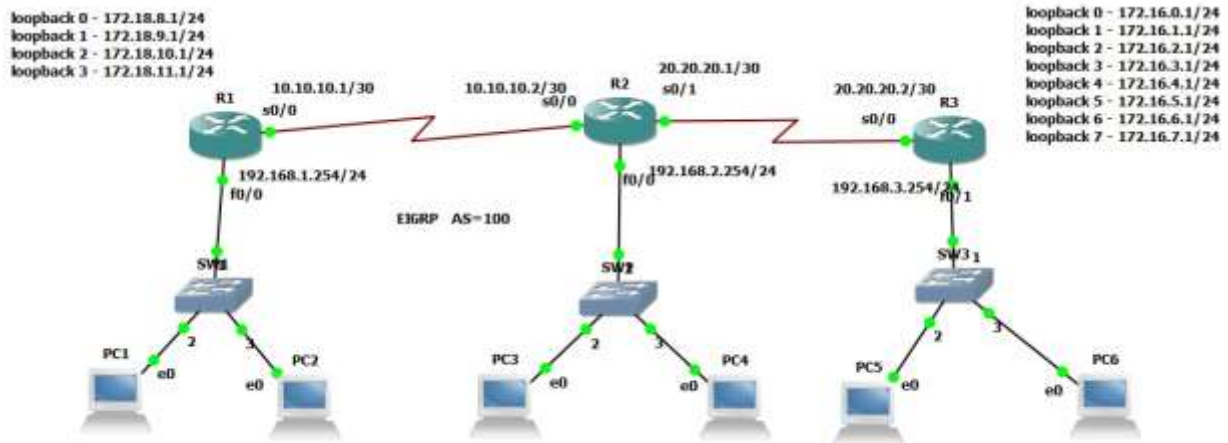




## Lab 7 – EIGRP-Stub



### Task 1

Configure EIGRP and route summarization on Router R3 and Router R1 so that only one summary route is advertised to Router

```
R3(config)#interface s0/0
```

```
R3(config-if)#ip summary-address eigrp 100 172.16.0.0 255.255.248.0
```

```
R1(config)#interface s0/0
```

```
R1(config-if)#ip summary-address eigrp 100 172.18.8.0 255.255.252.0
```

```
R2#show ip route eigrp
```

```
172.16.0.0/21 is subnetted, 1 subnets
```

```
D 172.16.0.0 [90/2297856] via 20.20.20.2, 00:05:22, Serial0/1
```

```
172.18.0.0/22 is subnetted, 1 subnets
```

```
D 172.18.8.0 [90/2297856] via 10.10.10.1, 00:01:06, Serial0/0
```

```
D 192.168.1.0/24 [90/2195456] via 10.10.10.1, 00:39:26, Serial0/0
```

```
D 192.168.3.0/24 [90/2195456] via 20.20.20.2, 00:39:25, Serial0/1
```

## Task 2

Configure Eigrp Stub on R3, preventing R3 to send any routes to R2, but R2 receives routes from R1.

```
R3(config)#router eigrp 100
```

```
R3(config-router)#eigrp stub receive-only
```

```
R2#show ip route eigrp
```

```
172.18.0.0/22 is subnetted, 1 subnets
```

```
D 172.18.8.0 [90/2297856] via 10.10.10.1, 00:03:57, Serial0/0
```

```
D 192.168.1.0/24 [90/2195456] via 10.10.10.1, 00:06:27, Serial0/0
```

