Instituto Tecnológico de Salina Cruz

Fundamentos de Redes

Semestre Enero – Julio 2015

Reporte de Practica

Practica n° 6

Unidad 5

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Fecha: 1 de JUNIO del 2015

Objetivo: Al completar esta práctica de laboratorio, usted podrá:

- Conectar una red de acuerdo con el Diagrama de topología.
- Eliminar la configuración de inicio y recargar un router al estado por defecto.
- Realizar tareas de configuración básicas en un router.
- Configurar y activar interfaces.
- Configurar el enrutamiento EIGRP en todos los routers.
- Verificar que el enrutamiento EIGRP utilice comandos **show.**
- Desactive la sumarización automática.
- Configurar el resumen manual.
- Configurar una ruta estática por defecto.
- Propagar la ruta por defecto a los EIGRP vecinos.
- Documentar la configuración RIP.

Instrucciones:

1.- Crear la topología de la red.
2.- Realizar la tabla de enrutamiento.
3.- Realizar configuraciones iniciales.
4.- Comprobar la conectividad.

Materiales:

Programa de simulacion Packet Tracer

Topología.

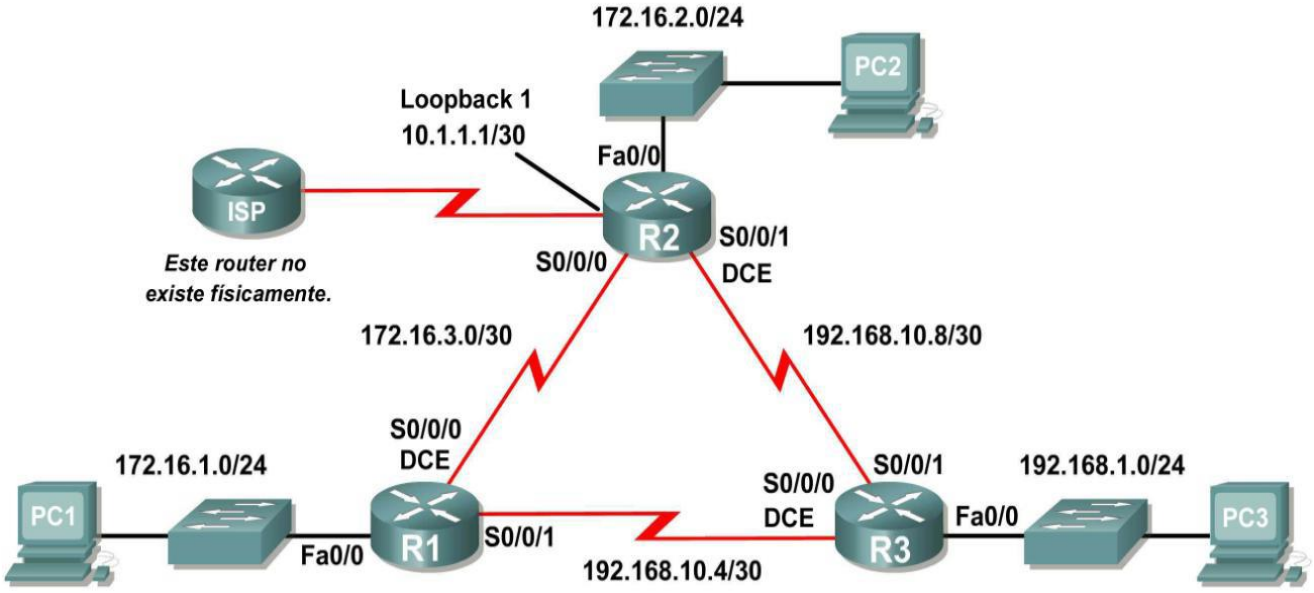


Tabla de enrutamiento

Dispositivo	Interfaz	Dirección IP	Máscara de subred	Gateway por defecto
R1	Fa0/0	172.16.1.1	255.255.255.0	No aplicable
	S0/0/0	172.16.3.1	255.255.255.252	No aplicable
	S0/0/1	192.168.10.5	255.255.255.252	No aplicable
R2	Fa0/0	172.16.2.1	255.255.255.0	No aplicable
	S0/0/0	172.16.3.2	255.255.255.252	No aplicable
	S0/0/1	192.168.10.9	255.255.255.252	No aplicable
	Lo1	10.1.1.1	255.255.255.252	No aplicable
R3	Fa0/0	192.168.1.1	255.255.255.0	No aplicable
	S0/0/0	192.168.10.6	255.255.255.252	No aplicable
	S0/0/1	192.168.10.10	255.255.255.252	No aplicable
PC1	NIC	172.16.1.10	255.255.255.0	172.16.1.1
PC2	NIC	172.16.2.10	255.255.255.0	172.16.2.1
PC3	NIC	192.168.1.10	255.255.255.0	192.168.1.1

