

DR (Designated Router) & BDR (Backup Designated Router):

- o Open Shortest Path First (OSPF) uses DR and BDR on each multi-access network.
- o DR & BDR election occurs in multi-access Broadcast & Non-Broadcast network types.
- o DR is the Router in charge to maintain the Open Shortest Path First topology table.
- o DR is the Router in charge to distribute updates to other routers within same segment.
- o When a router is not the Designated Router (DR) or BDR it is called a **DROTHER**.
- o All other routers will form adjacencies only with the elected DR and BDR routers.
- o DR reduce the network traffic between neighbors by providing single source of updates.
- o It is possible to change the priority if you like by using the **ip ospf priority**, command.
- o Default Open Shortest Path First (OSPF) priority is set to one (1) which can be changed.
- o A priority of 0 means the router can never be elected as Designated Router DR or BDR.
- o In Open Shortest Path First (OSPF) use **clear ip ospf process** before change takes effect.

DR and BDR Election:

The default Designated Router (DR) election criteria are as follows:

- o The Router configured with the highest priority wins the election.
- o The default priority is 1 and the possible values range between 0 – 255.
- o If the priority is set to 0, the router will not participate in the DR/BDR election.
- o If the routers configured priority, tie then it use highest Router ID (RID) as tiebreaker.
- o Router with the second highest priority value becomes the Backup Designated Router.
- o If a router with the higher priority comes online after the election has taken place;
- o It will not become Designated Router (DR) or BDR until DR and BDR router fail.
- o If the DR fails, BDR will take over, another election will take place to elect a new BDR.
- o In Designated Router and Backup Designated Router, Preemption is not supported.
- o First router to come up will be DR and the second will be Backup Designated Router.
- o Each other router will exchange routing information only with the DR and the BDR.
- o DR will then distribute topology information to every other router inside the same area.
- o To send routing information to a DR or BDR, the multicast address of **224.0.0.6** is used.
- o A Designated Router DR sends routing updates to the multicast address of **224.0.0.5**.
- o If the DR fails, the BDR will take its role of redistributing routing information to other.

