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IFT 259 Introduction to Internet Networking

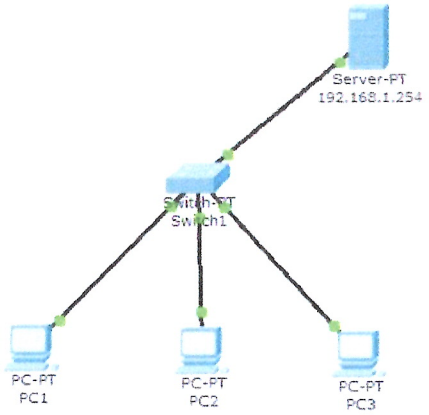
Lab 17
DHCP & DNS

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

Part A: DHCP Allocation through a server

Objectives: create a simple network and allocate IP Addresses via DHCP from a server

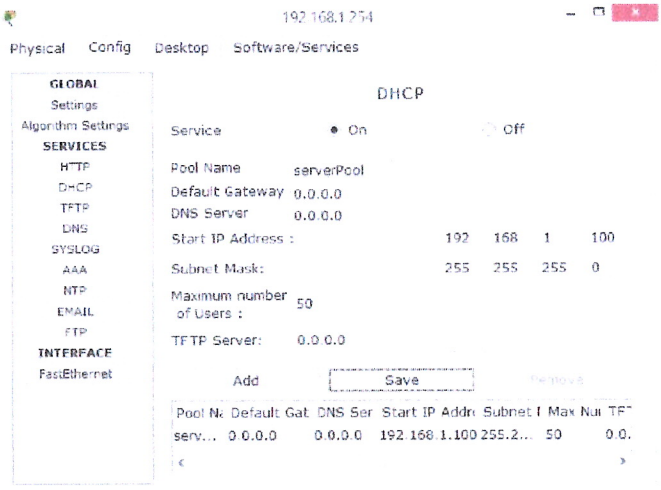
1. Setup the following topology



2. On the server, click on DHCP option and make sure it is 'Turned On'

3. In the start IP address boxes enter: 192.168.1.100 (this will be the starting address of the pool of IP addresses) with SM: 255.255.255.0

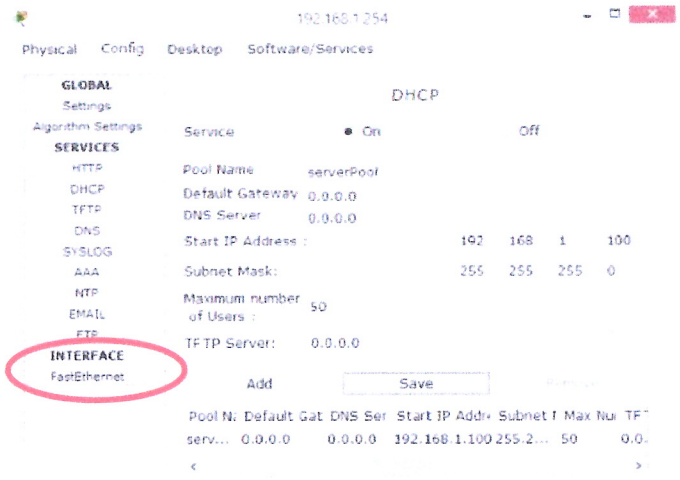
4. Maximum number of users: 50



5. Click save

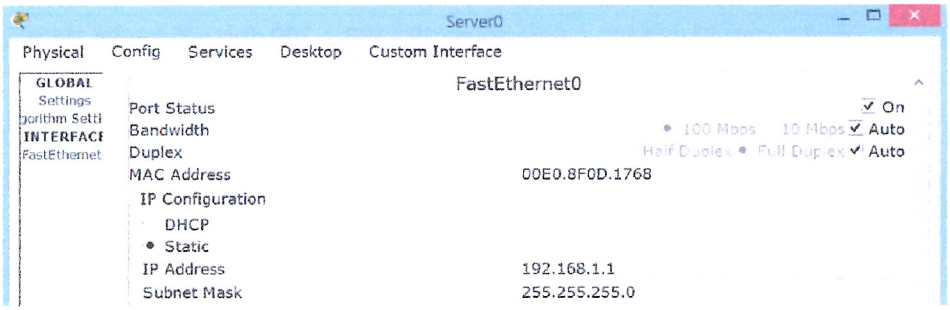
Completed ☒

6. Now we to add an IP address and SM to the interface (NIC) on the server. Click the FastEthernet, option under Interface on the left panel as shown. The FastEthernet interface may be on a different tab.



