

Program 4

To configure IP addresses of the host using DHCP server present within the LAN and present in a different LAN.

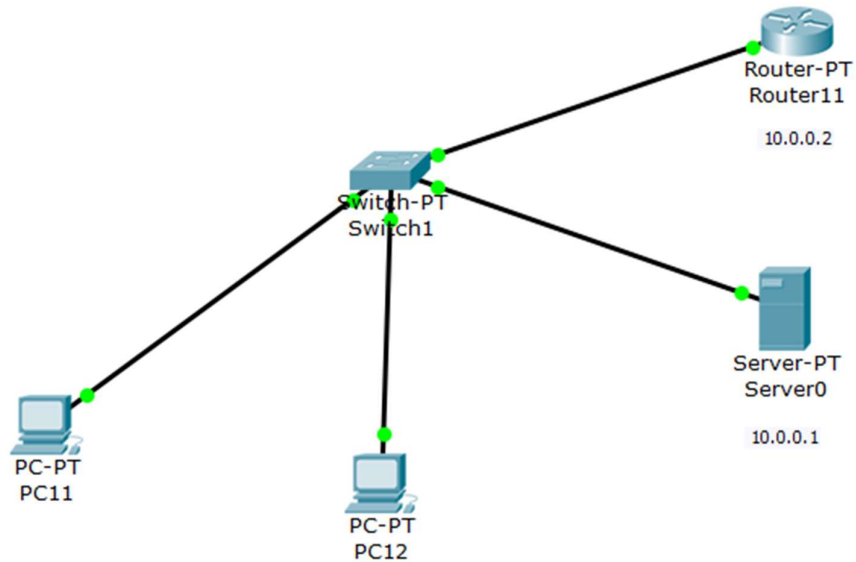


Figure 26: Topology

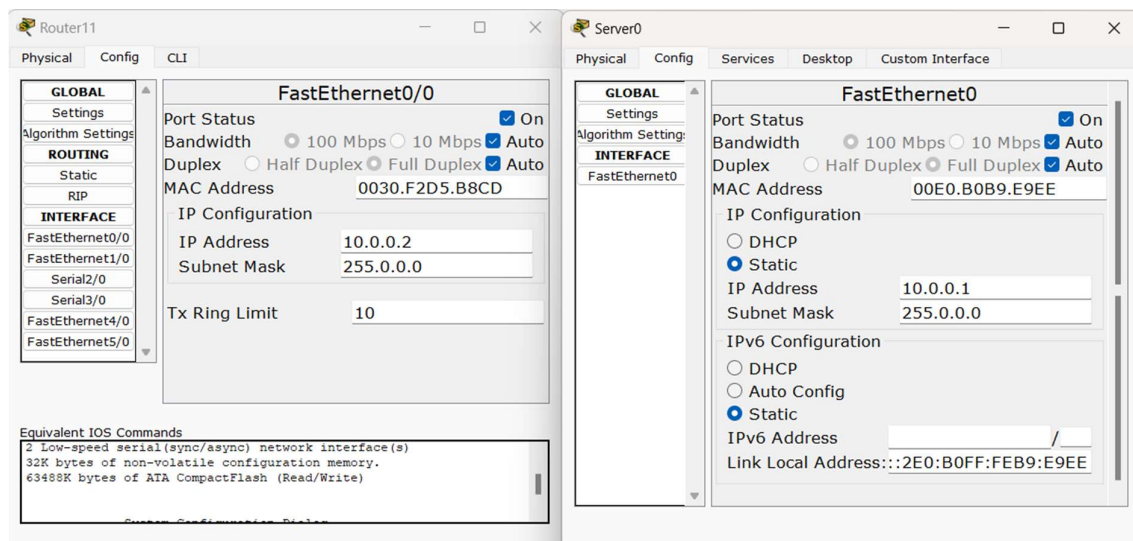


Figure 27: IP Addresses

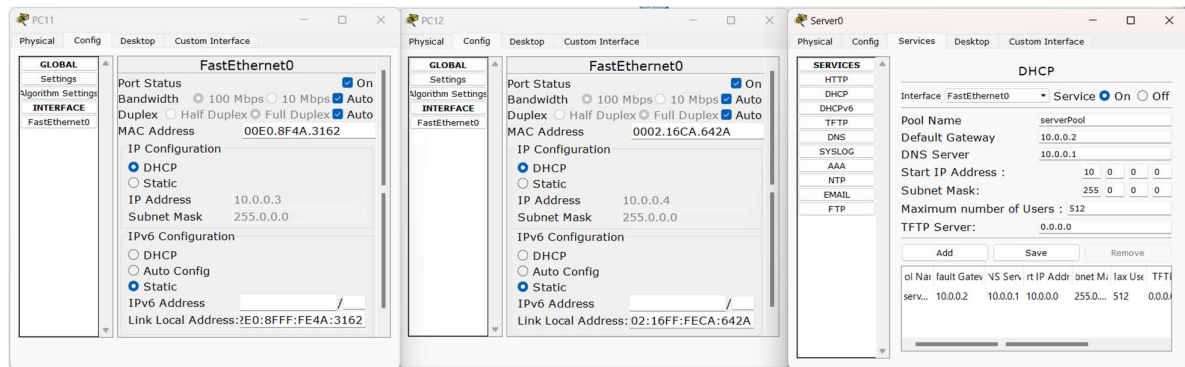


Figure 28: DHCP

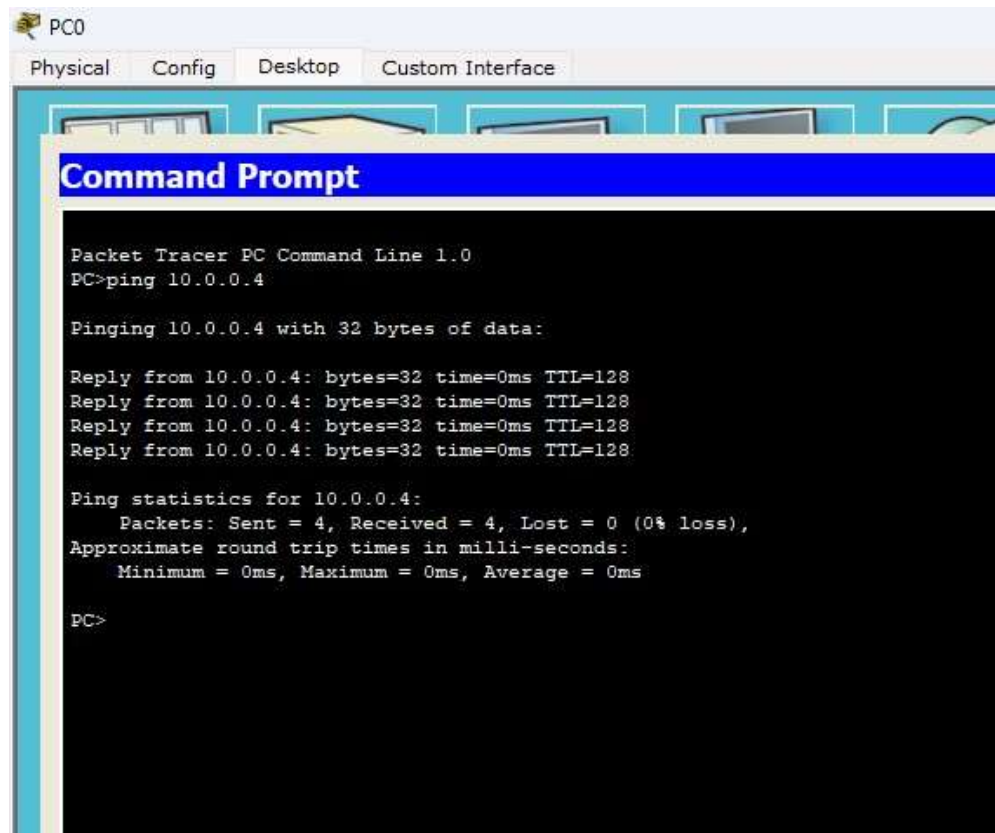


Figure 29: ping command output

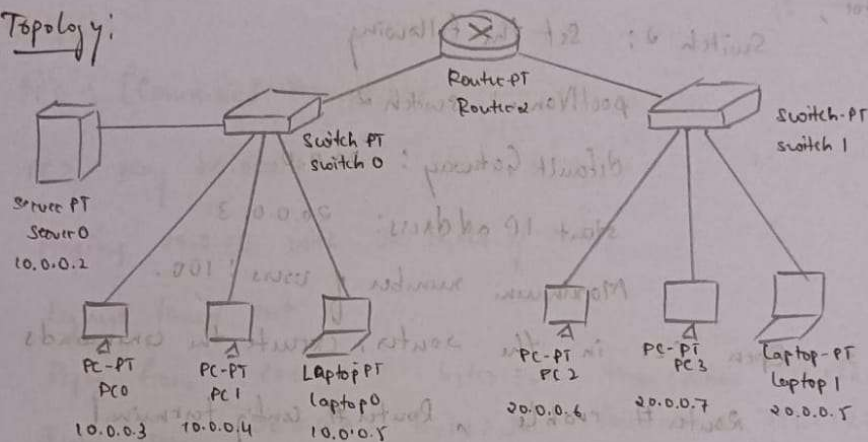
Experiment 4:-

13-11-2024

Configure DHCP within a LAN and outside LAN.

Aim: To configure and verify the functioning of DHCP both within a LAN and in a network that extends beyond the local LAN.

Topology:



Procedure:

1. Connect the end devices and server with the router using Copper Straight through as shown in the topology.

2. In Server,
go to Desktop > IP configuration and set the static address as.

IP address: 10.0.0.2

Subnet mask: 255.0.0.0

Default Gateway: 10.0.0.1

Then go to Services > DHCP

Configure the Pools like below.