## Task 3

Configure Eigrp Stub on R3, allowing R3 to send only connected routes to R2, but R2 receives any routes from R1.

```
R3(config)#router eigrp 100
```

```
R3(config-router)#eigrp stub connected
```

```
R2#show ip route eigrp
```

```
172.16.0.0/24 is subnetted, 8 subnets
```

```
D 172.16.4.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
```

```
D 172.16.5.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
```

```
D 172.16.6.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
```

```
D 172.16.7.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
```

```
D 172.16.0.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
```

```
D 172.16.1.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
```

```
D 172.16.2.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
D 172.16.3.0 [90/2297856] via 20.20.20.2, 00:00:43, Serial0/1
  172.18.0.0/22 is subnetted, 1 subnets
D 172.18.8.0 [90/2297856] via 10.10.10.1, 00:06:38, Serial0/0
D 192.168.1.0/24 [90/2195456] via 10.10.10.1, 00:09:07, Serial0/0
D 192.168.3.0/24 [90/2195456] via 20.20.20.2, 00:00:43, Serial0/1
```

#### Task 4

Configure Eigrp Stub on R3, allowing only summary routes from R3 to R2, but R2 receives any routes from R1.

```
R3(config)#router eigrp 100
```

```
R3(config-router)#eigrp stub summary
```

```
R2#show ip route eigrp
```

```
  172.16.0.0/21 is subnetted, 1 subnets
D 172.16.0.0 [90/2297856] via 20.20.20.2, 00:00:04, Serial0/1
  172.18.0.0/22 is subnetted, 1 subnets
D 172.18.8.0 [90/2297856] via 10.10.10.1, 00:17:04, Serial0/0
D 192.168.1.0/24 [90/2195456] via 10.10.10.1, 00:19:34, Serial0/0
```

### Task 5

Configure Eigrp Stub on R3, allowing connected and summary routes from R3 to R2, but R2 receives any routes from R1.

```
R3(config)#router eigrp 100
```

```
R3(config-router)#eigrp stub
```

```
R2#show ip route eigrp
```

```
172.16.0.0/21 is subnetted, 1 subnets
```

```
D 172.16.0.0 [90/2297856] via 20.20.20.2, 00:00:38, Serial0/1
```

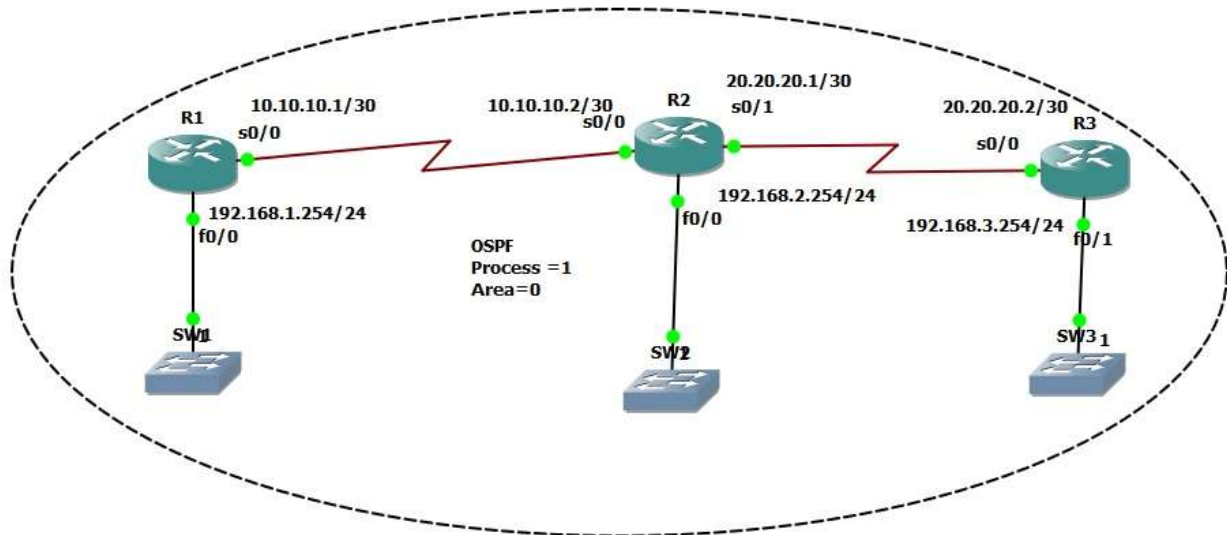
```
172.18.0.0/22 is subnetted, 1 subnets
```

```
D 172.18.8.0 [90/2297856] via 10.10.10.1, 00:16:05, Serial0/0
```

```
D 192.168.1.0/24 [90/2195456] via 10.10.10.1, 00:18:35, Serial0/0
```

```
D 192.168.3.0/24 [90/2195456] via 20.20.20.2, 00:00:38, Serial0/1
```

