

IFT 266 Introduction to Network Information Communication Technology (ICT)

Lab 28

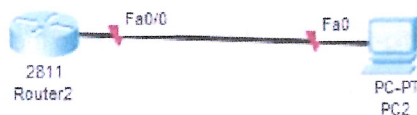
DHCPv6 Stateful Configuration via a router and via a server

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After you complete each step, put a '✓' or 'x' in the completed box

Part A: Configure a router to provide DHCPv6 stateful configuration for any attached clients.

1. Set up the following simple topology in packet tracer.



Completed



2. Enable unicast routing on the router

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

Completed



3. In order to create a DHCP pool that clients can pull addresses from, you will need to create a pool, add the prefix, DNS server, and domain name

```
Router(config)#ipv6 dhcp pool ASU
Router(config-dhcpv6)#prefix-delegation pool LOCAL
Router(config-dhcpv6)#dns-server A:B:C:D::
Router(config-dhcpv6)#domain-name asu.edu
```

Note: ASU can be replaced with a pool name of your choice.
The prefix delegation name is also your choice.
The DNS and domain name will change depending on the network, of course.

Completed



4. We then add an IPv6 prefix to the LOCAL pool created before:

```
Router(config)#ipv6 local pool LOCAL 2001:DB8:AAAA:A::/64 64
```

Completed



5. To activate, we change the interface on the router;

```
Router(config)#int f0/0
Router(config-if)#ipv6 address FE80::1 link-local
Router(config-if)#ipv6 address 2001:DB8:AAAA:A::1/64
Router(config-if)#ipv6 nd managed-config-flag
Router(config-if)#ipv6 dhcp server ASU
Router(config-if)#no shutdown

Router(config-if)#
%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-3-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
```

Note: The command "nd managed-config-flag" tells clients attached to the router to pull IPv6 addresses from its pool.

The command "dhcp server ASU" assigns the DHCP prefix pool to this interface.

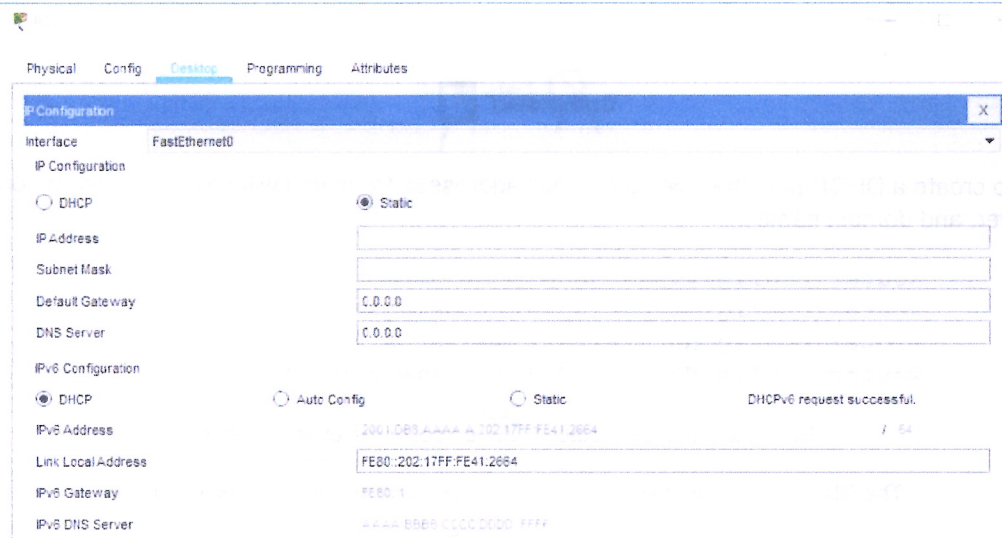
Completed



6. Finally, access the PC IP Configuration under the Desktop tab, and select DHCP under IPv6 Configuration. If you performed all the previous steps, the DHCPv6 request should be successful.

TIP

You're your current version of packet tracer may not have the DHCP configure option on the PCs.
Download Packet Tracer Version 6.1.1 from below this lab and it will be there on the PCs.

