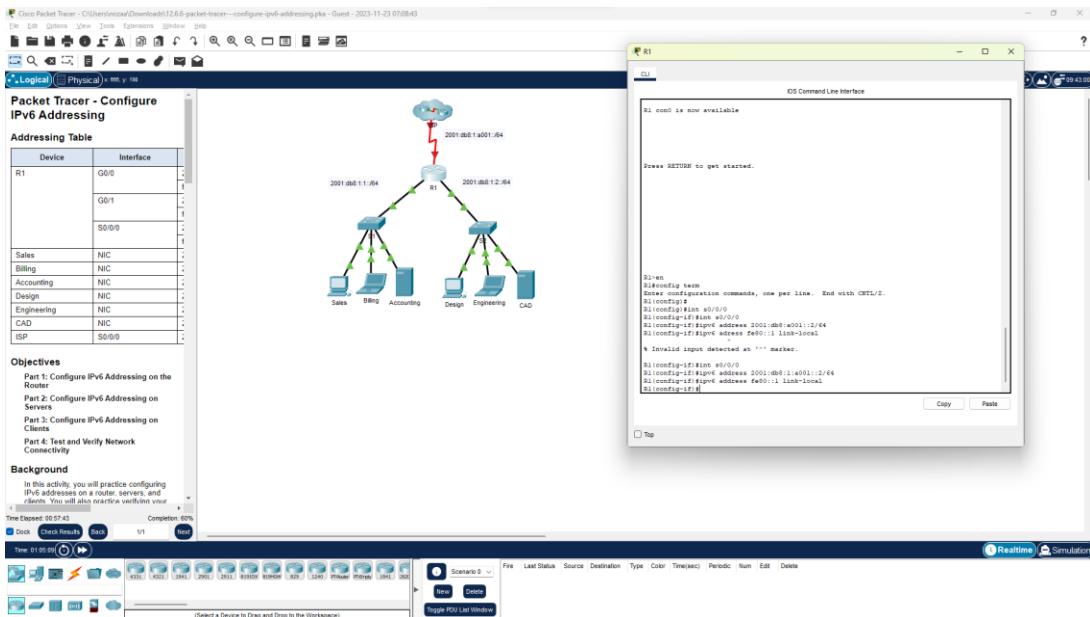
Step 4: Configure IPv6 addressing on Serial0/0/0.

- a. Enter the commands necessary to move to interface configuration mode for Serial0/0/0.

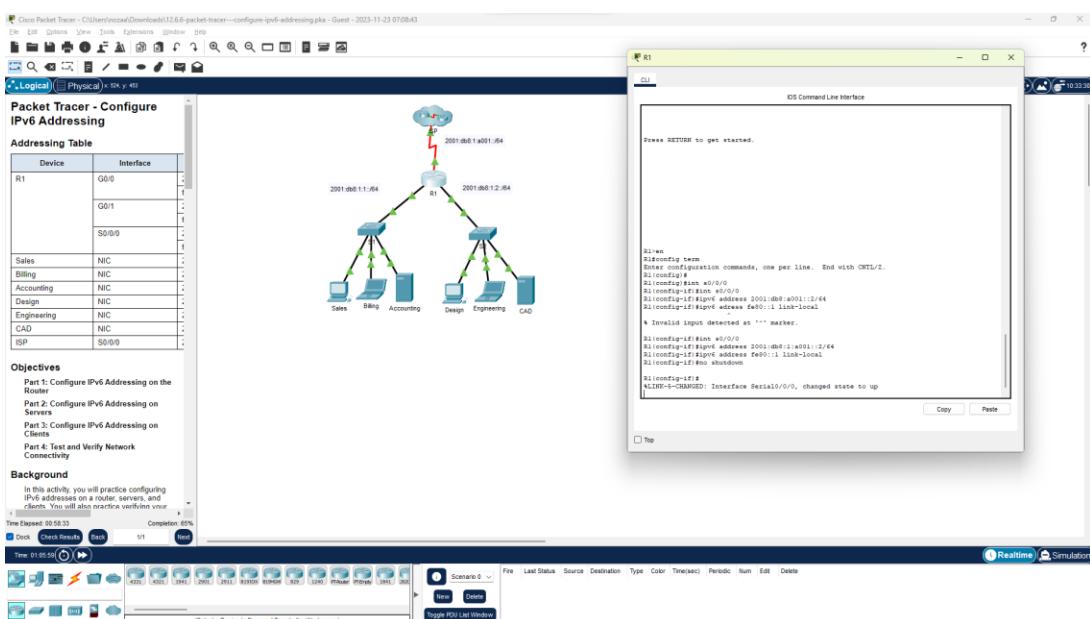


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- b. Refer to the Addressing Table for the correct IPv6 address.



- c. Configure the IPv6 address, the link-local address and activate the interface.

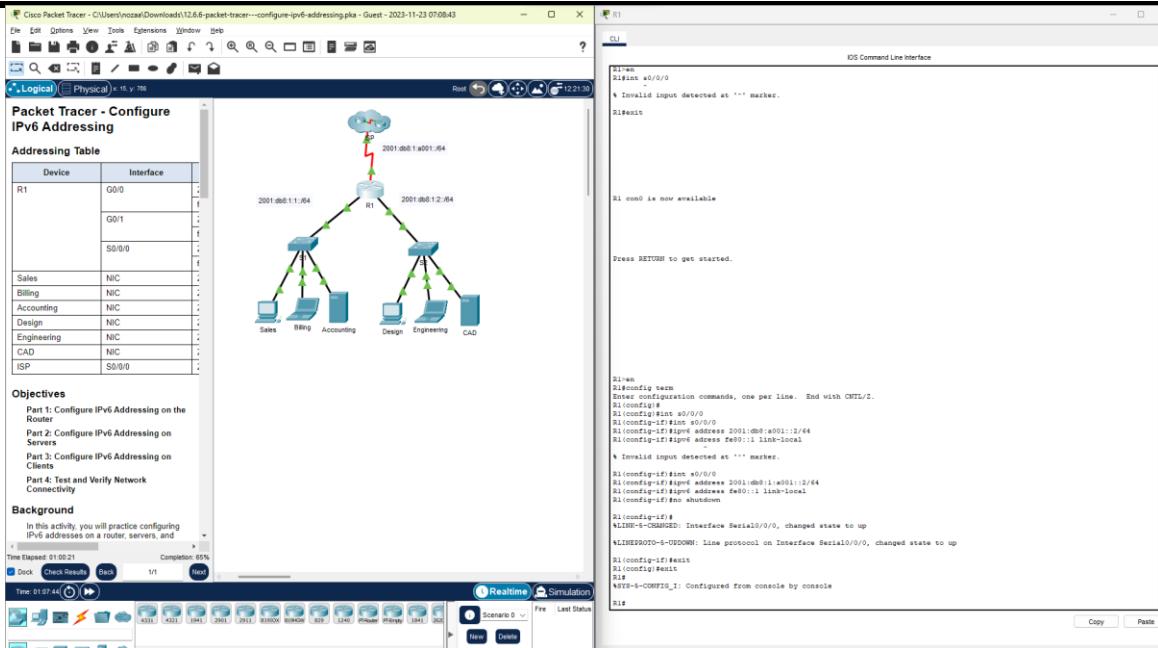


Step 5: Verify IPv6 addressing on R1.

It is good practice to verify addressing when it is complete by comparing configured values with the values in the addressing table.

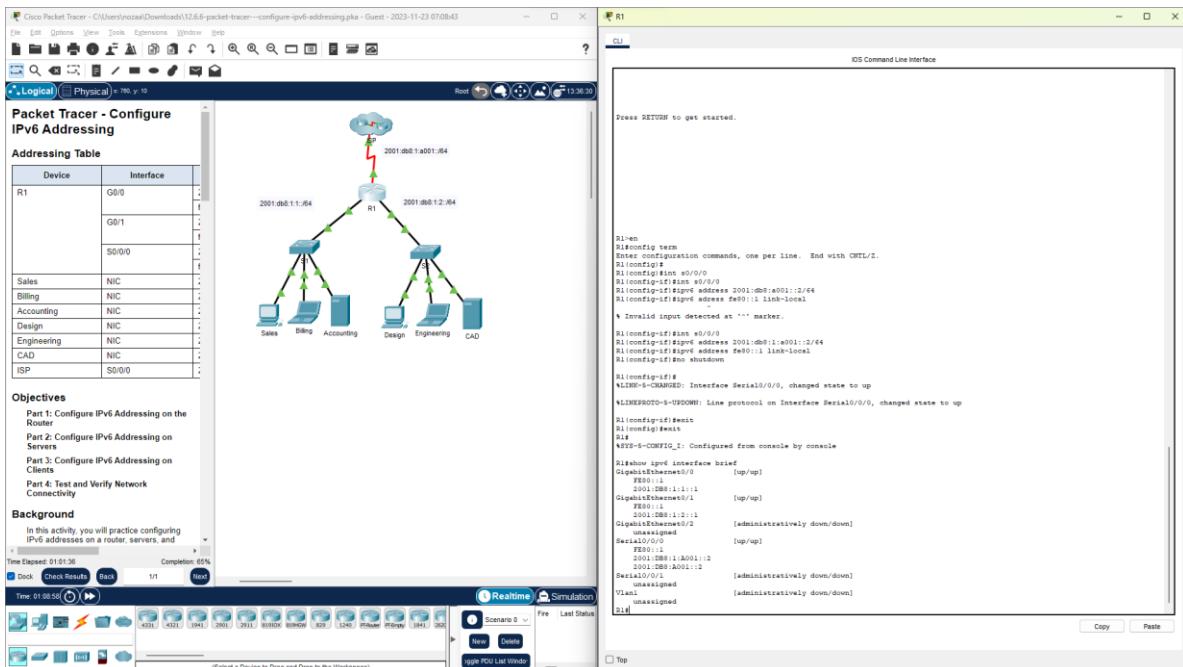
- a. Exit configuration mode on R1.

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- b. Verify the addressing configured by issuing the following command:

```
R1# show ipv6 interface brief
```



- c. If any addresses are incorrect, repeat the steps above as necessary to make any corrections.

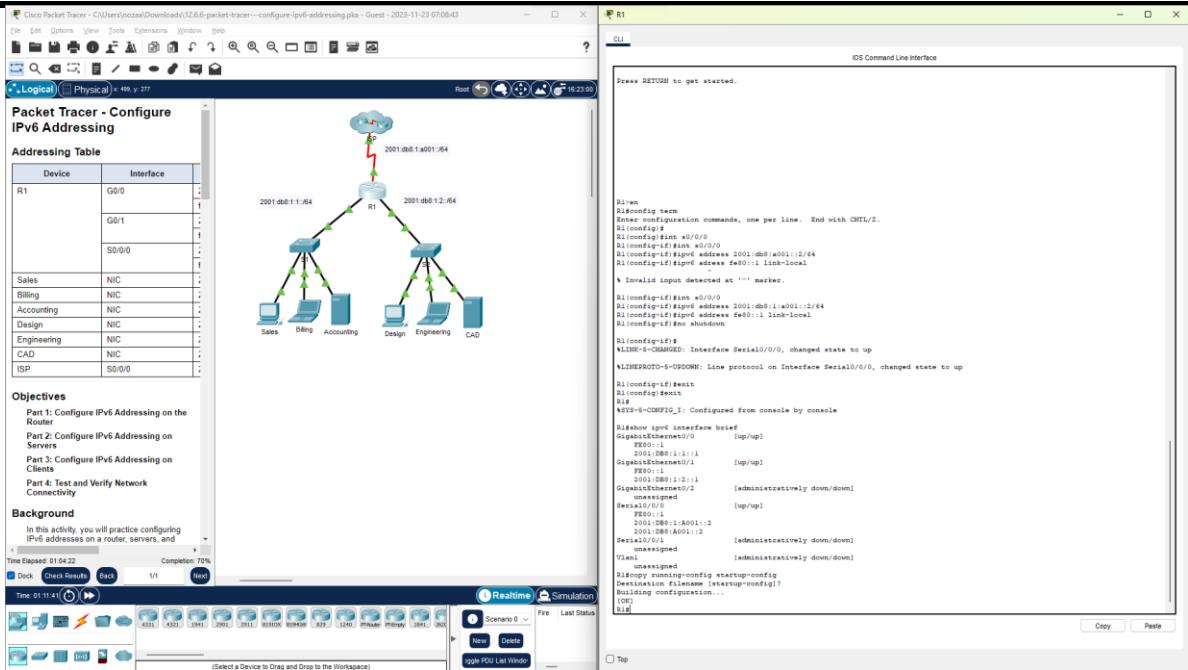
Note: To make a change in addressing with IPv6, you must remove the incorrect address or else both the correct address and incorrect address will remain configured on the interface.

Example:

```
R1(config-if)# no ipv6 address 2001:db8:1:5::1/64
```

- d. Save the router configuration to NVRAM.

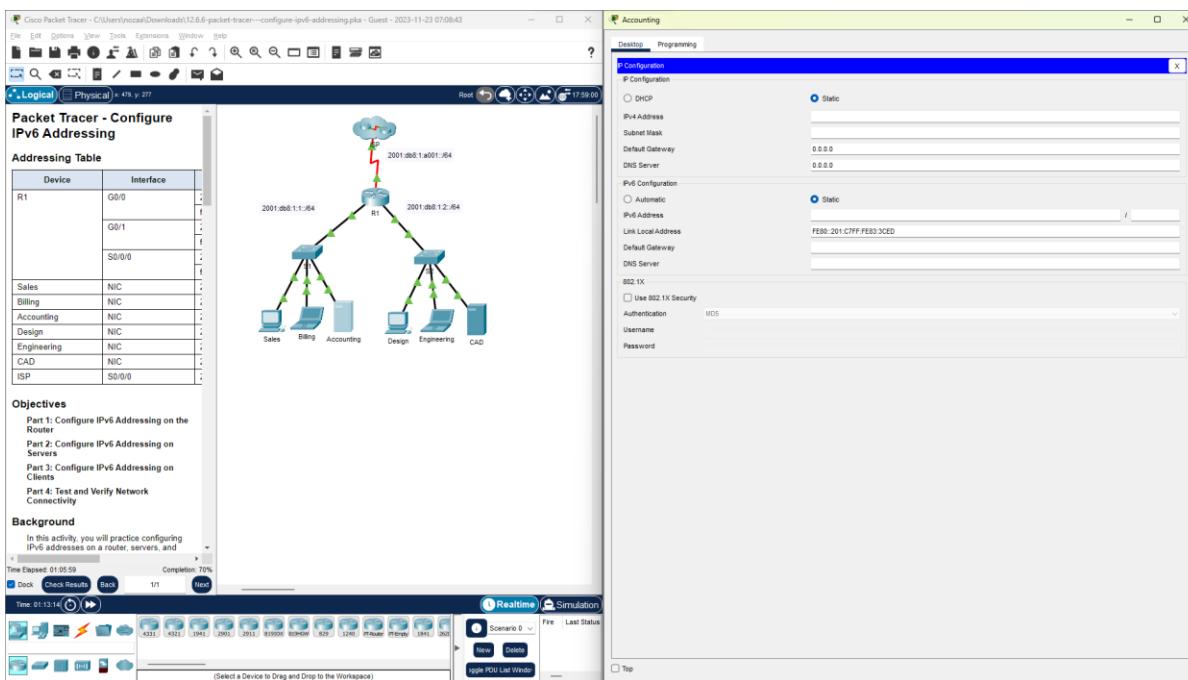
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Part 2: Configure IPv6 Addressing on the Servers