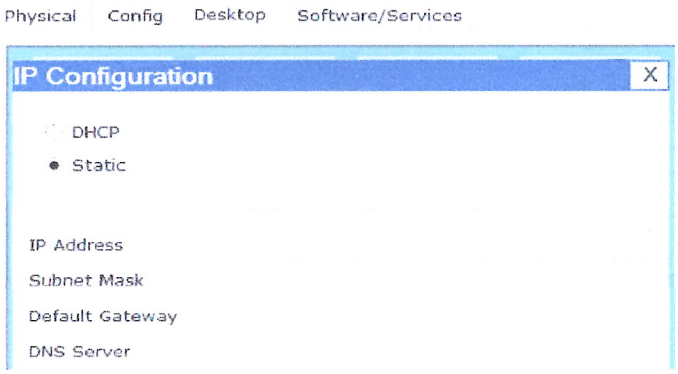
Completed ☒

7. Enter in an IP Address and Subnet Mask (set by default once you enter the IP address). Make sure the IP address is on the same subnet as the pool of addresses you set above e.g. 192.168.1.1 would work ok.



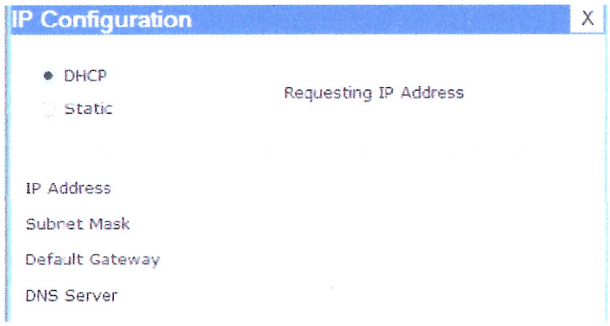
Completed ☒

8. The server setup is now complete.
9. Now we allocate the PC IP Addresses via DHCP from the server.
10. Click PC1 and select the IP configuration option on the Desktop Tab
11. Static is ticked by default and the address settings should be blank



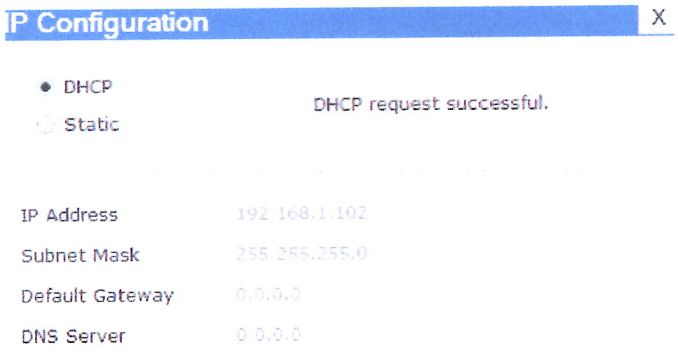
Completed ☒

12. Click the 'DHCP' option and a request to the server will be made



Completed ☒

13. The computer will be allocated IP configuration details



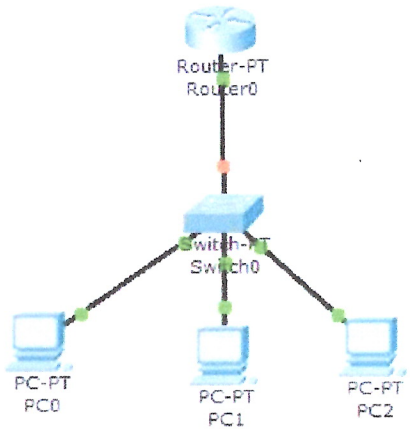
14. Now do the same procedure on the other computers and do some pinging.

Completed ☒

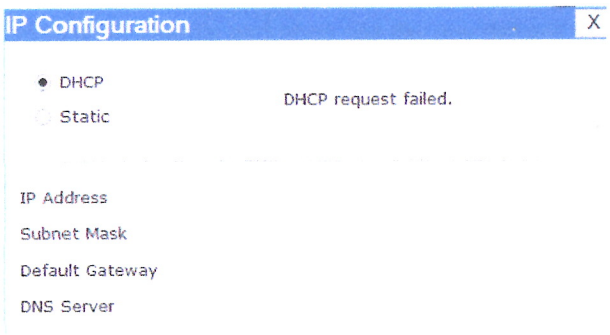
Part B: DHCP Allocation through a router

Objectives: create a simple network and allocate IP Addresses via DHCP from a router

1. Setup the following topology

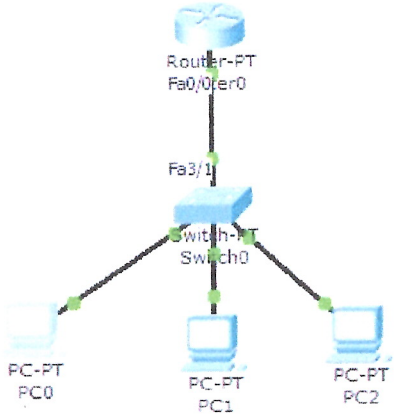


2. Try and setup a DHCP connection on a PC. You should get the following as there is no router configuration.



Completed ☒

3. We will now give the router the IP address of 192.168.10.1 with an SM of 255.255.255.0 on FastEthernet port 0/0 (Fa0/0) using the CLI on the Router. Go into the router and click on the CLI tab and type the following commands.




```
Press RETURN to get started!


Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up

Router(config-if)#
```

4. DHCP is enabled by default on a router but to shut it down, you can use the command 'no service dhcp', not all routers will allow you to shut it down.
5. We will now use a small bit of code to setup a DHCP pool on the router.
   - Open the router and click on the CLI tab.
   - When you open the tab you will see code has already been generated to setup the IP address and subnet mask on to the FastEthernet port 0/0.
   - The port was also switched on via the 'no shutdown' command.
   - Type exit and then hit enter to bring us back to config mode.

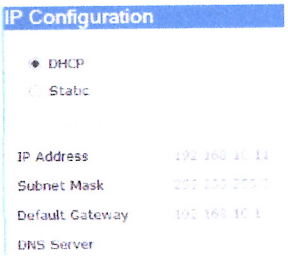
```
Router(config-if)#exit
Router(config)#
```

6. Now we will create the pool of addresses with the name IP10.
   - We identify the network (the network assigned to the FastEthernet 0/0 interface) the DHCP server will be handing out IP addresses to i.e.192.168.10.0 with its subnet mask of 255.255.255.0
   - We will also setup the default gateway of 192.168.10.1
   - We will also exclude the first 10 addresses from the pool. These addresses (192.168.10.1) will not be handed out as they will be used things like printers, servers that have static IP addresses (ip dhcp excluded-address or ip dhcp exc for short)

```
Router(config-if)#exit
Router(config)#ip dhcp pool IP10
Router(dhcp-config)#net 192.168.10.0 255.255.255.0
Router(dhcp-config)#default 192.168.10.1
Router(dhcp-config)#exit
Router(config)#ip dhcp exc 192.168.10.1 192.168.10.10
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Completed ☒

7. Now attempt a DHCP on a client and notice the starting address.

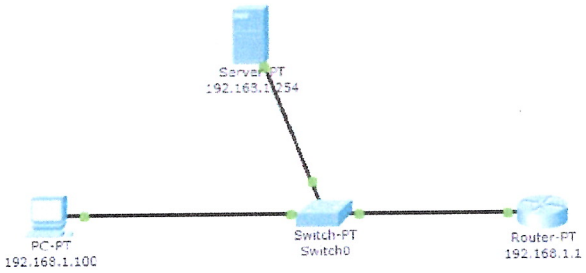


Completed ☒

Part C: Setup DNS on the server

Objectives: Setup DNS on the server to allow resolving of IP addresses

1. Setup the following topology



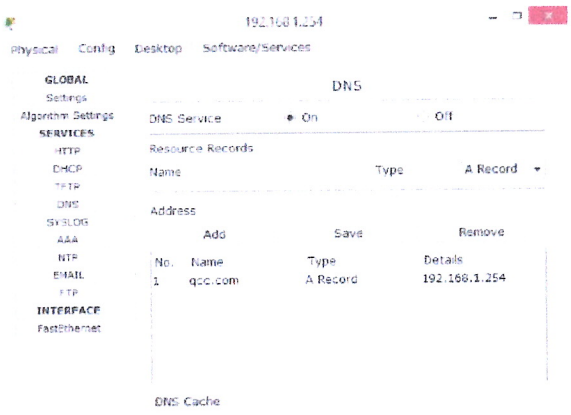
2. Add in the gateway address onto the server and the PC

3. Open the server and turn on DNS.

4. In the name field add "qcc.com" and 192.168.1.254 in the address fields and click add

5. There is now a record resolving qcc.com to its own IP address.

6. Add in the DNS onto the PC settings.



7. On the PC, open the Web Browser and type in qcc.com and the web page should appear.

Completed ☒