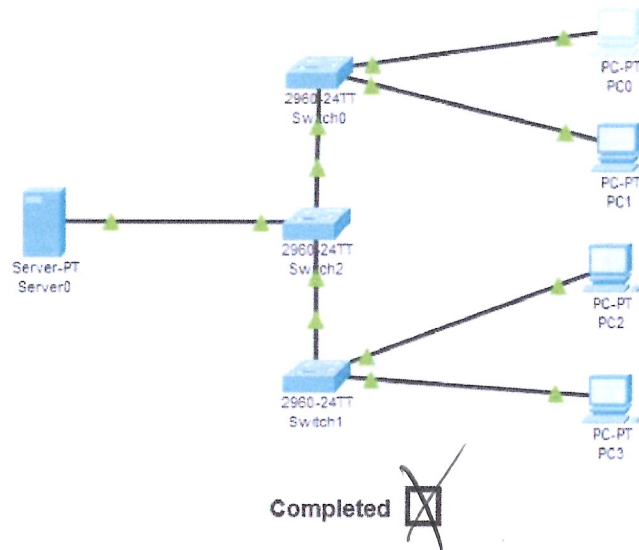


Completed

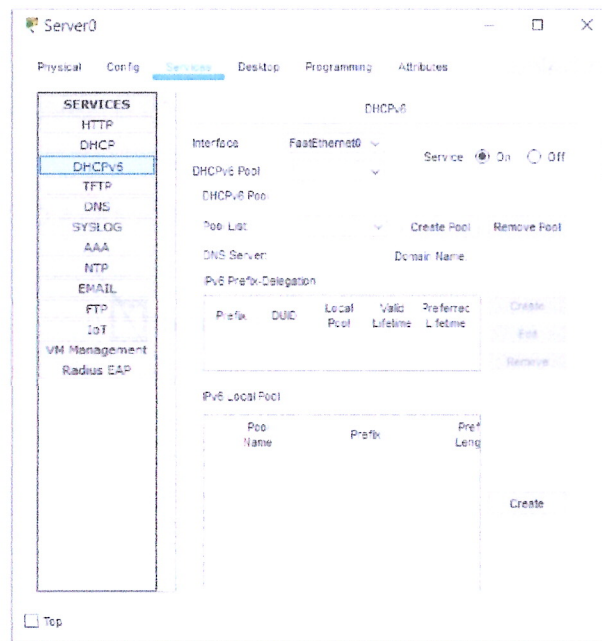


Part B: Configure a server to provide DHCPv6 stateful configuration for any attached clients.

1. Set up the following simple topology in packet tracer.



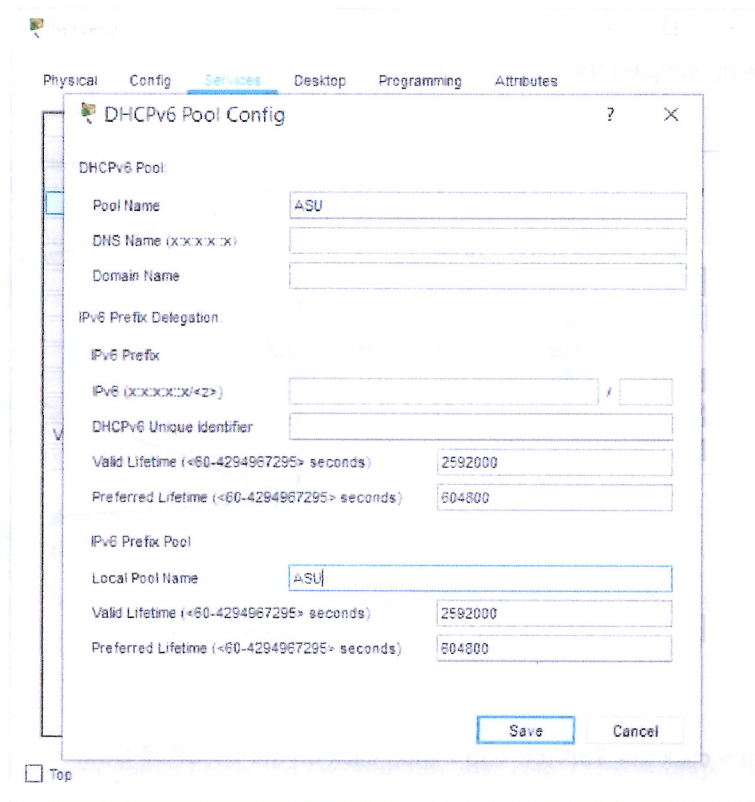
2. Access **Server0** > click the **Service Tab** > then click on the **DHCPv6 Box**.



Make sure turn the service to **ON** (as in the image above)

Completed 

3. Next, under the DHCPv6 Pool section click **Create Pool**.



The screenshot shows a 'DHCPv6 Pool Config' dialog box with the following fields and values:

- DHCPv6 Pool:**
 - Pool Name: ASU
 - DNS Name (XXXXXX):
 - Domain Name:
- IPv6 Prefix Delegation:**
 - IPv6 Prefix:
 - IPv6 (XXXXXX/XX):
 - DHCPv6 Unique Identifier:
 - Valid Lifetime (<60-4294967295> seconds): 2592000
 - Preferred Lifetime (<60-4294967295> seconds): 604800
- IPv6 Prefix Pool:**
 - Local Pool Name: ASU
 - Valid Lifetime (<60-4294967295> seconds): 2592000
 - Preferred Lifetime (<60-4294967295> seconds): 604800

Buttons: Save, Cancel. A 'Top' link is at the bottom left.

