BASIC OSPF - Priority

OSPF priority helps determine the DR and BDR on the network to which this interface is connected. Priority is an 8-bit field based on which DRs and BDRs are elected. The router with the highest priority becomes the DR. If the priorities are the same, the router with the highest router ID becomes the DR. By default, priorities are set to 1.

Configuration

With OSPF, the default priority on an interface is '1'. If you change it to '0', it cannot become a DR or BDR. The highest number you can assign to it is 255. If there is a priority tie, the router IDs are used to break the tie.

DR and BDR election is done via the Hello protocol. Hello packets are exchanged via IP multicast packets on each segment. The router with the highest OSPF priority on a segment will become the DR for that segment. The same process is repeated for the BDR. In case of a tie, the router with the highest router ID will win. The default for the interface OSPF priority is one. Remember that the DR and BDR concepts are per multiaccess segment.

A priority value of zero indicates an interface which is not to be elected as DR or BDR. The state of the interface with priority zero will be DROTHER.

When two routers attached to a network both attempt to become the designated router, the one with the higher router priority takes precedence. If there is a tie, the router with the higher router ID takes precedence. A router with a router priority set to zero is ineligible to become the designated router or backup designated router. Router priority is configured only for interfaces to multiaccess networks (in other words, not to point-to-point networks).

This priority value is used when you configure OSPF for nonbroadcast networks using the neighbor router configuration command for OSPF.

Priority

```
NetStepByStep-R2(config-if)# ip ospf priority ?
  <0-255>  Priority
```

- Use to set priority to help determine the OSPF designated router for a network.
- A router with a priority of 0 never participates in the DR/BDR election process and does not become a DR/BDR.
- To return to the default value, use the **no** form of this command.
- Use this command in interface configuration mode.
- **?** stands for a number value that specifies the priority of the router. The range is from 0 to 255.

Verification

```
show ip ospf interface e0/3
```

- Use to view the OSPF information associated with an interface.
- **e** stands for Interface type. If the *interface-type* argument is included, only information for the specified interface type is included.
- **0** stand for interface number. Interface number. If the *interface-number* argument is included, only information for the specified interface number is included.

```
NetStepByStep-R2# sh ip ospf inter e0/3
Ethernet0/3 is up, line protocol is up
  Internet Address 12.12.12.2/24, Area 2
  Process ID 2, Router ID 2.2.2.2, Network Type BROADCAST, Cost: 10
  Transmit Delay is 1 sec, State DR, Priority 255
  Designated Router (ID) 2.2.2.2, Interface address 12.12.12.2
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
    Hello due in 00:00:02
  Supports Link-local Signaling (LLS)
  Index 1/3, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 6, maximum is 6
  Last flood scan time is 0 msec, maximum is 4 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1
  Suppress hello for 0 neighbor(s)
```

Troubleshoot

```
Debug ip ospf adj
```

- Use to capture the authentication process.
- Use this command before the neighbor relationship is established.
- The output from debug privileged EXEC commands provides diagnostic information concerning a variety of internetworking events relating to protocol status and network activity in general.
- Enabling debugging can disrupt operation of the router when internetworks are experiencing high load conditions. Hence, if logging is enabled, the access server may intermittently freeze up as soon as the console port gets overloaded with log messages.
- Before you start a debug command, always consider the output that this command will generate and the amount of time this may take.

Video Cheat Sheet

R1

```
interface e0/3
ip ospf priority 0
```

R2

```
interface e0/3
ip ospf priority 255
```