Program 8

Aim: Configure OSPF routing protocol .

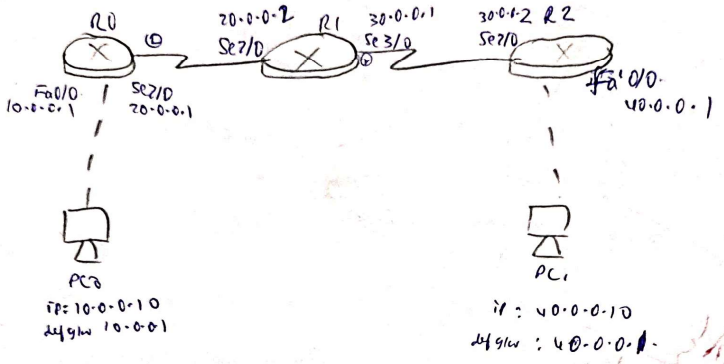
Topology , Procedure and Observation:

27-11-24

Exp 8

Open state Shortest path first. (OSPF)

Topology



Procedure

1) 3 generic routers & 2PC's & configure them as shown in above topology

2). Configure PC & router using command prompt.

interface Fa0/0
ip address 10.0.0.1 255.0.0.0 } for R0.
no shut

similarly R2.

3) For Router - Router configuration

R0 → interface Serial 2/0
ip address 20.0.0.1 255.0.0.0
encapsulation PPP
clock rate 64000 [clock on which side for that only]
no shut
exit

R1 → interface Serial 2/0
ip address 20.0.0.2 255.0.0.0
encapsulation PPP
no shut
exit

R1 ⇒ serial 3/0
ip address 30.0.0.1 255.0.0.0
encapsulation ppp
clock rate 64000
no shut
exit.

R2 ⇒ serial 2/0
ip addr 30.0.0.2 255.0.0.0
encapsulation ppp
no shut
exit.

4) DO OSPF

R0 ⇒ router OSPF 1
router-id 1.1.1.1
network 10.0.0.0 0.255.255.255 area 3
network 20.0.0.0 0.255.255.255 area 1
exit.

R1 ⇒ router OSPF 1
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.

R2 ⇒ router OSPF 2
router-id 3.3.3.3
network 30.0.0.0 0.255.255.255 area 0
network 40.0.0.0 0.255.255.255 area 2
exit.

5) Loopback

R0 ⇒ interface loopback 0
ip add 172.16.1.252 255.255.0.0
no shut.

R1 ⇒ interface loopback 0
ip add 172.16.1.253 255.255.0.0

R2 > interface loopback0

ip add 172.16.1.254 255.255.0.0

no shut.

6). Virtual link between R1 & R2.

R0> router OSPF 1

area 1 virtual-link 2.2.2.2

R1> router OSPF 1

area 1 virtual-link 1.1.1.1

exit.

Observation:

When pinged, message was successfully sent from PC 0 to PC 1.

Output:

ping 40.0.0.10

pinging 40.0.0.10 with 32 bytes of data:

Reply from 40.0.0.10: bytes = 32 time = 0ms TTL = 126

" ——— "

" ——— "

" ——— "

Ping statistics for 40.0.0.10:

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

Show ip route : [for R2]

O IA 10.0.0.0/8 [110/174] via 30.0.0.1, 00:28:26 ser0/0
(OSPF Inter Area)

O IA 20.0.0.0/8 [110/178] via 30.0.0.1, 00:03:33, ser0/0,
30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks.

C 30.0.0.0/8 is directly connected, ser0/0

C 30.0.0.1/32 is directly connected, ser0/0

C 40.0.0.0/8 is directly connected, Fa 0/0

C 172.16.0.0/16 is directly connected, Loopback 0

Screen Shots: