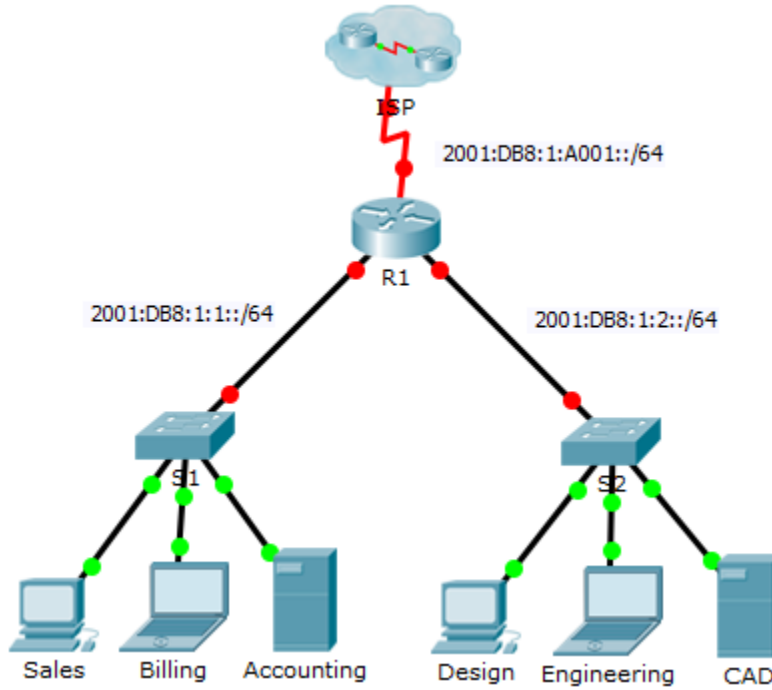


## 7.2.4.9 Packet Tracer - Configuring IPv6 Addressing (Instructor Version)

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

### Topology



### 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         |

### 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.

- 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
```

#### Step 2: Configure IPv6 addressing on GigabitEthernet0/0.

- Click **R1** and then the **CLI** tab. Press **Enter**.
- Enter privileged EXEC mode.
- Enter the commands necessary to transition 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
```

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

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

- f. Activate the interface.

### Step 3: Configure IPv6 addressing on GigabitEthernet0/1.

- a. Enter the commands necessary to transition to interface configuration mode for GigabitEthernet0/1.
- b. Refer to the **Addressing Table** to obtain the correct IPv6 address.
- 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 transition to interface configuration mode for Serial0/0/0.
- b. Refer to the **Addressing Table** to obtain the correct IPv6 address.
- c. Configure the IPv6 address, the link-local and activate the interface.

## Part 2: Configure IPv6 Addressing on the Servers

### Step 1: Configure IPv6 addressing on the Accounting Server.

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

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

## Part 3: Configure IPv6 Addressing on the Clients

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

- a. Click **Billing** and then select the **Desktop** tab followed by **IP Configuration**.
- 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**.
- 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**.
- 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 1a through 1c for **Design**. Refer to the **Addressing Table** for the IPv6 address.

## Part 4: Test and Verify Network Connectivity

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

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

- 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 1d for the rest of the clients.

### Step 2: Ping the ISP.

- a. Open any client computer configuration window by clicking the icon.
- b. Click the **Desktop** tab > **Command Prompt**.
- c. Test connectivity to the ISP by entering the following command:  

```
PC> ping 2001:DB8:1:A001::1
```
- d. Repeat the **ping** command with other clients until full connectivity is verified.