

Network Security Lab 3: Packet Tracer

Configuring IPv6 Addressing

Alexander Hoffmann
ECE Paris
Paris, France
alexander.hoffmann@edu.ece.fr

I. CONFIGURE IPV6 ADDRESSING ON THE ROUTER

A. 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.

```
# ipv6 unicast-routing
```

B. Configure IPv6 addressing on GigabitEthernet0/0

d. We configure the IPv6 of R1 address with the following command:

```
# ipv6 address 2001:DB8:1:1::1/64
```

e. We configure the link-local IPv6 address with the following command.

```
# ipv6 address FE80::1link-local
```

C. Configure IPv6 addressing on GigabitEthernet0/1

Do the same as before except the change the IP address. For this router, the interfaces are described in Fig. 1.

```
# ipv6 address 2001:DB8:1:2::1/64
```

D. Configure IPv6 addressing on Serial0/0/0

Here, we configure the serial interface of the router.

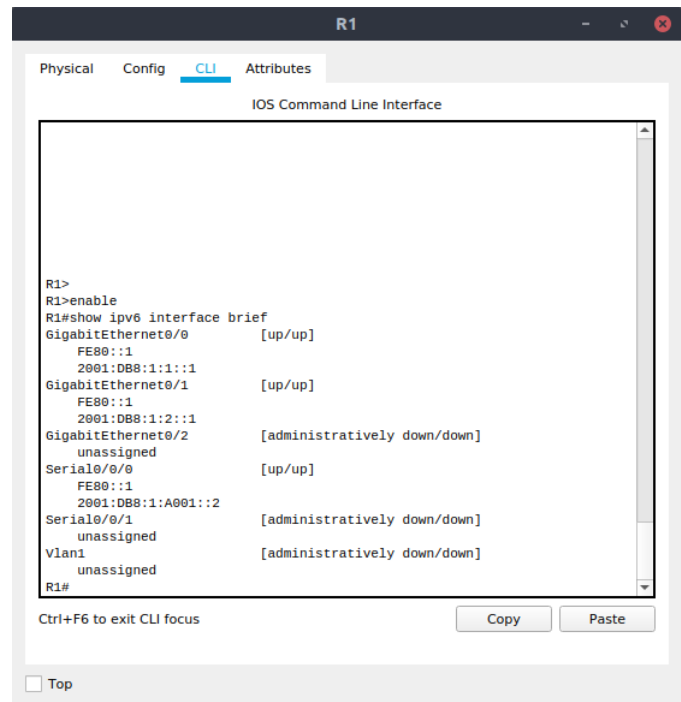


Fig. 1. IPV6 configuration for R1 interfaces

II. CONFIGURE IPV6 ADDRESSING ON THE SERVERS

Set the IPv6 Address to 2001:DB8:1:1::4 with a prefix of /64. Set the IPv6 Gateway to the link-local address, FE80::1. The configuration is shown in Fig. 2.

We do the same for the CAD server which is printed in Fig. 3.

III. CONFIGURE IPV6 ADDRESSING ON THE CLIENTS

A. Configure IPv6 addressing on the Sales and Billing Clients

Set the IPv6 Address to 2001:DB8:1:1::3 with a prefix of /64 and set the IPv6 Gateway to the link-local address, FE80::1. This is shown in Fig. 4. Same for the sales client in Fig. 5.

B. Configure IPv6 Addressing on the Engineering and Design Clients

Set the IPv6 Address to 2001:DB8:1:2::3 with a prefix of /64 and the IPv6 Gateway to the link-local address, FE80::1. Result is on Fig. 6. Same for the design client shown in Fig. 7.

IV. TEST AND VERIFY NETWORK CONNECTIVITY

A. Open the server web pages from the clients

Go to accounting and CAD websites from sales desktop in Fig. 8 and Fig 9.

Same for the design desktop in Fig. 10 and 11.

Accounting

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IP Address

Subnet Mask

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address 2001:DB8:1:1::4 / 64

Link Local Address FE80::201:C7FF:FE83:3CED

IPv6 Gateway FE80::1

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

Fig. 2. Configuration of the accounting server

Billing

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address

Subnet Mask

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address 2001:DB8:1:1::3 / 64

Link Local Address FE80::207:ECFF:FE29:D35A

IPv6 Gateway FE80::1

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

Fig. 4. Configuration of the billing client

CAD

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IP Address

Subnet Mask

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address 2001:DB8:1:2::4 / 64

Link Local Address FE80::20B:BEFF:FE8E:73E2

IPv6 Gateway FE80::1

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

Fig. 3. Configuration of the CAD server

Sales

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address

Subnet Mask

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address 2001:DB8:1:1::2 / 64

