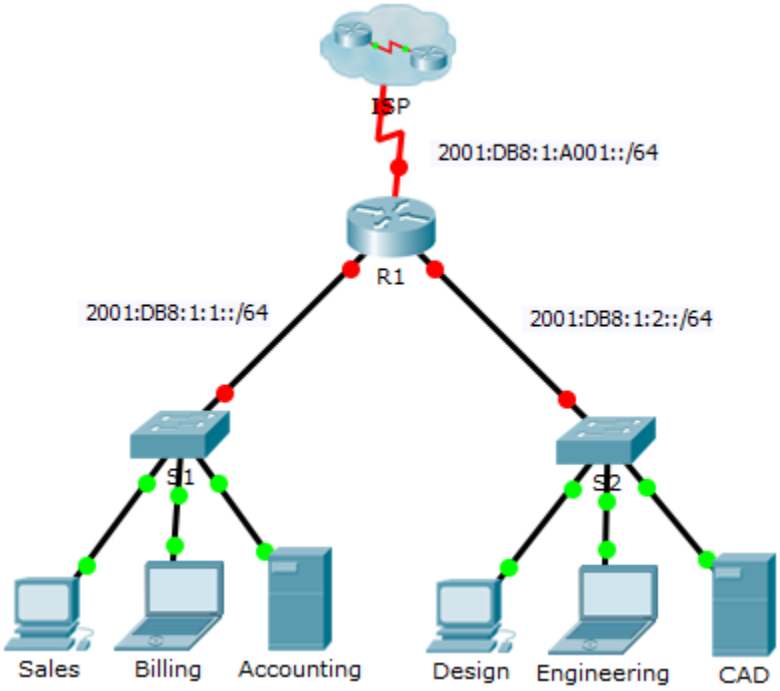
Packet Tracer - Configuring IPv6 Addressing

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.

a. 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
```

```
R1>enable
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ipv6 unicast-routing
R1(config)#
```

Step 2: Configure IPv6 addressing on GigabitEthernet0/0.

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

b. Enter privileged EXEC mode.

c. Enter the commands necessary to transition to interface configuration mode for GigabitEthernet0/0.

```
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#
```

d.

e. Configure the IPv6 address with the following command:

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

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

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

g. Activate the interface.

```
R1>enable
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ipv6 unicast-routing
R1(config)#interface gig
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ipv6 address 2001:DB8:1:1::1/64
R1(config-if)#ipv6 address FE80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state
to up
```

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.

```
R1(config-if)#exit
R1(config)#interface gig
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ipv6 address 2001:DB8:1:2::1/64
R1(config-if)#ipv6 address FE80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state
to up
```

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.

```
R1(config-if)#exit
R1(config)#interface serial 0/0/0
R1(config-if)#interfa
R1(config-if)#interface gig
R1(config-if)#ipv6 adddress 2001:DB8:1:A001::2/64
                    ^
% Invalid input detected at '^' marker.

R1(config-if)#ipv6 address 2001:DB8:1:A001::2/64
R1(config-if)#ipv6 address FE80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

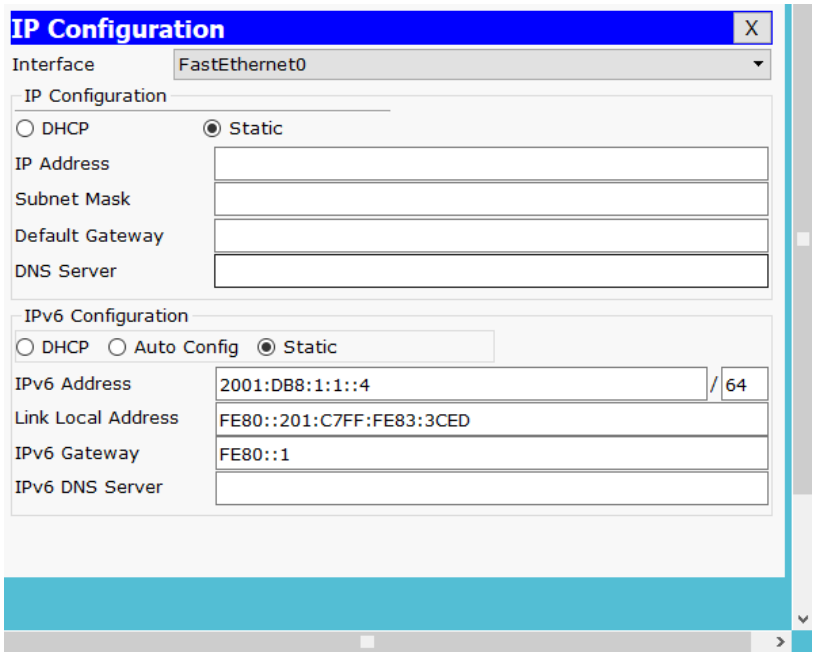
Part 2: Configure IPv6 Addressing on the Servers

Step 1: Configure IPv6 addressing on the Accounting Server.