# Lab 8 – OSPF in a Single Area



## Task 1

Configure OSPF in Area 0. Advertise all networks on all routers.

```
R1(config)#router ospf 1
```

```
R1(config-router)#network 192.168.1.0 0.0.0.255 area 0
```

```
R1(config-router)#network 10.10.10.0 0.0.0.3 area 0
```

```
R2(config)#router ospf 1
```

```
R2(config-router)#network 10.10.10.0 0.0.0.3 area 0
```

```
R2(config-router)#network 20.20.20.0 0.0.0.3 area 0
```

```
R2(config-router)#network 192.168.2.0 0.0.0.255 area 0
```

```
R3(config)#router ospf 1
```

```
R3(config-router)#network 20.20.20.0 0.0.0.3 area 0
```

```
R3(config-router)#network 20.20.20.0 0.0.0.3 area 0
```

```
R3(config-router)#network 192.168.3.0 0.0.0.255 area 0
```

R1#show ip route ospf

20.0.0.0/30 is subnetted, 1 subnets

- O 20.20.20.0 [110/259] via 10.10.10.2, 00:01:54, Serial0/0
- O 192.168.2.0/24 [110/205] via 10.10.10.2, 00:01:36, Serial0/0
- O 192.168.3.0/24 [110/269] via 10.10.10.2, 00:00:50, Serial0/0

R1#

R1#show ip ospf neighbor

| Neighbor ID   | Pri | State   | Dead Time | Address    | Interface |
|---------------|-----|---------|-----------|------------|-----------|
| 192.168.2.254 | 0   | FULL/ - | 00:00:39  | 10.10.10.2 | Serial0/0 |

R1#show ip ospf database

OSPF Router with ID (192.168.1.254) (Process ID 1)

Router Link States (Area 0)

| Link ID       | ADV Router    | Age | Seq#       | Checksum | Link count |
|---------------|---------------|-----|------------|----------|------------|
| 192.168.1.254 | 192.168.1.254 | 150 | 0X80000003 | 0X000897 | 3          |
| 192.168.2.254 | 192.168.2.254 | 87  | 0X80000004 | 0X0048D9 | 5          |
| 192.168.3.254 | 192.168.3.254 | 74  | 0X80000002 | 0X00BAA9 | 3          |

