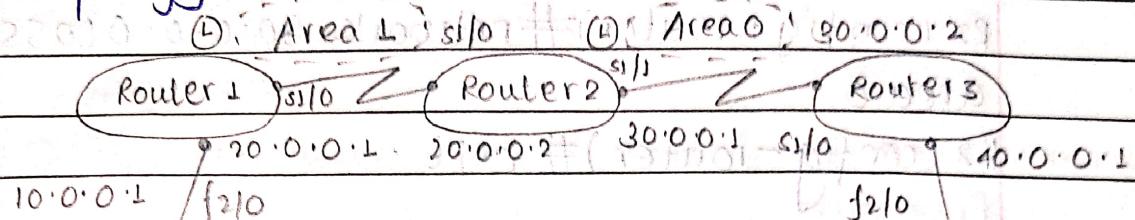


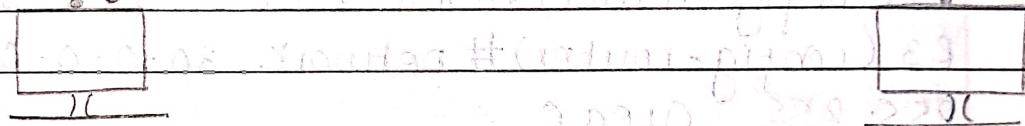
Configure OSPF routing protocol.

Aim: To configure OSPF routing protocol.

Topology:



Areas



Def gateway - 10.0.0.1 Def gateway: 40.0.0.10

Procedure

1. Create a network using 3 routers and 2 pc's as shown
2. Configure the PC's with the ip address and gateway as per the topology above.
3. Configure each of the routers with the ip address as shown in the topology.
4. Encapsulation ppp and clockrate needs to be set as done in rip protocol experiment.
5. In Router R1, (Enable) routing by enabling OSPF protocol

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 1

R1 (config-router)# network 20.0.0.0 0.255.255.255 area 1

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 1.

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

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 0

R3 (config-router)# network 40.0.0.0 0.255.255.255 area 2

R3 (config-router)# exit .

6. Loopback [In Router 1's serial connection].

R1 (config-if)# interface loopback 0

R1 (config-if)# ip address 172.16.1.252 255.255.0.0

R1 (config-if)# no shutdown

In Router 2's any of the serial connection)

R2 (config-if)# interface loopback 0

R2 (config-if)# ip address 172.16.1.253 255.255.0.0

R2 (config-if)# no shutdown

In Router 3's serial connection.

R3 (config-if)# interface loopback 0

R3 (config-if)# ip address 172.16.1.254 255.255.0.0

R3 (config-if)# no shutdown

7. Creating virtual link between R1, R2, R3.

In Router R1.

R1 (config)# router ospf 1

R1 (config-router) # area 1 virtual-link 2.2.2.2
some info appears: R2 (config#)

In Router 2.

R2 (config)# router ospf 1.

P2 (config-router) # area 1 virtual link 1.1.1.1

R2 (config-router) # exit .

R2(config #) some info.

8. For every router, we do show ip route command.

Output

pc> ping 190.0.0.10 -t 2000 <-- this is suff to do

Pinging 10.0.0.10 with 32 bytes of data.

Reply from 40.0.0.10 bytes=32 time=11ms TTL=125

Reply from 40.0.0.10 bytes=32 time=8ms TTL=125

Reply from 90.0.0.10 bytes=82 time=2ms TTL=125

Reply from 140.0.0.10 bytes=31 time=8ms TTL=125

Ping statistics for 40.0.0.10

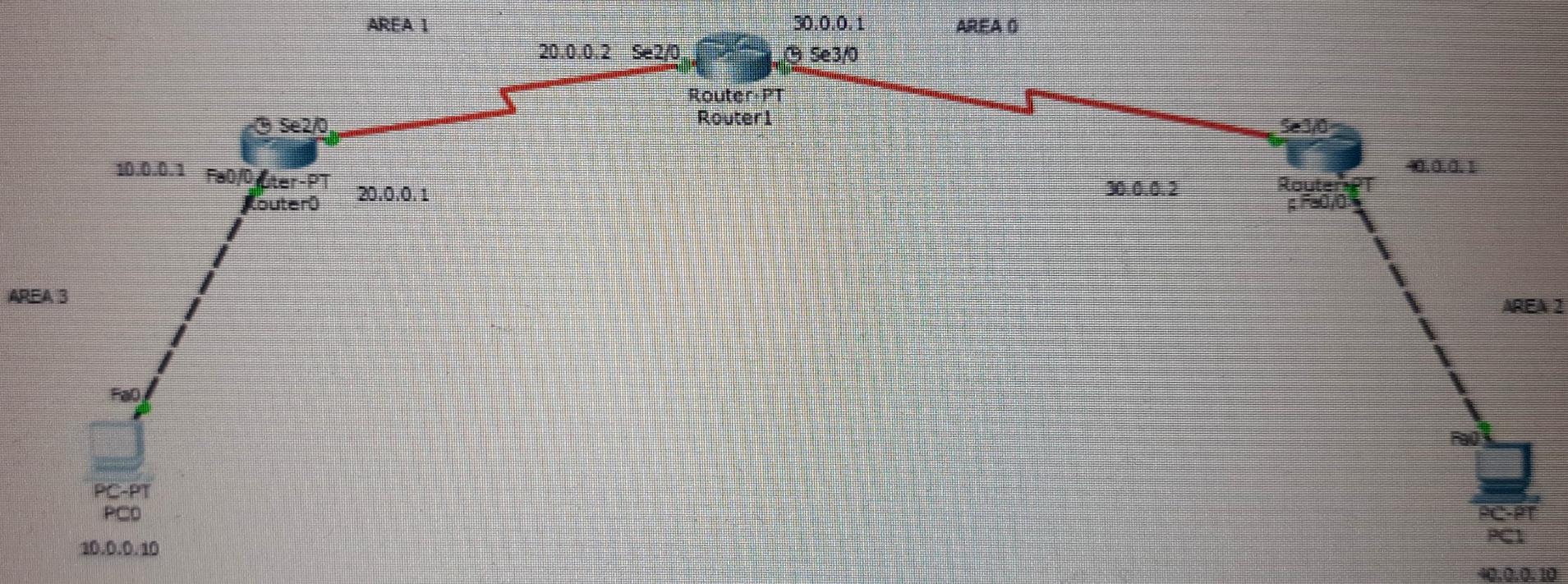
Packet s: sent = 4 Received = 4 Lost = 0 (0% loss)

Approximate round trip time in milliseconds.

Minimum = 2 ms Maximum = 11 ms Average = 7 ms

Observation - dink

- OSPF is a state routing protocol that is used to find the best path between source and destination state → router using its own protocol algorithm.
 - This network is divided into 4 areas where area 0 is the backbone area. After we make the virtual-link between the area which isn't connected to the backbone area, we can ping messages successfully.



Command Prompt

X

Packet Tracer PC Command Line 1.0

PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Reply from 10.0.0.1: Destination host unreachable.

Ping statistics for 40.0.0.10:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

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=6ms TTL=125

Reply from 40.0.0.10: bytes=32 time=12ms 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 = 12ms, Average = 7ms

PC>