

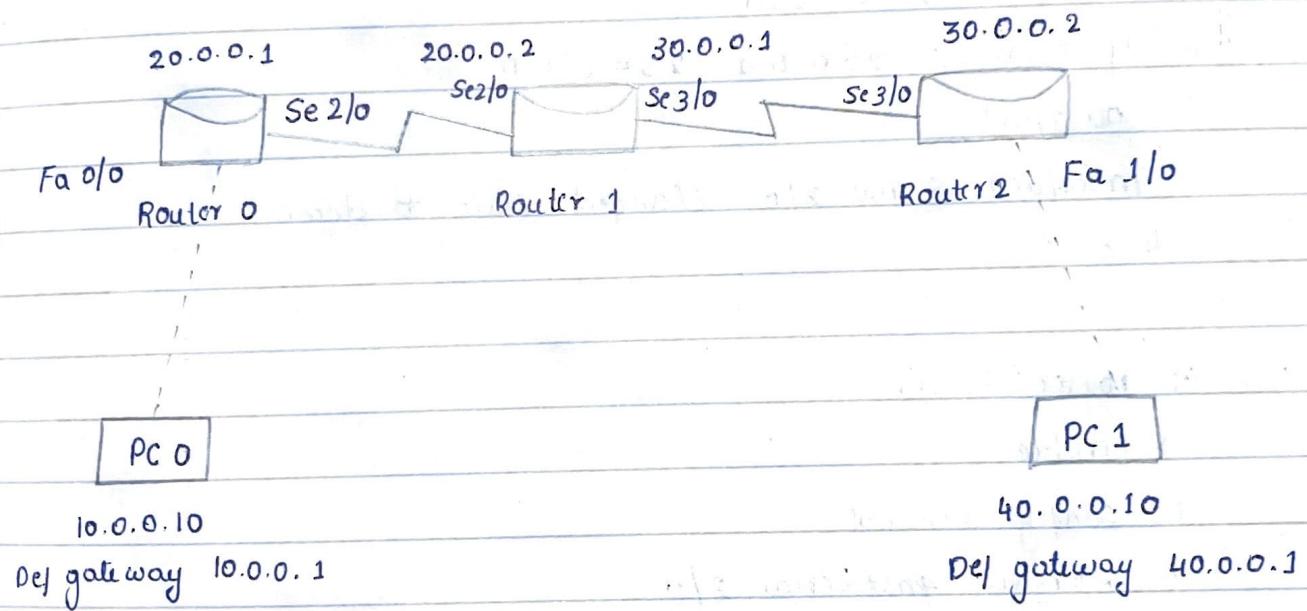
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## Lab-04.

### Objective :

Demonstration of Static and default routing using three routers and two end devices.

### Topology



### Procedure.

- Select three generic routers R0, R1 and R2
- Select two generic PCs PC0 and PC1.
- Connect PC0 with R0 and PC1 with R2 with the upper crossover wires, establishing fastethernet
- Connect R0 and R1 & R2 using serial wires, establishing serial connection

→ Set the ip address and default gateways as shown in the fig

→ In router 0, do:

> enable

# config terminal

# interface fastethernet 0/0

# ip address 10.0.0.1 255.0.0.0

# no shut down

Interface Fast Ethernet 0/0, changed state to up

# exit

# interface serial 2/0

# ip address 20.0.0.1 255.0.0.0

# no shut

Interface Serial 2/0, changed state to down

# exit.

→ In router 1, do:

> enable

# config terminal

# interface fastserial 2/0

# ip address 20.0.0.2 255.0.0.0

# no shut

Interface Serial 2/0, changed state to up

# exit

# interface serial 3/0

# ip address 30.0.0.1 255.0.0.0

# no shut

Interface Serial 3/0, changed state to down

# exit.

→ In router 2, do:

> enable

# config terminal

# interface serial 3/0

# ip address 30.0.0.2 255.0.0.0

# no shut

interface Serial 3/0, changed state to down

# exit configuration mode

# interface fastethernet 1/0

# ip address 40.0.0.1 255.0.0.0

# no shut

interface Fast Ethernet 1/0, changed state to up

Interface serial 3/0, changed state to up.

→ To set up static routing in the Router 1 do:

>enable

# show ip route

c 20.0.0.0/8 is directly connected, Serial 2/0

c 30.0.0.0/8 is directly connected, Serial 3/0

# config terminal

# ip route 10.0.0.0 255.0.0.0 20.0.0.1

# ip route 40.0.0.0 255.0.0.0 30.0.0.2

# exit

# show ip route

s 10.0.0.0/8 [1/0] via 20.0.0.1

c 20.0.0.0/8 [is directly connected, Serial 2/0]

c 30.0.0.0/8 [is directly connected, Serial 3/0]

s 40.0.0.0/8 [1/0] via 30.0.0.2

- To default routing in Router R<sub>0</sub>, do  
> enable  
# config terminal  
# ip route 0.0.0.0 0.0.0.0 20.0.0.2  
# exit  
# show ip route  
c 10.0.0.0/8 is directly connected, FastEthernet 0/0  
c 20.0.0.0/8 is directly connected, serial 2/0  
s\* 0.0.0.0/0 [1/0] via 20.0.0.2
- To default routing in Router R<sub>1</sub>, do  
> enable  
# config terminal  
# ip route 0.0.0.0 0.0.0.0 30.0.0.1  
# exit  
# show ip route  
c 30.0.0.0/8 is directly connected, Serial 3/0  
c 40.0.0.0/8 is directly connected, Fast Ethernet 1/0  
s\* 0.0.0.0/0 [1/0] via 30.0.0.1

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### Objective Observation

- After setting up the mentioned topology, an attempt was made to ping PC from PC2 and vice versa
- PC 0:
  - > ping 40.0.0.10  
"packets: sent = 4 Received = 3 Lost = 1 (25% loss)"
- PC 1:
  - > ping 10.0.0.10  
"packets : sent = 4, Received = 4 Lost = 0 (0% loss)"
- It was understood that while static routing enables identification of neighbouring network already present, default routing is essential to ensure proper identification and redirection of packets from device IPs which are not recognised.
- It was observed that initial ping had "request time out" since it took some time for the packets to identify the destination
- Then later ping did not have any "request timeout" and was successful with 0% loss since the network is already identified.

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