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

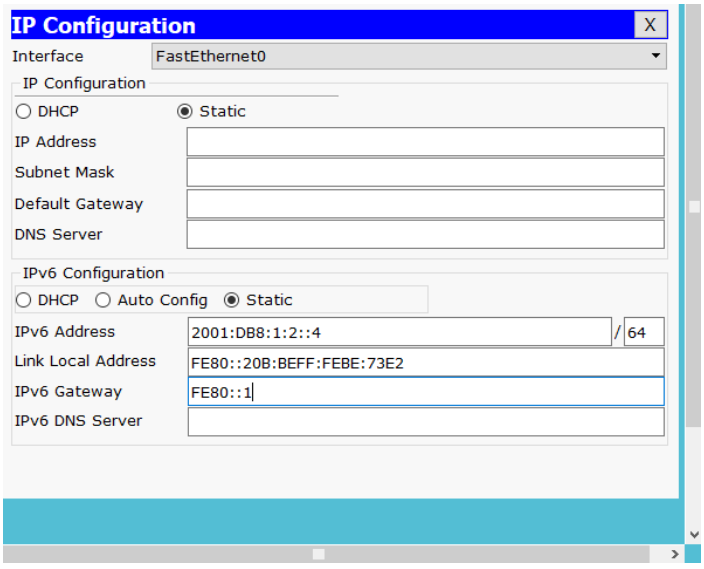
b. Set the **IPv6 Address** to **2001:DB8:1:1::4** with a prefix of **/64**.

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**.

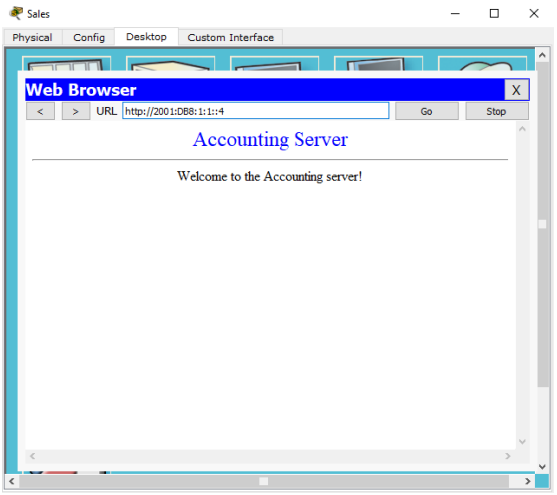
d. Repeat Steps 1a through 1c for **Design**. Refer to the **Addressing Table** for the IPv6 address.

Part 4: Test and Verify Network Connectivity

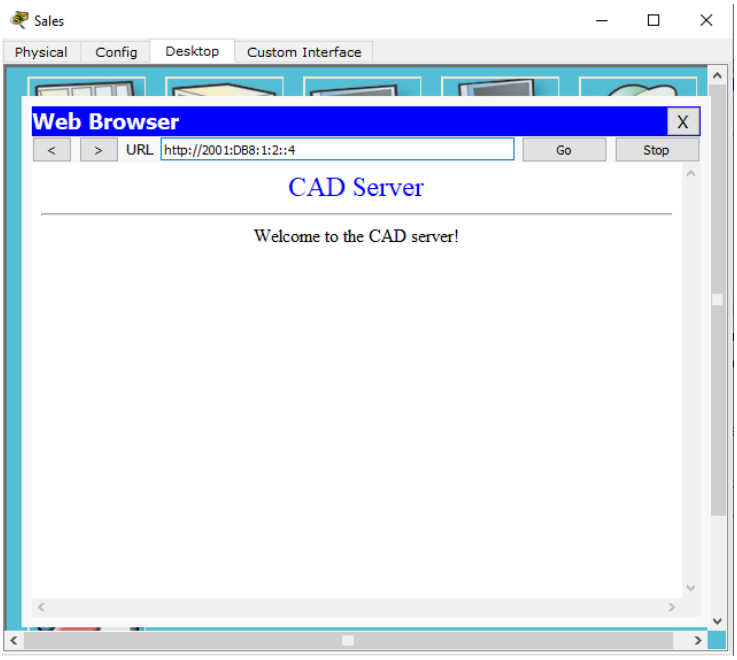
Step 1: Open the server web pages from the clients.