R2#show ip route ospf

O 192.168.1.0/24 [110/74] via 10.10.10.1, 00:04:25, Serial0/0

O 192.168.3.0/24 [110/74] via 20.20.20.2, 00:03:11, Serial0/1

R1#debug ip ospf packet

OSPF packet debugging is on

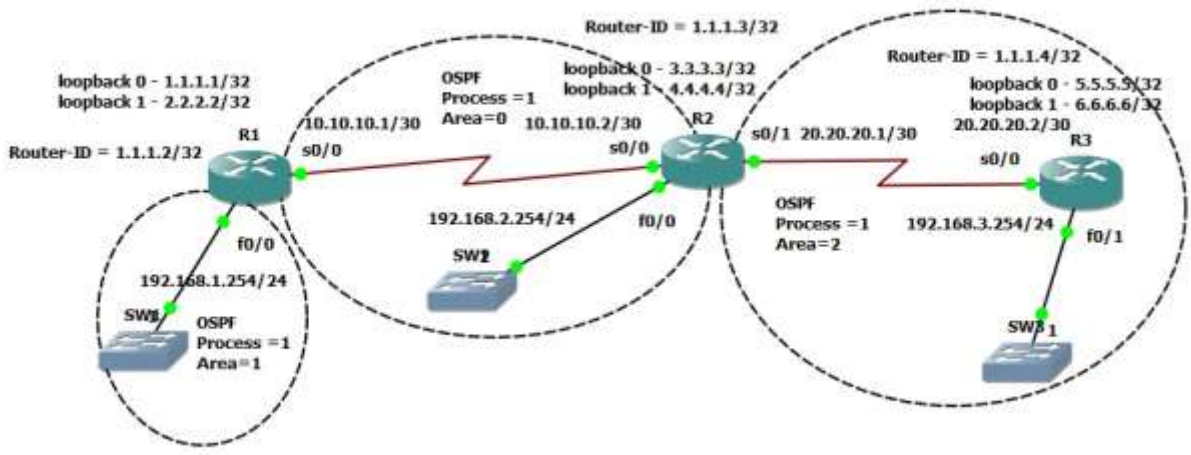
R1#debug ip ospf adj

R2(config)#interface s0/0

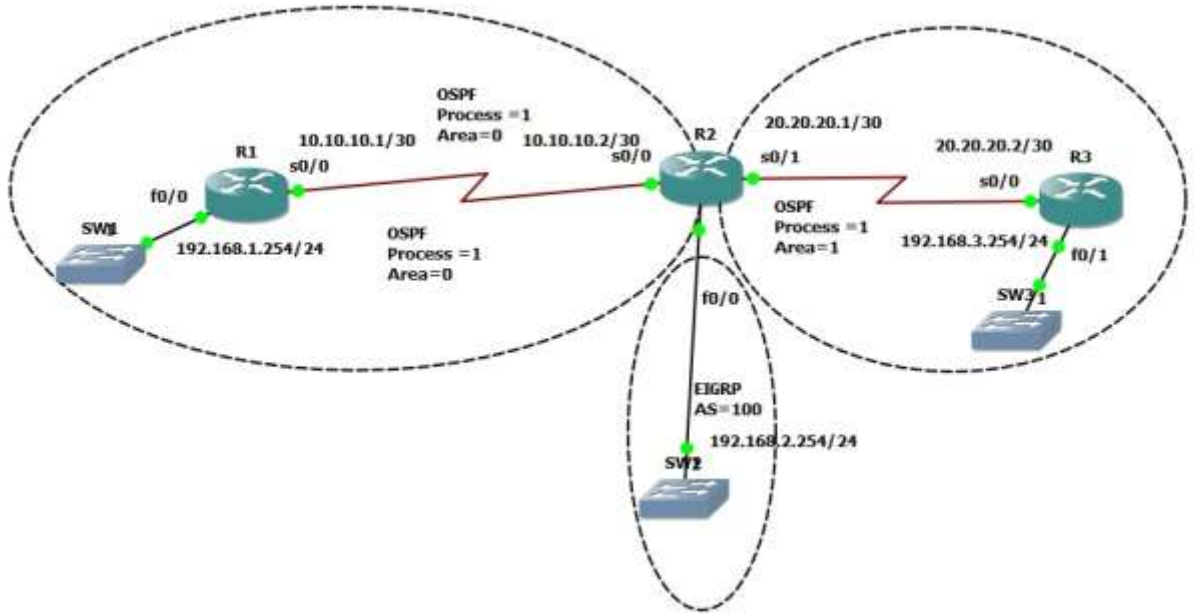
R2(config-if)#shutdown

R2(config-if)#no shutdown

# Lab 9 – OSPF in Multiple Areas



# Lab 10 – OSPF-ABR & ASBR





# Lab 11 – OSPF-Stub Area

( Network Diagram Based On Lab 10 )