Fill in the information below:

Pool Name : ASU

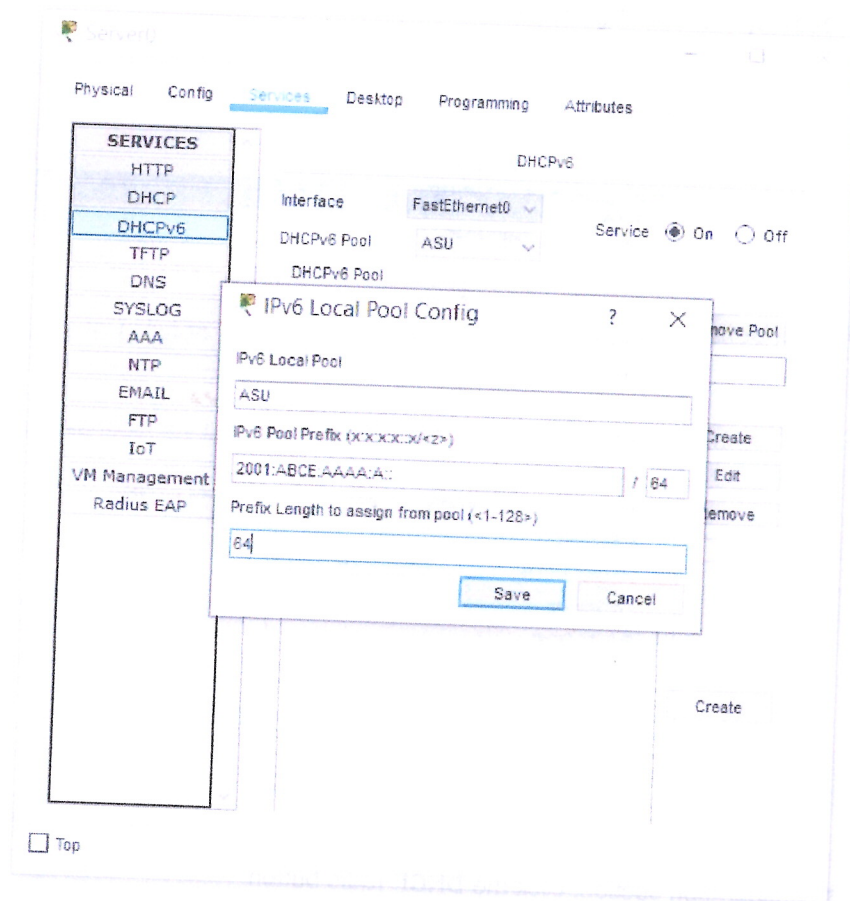
Local Pool Name: ASU

Then **Save**.

Completed



4. Under the IPv6 Local Pool section click **Create**.



Fill in the information below (as shown in the above image)

IPv6 Local Pool: ASU

IPv6 Pool Prefix: 2001:ABCE:AAAA:A::/64

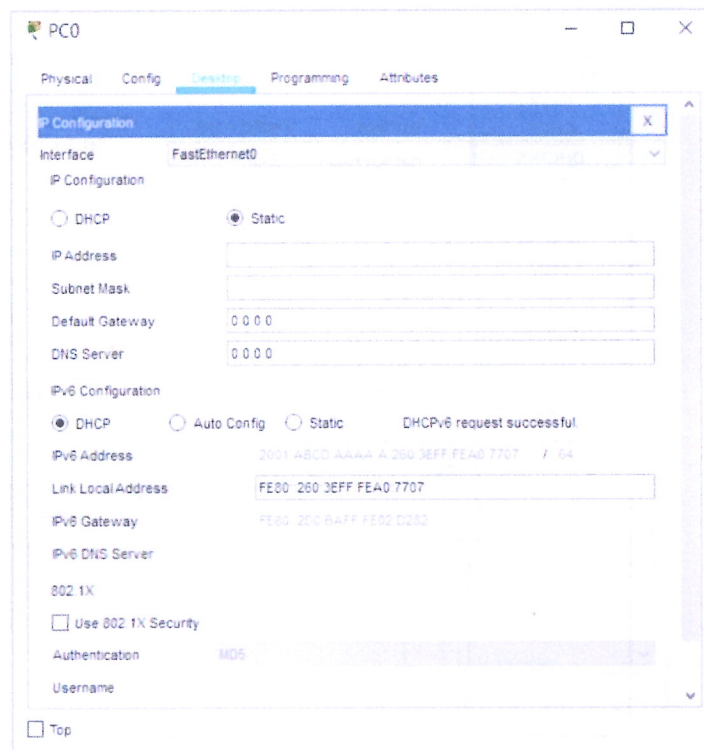
Prefix Length: 64

Then **Save**.

Completed



5. Go to **PC0 > Desktop > IP Configuration**.



Under IPv6 configuration section, click the **DHCP** radio button

Repeat for all PCs.

Note: All PCs should receive a IPv6 Global Address from the server. If not, troubleshoot.

Completed



6. If everything was done correctly, all the PCs should be able to ping each other.

Attached a screenshot of a successful ping from PC0 → PC3 below.

