Aim-4

4. Configure DHCP within a LAN and outside LAN.

Topology:

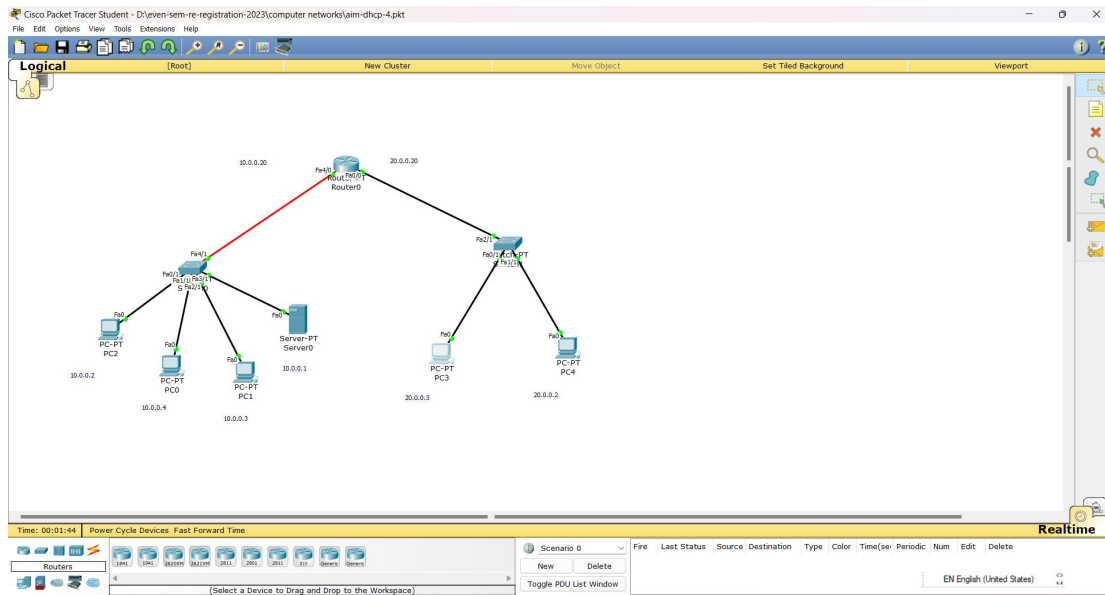Fig 1: Topology

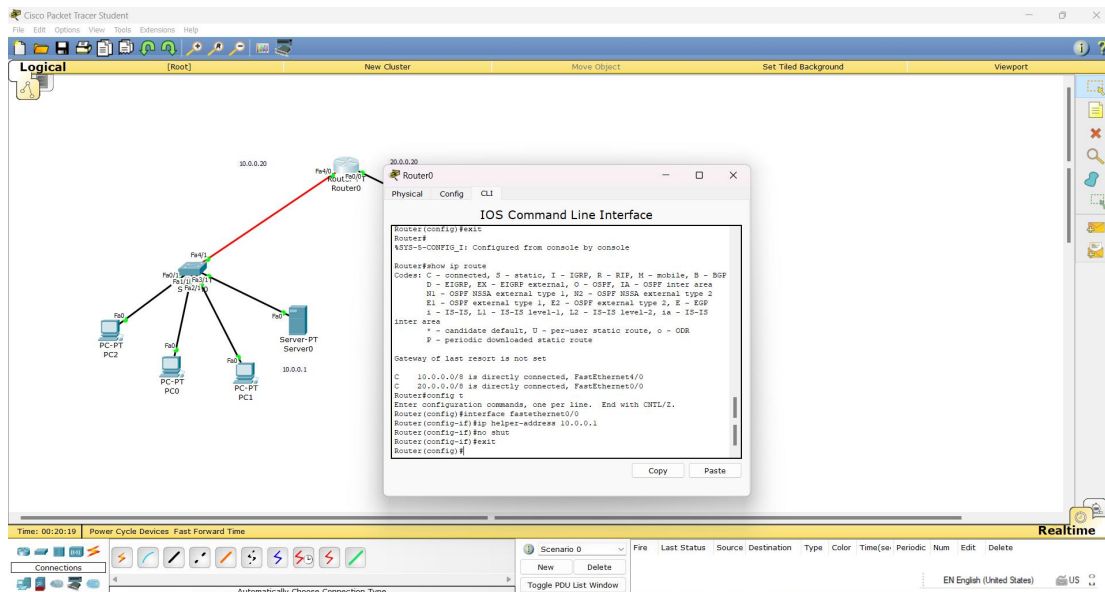Fig 2: Configuring DHCP Settings in Server