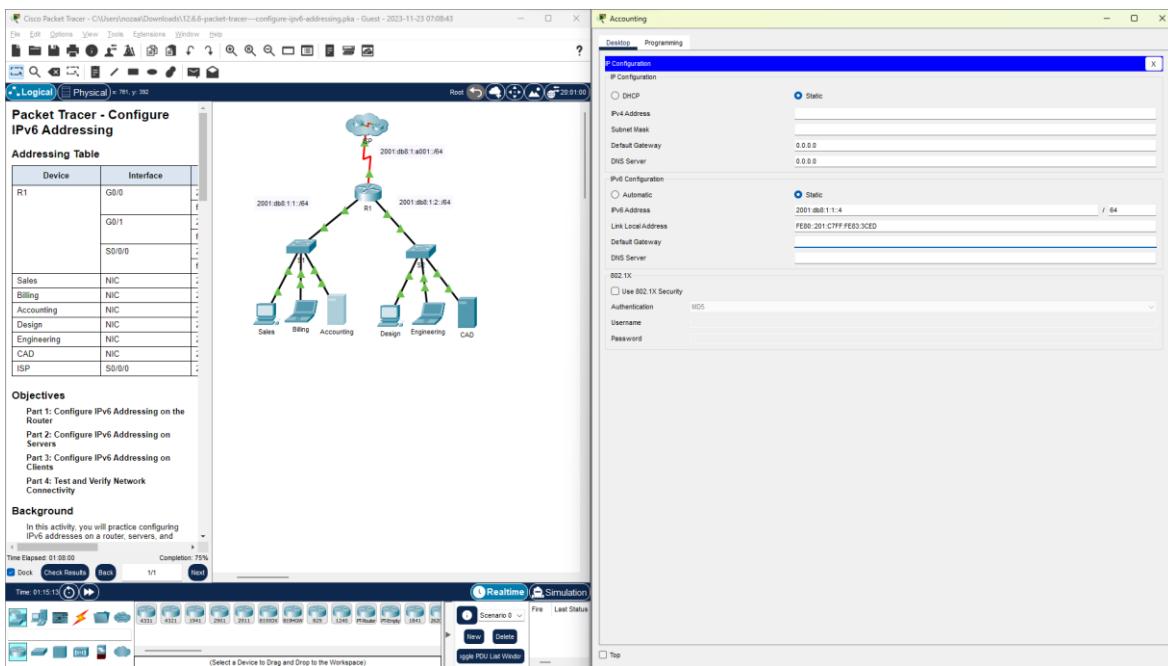
Step 1: Configure IPv6 addressing on the Accounting Server.

- Click Accounting and click the Desktop tab > IP Configuration.

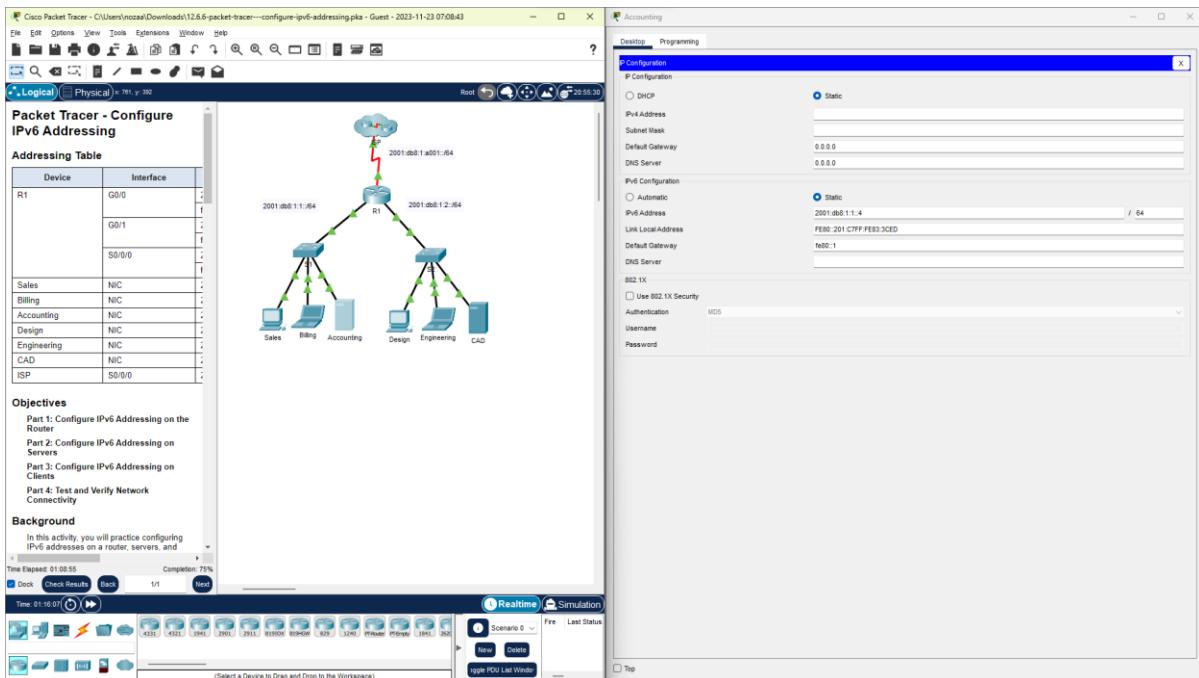


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- b. Set the IPv6 Address to 2001:db8:1:1::4 with a prefix of /64.

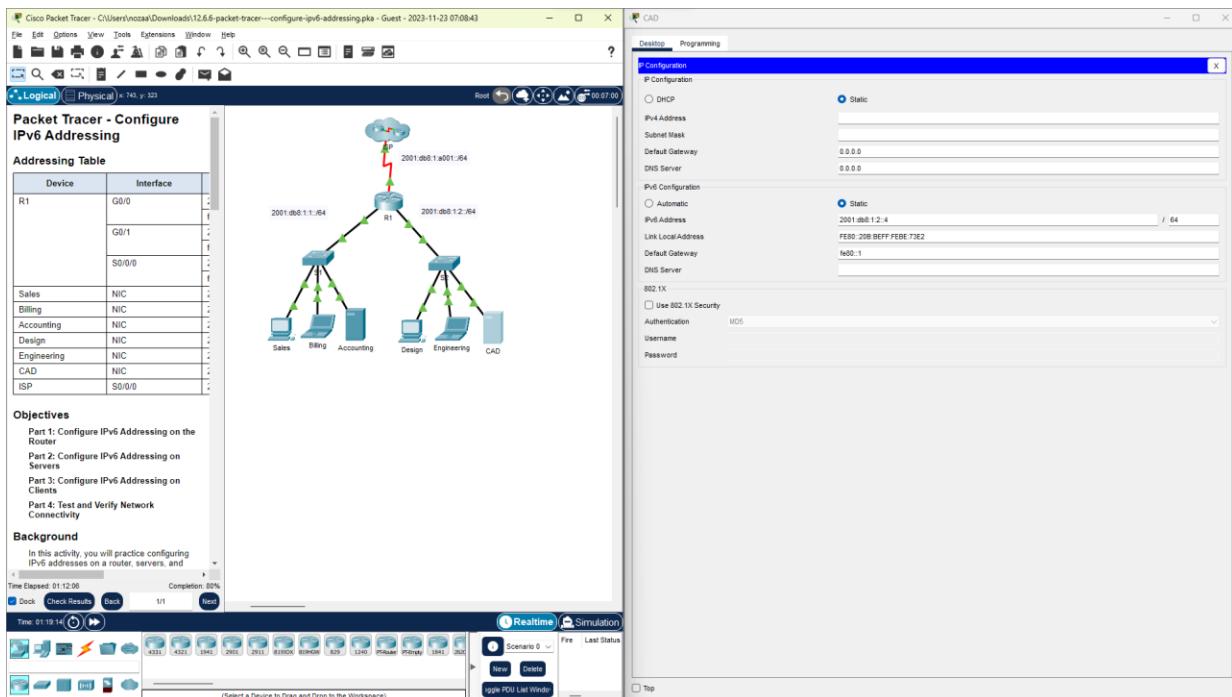


- c. Set the IPv6 Gateway to the link-local address, fe80::1.



Step 2: Configure IPv6 addressing on the CAD Server.