Link Local Address FE80::201:97FF:FE13:ECE0

IPv6 Gateway FE80::1

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

Fig. 5. Configuration of the sales client

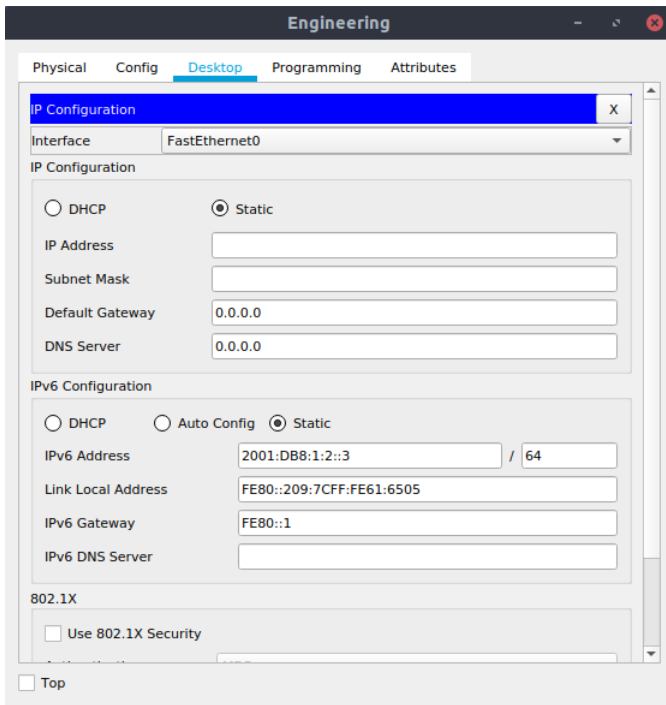


Fig. 6. Configuration of the engineering client

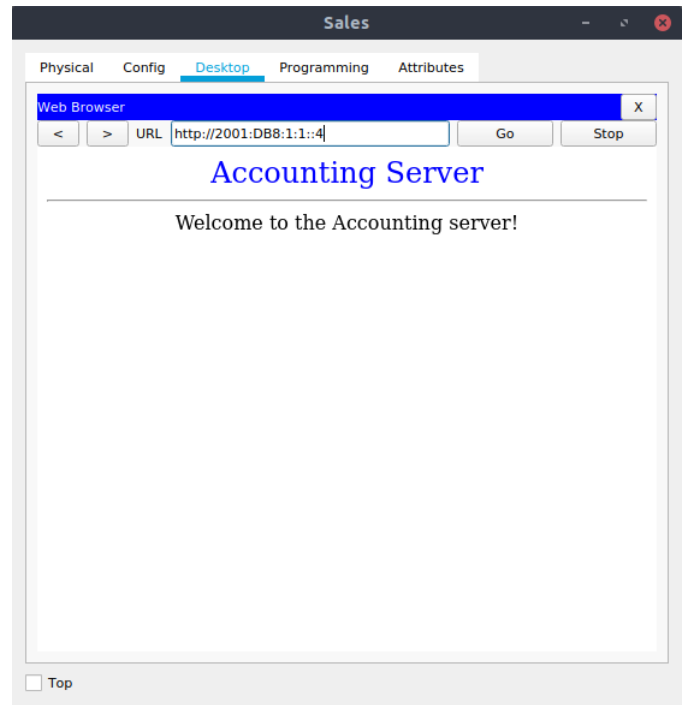


Fig. 8. Go to Accounting website

