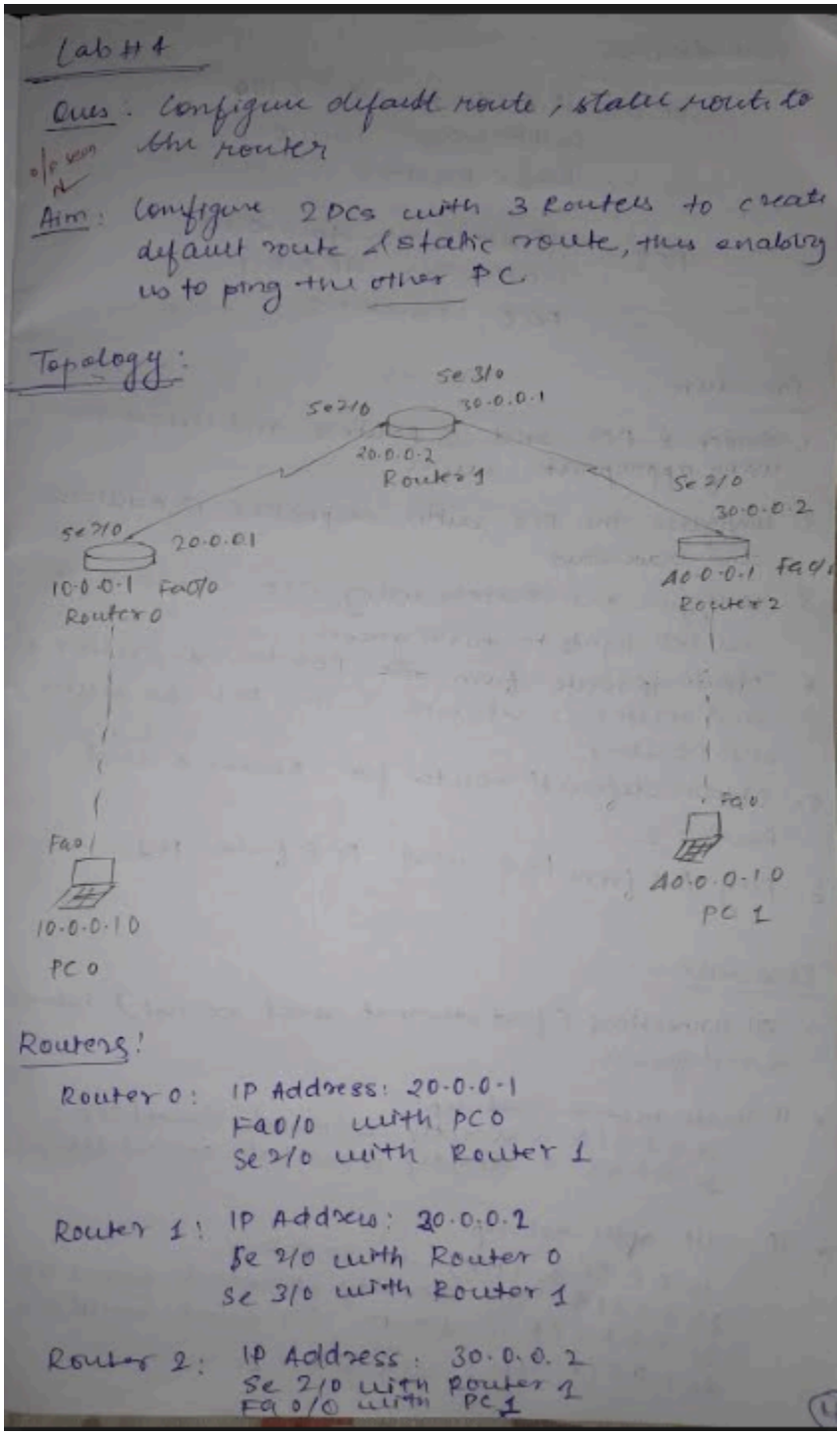
Observation Book:



Lab # 4

Ques: Configure default route, static route to the router

Aim: Configure 2 PCs with 3 Routers to create default route / static route, thus enabling us to ping the other PC.

Topology:

Routers:

Router 0: IP Address: 20.0.0.1
Fa0/0 with PC0
Se 2/0 with Router 1

Router 1: IP Address: 20.0.0.2
Se 2/0 with Router 0
Se 3/0 with Router 1

Router 2: IP Address: 30.0.0.2
Se 2/0 with Router 1
Fa 0/0 with PC 1

End-devices:

PC 0: IP Address: 10.0.0.100
Gateway: 10.0.0.1
Fa0: Router 0

PC 1: IP Address: 40.0.0.10
Gateway: 40.0.0.1
Fa0: Router 2

Procedure:

1. Select 2 PCs and 3 Routers and connect them using appropriate wires.
2. Configure the PCs with respective IP Addresses and Gateways.
3. Configure the routers using CLI resulting in all LED lights to turn green.
4. Obtain ip route from PC0 to the router 0 and router 1. Likewise with PC1 to router 2 and router 1.
5. Obtain default route for Router 0 and Router 2.
6. Ping PC1 from PC0 and PC0 from PC1.