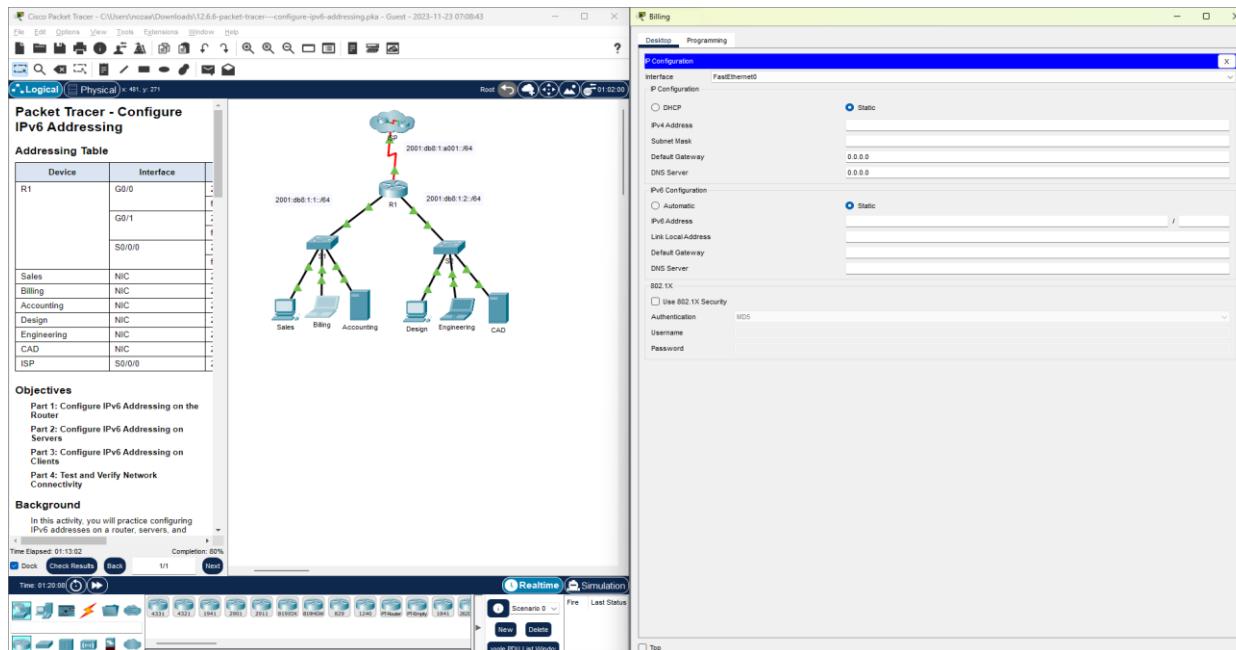
Configure the **CAD** server with addresses as was done in Step 1. Refer to the **Addressing Table** for the addresses to use.



Part 3: Configure IPv6 Addressing on the Clients

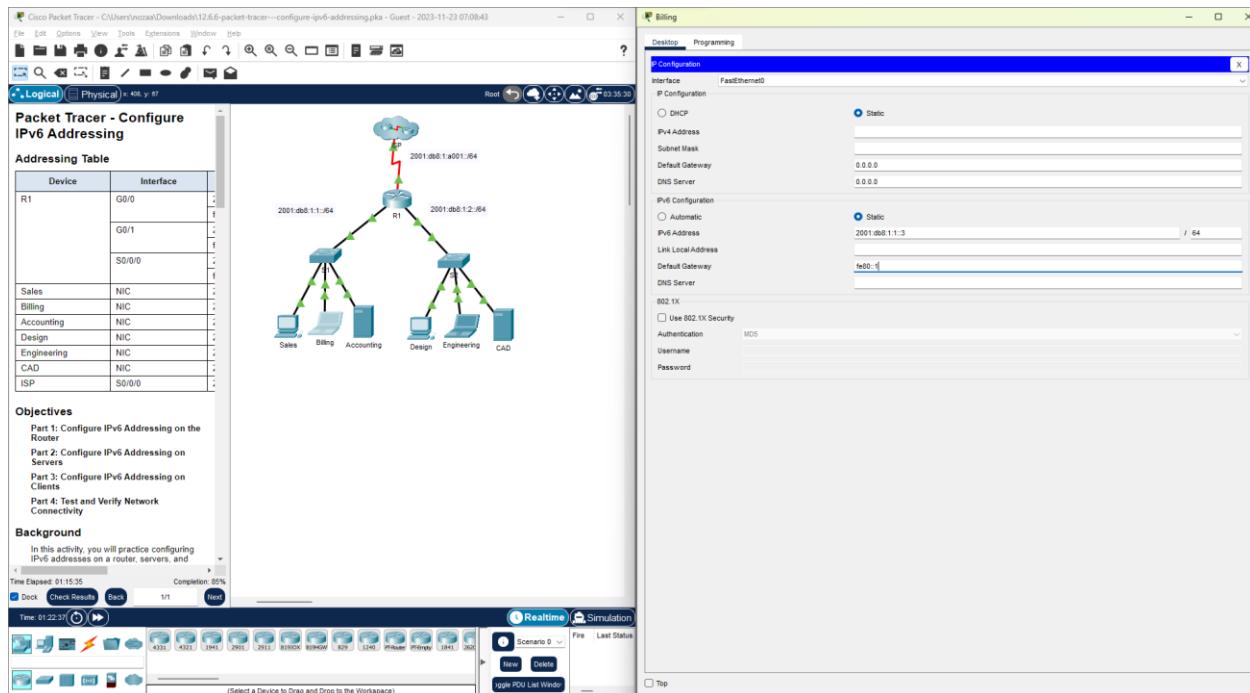
Step 1: Configure IPv6 addressing on the Sales and Billing Clients.

- Click **Billing** and then select the **Desktop** tab followed by **IP Configuration**.

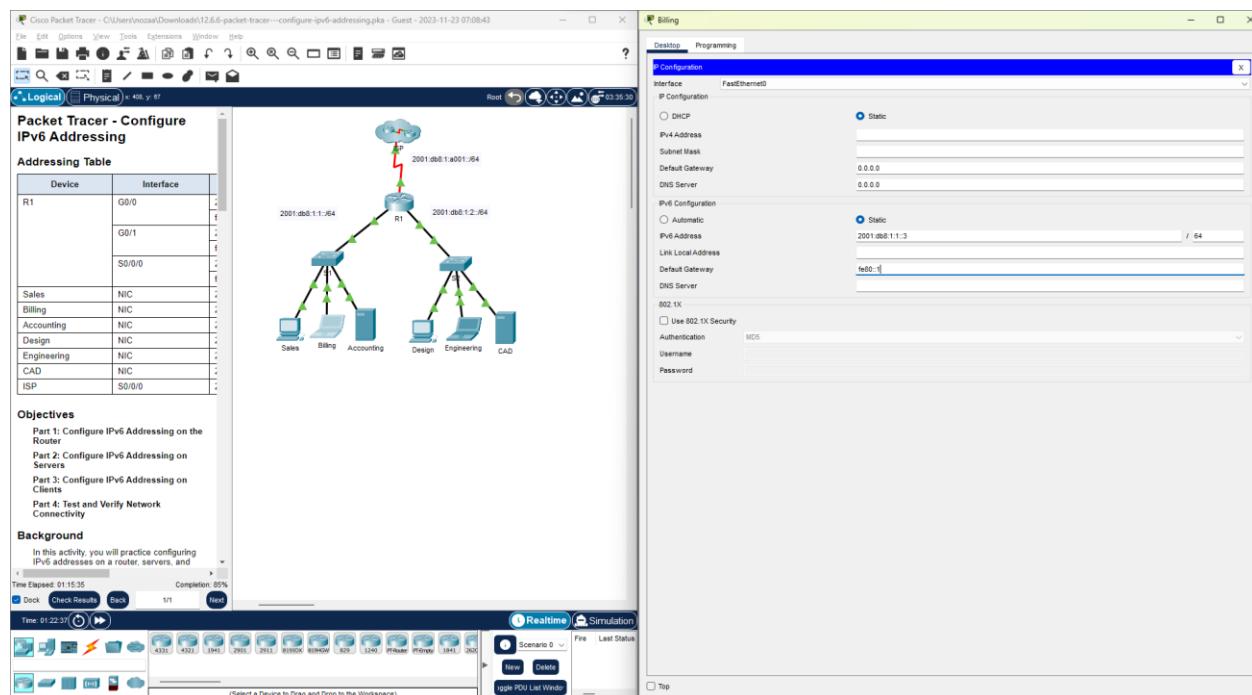


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- b. Set the IPv6 Address to 2001:db8:1:1::3 with a prefix of /64

