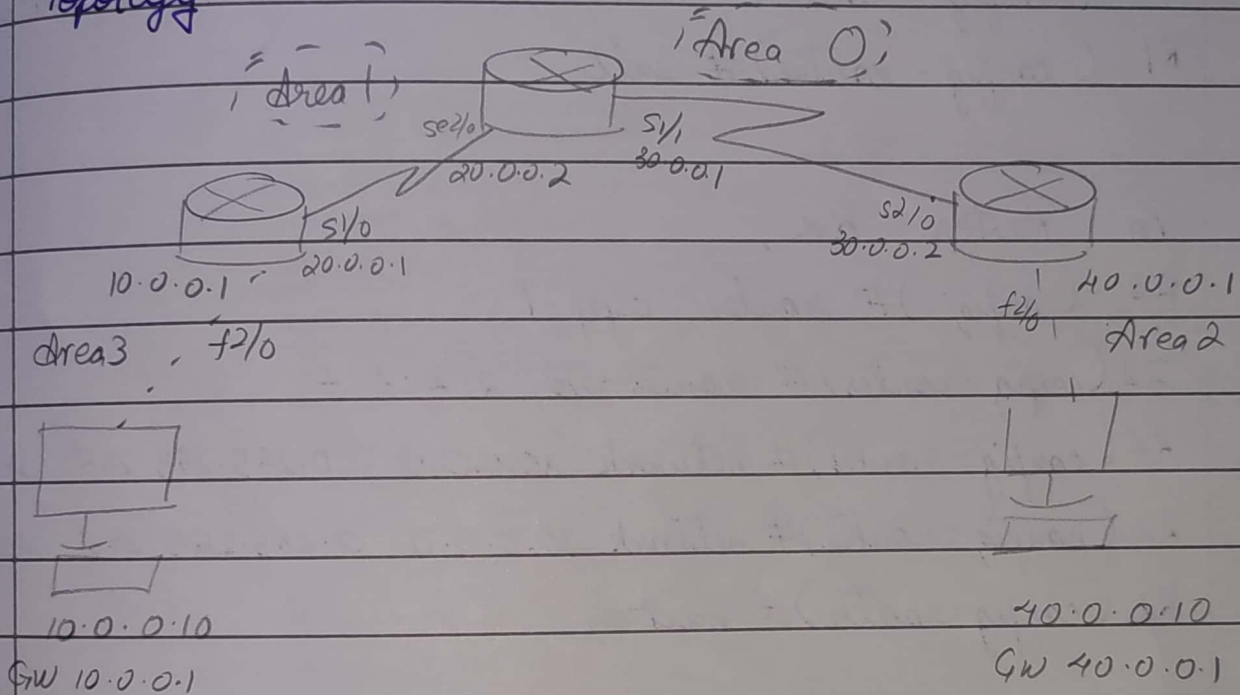


Exp 7

Aim: Configure OSPF routing protocol

Topology:



Procedure

1. Configure the PC's with IP address and gateway according to the topology
2. Configure each of the routers according to IP addresses in the topology
3. Encapsulation PPP and clock rate need to be set as done in RIP protocol exp.
4. Set the router OSPF using the following commands:-

In Router 1 R1,

```
R1(config)# router ospf 1
```

```
R1(config-router)# router-id 1.1.1.1
```

```
R1(config-router)# network 10.0.0.0 0.255.255.255 area
```

```
R1(config-router)# network 20.0.0.0 0.255.255.255 area
```

```
R1(config-router)# exit
```

In Router R2,

```
R2(config)# router ospf 1
```

```
R2(config-router)# router-id 2.2.2.2
```

```
R2(config-router)# network 20.0.0.0 0.255.255.255 area
```

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

```
R2(config-router)# exit
```

In Router R3,

```
R3(config)# router ospf 1
```

```
R3(config-router)# router-id 3.3.3.3
```

```
R3(config-router)# network 30.0.0.0 0.255.255.255 area
```

```
R3(config-router)# network 40.0.0.0 0.255.255.255 area
```

```
R3(config-router)# exit
```


