IFT 266 Introduction to Network Information Communication Technology (ICT)

Lab 32

Implementing a subnetted IPv6 addressing

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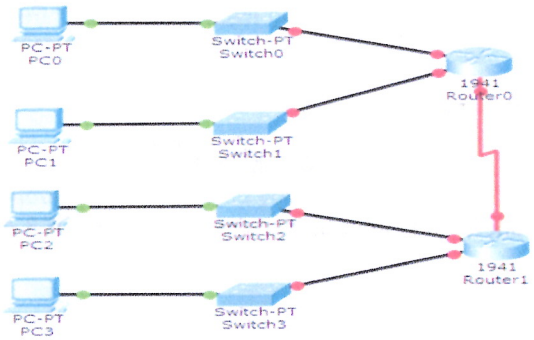
This lab follows on from Lab 25 where you created a subnetted IPv6 addressing scheme.

In this lab, you will implement this IPv6 addressing scheme.

Scenario
Your network administrator wants you to assign five /64 IPv6 subnets to the network in the topology you just created in packet tracer. Your task is to determine the IPv6 subnets and assign IPv6 addresses to the routers.

1. Setup the following topology in Packet Tracer



Completed

2. We start out by enabling ipv6 unicast-routing and link-local addresses on both routers.

   I have provided the commands for one of the routers in the topology.

```
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up


Router enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ipv6 unicast-routing
Router(config)#interface g0/0
Router(config-if)#ipv6 address FE80::1 link-local
Router(config-if)#no shutdown
Router(config-if)#interface g0/1
Router(config-if)#ipv6 address FE80::1 link-local
Router(config-if)#no shutdown
Router(config-if)#interface s0/1/0
Router(config-if)#ipv6 address FE80::1 link-local
Router(config-if)#no shutdown
Router(config-if)#
```

Completed

3. Repeat the same commands on the other router.

4. Start with the IPv6 subnet 2001:DB8:ACAD:00C8::/64 and assign it to the R1 LAN attached to GigabitEthernet 0/0.

```
         --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n


Press RETURN to get started!


Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0
Router(config-if)#ipv6 address 2001:DB8:ACAD:00C8::/64
Router(config-if)#no shutdown

Router(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

Router(config-if)#
```

5. For the rest of the IPv6 subnets on Router 0, increment the 2001:DB8:ACAD:00C8::/64 subnet address by 1.

   Configure the interfaces as follows:

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/1
Router(config-if)#ipv6 address 2001:DB8:ACAD:00C9::0/64
Router(config-if)#no shutdown
Router(config-if)#int s0/1/0
Router(config-if)#ipv6 address 2001:DB8:ACAD:00CC::0/64
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
Router(config-if)#
```

6. Now configure the second router following the same basic steps we took on the first router.

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0
Router(config-if)#ipv6 address 2001:DB8:ACAD:00CA::0/64
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#int g0/1
Router(config-if)#ipv6 address 2001:DB8:ACAD:00CB::0/64
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#int s0/1/0
Router(config-if)#ipv6 address 2001:DB8:ACAD:00CC::1/64
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#
```

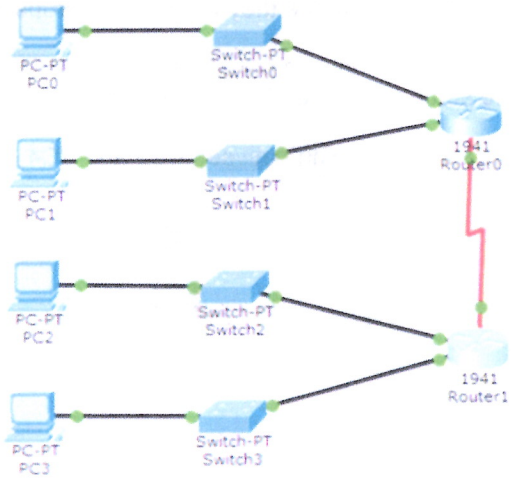
Completed ☒

Follow up question

In step 6, you entered the no shutdown command. Was this command necessary?

No. Was already used

7. If configured properly all your links should now be up and your network should look as follows:

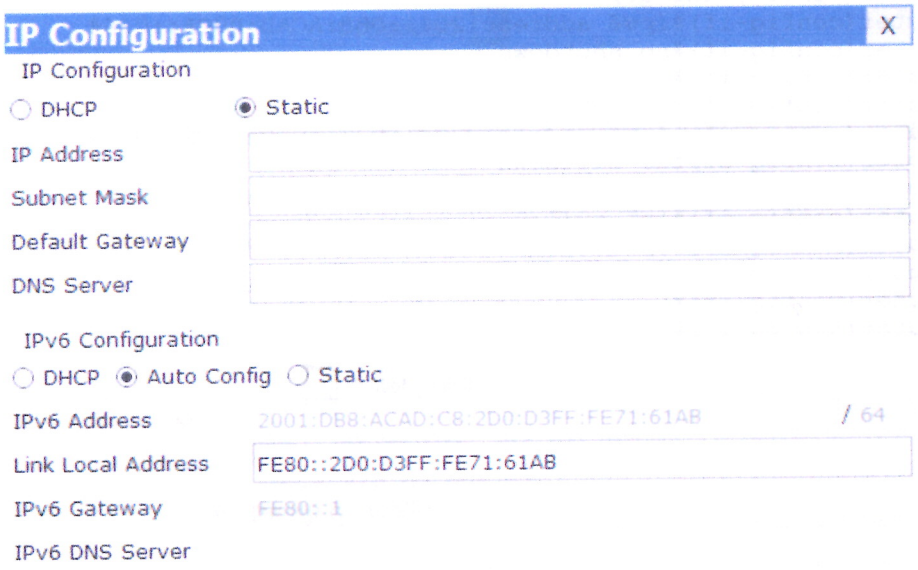


Completed ☒

8. We will now use autoconfig (SLAAC) to autoconfigure IPv6 addresses for the four terminals.

This is done by clicking on the PC, then clicking desktop, then IP Configuration.

From this menu, under the IPv6 menu, click the Auto Config radio button.



Completed

9. We will now test your configurations to ensure they were set up properly.

   To do this we now ping 2 PCs that are only on the same subnet. To make this happen, you will need to add another PC i.e. PC4 onto the same subnet as PC3 on the topology.

   Provide a screenshot of your successful ping between PC3 and PC4 below.

Important

Make sure you save your packet tracer file when you complete the lab as you will need it for lab 37