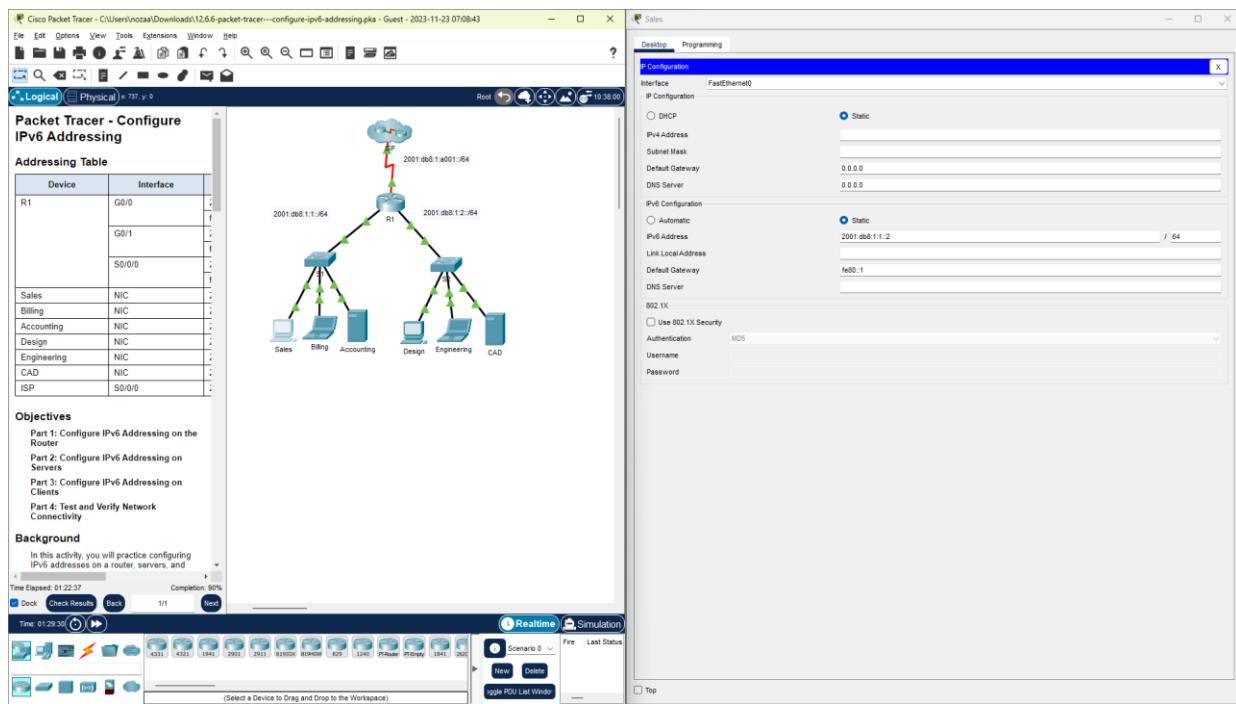


- c. Set the IPv6 Gateway to the link-local address, fe80::1.



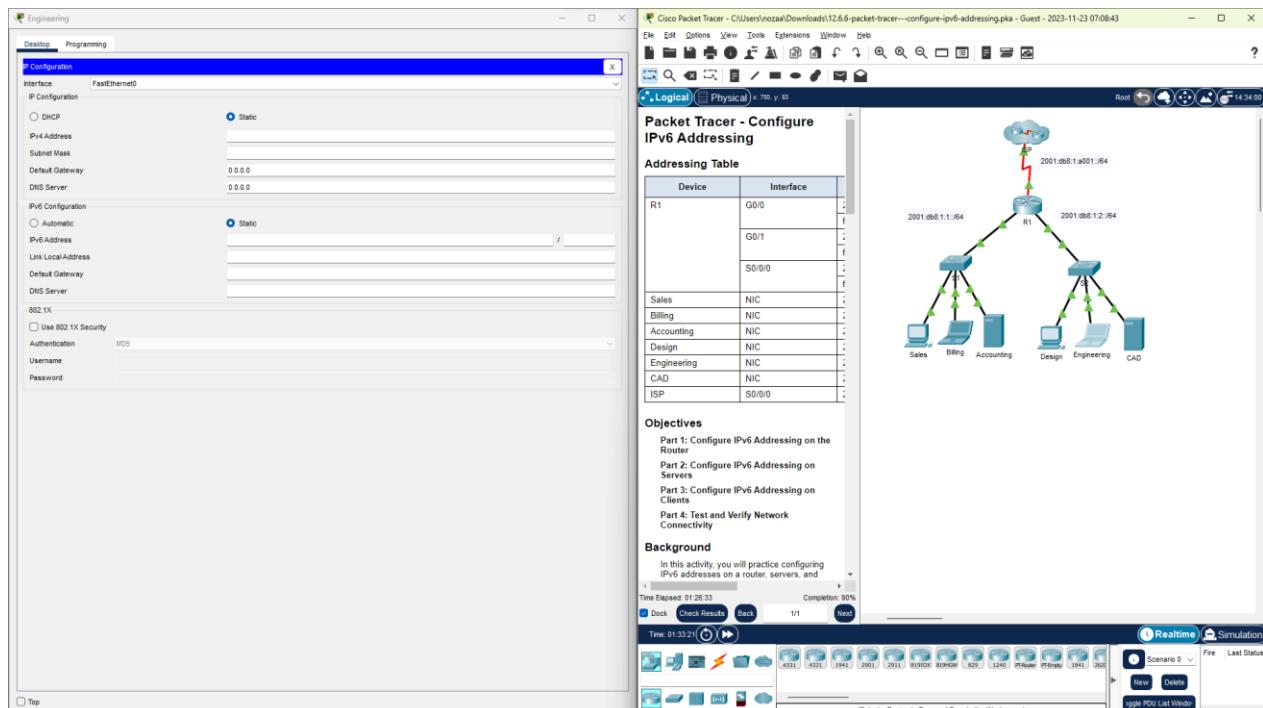
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- d. Repeat Steps 1a through 1c for **Sales**. Refer to the **Addressing Table** for the IPv6 address.



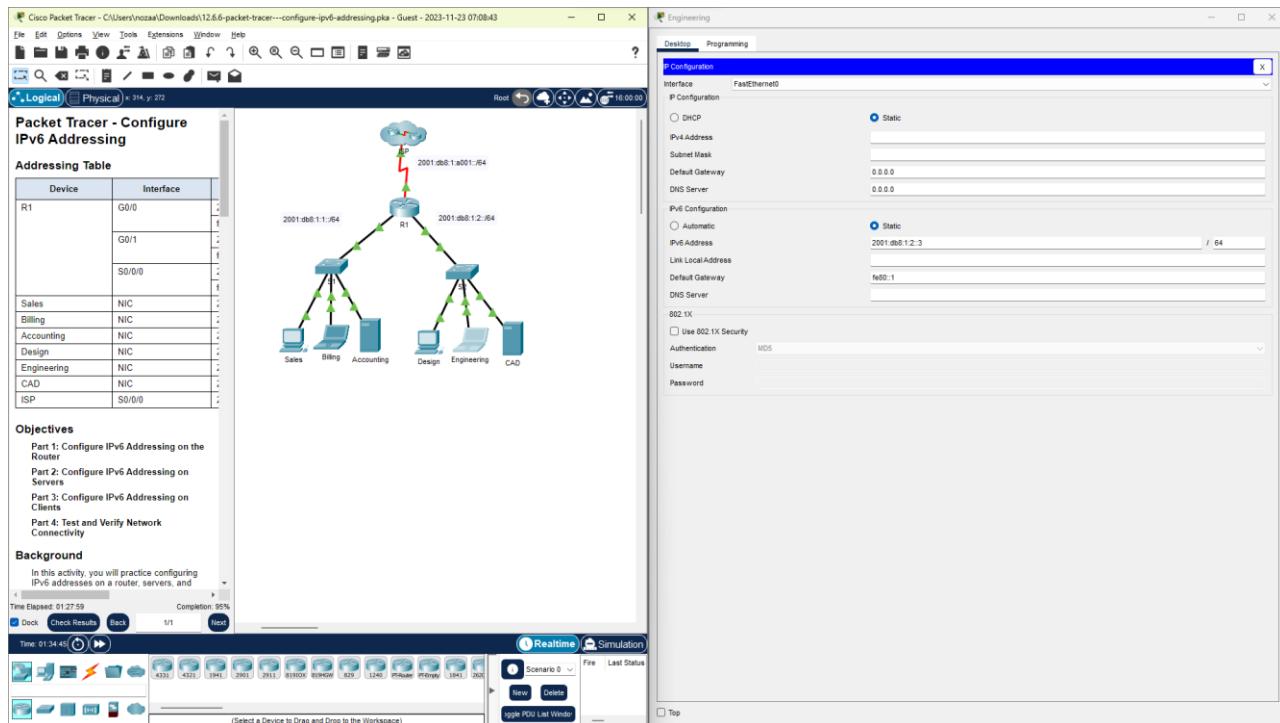
Step 2: Configure IPv6 Addressing on the Engineering and Design Clients.

