# Laboratorio 3: Cálculo de EIGRP

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## Índice

# 1. Router 1

## *1.1. Extracto del commando* `show ip route`

```
Router#show ip route
C    1.0.0.0/8 is directly connected, FastEthernet0/0
D    2.0.0.0/8 [90/3196416] via 200.10.20.5, 00:00:47, Serial0/0/0
D    3.0.0.0/8 [90/2172416] via 200.10.20.5, 00:00:47, Serial0/0/0
D    4.0.0.0/8 [90/2684416] via 200.10.20.5, 00:00:47, Serial0/0/0
     172.168.0.0/30 is subnetted, 1 subnets
D    172.168.10.4 [90/2681856] via 200.10.20.5, 00:00:47, Serial0/0/0
     192.168.10.0/30 is subnetted, 1 subnets
D    192.168.10.4 [90/3193856] via 200.10.20.5, 00:00:47, Serial0/0/0
     200.10.20.0/30 is subnetted, 1 subnets
C    200.10.20.4 is directly connected, Serial0/0/0
```

## *1.2. Resultado del comando* `show ip protocol`

```
Routing Protocol is "eigrp  712 "
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Default networks flagged in outgoing updates
  Default networks accepted from incoming updates
  EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
  EIGRP maximum hopcount 100
  EIGRP maximum metric variance 1
Redistributing: eigrp 712
  Automatic network summarization is not in effect
  Maximum path: 4
  Routing for Networks:
     200.10.20.4/30
     1.0.0.0/30
  Routing Information Sources:
    Gateway         Distance      Last Update
    200.10.20.5     90            6191
  Distance: internal 90 external 170
```

### *1.3. Cálculo de cada tabla*

#### *1.3.1.* `2.0.0.0/8 [90/3196416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(100+20000+20000+20000+100)}{10}\right)=$$
$$256\cdot\left(6476+\frac{60200}{10}\right)=$$
$$256\cdot(6476+6020)=3198976$$

□

#### *1.3.2.* `3.0.0.0/8 [90/2172416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+100)}{10}\right)=$$
$$256\cdot(6476+2010)=2172416$$

□

#### *1.3.3.* `4.0.0.0/8 [90/2684416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000+100)}{10}\right)=$$
$$256\cdot(6476+4010)=2684416$$

□

#### *1.3.4.* `172.168.10.4 [90/2681856]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000)}{10}\right)=$$
$$256\cdot(6476+4000)=2681856$$

□

#### *1.3.5.* `192.168.10.4 [90/3193856]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000+20000)}{10}\right)=$$
$$256\cdot(6476+6000)=3193856$$

□

## 2. Router 2

### *2.1. Extracto del resultado del comando* `show ip route`

```
D    1.0.0.0/8 [90/3196416] via 192.168.10.5, 00:27:30, Serial0/0/0
C    2.0.0.0/8 is directly connected, FastEthernet0/0
D    3.0.0.0/8 [90/2684416] via 192.168.10.5, 00:27:30, Serial0/0/0
D    4.0.0.0/8 [90/2172416] via 192.168.10.5, 00:27:31, Serial0/0/0
     172.168.0.0/30 is subnetted, 1 subnets
D    172.168.10.4 [90/2681856] via 192.168.10.5, 00:27:30, Serial0/0/0
     192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
D    192.168.10.0/24 is a summary, 00:27:31, Null0
C    192.168.10.4/30 is directly connected, Serial0/0/0
     200.10.20.0/30 is subnetted, 1 subnets
D    200.10.20.4 [90/3193856] via 192.168.10.5, 00:27:30, Serial0/0/0
```

### *2.2. Resultado del comando* `show ip protocol`

```
Routing Protocol is "eigrp  712 "
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Default networks flagged in outgoing updates
  Default networks accepted from incoming updates
```

```
  EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
  EIGRP maximum hopcount 100
  EIGRP maximum metric variance 1
Redistributing: eigrp 712
  Automatic network summarization is in effect
  Automatic address summarization:
    192.168.10.0/24 for FastEthernet0/0
      Summarizing with metric 2169856
  Maximum path: 4
  Routing for Networks:
     192.168.10.4/30
     2.0.0.0/24
  Routing Information Sources:
    Gateway         Distance      Last Update
    192.168.10.5    90            8001
  Distance: internal 90 external 170
```

### 2.3. *Cálculo de cada tabla*

#### 2.3.1. `1.0.0.0/8 [90/3196416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(100+20000+20000+20000+100)}{10}\right)=$$