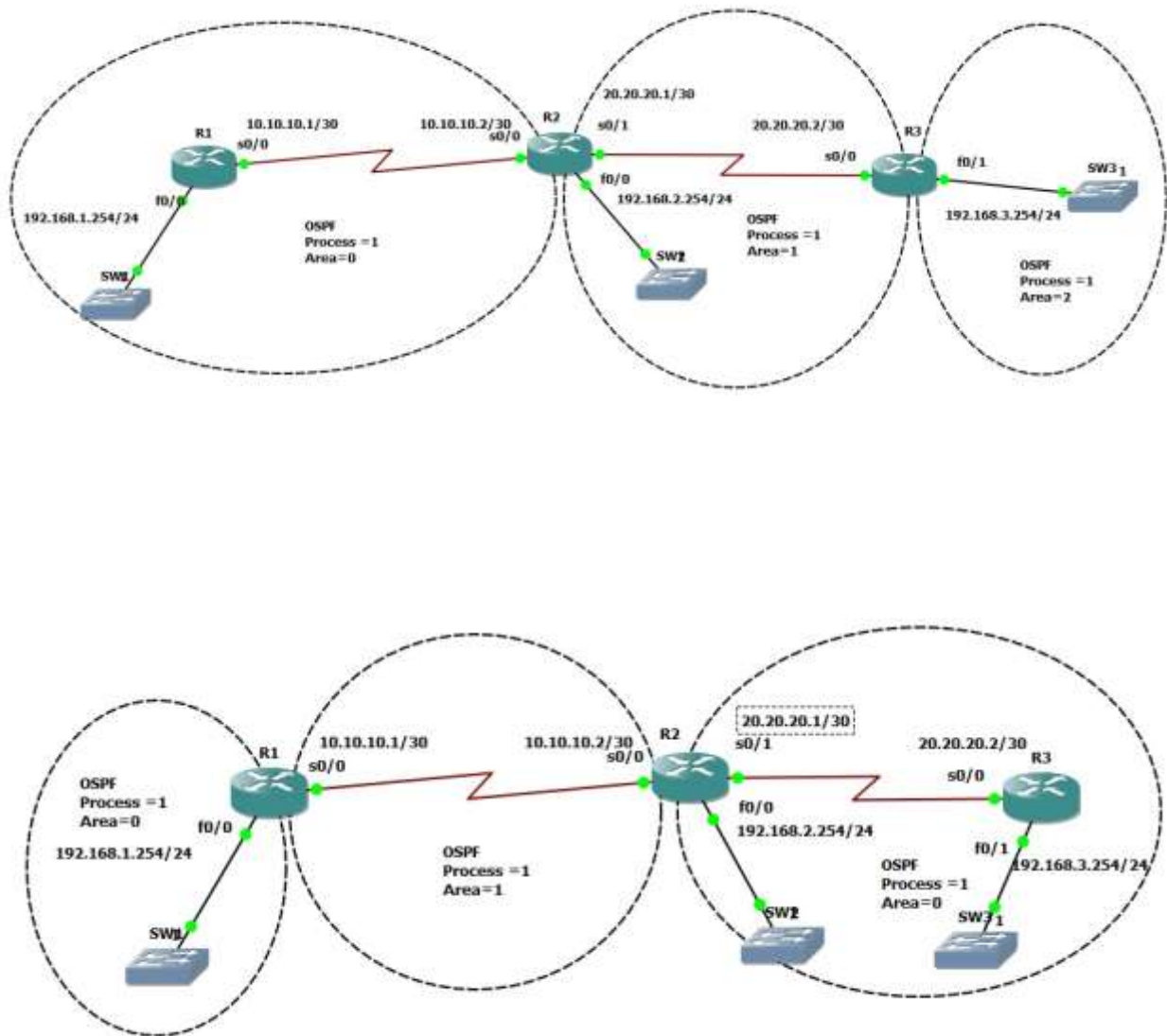
# Lab 12 – OSPF-Totally Stub Area

( Network Diagram Based On Lab 10 )

# Lab 13 – OSPF-NSSA Area

( Network Diagram Based On Lab 10 )

# Lab 14 – OSPF-Virtual-link



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จัดทำโดย อาจารย์เกรียงศักดิ์ นามโคตร (Mr.Jodoi)

<http://www.jodoi.org> , <http://www.jodoi.com>

[jodoi@jodoi.com](mailto:jodoi@jodoi.com)