- a. Click **Engineering** and then select the **Desktop** tab followed by **IP Configuration**.

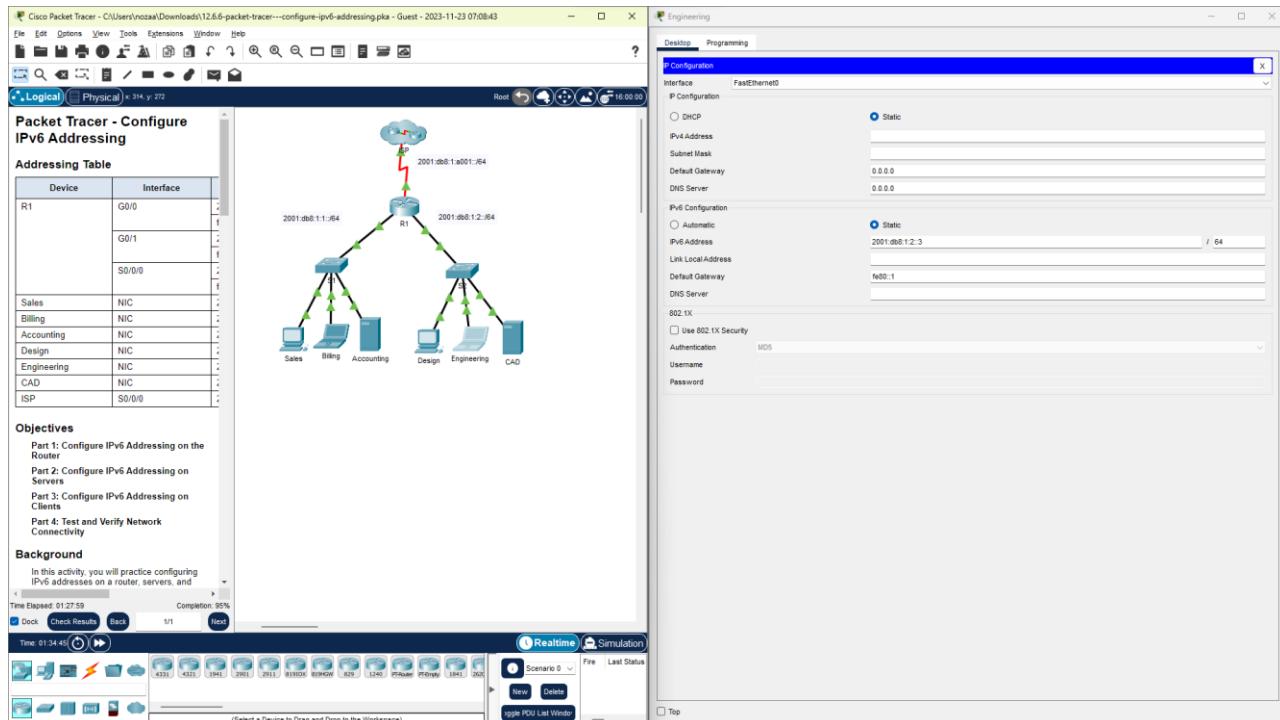


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- b. Set the IPv6 Address to 2001:db8:1:2::3 with a prefix of /64.

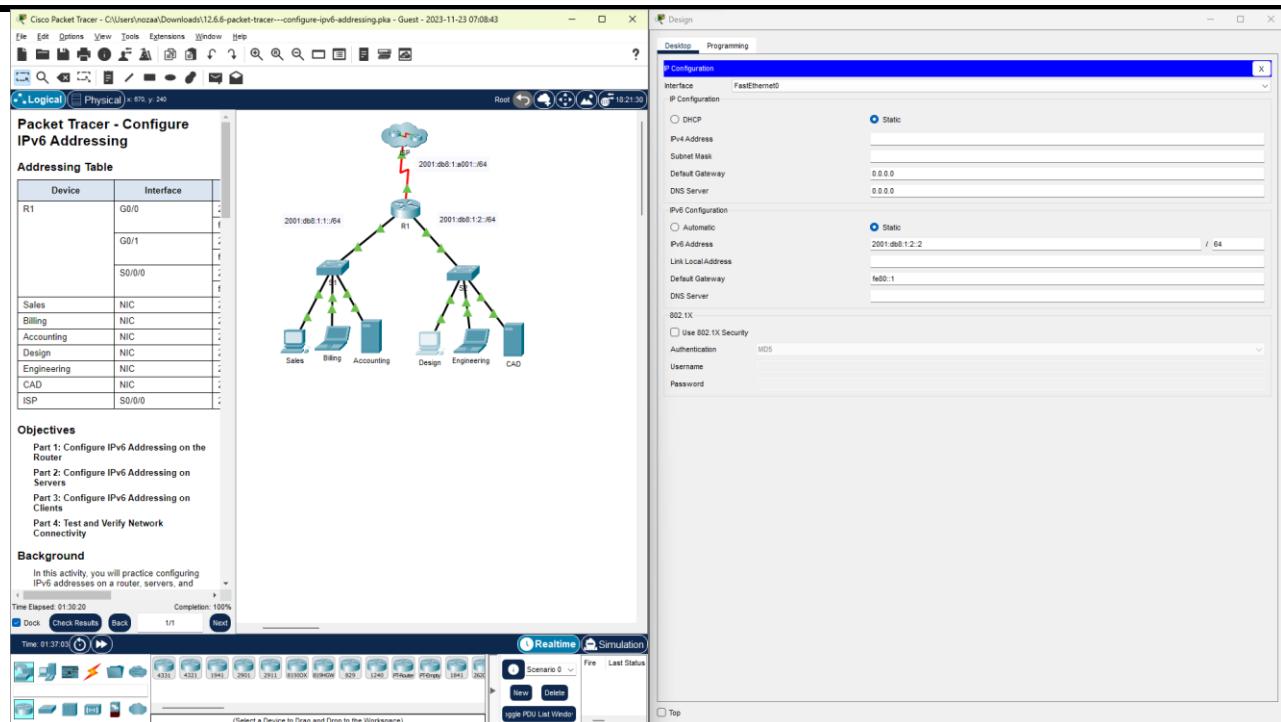


- c. Set the IPv6 Gateway to the link-local address, fe80::1.



- d. Repeat Steps 2a through 2c for **Design**. Refer to the **Addressing Table** for the IPv6 address.