Fig 3: Router Configuring and Connections
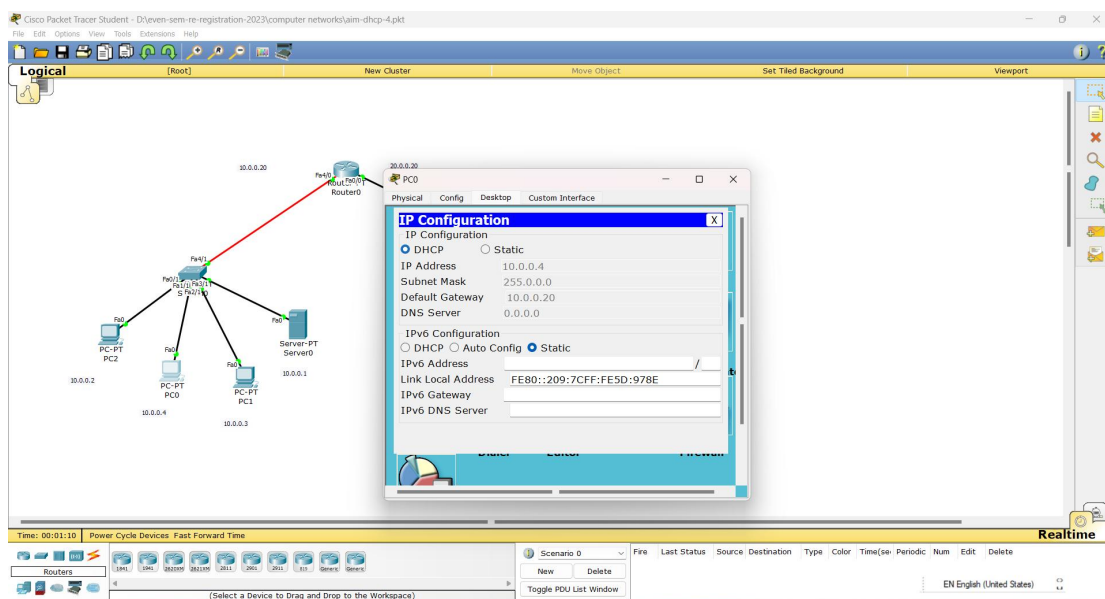
Fig 4: Pc0 Configurations
