EIGRP Characteristics

- EIGRP (Enhanced Interior Gateway Routing Protocol) is an Advanced Distance Vector routing protocol
- It supports large networks
- It has very fast convergence time
- It supports bounded updates where network topology change updates are only sent to routers affected by the change
- Messages are sent using multicast

EIGRP Characteristics

- EIGRP will automatically perform equal cost load balancing on up to 4 paths by default
- This can be increased up to 16 paths
- EIGRP can also be configured to perform unequal cost load balancing

EIGRP Configuration – AS number

```
R1(config)#router eigrp 100
```

- '100' in this example is the Autonomous System (AS), meaning an independent administrative domain. EIGRP routers need to have the same Autonomous System number to peer with each other.

EIGRP Configuration - network

```
R1(config)#router eigrp 100
R1(config-router)#network 10.0.0.0 0.0.255.255
```

- The network command uses a wildcard mask which is the inverse of a subnet mask.
- Subtract each octet in the subnet mask from 255 to calculate the wildcard mask
- A subnet mask of 255.255.0.0 equals a wildcard mask of 0.0.255.255
- A subnet mask of 255.255.255.252 equals a wildcard mask of 0.0.0.3

EIGRP Configuration - network

```
R1(config)#router eigrp 100
R1(config-router)#network 10.0.0.0
```

- If you do not enter a wildcard mask, the command defaults to using the classful boundary
- 0.255.255.255 for a Class A address
- 0.0.255.255 for a Class B address
- 0.0.0.255 for a Class C address

EIGRP Configuration - network

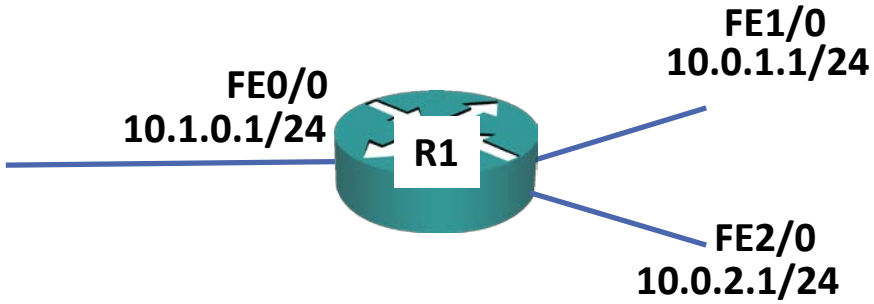
```
R1(config-router)# network 10.0.0.0 0.0.255.255
```

- The network command means:
  - Look for interfaces with an IP address which falls within this range.
  - Enable EIGRP on those interfaces – send out and listen for EIGRP hello messages, and peer with adjacent EIGRP routers.
  - Advertise the network and mask which is configured on those interfaces.

EIGRP Configuration Example - network

```
R1(config-router)# network 10.0.0.0
```

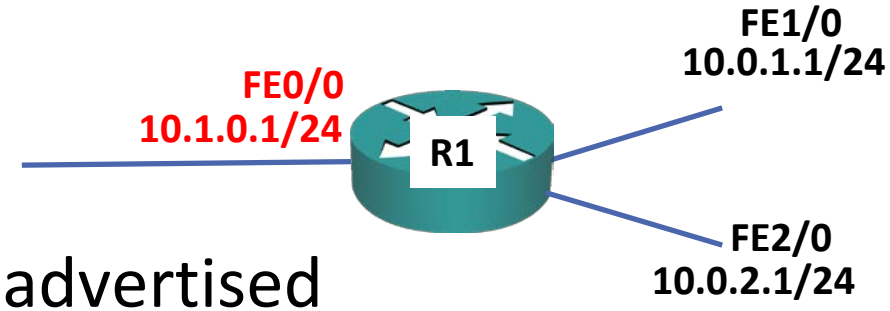
- A default Class A wildcard of 0.255.255.255 will be used
- All interfaces fall within this range in our example
- EIGRP will be enabled on all interfaces and the router will peer with adjacent EIGRP routers
- Networks advertised:
  - 10.1.0.0/24
  - 10.0.1.0/24
  - 10.0.2.0/24
  - 10.0.0.0/8 is NOT advertised



EIGRP Configuration Example - network

```
R1(config-router)# network 10.0.0.0 0.0.255.255
```

- Interface FE1/0 and FE2/0 fall within this range, FE0/0 does not
- EIGRP will be enabled on FE1/0 and FE2/0 and the router will peer with adjacent EIGRP routers
- Networks advertised:
  - 10.0.1.0/24
  - 10.0.2.0/24
  - 10.1.0.0/24 is NOT advertised
  - 10.0.0.0/16 is NOT advertised

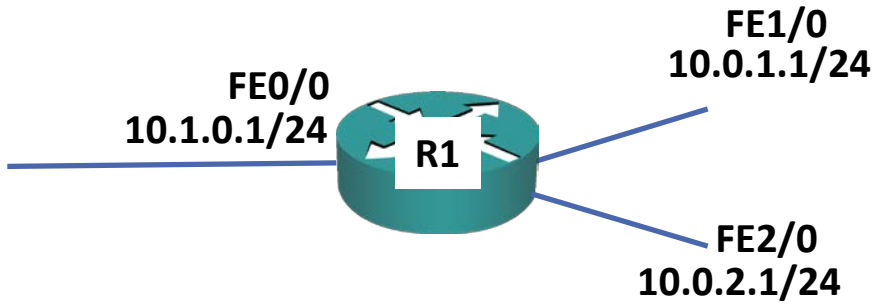


EIGRP Configuration Example - network

- Two different configurations, same result:

```
R1(config-router)# network 10.0.0.0
```

```
R1(config-router)# network 10.1.0.0 0.0.0.255
R1(config-router)# network 10.0.1.0 0.0.0.255
R1(config-router)# network 10.0.2.0 0.0.0.255
```



EIGRP Configuration Example - network

- Two different configurations, same result:

```
R1(config-router)# network 10.0.0.0
```

```
R1(config-router)# network 10.1.0.1 0.0.0.0
R1(config-router)# network 10.0.1.1 0.0.0.0
R1(config-router)# network 10.0.2.1 0.0.0.0
```