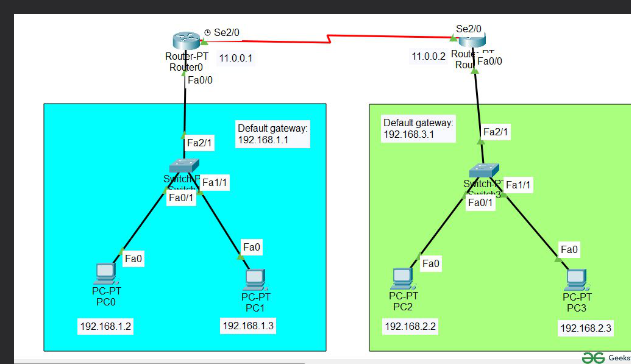
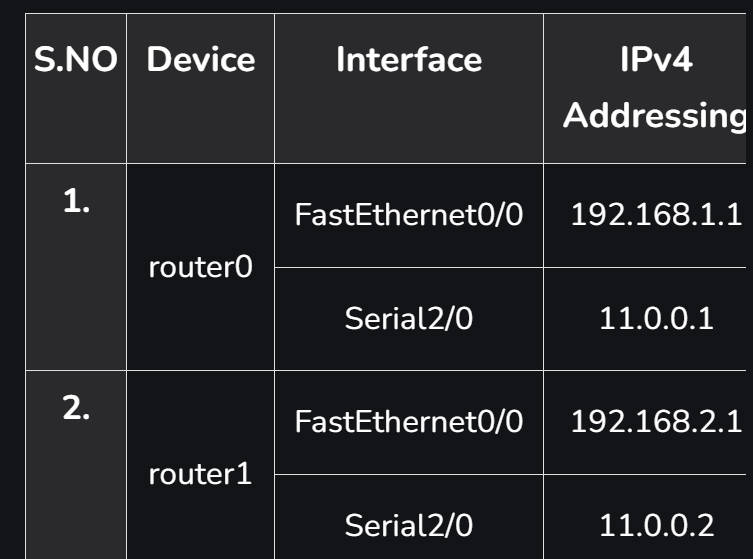
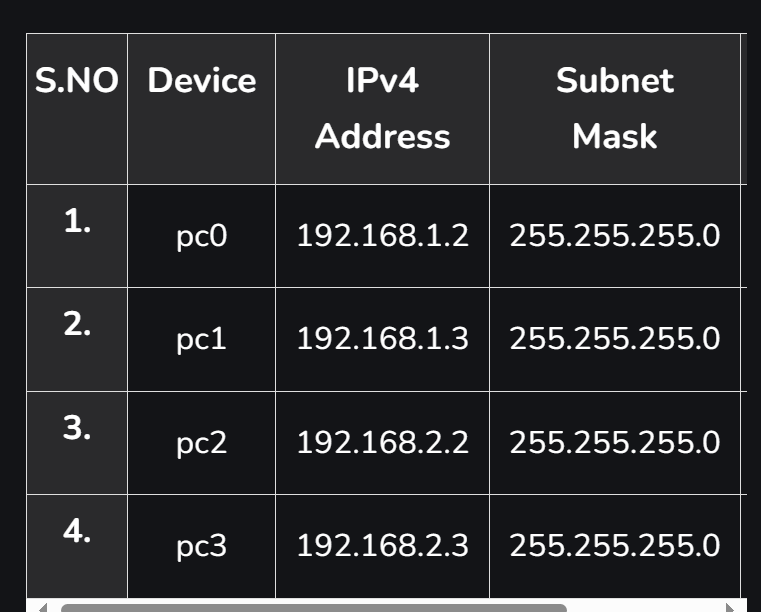
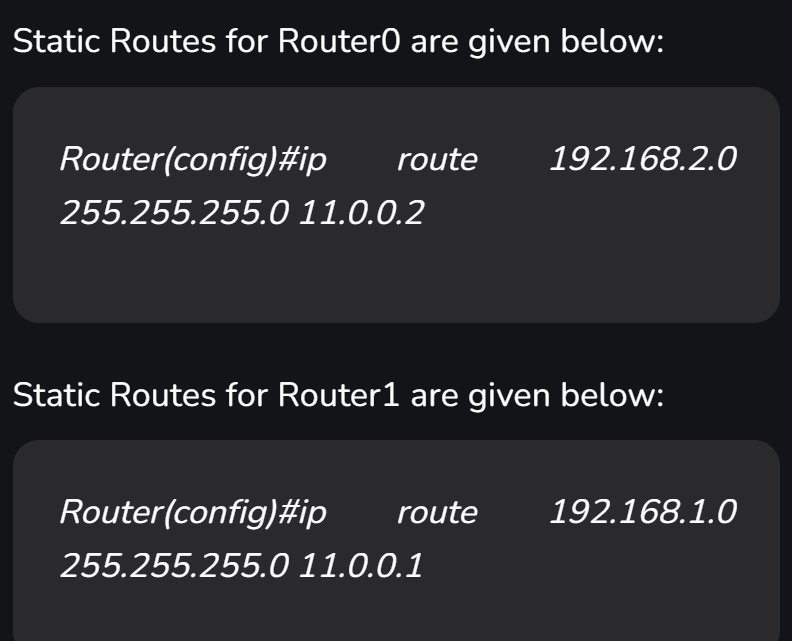
Static Routing









Hey Talha! Let's break down the differences between static and dynamic routing:

### Static Routing

- \*\*Configuration:\*\* Manually configured by a network administrator.

- \*\*Usage:\*\* Best for small, simple networks where routes don't change often.

- \*\*Advantages:\*\*

- Simple and straightforward to set up.

- No additional overhead for route discovery and maintenance.

- \*\*Disadvantages:\*\*

- Doesn't scale well for large or frequently changing networks.

- Requires manual updates for any network changes, which can be time-consuming and error-prone.

- \*\*Example:\*\*

```bash

Router(config)# ip route 192.168.2.0 255.255.255.0 192.168.1.2

```

### Dynamic Routing

- \*\*Configuration:\*\* Automatically managed by routing protocols.

- \*\*Usage:\*\* Ideal for larger, more complex networks where routes change frequently.

- \*\*Advantages:\*\*

- Automatically adapts to network changes, reducing the need for manual intervention.

- Can handle complex networks with multiple paths and redundancy.

- \*\*Disadvantages:\*\*

- Adds overhead to the network due to routing protocol communications.

- Requires more CPU and memory resources on routers.

- \*\*Example Routing Protocols:\*\*

- \*\*RIP (Routing Information Protocol)\*\*

```bash

Router(config)# router rip

Router(config-router)# network 192.168.1.0

```

- \*\*OSPF (Open Shortest Path First)\*\*

```bash

Router(config)# router ospf 1

Router(config-router)# network 192.168.1.0 0.0.0.255 area 0

```

- \*\*EIGRP (Enhanced Interior Gateway Routing Protocol)\*\*

```bash

Router(config)# router eigrp 100

Router(config-router)# network 192.168.1.0

```

### Summary

- \*\*Static Routing:\*\* Manual setup, best for small/stable networks.

- \*\*Dynamic Routing:\*\* Automatic adjustments via protocols, ideal for larger/changing networks.