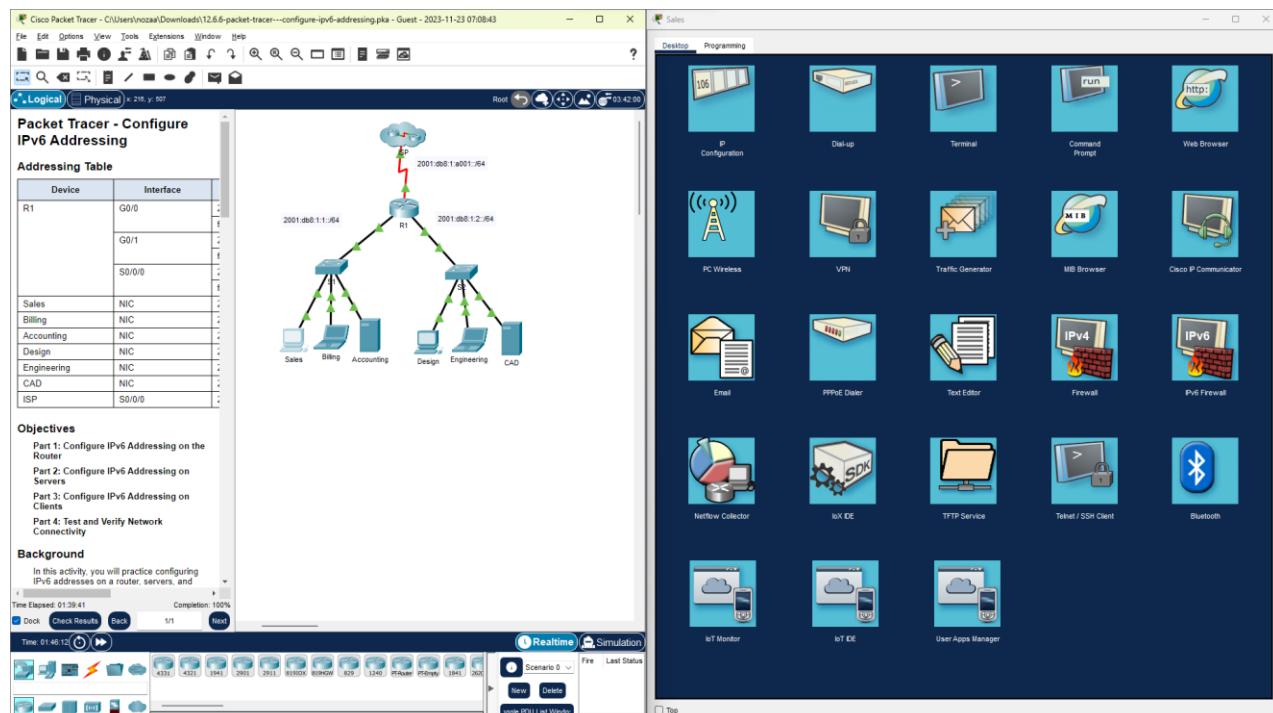
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Part 4: Test and Verify Network Connectivity

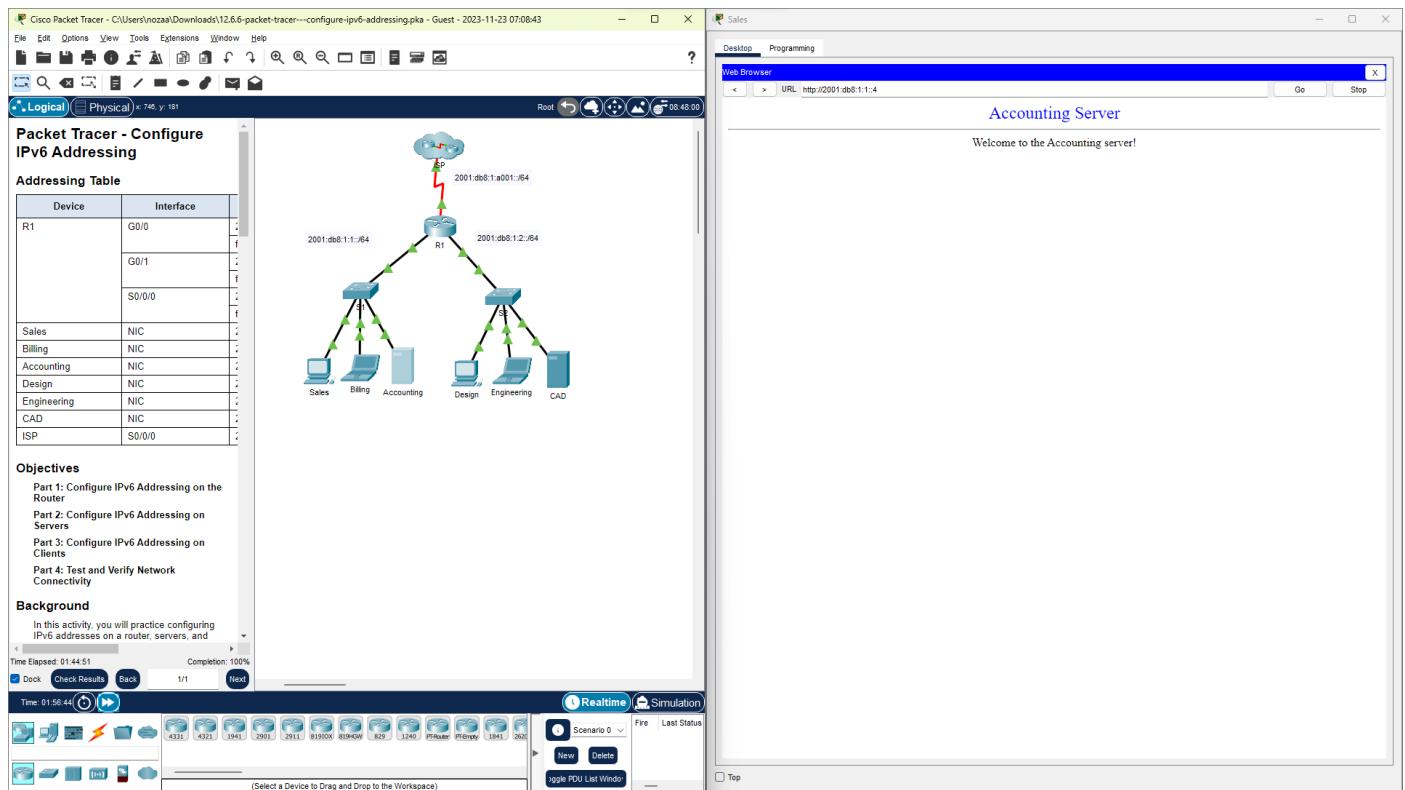
Step 1: Open the server web pages from the clients.

- Click **Sales** and click the **Desktop** tab. Close the IP Configuration window, if necessary.

