

## Lab - 2

### Communication Between 2 different Networks

#### Objective:

We are going to perform communication between 2 different broadcast domains through a router.

#### Procedure:

**Step 1:** Simply design 2 networks as the one designed in Lab-1.

**Step 2:** First network ID is 192.168.1.0 with default subnet mask 255.255.255.0

**Step 3:** Second network ID is 192.168.2.0 with default subnet mask 255.255.255.0

**Step 4:** Connect the switch of 1<sup>st</sup> network with interface Fa 0/0 of router

**Step 5:** Connect the switch of 2<sup>nd</sup> network with interface Fa 0/1 of router

**Step 6:** Assign the valid IPs to the hosts in each network according to the respective network ID

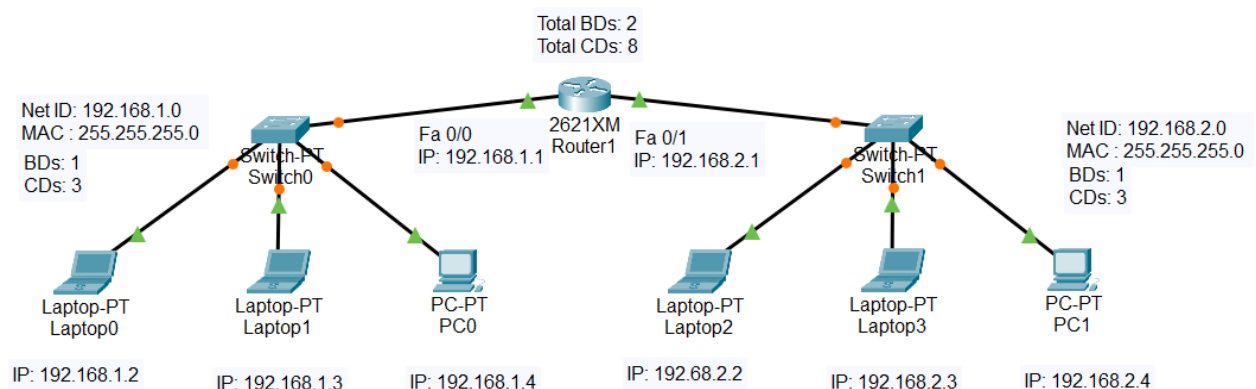


Figure 2.1: Designing network

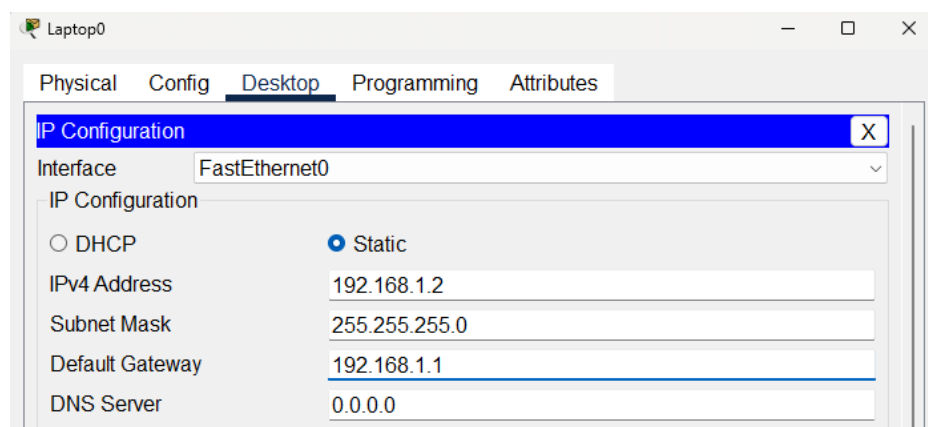


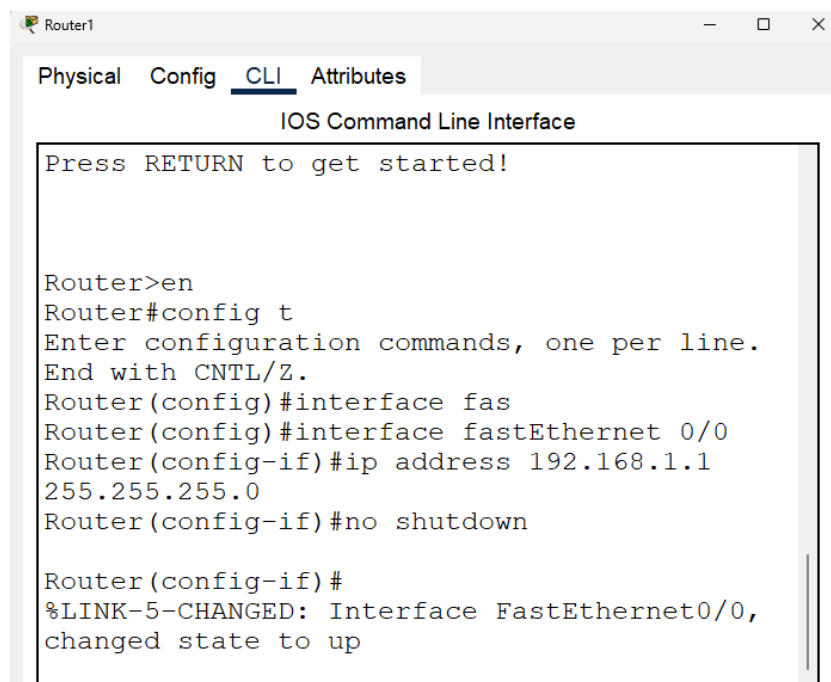
Figure 2.2: Assigning IPs

**Step 7:** Configure the interfaces to router according to the network with which it is connected

**Step 8:** Single click on router and then go to CLI mode and use commands as shown in Figure: 2.3

**Step 9:** First interface Fa 0/0 is connected to NetID 192.168.1.0 so the first valid IP of this network

i.e., 192.168.1.1 will be assigned to this interface



```
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Press RETURN to get started!

Router>en
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#interface fas
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.1.1
255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0,
changed state to up
```

Figure 2.3: Configuring the Interface of Router

**Step 10:** Similarly, 1<sup>st</sup> valid IP of 2<sup>nd</sup> network i.e., 192.168.2.1 will be assigned to interface Fa 0/1