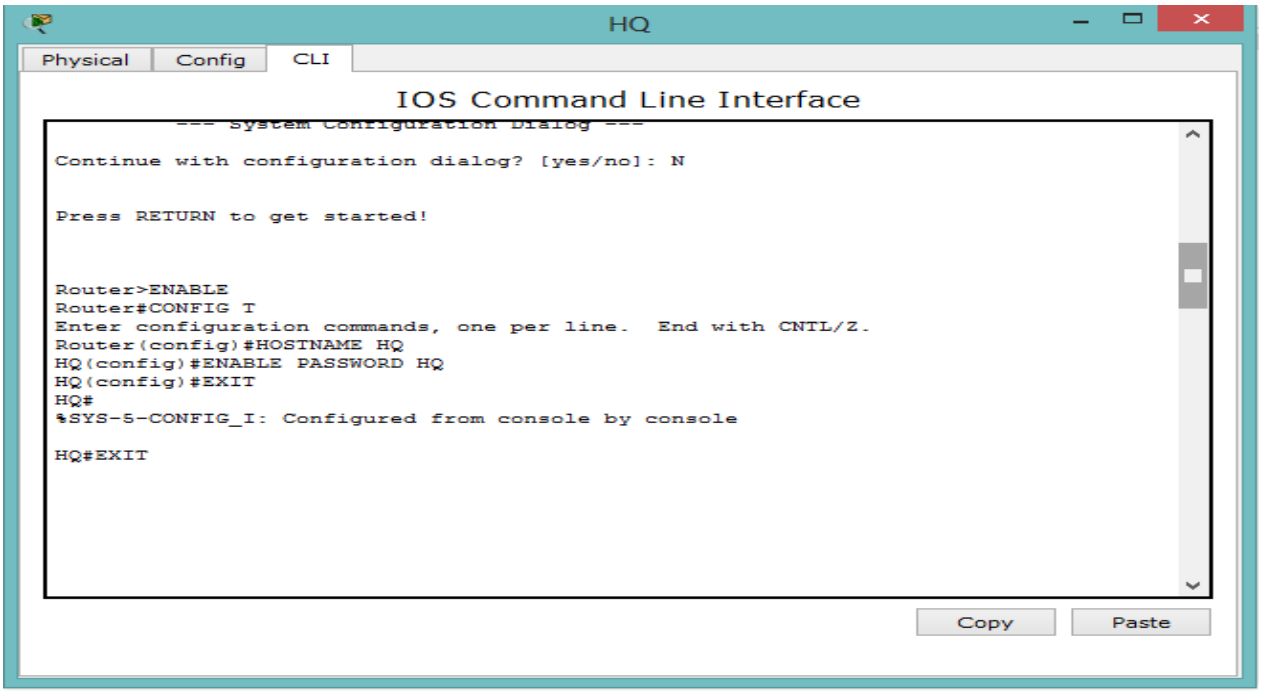
Tarea 1: Preparación de la red.

Paso 1: Conecte una red que sea similar a la del Diagrama de topología.

Tarea 2: Realizar de las configuraciones básicas del router. Realice las configuraciones básicas de los routers R1, R2 y R3 de acuerdo con las siguientes pautas generales:

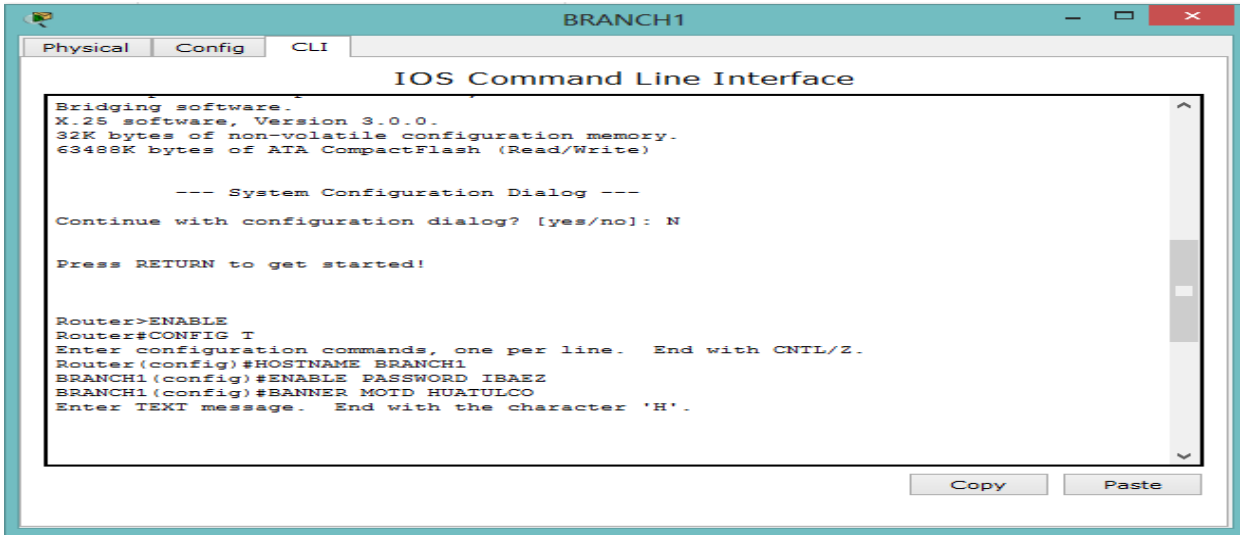
Configuración de un nombre y password del router 1.

Asignación de un banner.



