

Full meshed

$n(n-1)/2$
n=no of routers

$4(4-1)/2$
 $4 \times 3/2$
 $12/2$
=6

$5(5-1)/2$
 $5 \times 4/2$
 $20/2$
=10

=====

```
R1
conf t
int e0/0
Desc conn to R2
ip add 10.12.1.1 255.255.255.0
no shut
exit
```

```
int e0/0
ip ospf network point-to-point
exit
```

```
Router ospf 1
router-id 1.1.1.1
net 10.12.1.1 0.0.0.0 area 0
exit
```

```
R3:
conf t
int s2/0
Desc conn to R2
ip add 10.23.1.3 255.255.255.0
no shut
exit
```

```
Router ospf 1
router-id 3.3.3.3
net 10.23.1.3 0.0.0.0 area 0
exit
```

```
R2:
conf t
int e0/0
Desc conn to R1
ip add 10.12.1.2 255.255.255.0
no sh
int s2/0
```

```
ip add 10.23.1.2 255.255.255.0
no sh
int e0/1
Desc conn to Transit NW
ip add 192.168.1.2 255.255.255.0
no sh
exit
```

```
Router ospf 1
router-id 2.2.2.2
net 10.0.0.0 0.255.255.255 area 0
net 192.168.1.2 0.0.0.0 area 0
exit
```

```
R4:
conf t
int e0/0
Desc conn to Transit NW
ip add 192.168.1.4 255.255.255.0
no sh
int e0/1
Desc conn to LAN
ip add 10.40.1.4 255.255.255.0
no sh
exit
```

```
Router ospf 1
router-id 4.4.4.4
net 10.0.0.0 0.255.255.255 area 0
net 192.168.1.4 0.0.0.0 area 0
exit
```

```
R5:
conf t
int e0/0
Desc conn to Transit NW
ip add 192.168.1.5 255.255.255.0
no sh
exit
```

```
Router ospf 1
router-id 5.5.5.5
net 192.168.1.5 0.0.0.0 area 0
exit
```

```
R6:
conf t
int e0/0
Desc conn to Transit NW
ip add 192.168.1.6 255.255.255.0
no sh
int e0/1
Desc conn to R7
```

```
ip add 10.67.1.6 255.255.255.0
no sh
exit
```

```
Router ospf 1
router-id 6.6.6.6
net 192.168.1.6 0.0.0.0 area 0
net 10.67.1.6 0.0.0.0 area 0
exit
```

```
R7:
conf t
int e0/0
Desc conn to R6
ip add 10.67.1.7 255.255.255.0
no sh
exit
```

```
router ospf 1
router-id 7.7.7.7
net 10.67.1.7 0.0.0.0 area 0
exit
```

- =====
1. First configured ospf interface will be elected as DR if no other ospf interface is configured for next 40 sec (Wait)
Second configured ospf router will be elected as BDR
 2. If more than 1 ospf router is configured within 40 sec (Wait)
The router with highest ospf interface priority will be elected as DR
Default ospf Interface priority is 1, Range 0-255 (Higher wins)
The router with Interface pri 0 will not participate in DR/BDR elections
IF DR's/BDR interface pri is changed to 0 they will immediately give up their roles
 3. When DR goes down BDR will promote itself as DR and one of the Drothers will be elected as BDR
When DR comes back it sees already DR/BDR in the NW it will become Drothers
 4. If more than 1 router is configured within wait time (40 sec) with default ospf interface priority of 1.
The router with highest RID will be elected as DR, Second highest will be BDR.

```
DR/BDR joins
sh ip int e0/1
Multicast reserved groups joined: 224.0.0.5 224.0.0.6
DR/BDR sends updates/Ack on 224.0.0.5 ( all ospf routers Mcast Add)
```

```
Drothers join
Multicast reserved groups joined: 224.0.0.5
Drothers sends updates/Ack on 224.0.0.6
```

Creates a Flood list

s2/0 224.0.0.5

e0/1 224.0.0.6

Retransmission list

s2/0 224.0.0.5 3.3.3.3

Retransmission list

224.0.0.6 6.6.6.6 -DR

5.5.5.5 -BDR

Floods on s2/0 & e0/1

Remove the flood list

Waits for ACK -5 sec

once Rec the Ack removes the RID from retransmission list