11.5.2: Default Routing and Fine-tuning OSPF

Device	Interface	IP Address	Subnet Mask
ISP	**S0/1/0**	172.30.1.2	255.255.255.252
R1	**Fa0/0**	172.16.1.17	255.255.255.240
	S0/0/0	192.168.10.1	255.255.255.252
	S0/0/1	192.168.10.5	255.255.255.252
	S0/1/0	172.30.1.1	255.255.255.252
R2	**Fa0/0**	10.10.10.1	255.255.255.0
	S0/0/0	192.168.10.2	255.255.255.252
	S0/0/1	192.168.10.9	255.255.255.252
R3	**Fa0/0**	172.16.1.33	255.255.255.248
	S0/0/0	192.168.10.6	255.255.255.252
	S0/0/1	192.168.10.10	255.255.255.252

Objectives:

1. Access the routers using **cisco** as the user EXEC password and **class** as the privileged EXEC password.
2. Configure and redistribute a default route.
3. Verify default route is redistributed.
4. Verify current OSPF intervals.
5. Modify OSPF intervals.
6. Verify adjacency is re-established.

Task 1: Configure and redistribute a default route

Step 1 – Configure a default route on R1.

Configure a default route on R1 using the interface attached to ISP as the exit interface.

Step 2 – Configure R1 to originate the default route in OSPF updates.

OSPF uses the same **default-information originate** command used by RIPv1 and RIPv2. In routing configuration mode, configure R1 with this command.

Task 2: Verify default route is redistributed

Step 1 - Verify route is redistributed to R2 and R3.

On R2 and R3, verify each router has now received the default route. For R2, the routing table should have the following entry:

```
O*E2 0.0.0.0/0 [110/1] via 192.168.10.10, 00:02:36, Serial0/0/1
```

Step 2 - Verify R2 and R3 can ping the ISP router.

You should also be able to successfully ping the ISP router from R2 and R3.

Task 3: Verify current OSPF intervals

On each router, use the **show ip ospf interface** command to verify the current timer intervals. What are the current Hello and Dead intervals?

Task 4: Modify OSPF intervals

Step 1 - Modify R1 intervals.

- On R1, change the Hello interval to 5 seconds and the Dead interval to 20 seconds. Use the interface configuration commands **ip ospf hello-interval** and **ip ospf dead-interval**.
- Wait for the neighbor relationships with R2 and R3 to transition from the FULL state to the DOWN state.
- Verify R1 no longer has any neighbors using the **show ip ospf neighbor** command.

Step 2 - Modify R2 and R3 intervals.

Repeat Step 1 for R2 and R3.

Task 5: Verify adjacency is re-established

Neighbor adjacencies may take a few minutes to re-establish. Verify each router has two neighbors with the **show ip ospf neighbor** command.

At the end of this activity your completion rate should be 100%. If the completion rate is not 100%, use the **Check Results** button and troubleshoot as necessary.