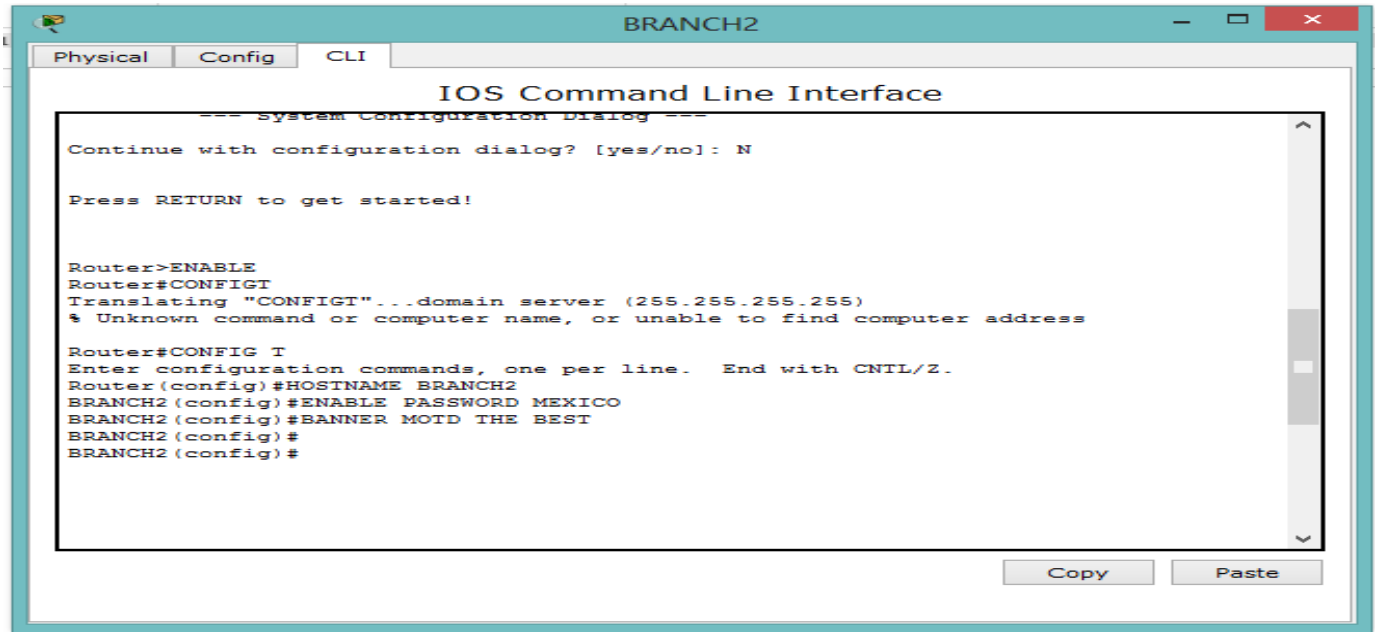
Configuración de un nombre y password del router 2.

Asignación de un banner.



Configuración de un nombre y password del router 3.

Asignación de un banner.

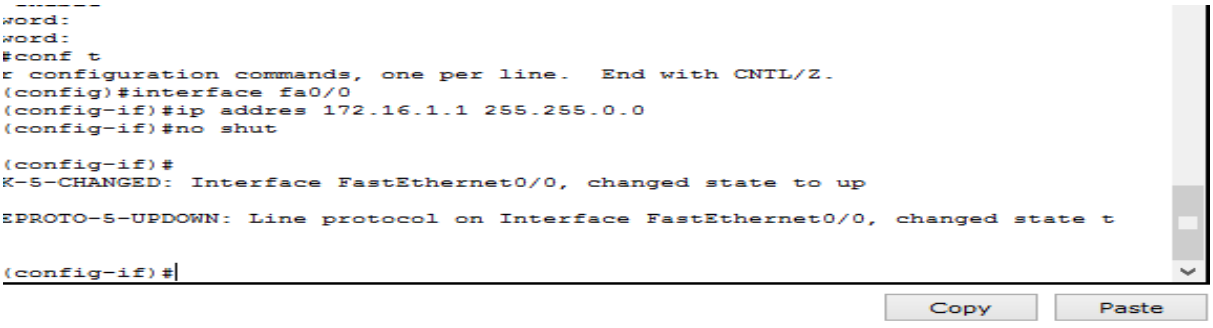


Tarea 3: Configuración y activación de las direcciones serial y Ethernet.

Paso1: Configure las interfaces de los routers R1, R2 y R3 con las direcciones IP de la tabla que se encuentra debajo del Diagrama de topología.

HQ **(R1).**

Puerto fa0/0



Serial 2/0

```
 configuration commands, one per line.  End with CNTL/Z.
config)#interface fa0/0
config-if)#ip addres 172.16.1.1 255.255.0.0
config-if)#no shut

config-if)#
-5-CHANGED: Interface FastEthernet0/0, changed state to up

PROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t


config-if)#exit
config)#interface s2
                  ^
alid input detected at '^' marker.

config)#interface s2/0
config-if)#ip address 172.16.3.1 255.255.0.0
.16.0.0 overlaps with FastEthernet0/0
config-if)#ip address 172.16.3.1 255.255.255.0
.16.3.0 overlaps with FastEthernet0/0
config-if)#ip address 172.168.3.1 255.255.0.0
config-if)#no shut

-5-CHANGED: Interface Serial2/0, changed state to down
config-if)#
```

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Serial 3/0.

```
config-if)#exiy
           ^
alid input detected at '^' marker.

config-if)#exit
config)#interface s2/0
config-if)#ip address 172.168.3.1 255.255.0.0
config-if)#no shut

config-if)#
-5-CHANGED: Interface Serial2/0, changed state to up

config-if)#exit
config)#interface s3/0
config-if)#ip addre
PROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
config-if)#interface s3/0
config-if)#ip address 192.16.10.5 255.255.255.0
config-if)#no shut

config-if)#
-5-CHANGED: Interface Serial3/0, changed state to up

config-if)#
```

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BRANCH 1 (R2).

Puerto fa0/0

```
>enable


#conf t
figuration commands, one per line.  End with CNTL/Z.
(config)#interface fa0/0
(config-if)#ip address 172.16.2.1 255.255.0.0
(config-if)#no shut

(config-if)#
HANGED: Interface FastEthernet0/0, changed state to up

O-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t


(config-if)#
```

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Serial 2/0

```
>enable


#conf t
figuration commands, one per line.  End with CNTL/Z.
(config)#interface fa0/0
(config-if)#ip address 172.16.2.1 255.255.0.0
(config-if)#no shut

(config-if)#
HANGED: Interface FastEthernet0/0, changed state to up

O-S-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t


(config-if)#exit
(config)#interface s2/0
(config-if)#ip address 172.168.3.2 255.255.0.0
(config-if)#no shut

(config-if)#
HANGED: Interface Serial2/0, changed state to up

(config-if)#
```

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Serial 3/0

```
(config-if)#
HANGED: Interface FastEthernet0/0, changed state to up

)-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t


(config-if)#exit
(config)#interface s2/0
(config-if)#ip address 172.168.3.2 255.255.0.0
(config-if)#no shut

(config-if)#
HANGED: Interface Serial2/0, changed state to up

(config-if)#
)-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

(config-if)#exit
(config)#interface s3/0
(config-if)#ip address 192.168.10.9 255.255.255.0
(config-if)#no shut

HANGED: Interface Serial3/0, changed state to down
(config-if)#
```

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BRANCH 2(R3).