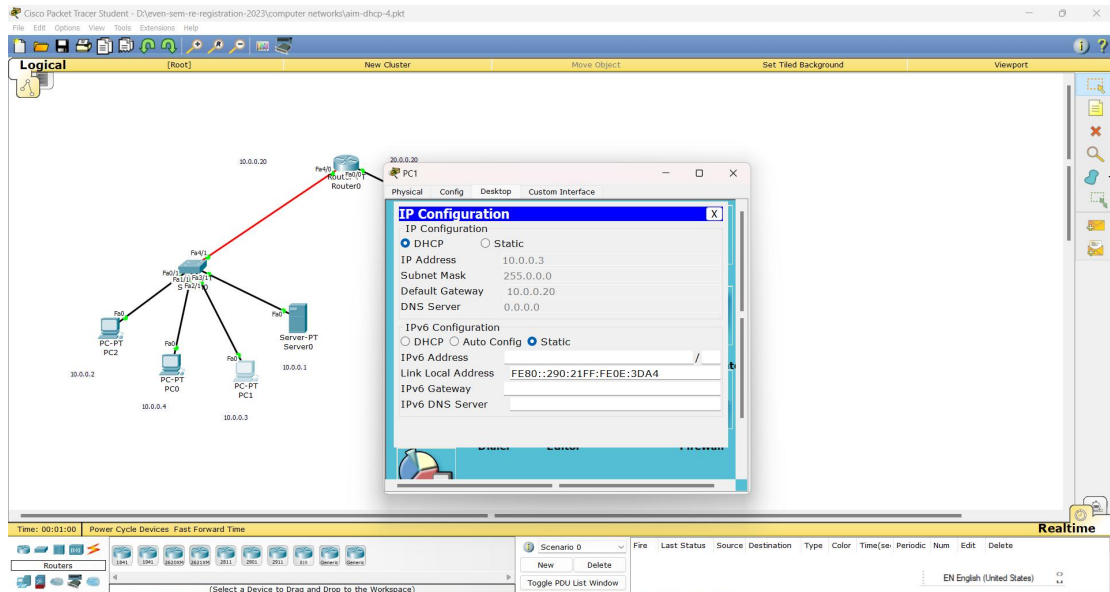
Fig 5: Pc1 Configurations
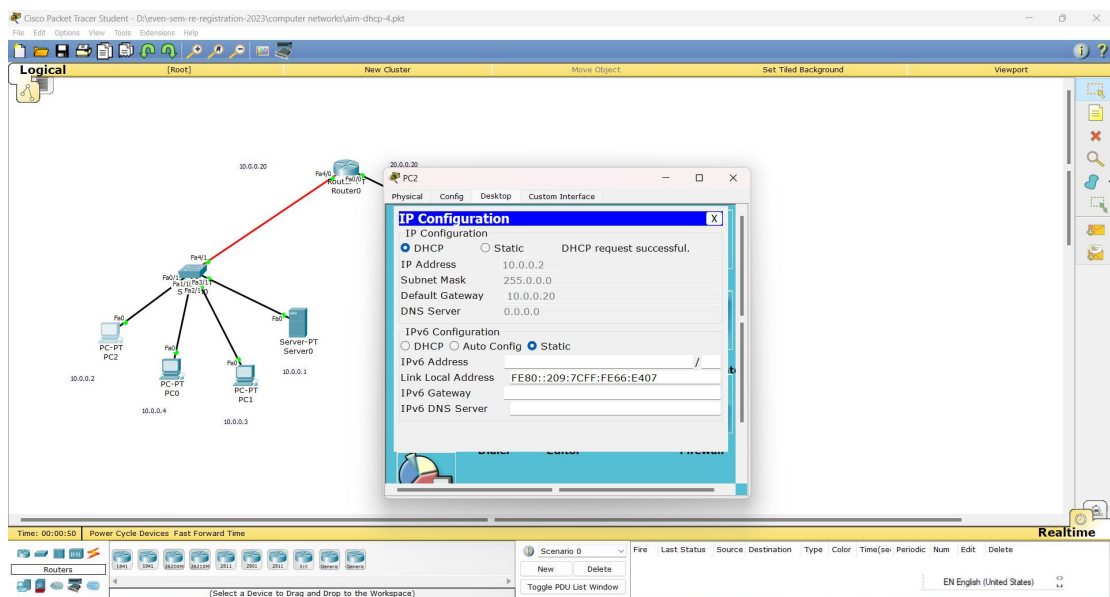
Fig 6: Pc2 Configurations

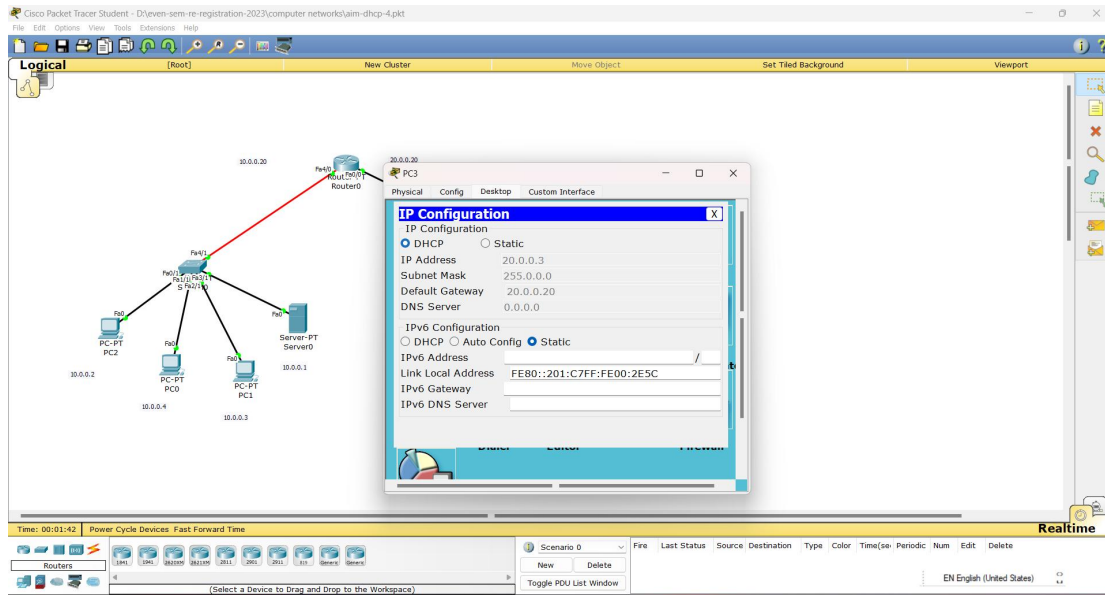Fig 7: Pc3 Configurations
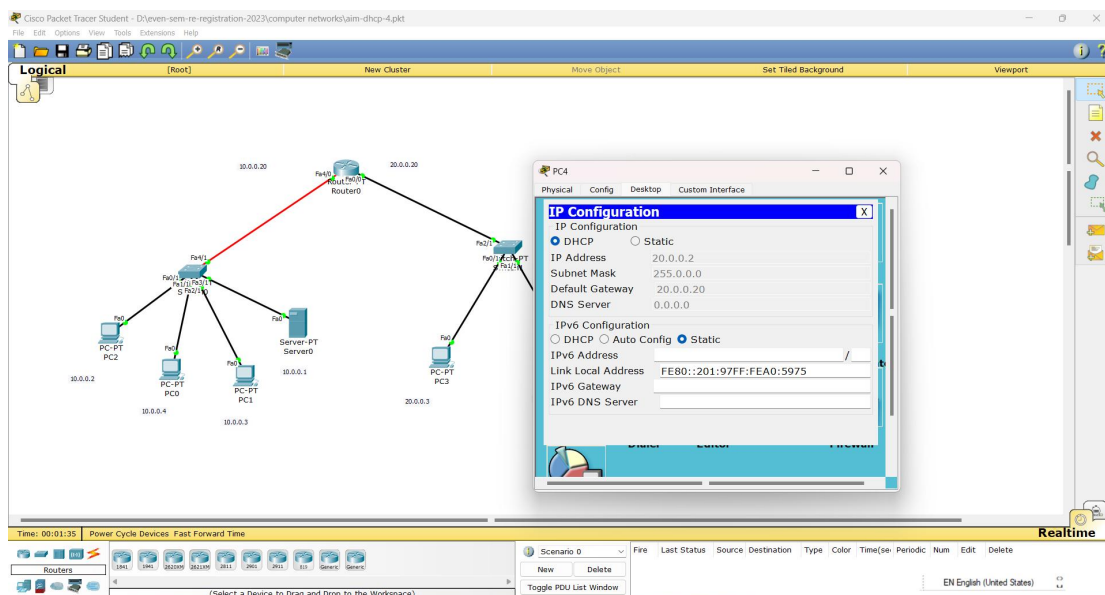
Fig 8: Pc4 Configurations