Figure 30: Observation Book 1

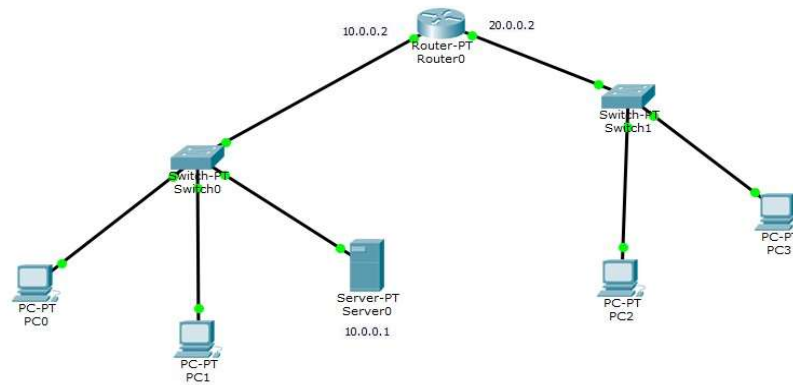


Figure 4: Topology for DHCP in different LAN

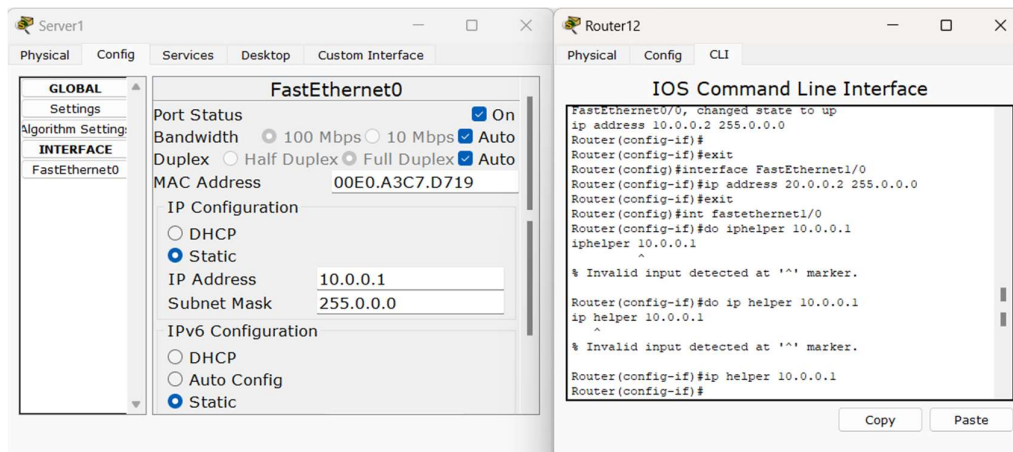


Figure 5: Router CLI and Server IP Address

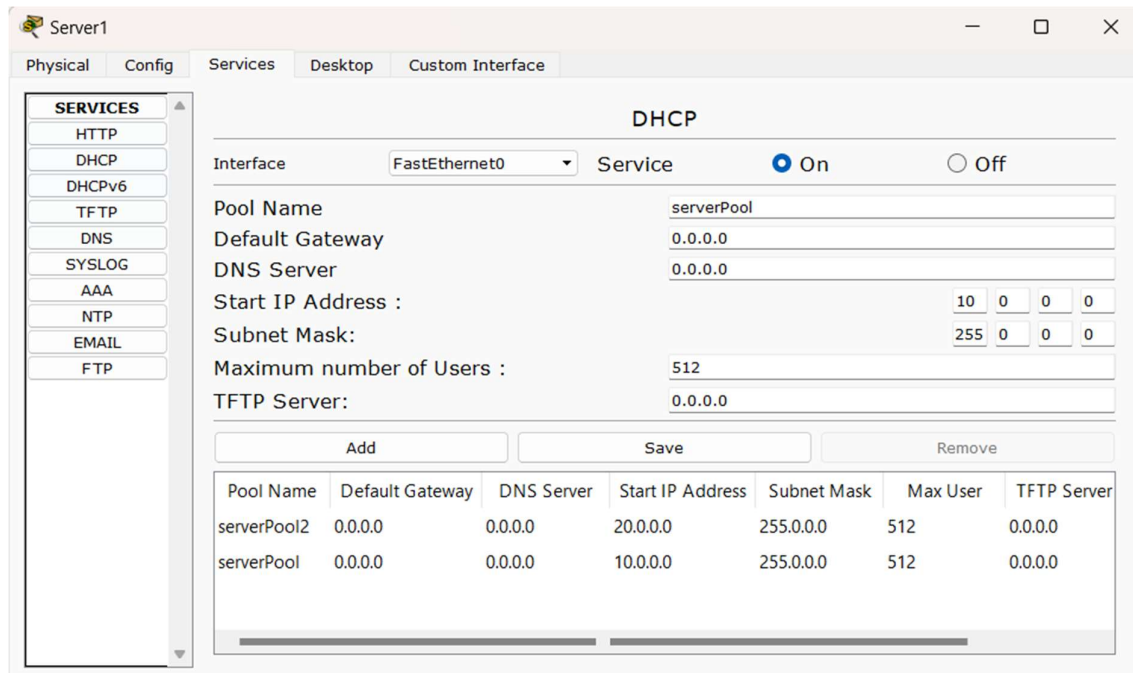


Figure 6: Server Pools of the DHCP Server

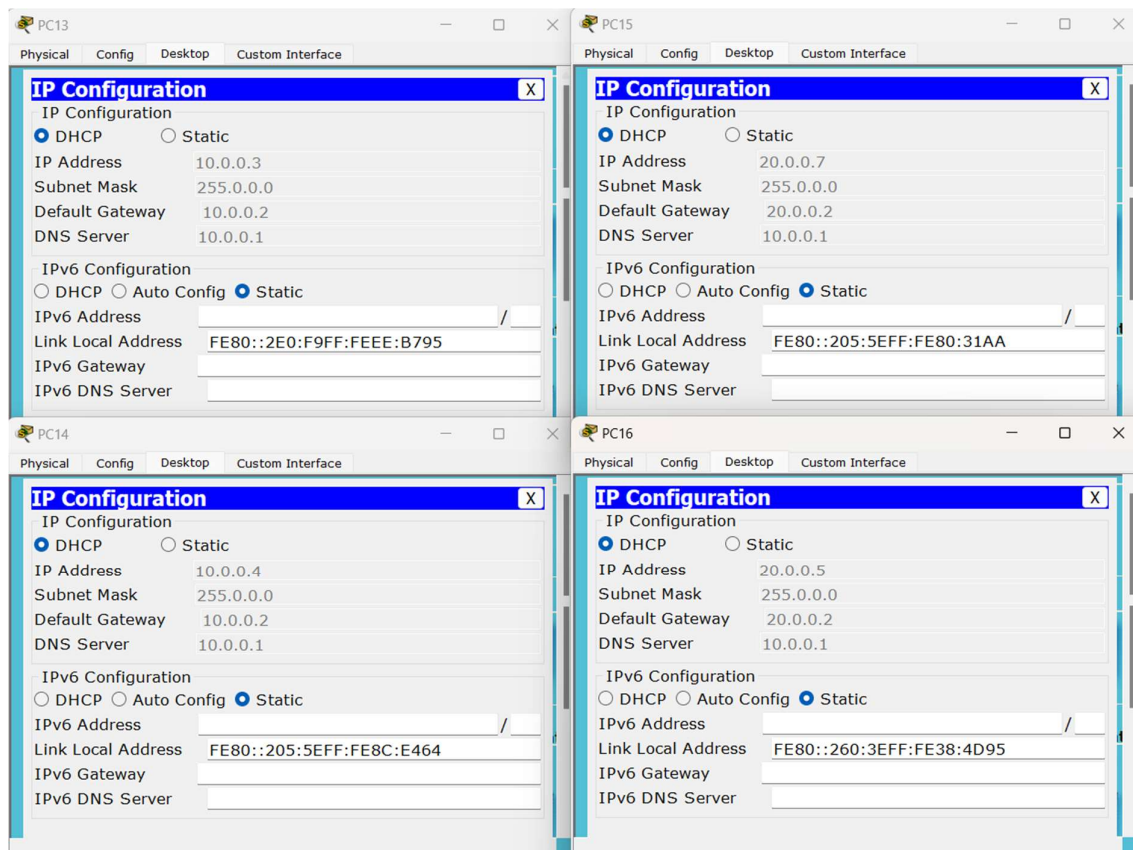


Figure 7: PC IP addresses automatically assigned by DHCP Server


```

PC>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=3ms TTL=127
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127

Ping statistics for 20.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 0ms

PC>|

```

Figure 8: ping command output

Switch 1: Set the following

```

poolname : switch1
