OSPF Topology
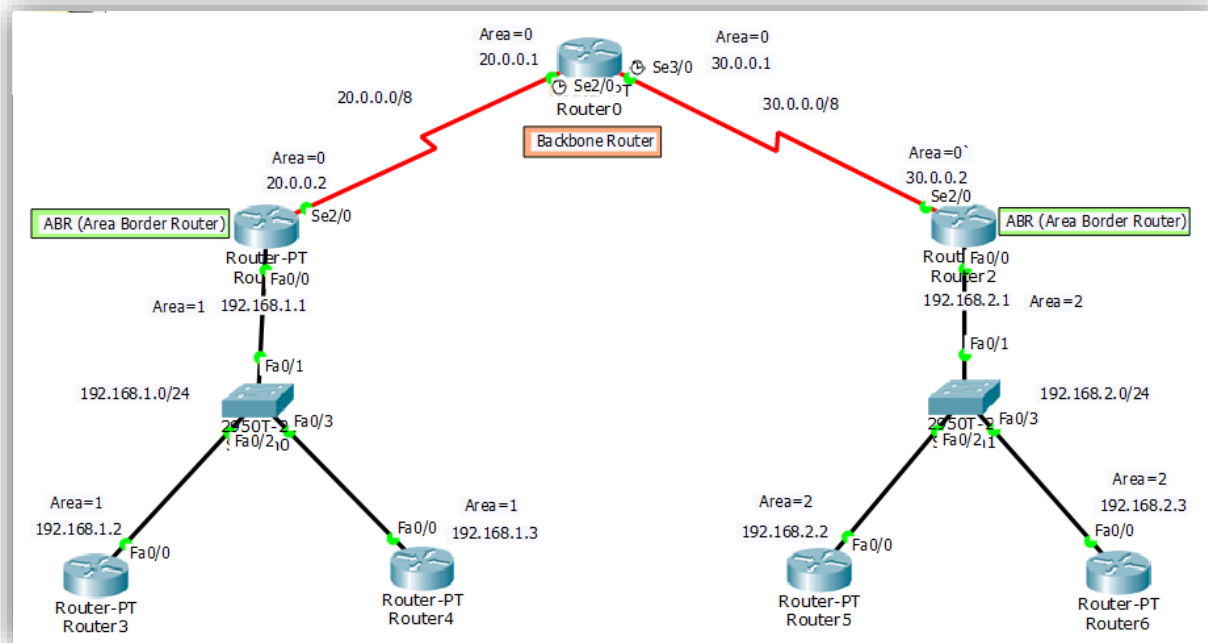

Configuring OSPF Topology

Backbone Router

Backbone(config)#do show ip route
Backbone(config)#router ospf 200
Backbone(config-router)#network 20.0.0.0 0.255.255.255 area 0
Backbone(config-router)#network 30.0.0.0 0.255.255.255 area 0

ABR (Area Border Router)

ABR_1(config)# do sh ip route
ABR_1(config)# router ospf 200
ABR_1(config-router)# network 20.0.0.0 0.255.255.255 area 0
ABR_1(config-router)# network 192.168.1.0 0.0.0.255 area 1

```
ABR_1(config-router)#end
ABR_1# show  ip  ospf

ABR_2(config)# do  sh  ip  route
ABR_2(config)# router  ospf  200
ABR_2(config-router)# network  30.0.0.0  0.255.255.255 area  0
ABR_2(config-router)# network  192.168.2.0 0.0.0.255 area  1
ABR_2(config-router)#end
ABR_2# show  ip  ospf
```

Area 1 Routers OSPF Configuration

```
R1_Area_1(config)# do  show  ip  route
R1_Area_1(config)# router ospf  200
R1_Area_1(config-router)# network 192.168.1.0 0.0.0.255 area  1

R2_Area_1(config)# do  show  ip  route
R2_Area_1(config)# router ospf  200
R2_Area_1(config-router)# network 192.168.1.0 0.0.0.255 area  1
```

Area 2 Routers OSPF Configuration

```
R1_Area_2(config)# do  show  ip  route
R1_Area_2(config)# router ospf  200
R1_Area_2(config-router)# network 192.168.2.0 0.0.0.255 area  2

R2_Area_2(config)# do  show  ip  route
R2_Area_2(config)# router ospf  200
R2_Area_2(config-router)# network 192.168.2.0 0.0.0.255 area  2
```

Selecting DR (Designated Router Manually)

There are 3 ways to select DR manually:

- Router-ID
- Priority value
- Loopback Interface

Points to be remember:

- By default Router-ID has been taken into consideration to select designated router. The router with the highest IP address will be select as a designated router. By default router IP Address will be considered as a Router-ID. We can change Router-ID as well.

- Default Priority value of each router is **1**. Priority value can be changed as well. Priority value can be between **0-255**. The Router with the highest priority will be considered as a designated router.

- Designated router can also be select by creating Loopback interface.

- In case of considering designated router has been selected on the basis of Router-ID, the router with the 2nd best Router-ID(2nd highest IP address) will be considered as a BDR (Backup Designated Router).

- Each Area in the topology will have separate designated router and backup designated router

DR (Designated Router) Selection Configuration

Selecting DR on the basis of Router-ID

Router(config)# router ospf 200
Router(config-router)# router-id 210.210.210.210
Router# end
Router# clear ip ospf process
Router# show ip ospf interface fa0/0
Router# show ip ospf database

Selecting DR on the basis of Priority Value

Router(config)# interface fa0/0
Router(config-if)# ip ospf priority 2
Router(config-if)#end
Router#reload
Router# show ip ospf interface fa0/0
Router# show ip ospf database

Selecting DR on the basis of Loopback Interface

Router(config)# interface loopback 1
Router(config-if)# ip address 1.1.1.1 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# end
Router# reload
Router# show ip ospf interface fa0/0
Router# show ip ospf database