Procedure and Observations:

Aim-4

18/07/23

Configure DHCP within a LAN and outside LAN.

Topology

10.0.0.20

20.0.0.20

Fa4/0
Fa0/0
Router

Fa0/1
Switch0
Fa3/1

Fa1/1 Fas1/1

Fa0/0
Switch1

Fa1/1

Server0
10.0.0.1

PC2
PC0
PC1
PC3
PC4

Procedure

=> Server Configuration

-> Server -> Services -> DHCP

-> Service "on" (toggle from off to on.)

=> Set the Start IP address: 10.0.0.2 and Subnet mask as 255.0.0.0 then click on Save.

=> In Config tab of Server -> FastEthernet

=> Set the default gateway (as
-> Set the IP address as 10.0.0.1.

=> Now go to pcs.

=> Select PC2 -> Desktop -> IP Configuration
-> click on DHCP

=> the IP address of the PC will assigned automatically saying following message

DHCP request Successful

-> for PC2, PC3 PC1 the IP addresses are 10.0.0.2, 10.0.0.4, 10.0.0.3 respectively along with Subnet mask as 255.0.0.0.

=> Like how 3 pc's & a Server is connected to a Switch, like wise 2 pc's our has

=> to be connected to a one more
Switch (Basically lan). (say Switch 1
PC3 & PC4)

=> And Switch 0 & Switch 1 has
to be connected to a router.

=> Now configuring the router

n => n

=> enable

=> config t

=> interface fast ethernet 4/0

=> ip address 10.0.0.20 255.0.0.0

=> no shut

=> exit

=> interface fastethernet 0/0

=> ip address 20.0.0.20 255.0.0.0

=> no shut

=> exit

=> Now check if connections are proper.

=> show ip route

C   10.0.0.0/8 is directly connected,

Fast Ethernet 4/0

C   20.0.0.0/8 is directly connected

Fast Ethernet 0/0

=> Now click on Server -> Config th

=> Set the default gateway as 10.0.0.20.

=> Now click on Router and following
Configuration Commands x as follows

=> Config t

=> interface fastethernet 0/0

=> ip address ip helper-address 10.0.0.1

=> no shut

=> exit.

=> Then go to Server click on Services
tap.

=> In DHCP change the pool Name
as Serverpool 1

-> then Set the Start IP address:
                    as   20.0.0.2 and click on

add and save.

-> Now click on pc's which are

connected to switch1.

-> pc -> desktop -> IP configuration
              -> DHCP.

-> the IP addresses & Subnet mask

will assigned automatically.

-> the IP address for pc3 & pc4 are

20.0.0.#3 & 20.0.0.#2 respectively and

Subnet mask as 255.0.0.0
=> In DHCP(Server) for Server Pool Seat defaut
observation gateway as 10.0.0.20 & for Server Pool1
        _____   also same 20.0.0.29 and click on
                save each time the default gateway
                              as busy Set.
-> Dynamic Host Configuration Protocol

   (DHCP)

-> It works on DORA application

-> DORA is D(Discover), O(offer),
    R(Request) & A (Acknowledgement)

=> Basically the client broadcasts for network

=> Server offers the client

=> the client requests the server

=> and Server sends the acknowledgement to clients and assigns the IP as provide the IP address to the client which has requested.

Output

-> Passing Ping message from PC4 to PC1

Ping 10.0.0.2
  Pinging 10.0.0.2 with 32 bytes of data!
Request timed out

Reply from 10.0.0.2: bytes = 32 time = 0ms
                                    TTL = 125

Reply from 10.0.0.2: bytes = 32 time = 3 ms.
                                    TTL = 125

Reply from 10.0.0.2: bytes = 32 time = 0ms
                                    TTL = 125

Ping Statistics for 10.0.0.2:

Packets: Sent = 4, Received = 3, Lost = 1 (25% loss)

Approximate round trip times in milli-
                               - seconds:

    Minimum = 0 ms, Maximum = 3 ms,

            Average = 1 ms.

=> Passing Ping message from PC1 to PC3

Ping 20.0.0.3

Pinging 20.0.0.3 with 32 bytes of data:

Reply from 20.0.0.3: bytes=32 time=0ms
                              TTL=127

Reply from 20.0.0.3: bytes =32 time =0ms
                              TTL -127

Reply from 20.0.0.3: bytes =32 time =1ms
                              TTL=127

Reply from 20.0.0.3: bytes =32 time =0ms
                              TTL=127

Ping statistics for 10.0.0.3:
Packets : Sent =4, Received =4, Lost =0
(0% loss),

Approximate round trip time in milli-
- seconds:

