

# RIP & OSPF

Let's configure the topology for both **RIP** and **OSPF** based on the provided image. We will divide this into separate steps for each protocol.

## RIP Configuration

### 1. Devices:

- **Routers**: 3 routers (2911 models: Router3, Router4, Router5)
- **Switches**: 2 switches (2960-24TT models: Switch0, Switch1)
- **End Devices**: 4 PCs (PC2, PC3, PC4, PC5)

### 2. IP Address Assignment:

- **Router3** (Connects AS 20 and AS 50):
  - Interface towards Router4: 10.10.10.0/30
  - Interface towards Router5: 20.20.20.0/30
- **Router4** (AS 20):
  - Interface towards Router3: 10.10.10.1/30
  - LAN interface: 192.168.10.1/24
- **Router5** (AS 50):
  - Interface towards Router3: 20.20.20.1/30
  - LAN interface: 192.168.20.1/24
- **PC IP Assignment**: Same as before (PCs in 192.168.10.0/24 and 192.168.20.0/24).

### 3. Configure RIP on Routers:

- **Router3**:

```
enable
configure terminal
router rip
version 2
network 10.10.10.0
network 20.20.20.0
no auto-summary
end
```

- **Router4** (AS 20):

```
enable
configure terminal
router rip
version 2
network 10.10.10.0
network 192.168.10.0
no auto-summary
end
```

- **Router5** (AS 50):

```
enable
configure terminal
router rip
version 2
network 20.20.20.0
network 192.168.20.0
no auto-summary
end
```

#### 4. **Verifying RIP:**

Use the following command on each router to verify that RIP routes are being learned:

```
show ip route rip
```

# OSPF Configuration

## 1. IP Address Assignment:

- **Router3** (Area 0 backbone):
  - Interface towards Router4: 10.10.10.0/30
  - Interface towards Router5: 20.20.20.0/30
- **Router4** (Area 1):
  - Interface towards Router3: 10.10.10.1/30
  - LAN interface: 192.168.10.1/24
- **Router5** (Area 2):
  - Interface towards Router3: 20.20.20.1/30
  - LAN interface: 192.168.20.1/24

## 2. Configure OSPF on Routers:

- **Router3** (Area 0 backbone):

```
enable
configure terminal
router ospf 1
network 10.10.10.0 0.0.0.3 area 0
network 20.20.20.0 0.0.0.3 area 0
end
```

- **Router4** (Area 1):

```
enable
configure terminal
router ospf 1
network 10.10.10.0 0.0.0.3 area 0
network 192.168.10.0 0.0.0.255 area 1
end
```

- **Router5** (Area 2):

```
enable
configure terminal
router ospf 1
network 20.20.20.0 0.0.0.3 area 0
network 192.168.20.0 0.0.0.255 area 2
end
```

### 3. Verifying OSPF:

Use the following command on each router to verify that OSPF routes are being learned:

```
show ip route ospf
```

This setup configures the same network topology for both RIP and OSPF, with specific routing configurations suited to each protocol. You can now test connectivity across the network and ensure that the routing protocols are working correctly.

Let me know if you need further assistance!