default Gateway: 10.0.0.1
start IP address: 10.0.0.3
Maximum number of users: 100
and add this.

```

For Switch 2: Set the following

```

poolName: switch 2
default Gateway: 20.0.0.1
start IP address: 20.0.0.3
Maximum number of users: 100.

```

3. Open CLI in the router, execute the commands

```

Router# enable
Router# conf t
Router (config)# interface fastEthernet 0/0
Router (config-if)# ip address 10.0.0.1 255.0.0.0
Router (config-if)# ip helper-address 10.0.0.2
Router (config-if)# no shutdown
exit.

Router (config)# interface fastEthernet 1/0
Router (config-if)# ip address 20.0.0.1 255.0.0.0
Router (config-if)# ip helper-address 10.0.0.2
Router (config-if)# no shutdown
exit.

```

Figure 9: Observation book 1

Observation: Set up the Router with the FastEthernet 1/24 cable connected to the two switches. ^{by} Setting up the helper address which is the IP address of the server, the other network 20.0.0.0 can access the DHCP service which has been set in the pool service in the server.

Output:

PC0 : [Command Prompt]

PC> ping 20.0.0.7

Pinging 20.0.0.7 with 32 bytes of data:

Request timed out

Reply from 20.0.0.7 : bytes=32 time=0ms TTL=127

Reply from 20.0.0.7 : bytes=32 time=0ms TTL=127

Reply from 20.0.0.7 : bytes=32 time=0ms TTL=127

Reply from

Ping statistics for 20.0.0.7

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

Minimum = 0ms, Maximum = 0ms, Average = 0ms.

Def 13/1/24

Figure 10: Observation book 2