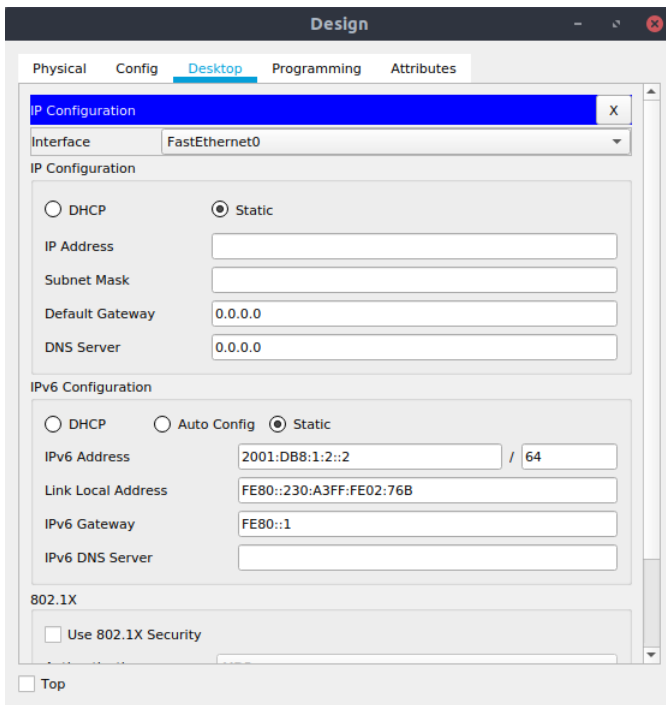


Fig. 7. Configuration of the design client

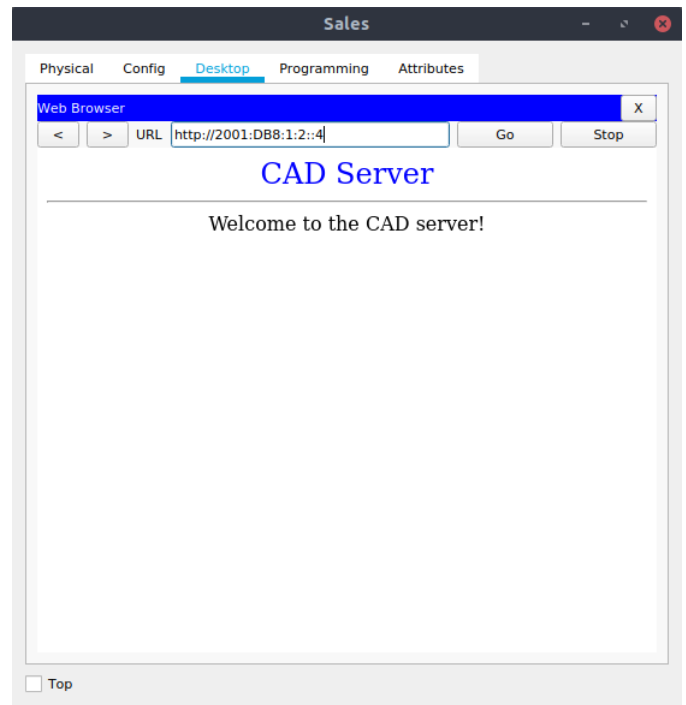


Fig. 9. Go to CAD website.

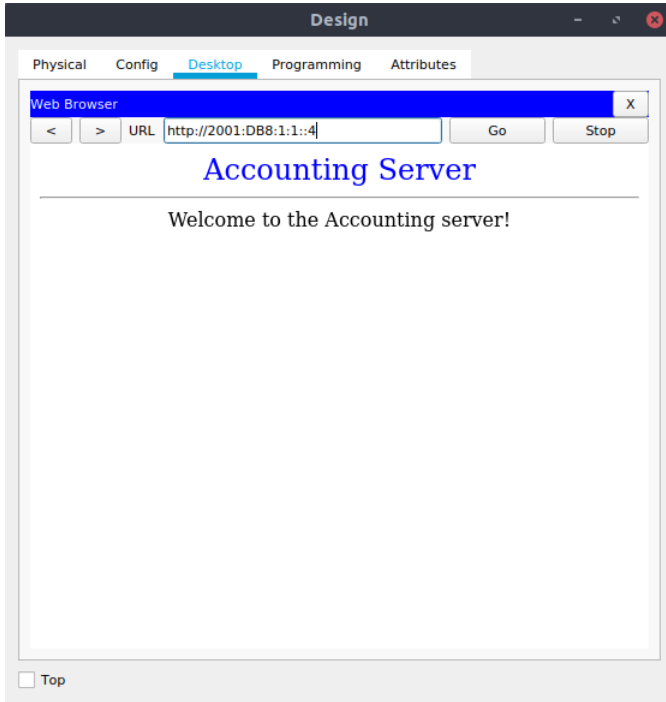


Fig. 10. Go to Accounting website

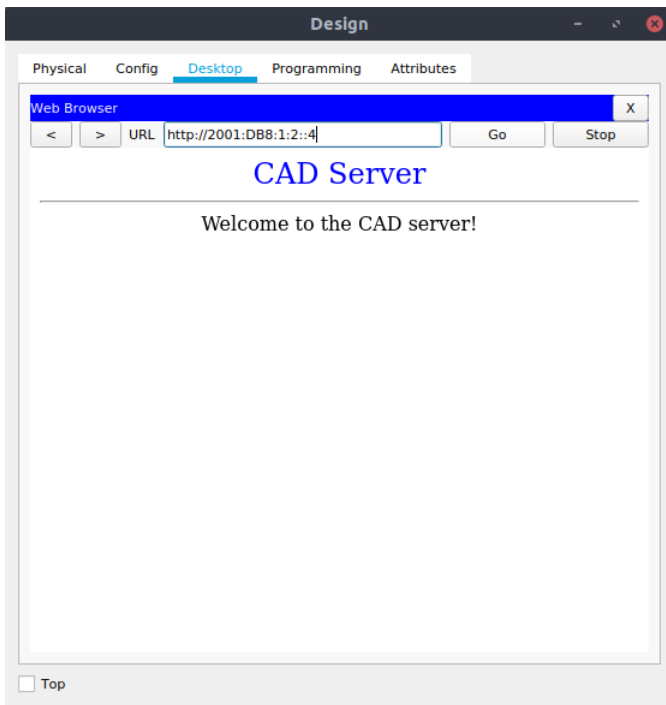


Fig. 11. Go to CAD website.