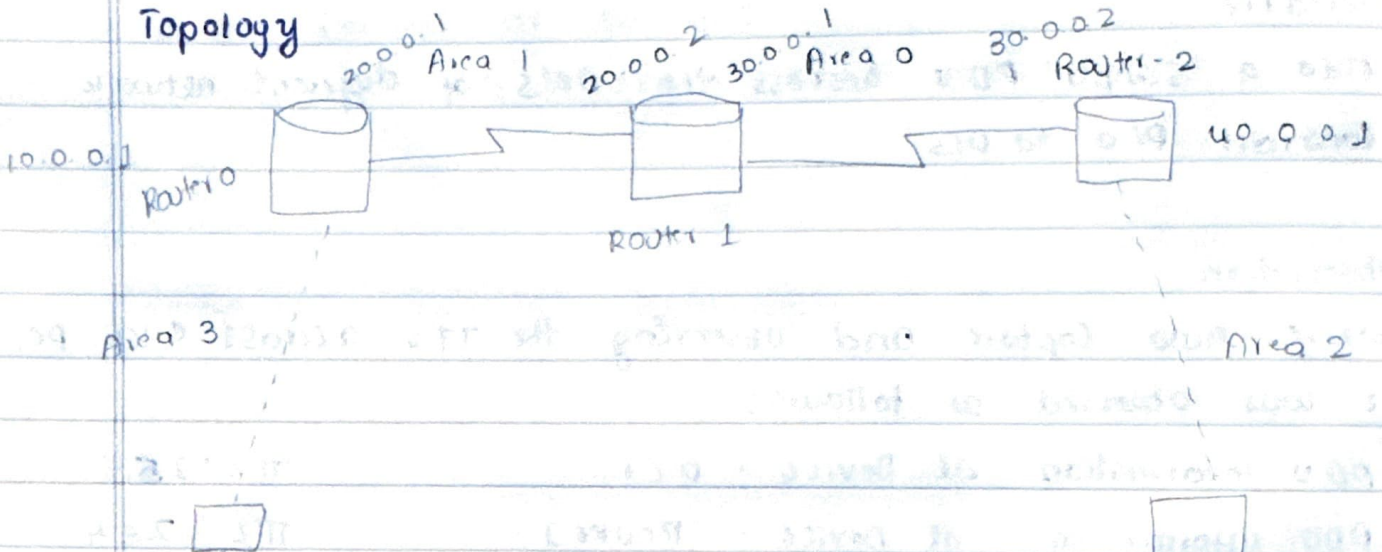
27/11/2024 LAB-08

Objective

Configure OSPF routing protocol

Topology



Procedure

→ place 2 pc's and 3 routers as shown in the figure.

→ connect the end devices to the routher through copper cross-over.

→ Set the ip address and gateway as shown in fig

→ Now go to each router & configure.

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In router R0,

```
R0 (config) # interface fastethernet 0/0
R0 (config-if) # ip address 10.0.0.1 255.0.0.0
R0 (config-if) # no shutdown
R0 (config-if) # exit
```

```
R0 (config) # interface serial 2/0
R0 (config-if) ip address 20.0.0.1 255.0.0.0
R0 (config-if) # encapsulation ppp
R0 (config-if) # clock rate 64000
R0 (config-if) # no shutdown
R0 (config-if) # exit
```

In Router R1,

```
R1 (config) # interface serial 2/0
R1 (config-if) # ip address 20.0.0.2 255.0.0.0
R1 (config-if) # encapsulation ppp
               # no shutdown
               # exit.
```

```
R2 (config) # interface serial 3/0
R1 (config-if) # ip address 30.0.0.1 255.0.0.0
               # encapsulation ppp
               # clock rate 64000
               # no shutdown
               # exit.
```

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In Router R2.

R2 (config)# interface Serial 2/0
R2 (config-if)# ip address 30.0.0.2 255.0.0.0
no encapsulation ppp
no shutdown
exit
R2 (config)# interface fastethernet 0/0
(config-if)# ipaddress 40.0.0.1 255.0.0.0
no shutdown
exit

Step 5: Enable ip routing by configuring ospf routing protocol in all routers

In Router R0.

R0 (config)# router ospf 1
R0 (config-router)# router-id 1.1.1.1
network 20.0.0.0 0.255.255.255 area 3
network 30.0.0.0 0.255.255.255 1
exit

In Router R1

R1 (config)# router ospf 1
R1 (config-router)# router-id 2.2.2.2
network 20.0.0.0 0.255.255.255 area 1
network 30.0.0.0 0.255.255.255 area 0
exit.

In Router R2,

R2 (config) # router ospf 1

R2 (config-router) #network 30.0.0.0 0.255.255.255 area 0

network 40.0.0.0 0.255.255.255 area 2

exit

step:- R0 (config-if) # interface loopback 0

ip add 172.16.1.255 255.255.0.0

no shut down

R1 (config-if) # interface loop back 0

ip add 172.16.1.253 255.255.0.0

no shut down

R2 (config-if) # interface loop back 0

ip add 172.16.1.254 255.255.0.0

no shut

Step: In Router R0

R0 (config) # router ospf 1

(config-router) # ~~router~~ area 1 virtual-link 2.2.2.2

In Router R1

R1 (config-router) #

area 1 virtual link 1.1.1.1

exit

Observation

→ ping the ip from one pc to other pc

ping 40.0.0.10 in the pc0

Packet Sent = 4 Recived = 4 Lost = 0 (0% Loss)

→ ping 10.0.0.10 in the pc4

Packet Sent = 4 Received = 4 Lost = 0 (0% Loss)