$$256\cdot\left(6476+\frac{60200}{10}\right)=$$

$$256\cdot(6476+6020)=3198976$$

□

#### 2.3.2. `3.0.0.0/8 [90/2684416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000+100)}{10}\right)=$$

$$256\cdot(6476+4010)=2684416$$

□

#### 2.3.3. `4.0.0.0/8 [90/2172416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+100)}{10}\right)=$$

$$256\cdot(6476+2010)=2172416$$

□

#### 2.3.4. `172.168.10.4 [90/2681856]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000)}{10}\right)=$$

$$256\cdot(6476+4000)=2681856$$

□

#### 2.3.5. `200.10.20.4 [90/3193856]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000+20000)}{10}\right)=$$

$$256\cdot(6476+6000)=3193856$$

□

## 3. Router 3

*3.1. Extracto del resultado del commando `show ip route`*

```
Router#show ip route
D    1.0.0.0/8 [90/2172416] via 200.10.20.6, 00:21:17, Serial0/0/1
D    2.0.0.0/8 [90/2684416] via 172.168.10.6, 00:21:13, Serial0/0/0
C    3.0.0.0/8 is directly connected, FastEthernet0/0
D    4.0.0.0/8 [90/2172416] via 172.168.10.6, 00:21:13, Serial0/0/0
     172.168.0.0/30 is subnetted, 1 subnets
C    172.168.10.4 is directly connected, Serial0/0/0
     192.168.10.0/30 is subnetted, 1 subnets
D    192.168.10.4 [90/2681856] via 172.168.10.6, 00:21:13, Serial0/0/0
     200.10.20.0/30 is subnetted, 1 subnets
C    200.10.20.4 is directly connected, Serial0/0/1
```

*3.2. Resultado del comando `show ip protocol`*

```
Routing Protocol is "eigrp  712 "
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Default networks flagged in outgoing updates
  Default networks accepted from incoming updates
  EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
  EIGRP maximum hopcount 100
  EIGRP maximum metric variance 1
Redistributing: eigrp 712
  Automatic network summarization is not in effect
  Maximum path: 4
  Routing for Networks:
     172.168.10.4/30
     200.10.20.4/30
     3.0.0.0/24
  Routing Information Sources:
    Gateway         Distance      Last Update
    200.10.20.6     90            6191
    172.168.10.6    90            9489
  Distance: internal 90 external 170
```

*3.3. Cálculo de cada tabla*

*3.3.1. `1.0.0.0/8 [90/2172416]`*

*Demostración.*

$$256 \cdot \left( \frac{10^7}{1544} + \frac{(20000 + 100)}{10} \right) =$$

$$256 \cdot (6476 + 2010) = 2172416$$

□

*3.3.2. `2.0.0.0/8 [90/2684416]`*

*Demostración.*

$$256 \cdot \left( \frac{10^7}{1544} + \frac{(20000 + 20000 + 100)}{10} \right) =$$

$$256 \cdot (6476 + 4010) = 2684416$$

□

*3.3.3. `4.0.0.0/8 [90/2172416]`*

*Demostración.*

$$256 \cdot \left( \frac{10^7}{1544} + \frac{(20000 + 100)}{10} \right) =$$

$$256 \cdot (6476 + 2010) = 2172416$$

□

*3.3.4. `192.168.10.4 [90/2681856]`*

*Demostración.*

$$256 \cdot \left( \frac{10^7}{1544} + \frac{(20000 + 20000)}{10} \right) =$$

$$256 \cdot (6476 + 4000) = 2681856$$

□

## 4. Router 4

### 4.1. *Extracto del resultado del commando* `show ip route`

```
Router#show ip route
D    1.0.0.0/8 [90/2684416] via 172.168.10.5, 00:03:21, Serial0/0/0
D    2.0.0.0/8 [90/2172416] via 192.168.10.6, 00:03:22, Serial0/0/1
D    3.0.0.0/8 [90/2172416] via 172.168.10.5, 00:03:21, Serial0/0/0
C    4.0.0.0/8 is directly connected, FastEthernet0/0
     172.168.0.0/30 is subnetted, 1 subnets
C    172.168.10.4 is directly connected, Serial0/0/0
     192.168.10.0/30 is subnetted, 1 subnets
C    192.168.10.4 is directly connected, Serial0/0/1
     200.10.20.0/30 is subnetted, 1 subnets
D    200.10.20.4 [90/2681856] via 172.168.10.5, 00:03:21, Serial0/0/0
```

### 4.2. *Resultado del commando* `show ip protocol`

```
Routing Protocol is "eigrp  712 "
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Default networks flagged in outgoing updates
  Default networks accepted from incoming updates
  EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
  EIGRP maximum hopcount 100
  EIGRP maximum metric variance 1
Redistributing: eigrp 712
  Automatic network summarization is not in effect
  Maximum path: 4
  Routing for Networks:
     192.168.10.4/30
     172.168.10.4/30
     4.0.0.0/24
  Routing Information Sources:
    Gateway         Distance      Last Update
    192.168.10.6    90            8001
    172.168.10.5    90            9490
  Distance: internal 90 external 170
```

### 4.3. *Cálculo de cada tabla*

#### 4.3.1. `1.0.0.0/8 [90/2172416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000+100)}{10}\right)=$$

$$256\cdot(6476+4010)=2684416$$

□

#### 4.3.2. `2.0.0.0/8 [90/2172416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+100)}{10}\right)=$$

$$256\cdot(6476+2010)=2172416$$

□

#### 4.3.3. `3.0.0.0/8 [90/2172416]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+100)}{10}\right)=$$

$$256\cdot(6476+2010)=2172416$$

□

#### 4.3.4. `200.10.20.4 [90/2681856]`

*Demostración.*

$$256\cdot\left(\frac{10^7}{1544}+\frac{(20000+20000)}{10}\right)=$$

$$256\cdot(6476+4000)=2681856$$

□