**Step 11:** After correct configuration of interfaces the interfaces will be changed to state up (green)

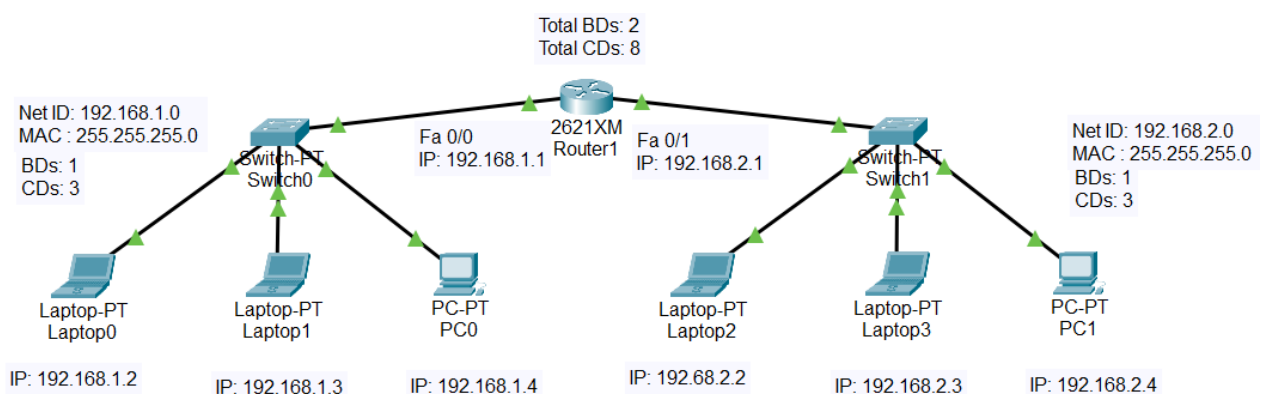


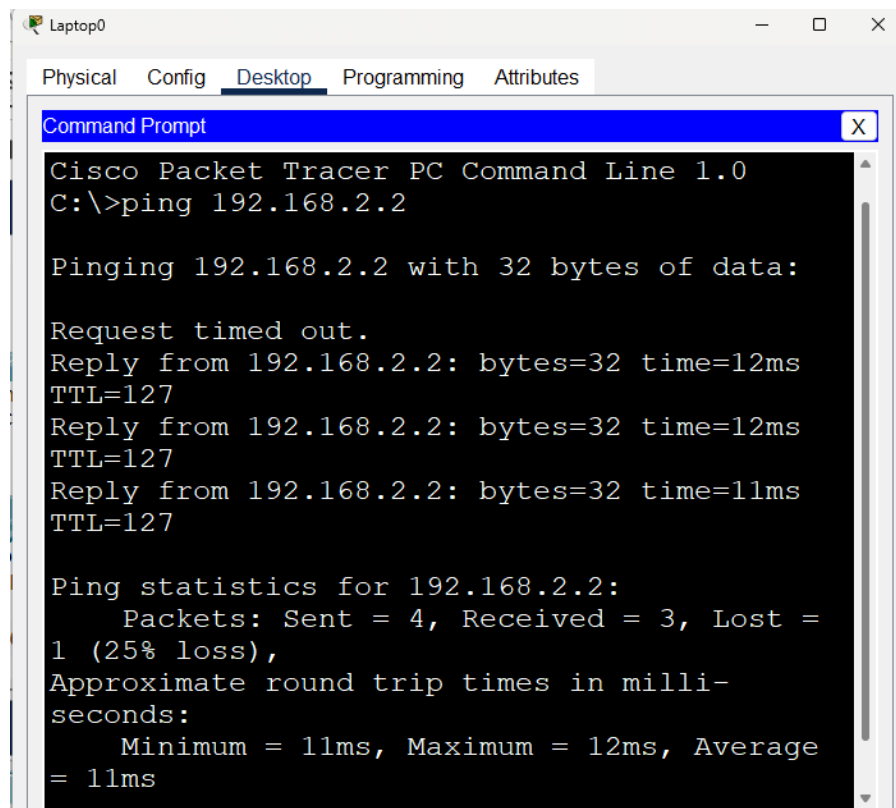
Figure 2.4: Interface State Up Successful

**Step 12:** Now the network is ready for communication.

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**Step 13:** Try to Ping from one host to other as shown in Figure 4.5

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```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time=12ms TTL=127
Reply from 192.168.2.2: bytes=32 time=12ms TTL=127
Reply from 192.168.2.2: bytes=32 time=11ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 11ms, Maximum = 12ms, Average = 11ms
```

Figure 2.5: Trying to Ping from Laptop0 to Laptop2

**Step 14:** The replies received which means that network is working properly

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**Step 15:** Now Drag and drop a Simple PDU from top menu to Laptop0 (Sender) and similarly to Laptop2 (Receiver)