Puerto fa0/0

```
>enable
ord:
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#interface fa0/0
(config-if)#ip address 192.168.1.1 255.255.255.0
(config-if)#no shut

(config-if)#
-5-CHANGED: Interface FastEthernet0/0, changed state to up

PROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t


(config-if)#
```

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Serial 2/0

```
>enable
ord:
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#interface fa0/0
(config-if)#ip address 192.168.1.1 255.255.255.0
(config-if)#no shut

(config-if)#
-5-CHANGED: Interface FastEthernet0/0, changed state to up

PROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t


(config-if)#exit
(config)#interface s2/0
(config-if)#ip address 192.168.10.6 255.255.255.0
(config-if)#no shut

(config-if)#
-5-CHANGED: Interface Serial2/0, changed state to up

(config-if)#
```

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Serial 3/0.

```
(config-if)#exit
(config)#interface s2/0
(config-if)#ip address 192.168.10.6 255.255.255.0
(config-if)#no shut

(config-if)#
-5-CHANGED: Interface Serial2/0, changed state to up

(config-if)#
PROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

(config-if)#exit
(config)#interface s3/0
(config-if)#ip address 192.168.10.10 255.255.255.0
.168.10.0 overlaps with Serial2/0
(config-if)#ip address 192.168.10.10 255.255.255.0
.168.10.0 overlaps with Serial2/0
(config-if)#ip address 192.16.10.10 255.255.255.0
(config-if)#no shut

(config-if)#
-5-CHANGED: Interface Serial3/0, changed state to up

(config-if)#
```

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Paso 2: Verificar el direccionamiento IP y las interfaces.

R1.

```
>enable
word:
word:
word:
#conf t
r configuration commands, one per line.  End with CNTL/Z.
(config)#exit
#
-5-CONFIG_I: Configured from console by console

#show ip interface brief
rface                IP-Address      OK? Method Status                Protocol

Ethernet0/0          172.16.1.1      YES manual up                    up

Ethernet1/0          unassigned      YES unset  administratively down down

al2/0                172.168.3.1     YES manual up                    up

al3/0                192.16.10.5     YES manual up                    up

Ethernet4/0          unassigned      YES unset  administratively down down

Ethernet5/0          unassigned      YES unset  administratively down down
#
```

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R2.

```
>enable

#show ip interface brief
               IP-Address      OK? Method Status                Protocol

net0/0         172.16.2.1      YES manual up                    up

net1/0         unassigned      YES unset  administratively down down

               172.168.3.2     YES manual up                    up

               192.168.10.9    YES manual up                    up

net4/0         unassigned      YES unset  administratively down down

net5/0         unassigned      YES unset  administratively down down
#
```

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R3.

```
>enable
ord:
#show ip interface brief
face                IP-Address      OK? Method Status                Protocol

thernet0/0          192.168.1.1     YES manual up                    up

thernet1/0          unassigned      YES unset  administratively down down

l2/0                192.168.10.6    YES manual up                    up

l3/0                192.16.10.10    YES manual up                    up

thernet4/0          unassigned      YES unset  administratively down down

thernet5/0          unassigned      YES unset  administratively down down
#
```