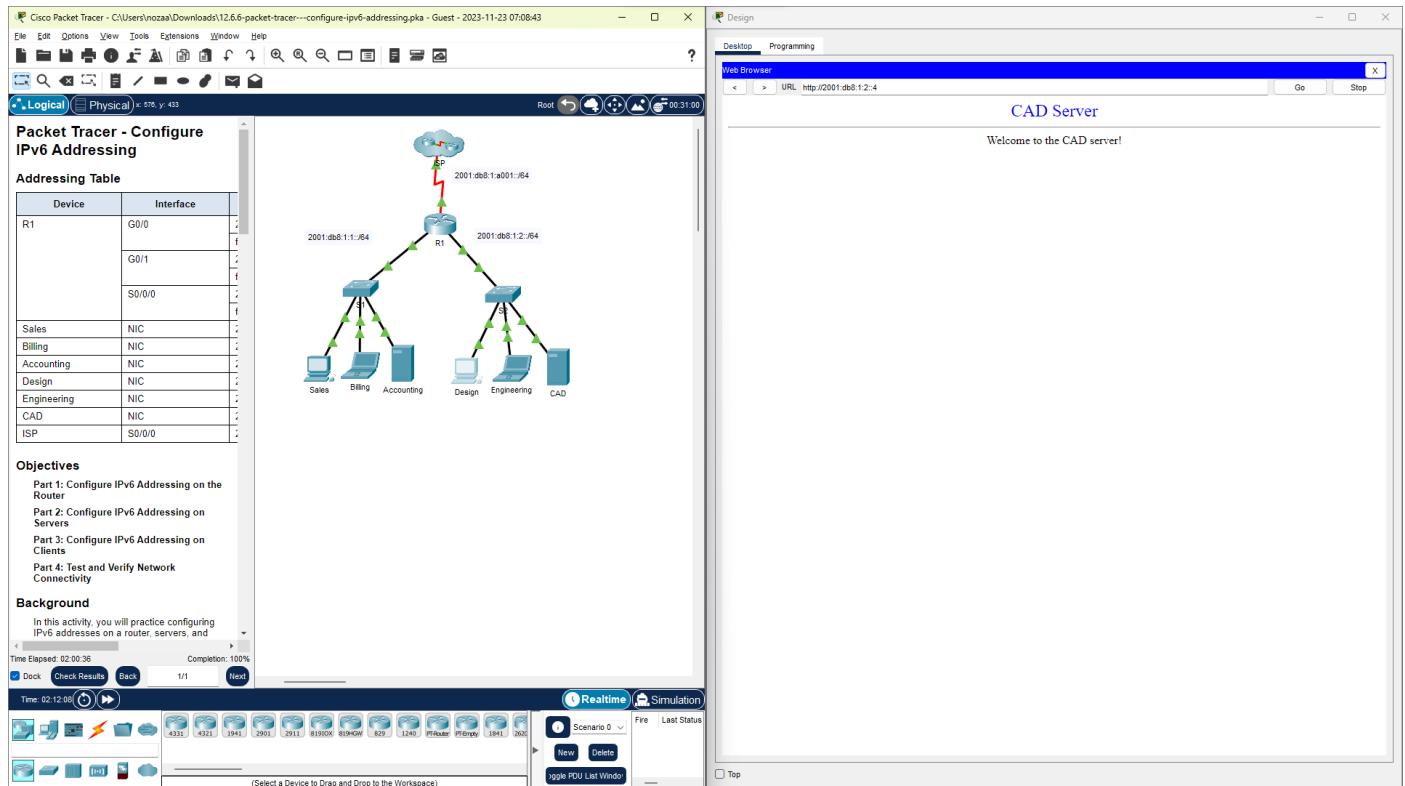


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- b. Click **Web Browser**. Enter **2001:db8:1:1::4** in the URL box and click **Go**. The **Accounting** website should appear.



- c. Enter **2001:db8:1:2::4** in the URL box and click **Go**. The **CAD** website should appear.



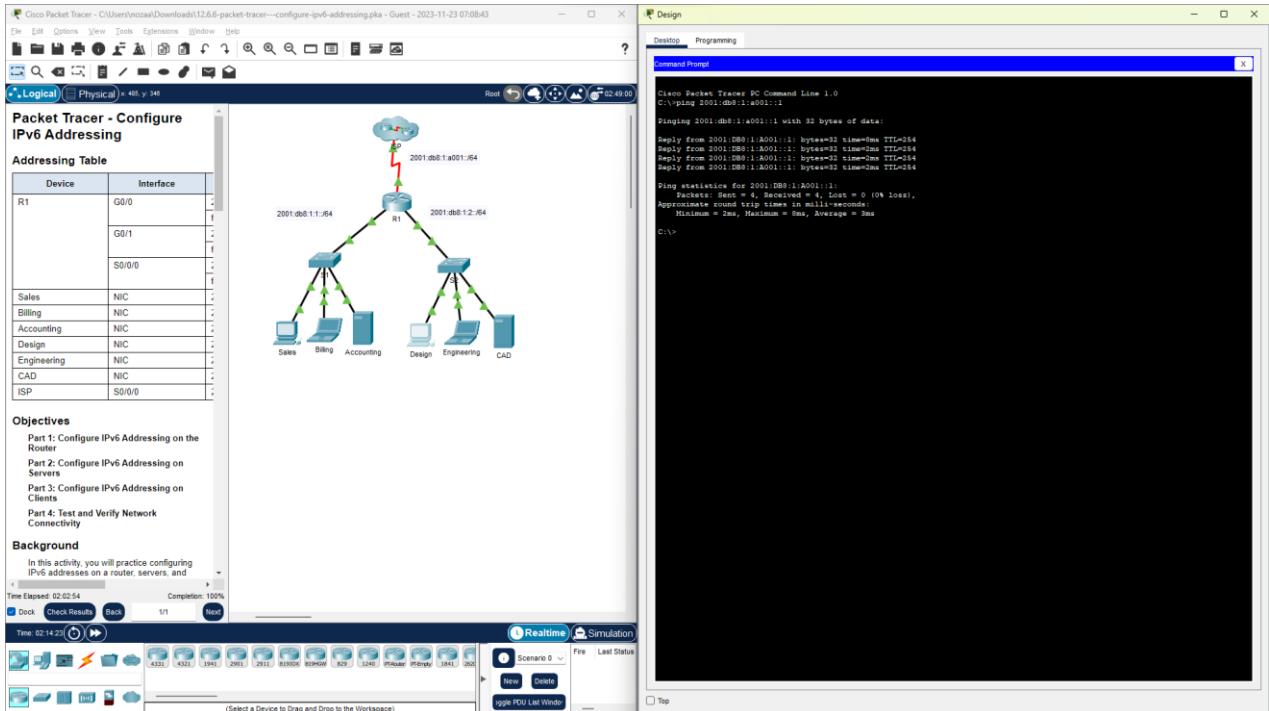
- d. Repeat steps 1a through 1c for the rest of the clients.

Step 2: Ping the ISP.

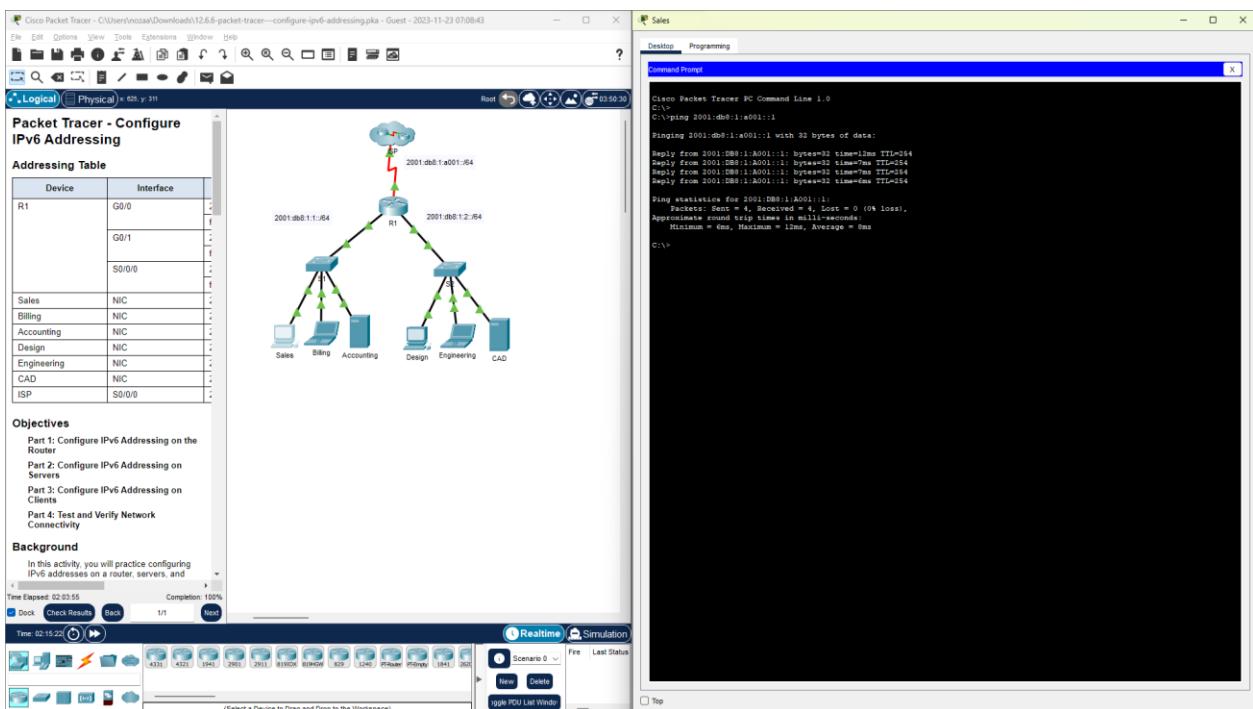
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- Click on any client.
- Click the Desktop tab > Command Prompt.
- Test connectivity to the ISP by entering the following command:

PC> ping 2001:db8:1:a001::1



- Repeat the ping command with other clients until full connectivity is verified.



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