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**Step 16:** Goto Simulation Panel from bottom right corner and start the simulation.

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**Step 17:** The acknowledgement at the end means the packet sent and received successfully.

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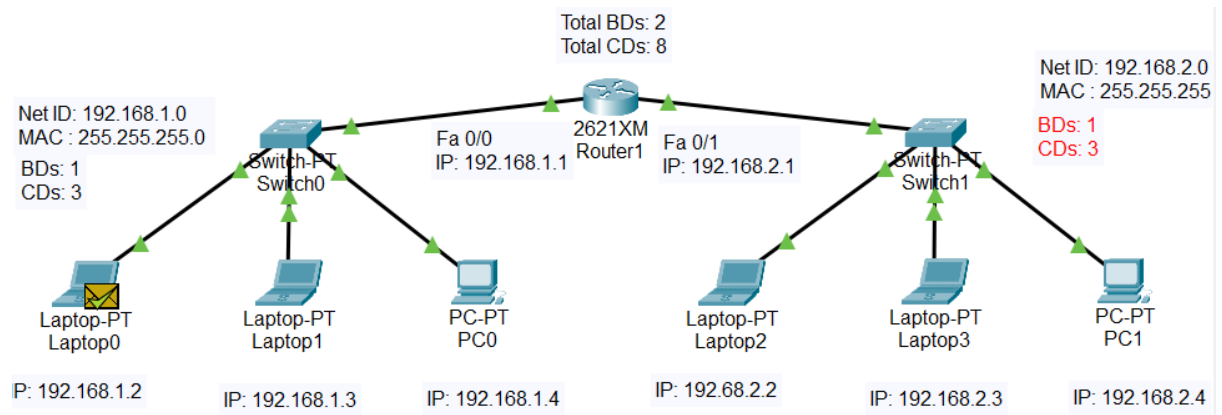


Figure 1.6: Acknowledgement of Successful Packet sent

Simulation Panel				
Event List				
Vis.	Time(sec)	Last Device	At Device	Type
	0.001	Laptop0	Switch0	ICMP
	0.002	Switch0	Router1	ICMP
	0.003	Router1	Switch1	ICMP
	0.004	Switch1	Laptop2	ICMP
	0.005	Laptop2	Switch1	ICMP
	0.006	Switch1	Router1	ICMP
<div>Reset Simulation</div> <div><input checked="" type="checkbox"/> Constant Delay</div>				

Figure 2.7: Simulation Pannel