

## Lab 6: Implementing Static and Dynamic Routing Protocols

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**Aim:** Configure and compare static and dynamic routing protocols for network routing.

### Objectives:

1. Set up static routing between multiple networks.
2. Configure a dynamic routing protocol (e.g., OSPF) on routers.
3. Compare static and dynamic routing performance.

### Steps:

#### 1. Open Cisco Packet Tracer:

- Create a new project.

#### 2. Add Devices:

- **Add Routers:** Drag multiple routers (e.g., 2911).
- **Add PCs:** Connect PCs to each router.

#### 3. Configure Static Routing:

- Access each router CLI and configure static routes:

```
Router1> enable
```

- Router1# configure terminal

```
Router1(config)# ip route 192.168.2.0 255.255.255.0  
10.0.0.2
```

- Router1(config)# exit

#### 4. Configure Dynamic Routing (OSPF):

Access router CLI and configure OSPF:

```
Router1> enable
```

```
Router1# configure terminal
```

```
Router1(config)# router ospf 1
```

```
Router1(config-router)# network 10.0.0.0 0.0.0.255  
area 0
```

```
Router1(config-router)# exit
```

#### 5. Test Routing:

- On PCs, use the ping and traceroute commands to test connectivity and routing paths.