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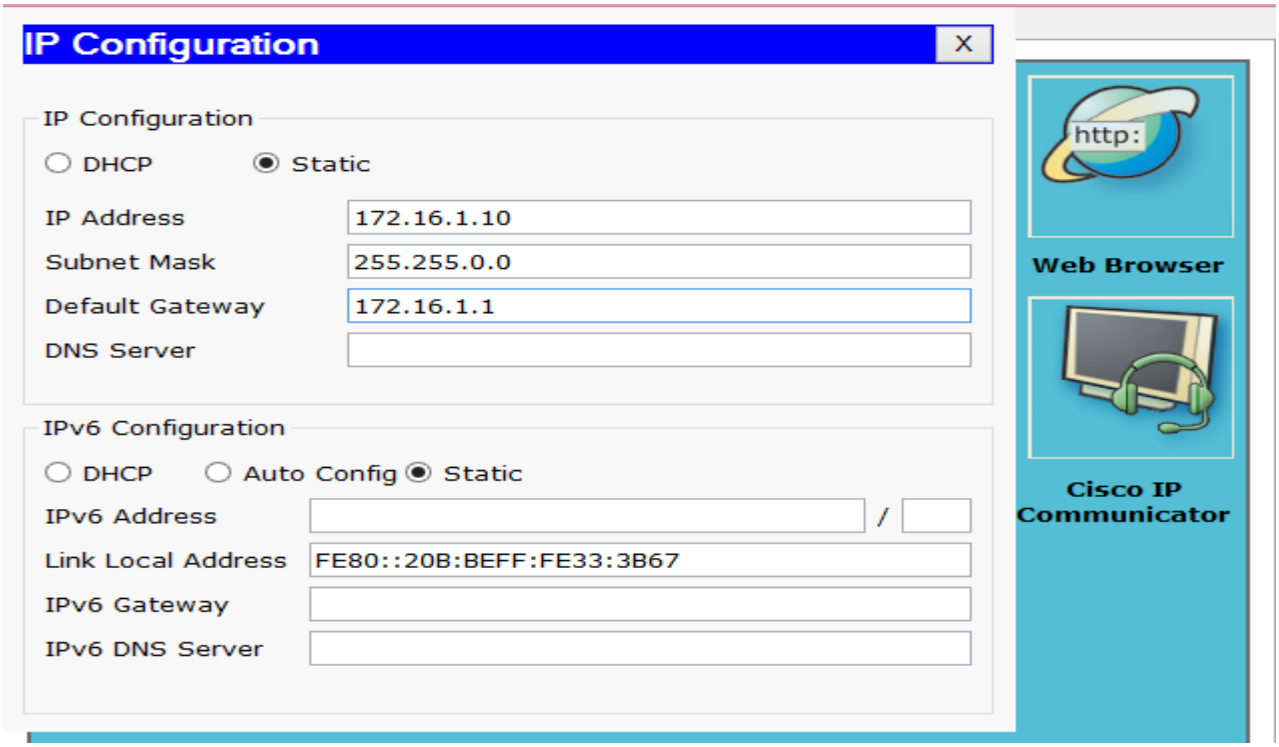
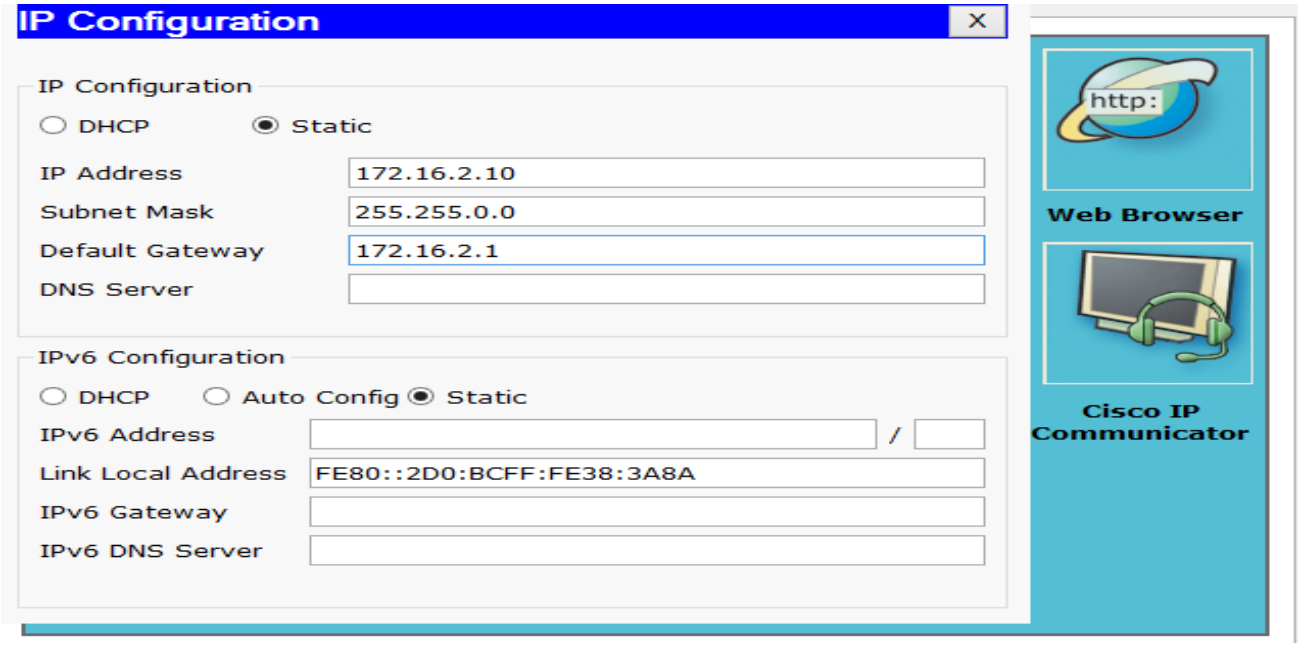
Paso 3: Configurar las interfaces Ethernet de las PC1, PC2 y PC3.

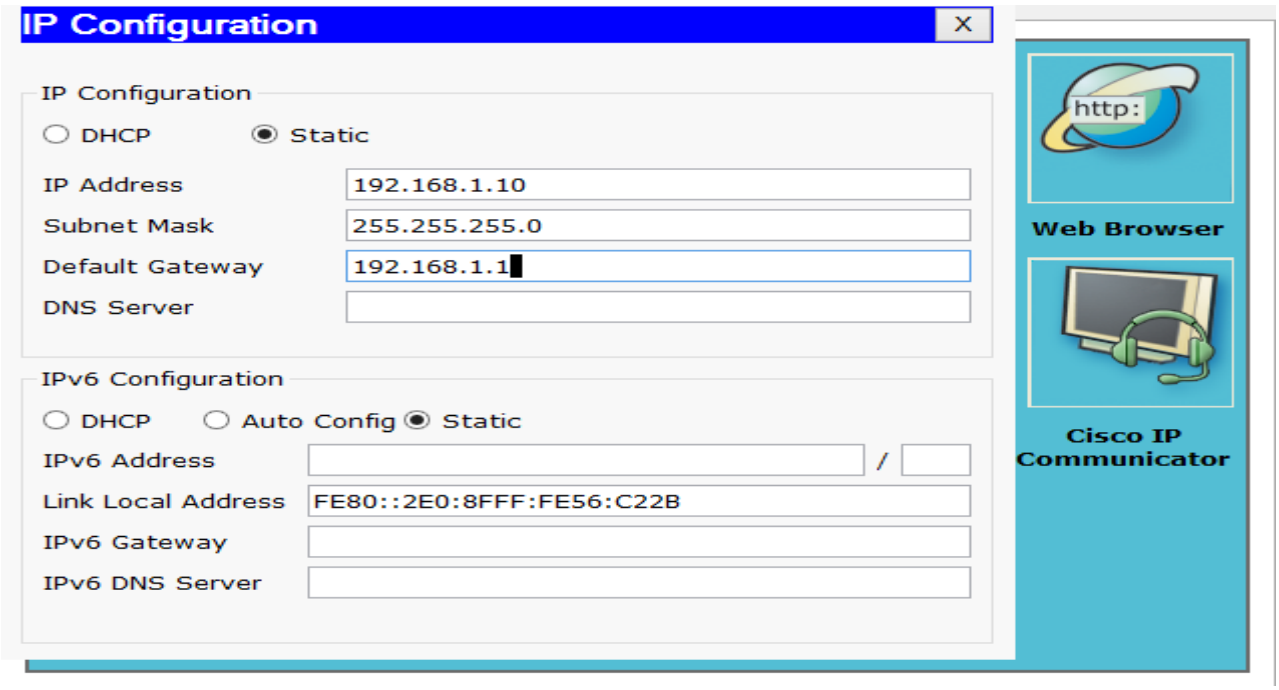
PC1.