• set the interface loopback

R1(config-if)# interface loopback 0

R1(config-if)# ip address 172.16.1.252 255.255.255.0

R1(config-if)# no shutdown

R2(config-if)# interface loopback 0

R2(config-if)# ip address 172.16.1.253 255.255.255.0

R2(config-if)# no shutdown

R3(config-if)# interface loopback 0

R3(config-if)# ip address 172.16.1.254 255.255.255.0

R3(config-if)# no shutdown

• In Router R1,

R1(config)# router ospf 1

R1(config-router)# area 0 virtual link 2.2.2.2

In Router R2,

R2(config)# router ospf 1

R2(config-router)# area 0 virtual link 1.1.1.1

R2(config-router)# exit

• After this show ip route, it should show all 4

Result :

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=10ms TTL=125

Reply from 40.0.0.10 bytes=32 time=2ms TTL=125

Reply from 40.0.0.10 bytes=32 time=9ms 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 = 2ms, Maximum = 10ms, Average = 7ms

Router 1 :

show ip route

O IA 10.0.0.0/8 (110/65) 20.0.0.1 00:00:01, serial 2/0

20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks

C 20.0.0.0/8 is directly connected, serial 12/0

C 20.0.0.1/32 is directly connected, serial 12/0

30.0.0.0/8 is variably ^{subnetted} ~~connected~~, 2 subnets, 2 masks

C 30.0.0.0/8 is directly connected, serial 3/0

C 30.0.0.2/32 is directly connected, serial 3/0

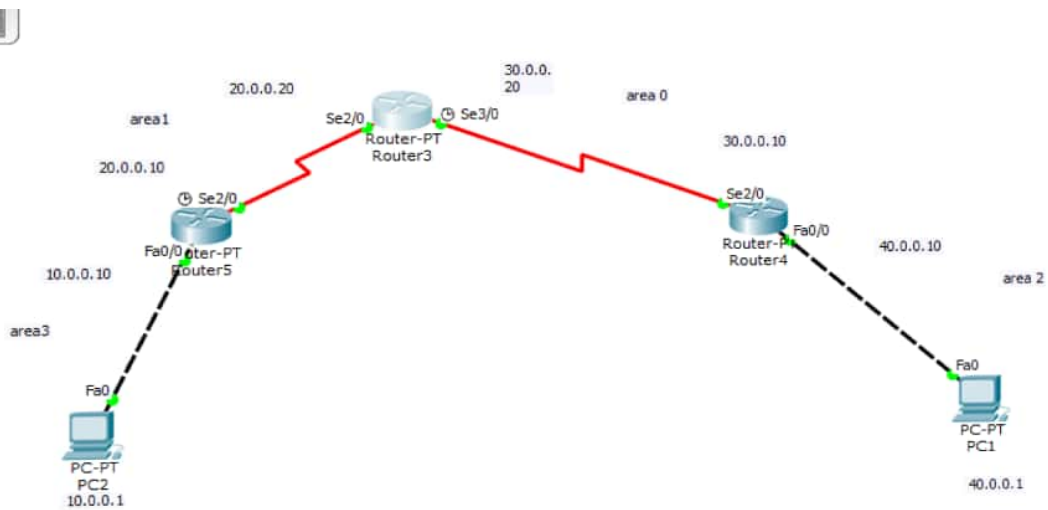
O IA 40.0.0.0/8 (110/65) via 30.0.0.2,

C 172.16.0.0/16 is directly connected, loopback 0

Observation :

- ~~RIP~~ is ~~Routing~~ I
- OSPF is Open Shortest Path First. It is a protocol which finds the best routing path between source and destination router. ~~It~~ It uses its own shortest path algorithm.
- Networks are divided into areas. Backbone (area 0) form core of the OSPF network. Other Network are connected to the backbone.

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3/2/22



Packet Tracer PC Command Line 1.0

PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from 40.0.0.1: bytes=32 time=2ms TTL=253

Reply from 40.0.0.1: bytes=32 time=2ms TTL=253

Reply from 40.0.0.1: bytes=32 time=2ms TTL=253

Reply from 40.0.0.1: bytes=32 time=20ms TTL=253

Ping statistics for 40.0.0.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 2ms, Maximum = 20ms, Average = 6ms

PC>