Minimum = 0ms, Maximum = 1ms, Average
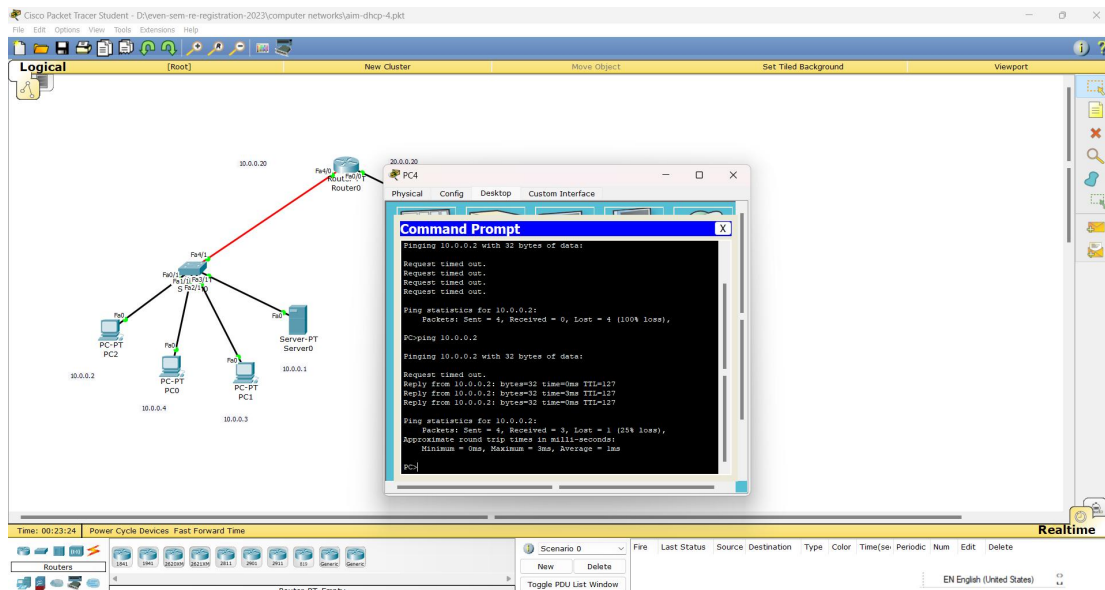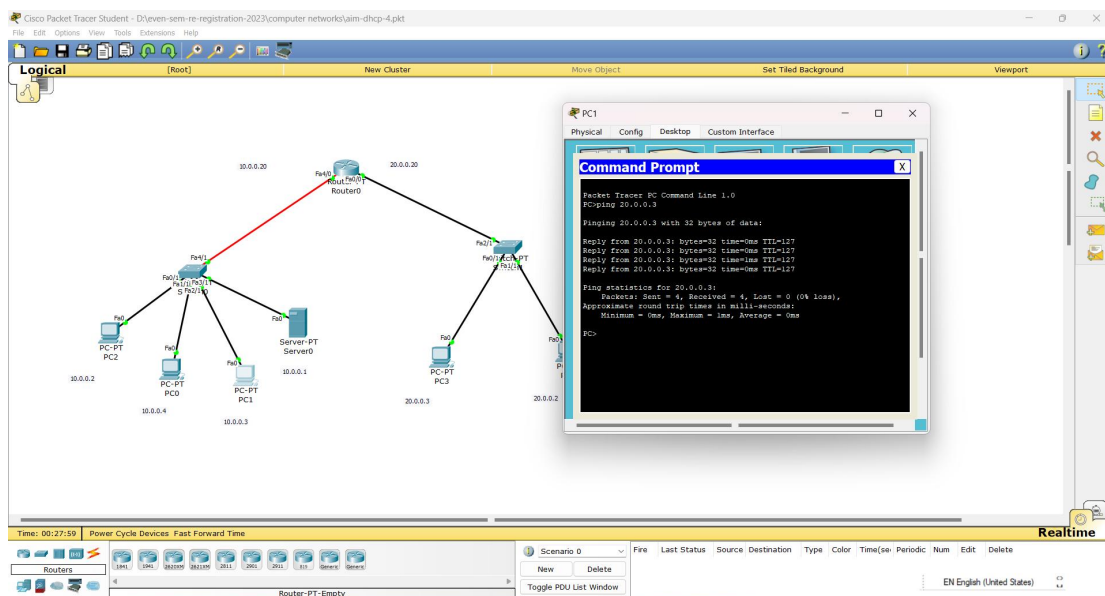
= 0 ms

18/7/23

Output:

Fig 9: Pinging from pc4 to pc2

Fig 10: Pinging from pc1 to pc3