PC2.


IP Configuration
IP Configuration
DHCP
Static
IP Address
172.16.2.10
Subnet Mask
255.255.0.0
Default Gateway
172.16.2.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::2D0:BCFF:FE38:3A8A
IPv6 Gateway
IPv6 DNS Server
http:
Web Browser
Cisco IP Communicator

PC3.


IP Configuration
IP Configuration
DHCP
Static
IP Address
192.168.1.10
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::2E0:8FFF:FE56:C22B
IPv6 Gateway
IPv6 DNS Server
http:
Web Browser
Cisco IP Communicator

Tarea 4: Configurar EIGRP en el router R1.

```
>enable
word:
#conf t
r configuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#autonomus system
                ^
valid input detected at '^' marker.

(config-router)# network 172.16.0.0
(config-router)# network 172.168.0.0
(config-router)# network 192.168.10.4 0.0.0.255
(config-router)#end
#
-5-CONFIG_I: Configured from console by console

#
```

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Habilite el enrutamiento EIGRP en el router R2 con el comando router eigrp.

```
>enable

#conf t
figuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#network 172.16.0.0
(config-router)#network 192.168.10.8 0.0.0.255
(config-router)#end
#
NFIG_I: Configured from console by console

#
```

Copy Paste

Habilite el enrutamiento EIGRP en el router R3 con el comando router eigrp.

```
>enable
ord:
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#network 192.168.1.0
(config-router)#network 192.168.10.4 0.0.0.255
(config-router)#network 192.168.10.8 0.0.0.255
(config-router)#end
#
5-CONFIG_I: Configured from console by console

#
```

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Verificar las operaciones de EIGRP.

En el router R1 utilice el comando show ip eigrp neighbors para ver la tabla de vecinos y verificar que EIGRP haya establecido una adyacencia con los routers R2 y R3.

¿Cuál es la dirección IP del router EIGRP vecino?

172.16.3.1

¿Qué interfaz del router R2 es el vecino adyacente?

Serial2/0

```
>enable
word:
#show ip eigrp neighbors
IGRP neighbors for process 1

#
#show ip protocols

ing Protocol is "eigrp  1 "
tgoing update filter list for all interfaces is not set
coming update filter list for all interfaces is not set
fault networks flagged in outgoing updates
fault networks accepted from incoming updates
GRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
GRP maximum hopcount 100
GRP maximum metric variance 1
stributing: eigrp 1
tomatic network summarization is in effect
tomatic address summarization:
ximum path: 4
uting for Networks:
 172.16.0.0
 172.168.0.0
 192.168.10.0
uting Information Sources:
Gateway         Distance      Last Update
stance: internal 90 external 170

#
```

Visualice la tabla de enrutamiento en el router R1.

```
#show ip route
s: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
   D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
   N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
   E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
   i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
   * - candidate default, U - per-user static route, o - ODR
   P - periodic downloaded static route

way of last resort is not set

 172.16.0.0/16 is directly connected, FastEthernet0/0
 172.168.0.0/16 is directly connected, Serial2/0
 192.16.10.0/24 is directly connected, Serial3/0
#
```

Visualice la tabla de enrutamiento en el router R3.

```
>enable
ord:
#show ip route
: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
  D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
  N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
  E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
  i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
  * - candidate default, U - per-user static route, o - ODR
  P - periodic downloaded static route

ay of last resort is not set

192.16.10.0/24 is directly connected, Serial3/0
192.168.1.0/24 is directly connected, FastEthernet0/0
192.168.10.0/24 is directly connected, Serial2/0
#
```

Visualice la información métrica de EIGRP.

```
>enable
word:
#show interface serial2/0
al2/0 is up, line protocol is up (connected)
rdware is HD64570
ternet address is 172.168.3.1/16
U 1500 bytes, BW 128 Kbit, DLY 20000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
capsulation HDLC, loopback not set, keepalive set (10 sec)
st input never, output never, output hang never
st clearing of "show interface" counters never
put queue: 0/75/0 (size/max/drops); Total output drops: 0
eueing strategy: weighted fair
tput queue: 0/1000/64/0 (size/max total/threshold/drops)
  Conversations  0/0/256 (active/max active/max total)
  Reserved Conversations 0/0 (allocated/max allocated)
  Available Bandwidth 96 kilobits/sec
minute input rate 0 bits/sec, 0 packets/sec
minute output rate 104 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  343 packets output, 20580 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
  DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
#
```

Modifique el ancho de banda de las interfaces seriales.