Observation:

- All connections (fast ethernet and serial) have turned green.
- IP route before set up:
  20.0.0.0/8 is directly connected, Serial 2/0
  30.0.0.0/8 is directly connected, serial 3/0
- IP route after set up:
  10.0.0.0/8 [1/0] via 20.0.0.1
  20.0.0.0/8 is directly connected, Serial 2/0
  30.0.0.0/8 is directly connected, Serial 3/0
  40.0.0.0/8 [1/0] via 30.0.0.2

- ping from one PC to another is successful
- So the middle router (router 1) is set up with 2 next-hops.
- Default route: to transfer when no other route is available (in this case 10 and 20)
- Static route: defined route with assigned destination
- IP route for Router 0 (after set up):

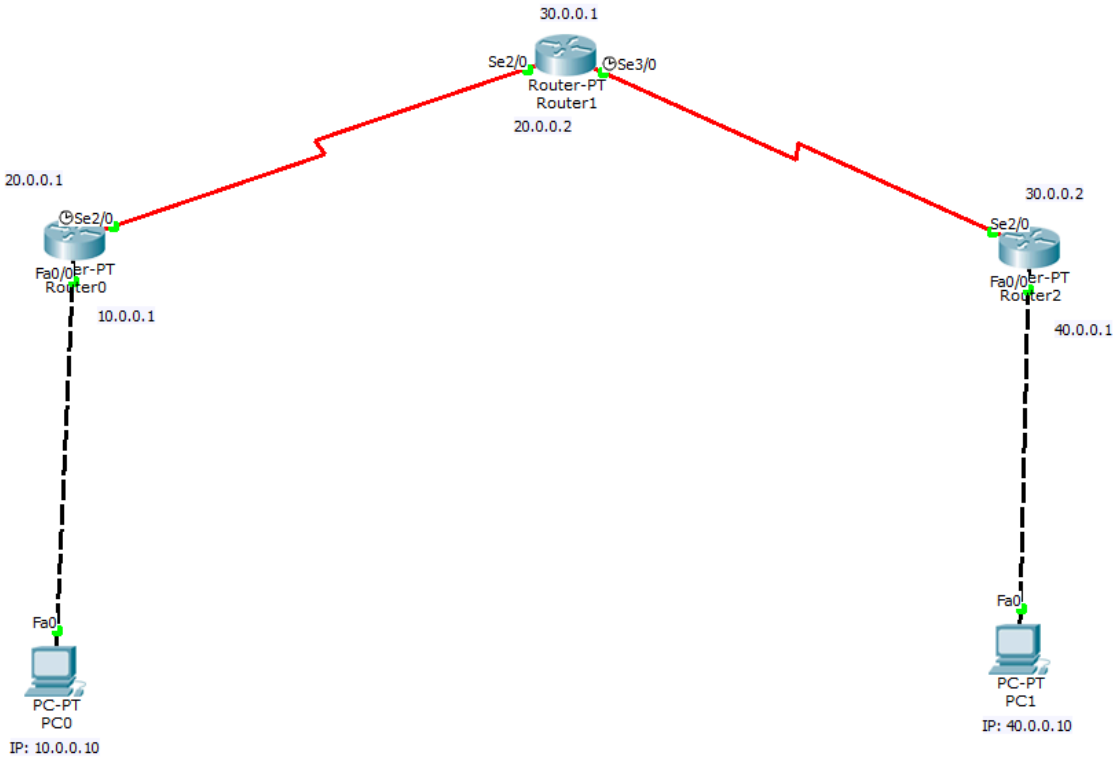
10.0.0.0/8 is directly connected, FastEthernet 0/0
20.0.0.0/8 is directly connected, Serial 2/0
0.0.0.0/0 [1/0] via 20.0.0.2

- IP route for Router 2 (after set up):

30.0.0.0/8 is directly connected, Serial 2/0
40.0.0.0/8 is directly connected, FastEthernet 0/0
0.0.0.0/0 [1/0] via 30.0.0.1

N
23/10/24

Typology:



Output Screens:

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
```

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    10.0.0.0/8 [1/0] via 20.0.0.1
C    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
S    40.0.0.0/8 [1/0] via 30.0.0.2
Router#
```

PC0

Physical | Config | Desktop | Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.10: bytes=32 time=4ms TTL=125
Reply from 40.0.0.10: bytes=32 time=5ms TTL=125
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 7ms, Average = 5ms

PC>
```

PC1

Physical | Config | Desktop | Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.10

Pinging 10.0.0.10 with 32 bytes of data:

Reply from 10.0.0.10: bytes=32 time=6ms TTL=125
Reply from 10.0.0.10: bytes=32 time=6ms TTL=125
Reply from 10.0.0.10: bytes=32 time=7ms TTL=125
Reply from 10.0.0.10: bytes=32 time=8ms TTL=125

Ping statistics for 10.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 6ms, Maximum = 8ms, Average = 6ms

PC>
```