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

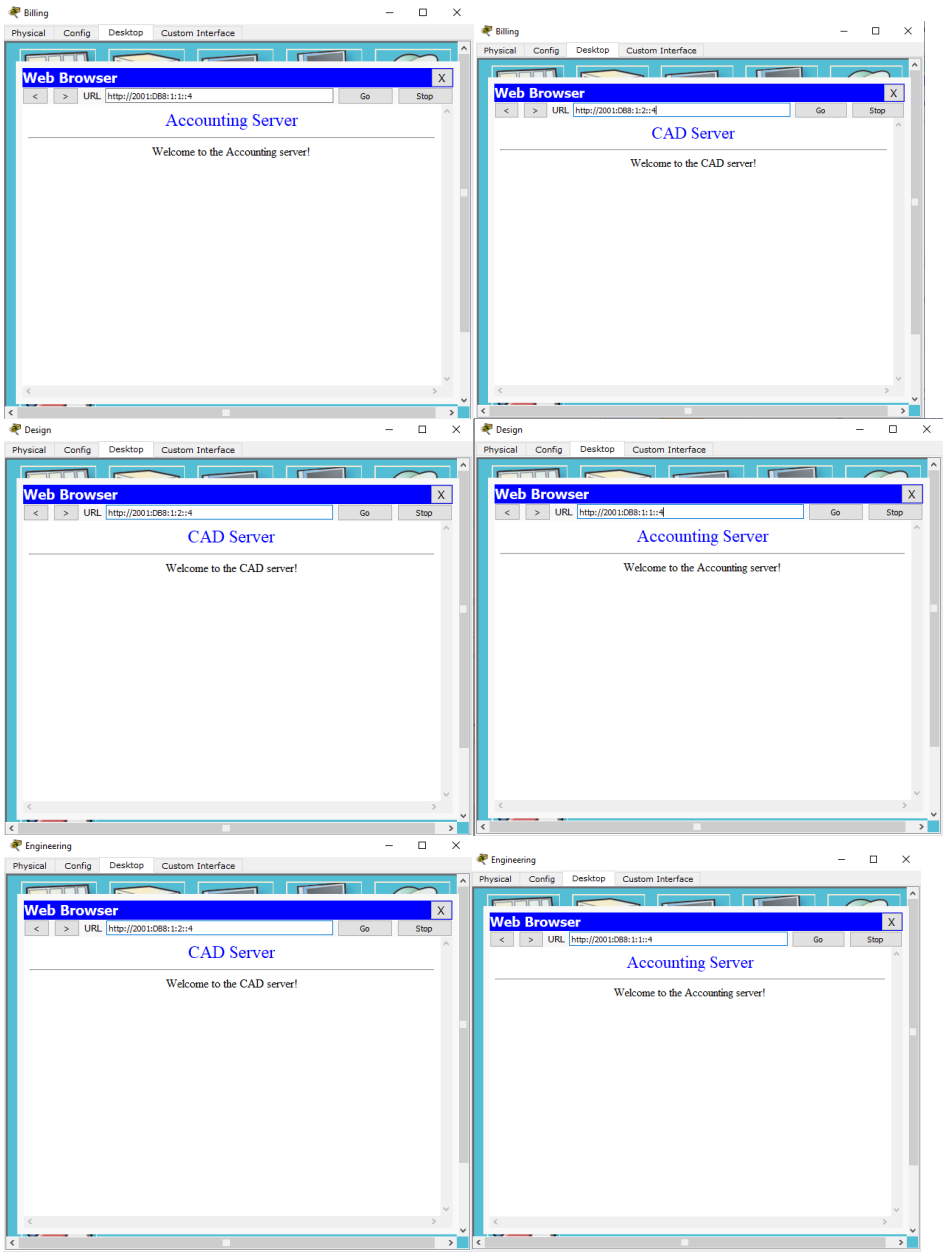
b. Click **Web Browser**. Enter **2001:DB8:1:1::4** in the URL box and click **Go**. The **Accounting** website should appear.



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.