R1.

```
>enable
word:
#conf t
r configuration commands, one per line.  End with CNTL/Z.
(config)#interface serial2/0
(config-if)#bandwidth
complete command.
(config-if)#bandwidth 64
(config-if)#
```

R2.

```
>enable

#conf t
figuration commands, one per line.  End with CNTL/Z.
(config)#interface s2/0
(config-if)#bandwidth 64
(config-if)#exit
(config)#interface s3/0
(config-if)#bandwidth 1024
(config-if)#
```

R3.

```
>enable
ord:
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#interface s2/0
(config-if)#exit
(config)#interface s3/0
(config-if)#bandwidth 1024
(config-if)#
```

Verifique las modificaciones del ancho de banda.

```
>enable
word:
#show interface serial2/0
al2/0 is up, line protocol is up (connected)
rdware is HD64570
ternet address is 172.168.3.1/16
U 1500 bytes, BW 64 Kbit, DLY 20000 usec,
 reliability 255/255, txload 1/255, rxload 1/255
capsulation HDLC, loopback not set, keepalive set (10 sec)
st input never, output never, output hang never
st clearing of "show interface" counters never
put queue: 0/75/0 (size/max/drops); Total output drops: 0
eueing strategy: weighted fair
tput queue: 0/1000/64/0 (size/max total/threshold/drops)
 Conversations  0/0/256 (active/max active/max total)
 Reserved Conversations 0/0 (allocated/max allocated)
 Available Bandwidth 48 kilobits/sec
minute input rate 0 bits/sec, 0 packets/sec
minute output rate 102 bits/sec, 0 packets/sec
 0 packets input, 0 bytes, 0 no buffer
 Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 503 packets output, 30180 bytes, 0 underruns
 0 output errors, 0 collisions, 1 interface resets
 0 output buffer failures, 0 output buffers swapped out
 0 carrier transitions
 DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
#
```

```
>enable

#show interface serial2/0
 is up, line protocol is up (connected)
e is HD64570
t address is 172.168.3.2/16
0 bytes, BW 64 Kbit, DLY 20000 usec,
ability 255/255, txload 1/255, rxload 1/255
lation HDLC, loopback not set, keepalive set (10 sec)
put never, output never, output hang never
earing of "show interface" counters never
ueue: 0/75/0 (size/max/drops); Total output drops: 0
g strategy: weighted fair
queue: 0/1000/64/0 (size/max total/threshold/drops)
ersations  0/0/256 (active/max active/max total)
rved Conversations 0/0 (allocated/max allocated)
lable Bandwidth 48 kilobits/sec
e input rate 104 bits/sec, 0 packets/sec
e output rate 0 bits/sec, 0 packets/sec
packets input, 31620 bytes, 0 no buffer
ived 0 broadcasts, 0 runts, 0 giants, 0 throttles
put errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
ckets output, 0 bytes, 0 underruns
tput errors, 0 collisions, 1 interface resets
tput buffer failures, 0 output buffers swapped out
rrier transitions
up  DSR=up  DTR=up  RTS=up  CTS=up
#
```

```
>enable
ord:
#show interface serial3/0
13/0 is up, line protocol is up (connected)
dware is HD64570
ernet address is 192.16.10.10/24
 1500 bytes, BW 1024 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
apsulation HDLC, loopback not set, keepalive set (10 sec)
t input never, output never, output hang never
t clearing of "show interface" counters never
ut queue: 0/75/0 (size/max/drops); Total output drops: 0
ueing strategy: weighted fair
put queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations  0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 768 kilobits/sec
inute input rate 104 bits/sec, 0 packets/sec
inute output rate 0 bits/sec, 0 packets/sec
446 packets input, 26760 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
#
```

Examine los sucesores y las distancias factibles en la tabla de enrutamiento de R2.

```
      10.0.0.0/30 is subnetted, 1 subnets
C        10.1.1.0 is directly connected, Loopback1
      172.16.0.0/16 is variably subnetted, 4 subnets, 3 masks
D        172.16.0.0/16 is a summary, 00:00:52, Null0
D        172.16.1.0/24 [90/40514560] via 172.16.3.1, 00:00:52, Serial0/0/0
C        172.16.2.0/24 is directly connected, FastEthernet0/0
C        172.16.3.0/30 is directly connected, Serial0/0/0
D     192.168.1.0/24 [90/3014400] via 192.168.10.10, 00:00:11, Serial0/0/1
      192.168.10.0/24 is variably subnetted, 3 subnets, 2 masks
D        192.168.10.0/24 is a summary, 00:00:11, Null0
D        192.168.10.4/30 [90/3523840] via 192.168.10.10, 00:00:11,
```

Pasó 2: Conteste las siguientes preguntas:

¿Cuál es la mejor ruta hacia PC1?

De R2 –R1-PC1 Dirección de siguiente salto 172.16.3.1

¿Cuál es la dirección IP y el nombre del router sucesor en esta ruta?

172.16.3.1 R1 (Xavi).

¿Cuál es la distancia factible hacia la red en la que se encuentra PC1?

40514560

Examine la tabla de enrutamiento en R1.

```
      172.16.0.0/16 is variably subnetted, 4 subnets, 3 masks
D        172.16.0.0/16 is a summary, 00:42:59, Null0
C        172.16.1.0/24 is directly connected, FastEthernet0/0
D        172.16.2.0/24 [90/40514560] via 172.16.3.2, 00:43:00, Serial0/0/0
C        172.16.3.0/30 is directly connected, Serial0/0/0
D     192.168.1.0/24 [90/2172416] via 192.168.10.6, 00:42:26, Serial0/0/1
      192.168.10.0/24 is variably subnetted, 3 subnets, 2 masks
D        192.168.10.0/24 is a summary, 00:42:20, Null0
C        192.168.10.4/30 is directly connected, Serial0/0/1
D        192.168.10.8/30 [90/3523840] via 192.168.10.6, 00:42:20,
Serial0/0/1
R1#
```

¿Cuál es la distancia notificada hacia la red 192.168.1.0?

2172416

Utilice el comando ip eigrp topology para visualizar la tabla de topología EIGRP en R2.

```
#show ip eigrp topology
-EIGRP Topology Table for AS 1

des: P - Passive, a - Active, U - Update, Q - Query, R - I
     r - Reply status

172.16.2.0/24, 1 successors, FD is 28160
        via Connected, FastEthernet0/0
172.16.3.0/30, 1 successors, FD is 40512000
        via Connected, Serial0/0/0
192.168.10.8/30, 1 successors, FD is 3011840
        via Connected, Serial0/0/1
172.16.0.0/16, 1 successors, FD is 28160
        via Summary (28160/0), Null0
192.168.10.0/24, 1 successors, FD is 3011840
        via Summary (3011840/0), Null0
172.16.1.0/24, 1 successors, FD is 40514560
        via 172.16.3.1 (40514560/28160), Serial0/0/0
192.168.1.0/24, 1 successors, FD is 3014400
        via 192.168.10.10 (3014400/28160), Serial0/0/1
        via 172.16.3.1 (41026560/2172416), Serial0/0/0
192.168.10.4/30, 1 successors, FD is 3523840
        via 192.168.10.10 (3523840/2169856), Serial0/0/1
#
```

Visualice la información detallada de la topología EIRGP.

```
#show ip eigrp topology 192.168.1.0
-EIGRP (AS 1): Topology entry for 192.168.1.0/24
State is Passive, Query origin flag is 1, 1 Successor(s), FD is 3014400
Routing Descriptor Blocks:
192.168.10.10 (Serial0/0/1), from 192.168.10.10, Send flag is 0x0
    Composite metric is (3014400/28160), Route is Internal
    Vector metric:
      Minimum bandwidth is 1024 Kbit
      Total delay is 20100 microseconds
      Reliability is 255/255
      Load is 1/255
      Minimum MTU is 1500
      Hop count is 1
172.16.3.1 (Serial0/0/0), from 172.16.3.1, Send flag is 0x0
    Composite metric is (41026560/2172416), Route is Internal
    Vector metric:
      Minimum bandwidth is 64 Kbit
      Total delay is 40100 microseconds
      Reliability is 255/255
      Load is 1/255
      Minimum MTU is 1500
      Hop count is 2
#
```

¿Cuál es la distancia factible hacia la red 192.168.1.0?

3014400

¿R2 consideraría a R1 como un sucesor factible hacia la red 192.168.1.0?

NO

¿Cuántos sucesores hay para esta red?

1

¿Cuál es la distancia factible hacia esta red?

3014400

¿Cuál es la dirección IP del sucesor factible?

192.168.10.10

¿Cuál es la distancia notificada para 192.168.1.0 desde el sucesor factible?

28160

¿Cuál sería la distancia factible hacia 192.168.1.0 si R1 fuera el sucesor?

41026560

Examine la tabla de topología EIGRP en R3.

```
#show ip eigrp topology
-EIGRP Topology Table for AS 1

des: P - Passive, a - Active, U - Update, Q - Query, R - Reply,
     r - Reply status

192.168.1.0/24, 1 successors, FD is 28160
        via Connected, FastEthernet0/0
192.168.10.4/30, 1 successors, FD is 2169856
        via Connected, Serial0/0/0
192.168.10.0/24, 1 successors, FD is 2169856
        via Summary (2169856/0), Null0
172.16.0.0/16, 1 successors, FD is 2172416
        via 192.168.10.5 (2172416/28160), Serial0/0/0
        via 192.168.10.9 (3014400/28160), Serial0/0/1
192.168.10.8/30, 1 successors, FD is 3011840
        via Connected, Serial0/0/1
```

¿Por qué el router R1 (192.168.10.5) es el único sucesor para la ruta hacia la red 172.16.0.0/16?

Por qué el enlace de R1 y R3 tiene un ancho de banda mayor y por lo tanto una métrica menor.

Desactive el resumen automático en los tres routers con el comando no auto - summary.

```
>enable
word:
#conf t
r configuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#no auto-summary
(config-router)#end
#
-5-CONFIG_I: Configured from console by console
```

```
>enable

#conf t
figuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#no auto-summary
(config-router)#end
#
NFIG_I: Configured from console by console
```

```
>enable
ord:
ord:
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#no auto-summary
(config-router)#end
#
5-CONFIG_I: Configured from console by console
```

Agregue dos direcciones loopback, 192.168.2.1/24 y 192.168.3.1/24, al router R3.

```
>enable
ord:
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#interface loopback1

(config-if)#
-5-CHANGED: Interface Loopback1, changed state to up

PROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to up

(config-if)#ip address 192.168.2.1 255.255.255.0
(config-if)#interface loopback2

(config-if)#
-5-CHANGED: Interface Loopback2, changed state to up

PROTO-5-UPDOWN: Line protocol on Interface Loopback2, changed state to up

(config-if)#ip address 192.168.3.1 255.255.255.0
(config-if)#end
```

Agregue las redes 192.168.2.0 y 192.168.3.0 a la configuración EIGRP en R3.

```
#conf t
 configuration commands, one per line.  End with CNTL/Z.
(config)#router eigrp 1
(config-router)#network 192.168.2.0
(config-router)#network 192.168.3.0
(config-router)#end
#
5-CONFIG_I: Configured from console by console

#
```

Verifique las rutas nuevas.

```
  172.16.0.0/16 is variably subnetted, 4 subnets, 3 masks
     172.16.1.0/24 is directly connected, FastEthernet0/0
     172.16.2.0/24 [90/3526400] via 192.168.10.6, 00:15:07, Serial0/0/1
     172.16.3.0/30 is directly connected, Serial0/0/0
  192.168.1.0/24 [90/2172416] via 192.168.10.6, 00:15:07, Serial0/0/1
  192.168.2.0/24 [90/2297856] via 192.168.10.6, 00:01:07, Serial0/0/1
  192.168.3.0/24 [90/2297856] via 192.168.10.6, 00:00:57, Serial0/0/1
  192.168.10.0/24 is variably subnetted, 3 subnets, 2 masks
     192.168.10.4/30 is directly connected, Serial0/0/1
     192.168.10.8/30 [90/3523840] via 192.168.10.6, 00:15:07, Serial0/0/1
```

Configure una ruta estática por defecto en el router R2.